Part II.

The Organic Market

Chapter 6.

Issues for Consumers of Organic Products

WHAT ARE THE KEY ISSUES FOR CONSUMERS?

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Abstract

"Organic" is a complex term that to some producers and consumers implies fundamentally different values from those of mainstream society and conventional agriculture, whereas for others it has to do mainly with not using certain unacceptable materials, especially synthetic fertilisers, pesticides and additives. Therefore, organic foods are attractive to consumers in various ways, some related to the products themselves, some related to how they were produced, especially their presumed lower environmental impact, more humane treatment of livestock, and the shorter distance and more direct connection between producer and consumer. This means that although organic production standards are becoming more uniform both nationally and globally, as the organic market expands we can expect this expansion take different forms, not just in the kinds of products offered, but also in how they are distributed and sold.

Consumer issues in organic farming are both interesting and confusing, for several reasons. First, organic farming has a history going back some six decades, during which time we have seen drastic changes in the relationship of organic consumers to organic food producers and the food marketing system; especially notable is the emergence of several other much more recent "ecolabels" that may have been inspired in part by organics, and in any case compete with organic products for consumers' attention. Second, "organic" is a very complex concept, one that most consumers (and possibly some farmers, and almost certainly some bureaucrats who are responsible for regulating it) do not fully understand. Third, organic farming is intended to offer benefits not only for consumers, but also for farm workers, livestock, the environment, and the farmer; thus its appeal can be to the consumer as a citizen, not simply as a consumer. Finally, despite the fact that consumers might be more concerned with what a food does for them or to them, "organic" is primarily a "process" claim concerned with how the product was made, not a "product" claim that says anything about healthfulness or nutritional value, for example.

In the early days of organic farming — which I will take to be the 1940s, although one could also start the story in the 1920s with the emergence of Biodynamics — organic products occupied a very small, specialised niche. There was no control over the word "organic," and while consumers and farmers had a general idea of what the concept meant, there were no detailed standards covering what organic farmers had to do, should do, or must not do. The small volume of organic products was sold mainly through specialised health food and natural foods stores. The credibility of the term "organic"

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depended on consumers trusting the stores where they bought organic foods, and in turn on the stores trusting the farmers who produced those foods.

All that has changed now. Well-defined standards for organic production, which came on the scene in the 1960s, have been under continuous development ever since. With the emergence of standards came third-party certifying agents (both private and public), whose seal assured the consumer that the products could legitimately be labelled as "organic". A notable subsequent development was the globalisation of the organic market, which in turn required certification of products that might be consumed half-way around the world from where they were produced. This meant that some order had to be made out of the different standards and certification procedures; clearly, consumers' person-to-person trust of organic farmers, or even their trust in a local certifying body, no longer was enough to ensure organic integrity. There is a great irony here, in that the founders of organic farming emphasised close ties between producers and consumers. But as their ideas caught on worldwide, the subsequent growth of the organic sector made it attractive to traders dealing on a global scale, a concept that could be seen as the very antithesis of the organic idea.

With the growth of the organic sector came a host of related label claims, such as "low-spray," "integrated pest management," or "grown without chemicals." How consumers respond to these labels, and to what extent they accept them as equivalent to organic, in turn depends on how well consumers understand what "organic" means, a much more complicated term. To some consumers, "organic" mainly means "no synthetic chemicals". To them, these other labels may be just as good as "organic." In contrast, only more sophisticated consumers will understand that an organic system is defined as much by what must be done — conserving soil, improving soil quality, building up natural pest control processes, promoting biodiversity, and so forth — as by what must not be done, notably not using most synthetic pesticides and fertilisers. There is a real risk that "sort-of-organic" labels might swamp the organic market unless the organic sector does an adequate job in getting consumers to know the differences.

A further complexity is that the most persuasive arguments for organic farming are its benefits at the production end of the system rather than at the consumer's end. When organic farmers use natural pest controls, we know that this benefits the environment substantially by decreasing the use of toxic pesticides that can harm wildlife, contaminate water supplies, or harm farm workers. It also lowers the level of residues in the food, but it is very hard to know how big a benefit this confers on the person eating the food, especially in a country that does a reasonably good job in monitoring pesticide residues in foods and where the observed levels typically are well below what is regarded as a "safe" limit.

Similarly, organic farming attempts to improve the welfare of farm animals — in principle at least, although much more needs to be done in this area. Organic principles call for more humane kinds of housing and handling, and also restrict the allowed feeds and medications that are used in livestock husbandry. Some of these requirements may also benefit the consumer (*e.g.*, less chance of contamination by antibiotics because they may be used only to treat a disease, but not routinely to prevent disease, or a difference in the quantity and kinds of fats in beef raised primarily on pasture rather than on a highly concentrated diet in a feedlot). However, the main beneficiaries here are the animals. Thus, for organic farming to realise its full value in the marketplace, the consumer must understand how organic husbandry works and give it credit for how it treats the animals, not just how it affects the product itself.

This greatly complicates the decision to buy organic foods, because so much more is involved than with most other ecolabels. "Dolphin safe" tuna fish, for example, offers one benefit, one that has entirely to do with the environmental effects of the production process, but in no way claiming

to improve the product itself. On the other hand, the statement "no artificial additives," for example, is entirely a statement about the product itself, not about its environmental impact. Organic foods, in contrast, may be attractive to the consumer as a health-conscious eater, or as a good citizen, or both.

But even if we confine our discussion to the product as such, producers and sellers of organic foods still have an additional problem in capturing the full potential appeal of their products, namely that the term "organic" refers primarily to how the product was made, not to the product that resulted. (This discussion applies mainly to fresh fruits and vegetables, fluid milk, eggs, and other unprocessed or minimally processed foods; standards for processed organic foods include prohibitions on many additives that definitely would affect the product itself, perhaps more significantly than they affect the environment. The same is true for the non-use of hormones in animal production, which has health implications that some consumers definitely care about.)

For example, organic standards prohibit the use of genetically modified organisms (GMOs), and it is entirely permissible to say so. However, the statement must be something like "no GMOs used." It may not be "contains no GMOs", because there is no foolproof way of preventing GMOs to get into organic foods unintentionally, *e.g.*, by pollen drift. While organic products may be tested for the presence of GMOs and rejected if the level is above some agreed-upon threshold, an absolute standard of *zero* GMOs would effectively drive most organic farmers out of business in a country such as the US, where GMOs are widely used by conventional farmers. The same goes for a claim of "no pesticides used," as opposed to "contains no pesticide residues," since environmental contamination makes the latter impossible to achieve, even if, as is required by organic standards, the farmer has made a *bona fide* effort to prevent drift from a neighbour's farm, say.

All these considerations point to the same conclusion: that consumers are faced with a multi-layer set of messages regarding organic foods, and the decision whether to buy them entails considerably more than many other food choices. But this is not necessarily a problem, because organic consumers (or prospective consumers) are not a homogenous group, and different kinds of consumers may be attracted to different aspects of organic foods.

In discussions of such matters one commonly hears about *the* organic consumer — how he/she is older/younger and more/less educated, has a higher/lower income, and has more/fewer children than people who don't buy organic foods. One also hears about *the* reason that this consumer chooses organic foods, most commonly their health and that of their families.

But this is a great oversimplification. Just as the concept of organic farming entails much more than "no synthetic chemicals," so, too, consumers have varied relationships to organic farming. In the research literature, this relationship is operationalised simply by how much organic food the consumer buys, and perhaps also in their "willingness to pay" various hypothetical price premiums for the organic version. But buying an organic product means different things to different people.

For some, organic food is part of a more "natural" lifestyle, and perhaps also a reflection of spiritual and religious values. Stereotypically, this was the organic consumer of the early days, when the popular image of organic farming was not exactly flattering.

For others, organic food offers very tangible benefits, such as lower pesticide levels in the food, or less contamination of soil and water by pesticides and fertilisers. This group would not identify themselves as "organic" people, although they share many specific values with them.

Yet another group — the importance of which may be greatly underestimated in research on the organic market — may not care at all about the fact that they are buying organic foods. Rather,

they do so because the product is more attractive by the same standards as apply to conventional foods. That is, they may choose an organic vegetable because it looks fresher or tastes better than its conventional counterpart, or they may choose the organic version of some processed food because that particular brand is more appealing; that it is organic is of little or no consequence, provided that its price at most is only slightly more than that of its conventionally produced counterpart. With more and more organic products becoming readily available, this group may become an increasingly important share of the organic market.

The commitment of these various groups to the organic idea varies from total to nil. But this variation cannot be measured simply by how much they buy; it also has to do with what is going on in their minds in choosing to buy. Because of this diversity among organic shoppers, the future of the organic sector could take many forms, particularly regarding the way that organic food gets to the table and the kinds of foods that are offered. Both were of concern already in the early days of organic farming, and remain so today.

To those for whom organic foods are part of a lifestyle choice, the kind of store they are sold in is likely to matter. Typically they would prefer buying their organic foods either directly at a farmers' market, or at a modest-size store that was largely devoted to health foods and related natural products. Such a store not only might offer a greater variety of organic products, but also will have more of an organic "feel" that these consumers would favour, in contrast to the conventional supermarket, which in its size and global reach is decidedly not an "organic" marketing channel. In addition, it is plausible to suppose that these consumers feel more confident about the organic integrity of the products offered in an organically oriented store; despite certification and standards, trust no doubt is still a factor, as it certainly was in the early days. In contrast, these consumers may see supermarkets as treating organics as just another product line. The fact that the "local" supermarket may be owned by a corporation based in another continent doesn't exactly enhance its appeal to those who are committed to the organic idea.

In contrast, for the other two groups (especially those who buy organic products when and only when they are attractive by traditional criteria), the marketing channel might not matter at all. Indeed, a supermarket might be more attractive because of convenience: one can buy both organic and conventionally produced foods in the same trip.

The second issue concerns the kinds of organic foods offered. From the earliest days, organic farming proponents stressed the importance of a wholesome diet based on a variety of whole or minimally processed foods. This was at least as important as avoidance of toxic chemicals, and it remains important for those devoted to the organic idea. However, in the past several decades a new version of eating organically has gained ground among other consumers; it could be characterised as "same diet, same products, but from organic raw materials". We are seeing a growing number of organic products that no doubt would have shocked the pioneers, such as organic breakfast cereals with 35% sugar. As long as the grains, sugar and other ingredients all are organic, the cereal may be labelled organic too, without any consideration of the nutritional implications of eating such a product.

This is the counterpart of what at the production end of the organic food system is called (usually derisively) the "input substitution" or "organic lite" version of organic production. That is, one substitutes organically permitted fertilisers and pesticides for their prohibited conventional counterparts, without also doing the things that organic farmers are supposed to do to become less dependent on pesticides and fertilisers of any kind brought in from off the farm, such as controlling pests by rotating their crops and building up soil fertility by applying compost produced from their own herds' manure.

Of the three groups, those in the first no doubt regard highly processed organic foods as a perversion of fundamental organic principles. People in the second group, who in part buy organic foods for health reasons, probably change their diets too, along with buying organic foods, but not as drastically as would the first group. The last group would likely change their diets not at all, or at most very slightly, since they buy specific organic products that they see as better for reasons unrelated to health and nutrition.

What does this mean for the future of organic farming from the consumer's standpoint? Mainly it means that there probably will not be a single future. There are many different kinds of consumers, motivated by various considerations. Their preferences could drive the market, or could be driven by what happens in the rest of the organic sector — what kinds of products are offered, at what price, and so forth. In any case the trend today is for more global trade in organic products, more highly processed organic foods, and more selling of organic products in mainstream supermarkets. No doubt this trend will continue. But for a segment of organic consumers, this trend will not fulfil their notion of what it means for a food to be considered "organic". Perhaps what today is called *the* organic consumer will become more clearly and explicitly differentiated into two parts: a larger group that welcomes the convenience of processed organic foods and their ready availability in conventional stores, and a smaller group that adheres to a more all-inclusive notion of "organic," one that cannot be fulfilled if the organic food sector models itself on the conventional food industry.

Such questions provoke heated debate in organic circles among both producers and consumers, and no doubt will continue to do so. With its continued growth, organic farming is constantly faced with new situations that need to be analyzed with appropriate attention to its fundamental principles and traditions on one hand, and the need to remain dynamic and flexible on the other. Any time it thinks it has *the* answer to the kinds of questions raised here, it's in trouble.

ORGANIC AGRICULTURE: THE CONSUMERS' PERSPECTIVE

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Executive summary

Organic farming was identified as a sustainable method of food production in the context of the World Food Summit, at the United Nations' Food and Agriculture Organization's (FAO) Rome Declaration and Plan of Action in 1996. Governments, in partnership with all actors of civil society and the support of international institutions, were urged by FAO to promote policies and programmes which encourage appropriate farming techniques and sustainable methods for food production. In relation to consumer organisations, the TransAtlantic Consumer Dialogue resolution of February 2000 put forward consumers' recommendations on organic foods (TADC, 2000). The European consumer organisations, the Bureau Européen des Unions de Consommateurs (BEUC) and the Association of European Consumers (AEC), also have positions relating to organic production.

From a consumer standpoint, the overall goal of supporting organic agriculture is to stimulate sustainable production and consumption patterns. Consumers International (CI) expects at least an annual growth of 10% of this sector: however, 20% should be the aim. CI also expects organic agriculture to provide a number of well-defined benefits to consumers.

- ***Environmental benefits:*** among different agricultural systems, organic agriculture is characterised by setting up high standards on sustainability. Organic agriculture should ideally be defined as a self-sufficient agri-environmental production system in equilibrium and is based on local, renewable resources. Thus, organic agriculture includes environmental considerations that go beyond the conventional agricultural production model. Some of these considerations are: ground water protection from pesticides and, to a certain degree, nitrates; optimum animal health and welfare; biodiversity in the farming fields and surrounding areas; and positive influence on rural and social development.

- ***Health-related benefits:*** To many consumers, organic agriculture is regarded as providing added health benefits. The organic products are looked upon as pure and relatively uncontaminated by pesticides. Better animal welfare conditions that ensure healthier animals also appeal to the consumers. Many national organic certification bodies have stricter rules, for example banning nitrites in meat products, due to concerns about health risks. Thus organic foods can be seen as giving consumers added

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benefits compared to imported conventional foods. Organic farmers are expected to use other types of seeds and livestock breeds with better resistance against pests and diseases. To many consumers that means healthier plants and livestock with a strong natural resistance, which further enhances the perception of organic products as healthy food. This, however, needs further documentation. Some consumers also express scepticism about levels of natural pollution, zoonoses and mycotoxins. More research is needed on health aspects of foods, in relation to conventional and organic food production. There is no doubt, however, that organic agriculture is becoming part of a healthier lifestyle where an increasing number of consumers care more about the origins of their food, *i.e.* how and where it has been produced.

- ***Ethical and moral benefits:*** Organic farming builds on an integrated ethos that encompasses the environmental, economic and social aspects in agricultural production. Currently, increasing numbers of consumers are concerned about degradation of standards, food quality, media-exaggerated food scares, amongst other issues. In this context, it would be easier to demand strict rules, high standards, and efficient inspection in organic agriculture. Higher moral and ethical standards are what consumers often expect. Consumers want to ensure that organic farmers do not exploit either the soil or the livestock. In addition, consumers need to know that they are not being exploited when buying the organically produced food. To a certain extent, this moral expectation is a result of the level of knowledge of the organic production method. The distinction between organic and conventional agriculture is a difference in farming practice; and not always a measurable difference in the finished product. Therefore, inspection and labelling are essential prerequisites to obtain and preserve consumers' confidence.

Consumer-driven development?

Development of organic agriculture has hitherto been driven by farmers with certain ideals about how to run a farm. The development of the organic movement has been guided by either ideals or moral values, which can be summed up as a quest for wider sustainability in food production. Development is determined by a diversity of stakeholders, including consumers, retail chains, governments, the European Union, Codex etc. With the introduction of the consumer as the pull factor for further development, ideals or moral values can no longer secure the development of organic agriculture without a possible loss of consumer confidence and a growing risk of fraud. From a consumer's standpoint, initiatives like the upcoming Organic Action Plan of the EU can take this role. Thus opens up the possibility for the European Commission to become a legitimate, independent and trustworthy partner in the ongoing institutionalisation process.

When consumers are entrusted with the responsibility for a continued development of sustainable food production, it is necessary to thoroughly examine the ability of the market to drive such a development. In this respect, there might be problems with a pure market model, where the consumer is expected to carry the full burden of the extra costs of the organic production. As long as the external costs of conventional agriculture are not included in the prices of conventional food and the societal benefits of organic agriculture remain unacknowledged, the competition with conventional agriculture will never be equal. Competition issues and other market factors (such as "loss leader" strategies from certain supermarket chains) are also bound to create problems. CI sees a special threat coming from some chemical or biotechnology company interests, public relation companies and some academics defending agri-business, that have already being campaigning against organic farming.

In order to enable consumers to decide about the future of organic food production, certain basic consumer demands must be met in the market. These are:

- price transparency in the production chain;
- an agricultural subsidy scheme that does not stimulate quantity over quality;
- internalisation of external costs, which at the present non-sustainable status of agricultural practice will highlight the differences between conventional and organic products;
- awareness rising among consumers through information campaigns, education, etc.;
- access to detailed, truthful and attractive market information that will enable consumers to make well-informed choices; and
- better competition rules for the retail sector.

Subsidy schemes

CI sees the need for current subsidy schemes to be revised for a number of reasons. In relation to sustainable farming practices in the OECD region, abolishing perverse subsidies should be a priority. In addition, encouragement should be provided for consumers and producers who are willing to support organic agriculture. At present, neither EU nor US agricultural policy supports this. CI strongly recommends that the EU and the US use their powers and resources to strengthen organic farming and thereby increase sustainability, environmental considerations, social rural development, and facilitate a stronger producer/consumer contact in agriculture.

Production standards

Consumer expectations regarding organic standards need to be addressed through research and careful monitoring, an area where OECD can take a key role. The discussion on standards is at the very core of organic agriculture.

It is important that global regulations do not undermine higher national or local standards. A combined use of different labels is confusing, yet inevitable as long as some labels stand for higher standards. From our point of view, and as outlined in the TransAtlantic Consumer Dialogue resolution on organic farming, the common rules should allow higher standards to be put in place. Control bodies should be accredited by the International Federation of Organic Agriculture Movements (IFOAM). Small or recently established control bodies may also be acceptable if the body undertakes to join IFOAM's Accreditation Program as soon as possible.

From a consumer standpoint, the production standards of organic agriculture and food production should cover the whole chain. This goes beyond current farm-to-table considerations and recognises farming as a long-term activity that must support future generations to come. The overall goal of sustainability should be a main parameter when developing such standards.

Effects on the environment

Consumers have a myriad of concerns and expectations regarding the effects of farming on the environment. Despite many assurances from experts regarding conventional farming, especially

about pesticides and fertilisers, consumers are not satisfied with information regarding long-term effects of modern, intensive farming practices. Consumers cannot always be expected to trust data regarding toxicity and other aspects of risk evaluation associated with conventionally farmed foods. There is a need to discuss and evaluate how toxicity data are collected and presented to all concerned parties and why expert groups such as the Joint FAO/WHO (World Health Organization) Meeting on Pesticide Residues (JMPR) and the EU Scientific Committees, which do not include consumer representatives, set residue level standards.

Regarding long-term systemic effects on the environment, areas such as freshwater safety and soil quality, as well as farm-based biodiversity, need much further study. Organic farming has being developing over the past 40 years and today is the most successful type of sustainable food production. Other sustainable food production methods with different environmental standards are also welcomed by consumers, but are not as well known as organic farming. The positive effects of integrated pest management (IPM) systems, for example, may also be used to reduce pesticide use, but as they do not eliminate the use of toxic substances completely, they may be considered insufficient — and not sustainable — by concerned consumers.

In the CI document *Consumers and the Environment: Meeting Needs, Changing Lifestyles,* a variety of environmental concerns was examined, including the impacts of rural and urban consumers of diminishing freshwater supplies. In recent studies, pollution of water has been found to be reduced on organic farms. Farmers near drinking water sources should be especially targeted by campaigns to assist them to convert to organic farming.

There is a growing understanding of how organic farming contributes to increased farm-based biodiversity, which is seen as a very positive effect. Consumers find it desirable to know that weeds, flowers, insects and birds as well as "wild" animals will thrive in an organically farmed landscape. Maintaining biodiverse habitats has been shown to assist biological control, thus reducing the need for pesticides. Moreover, biodiversity is increasingly seen as a very important factor for the health of all plants and organisms. There is a need to redefine the goals of plant breeding, to recognise that conservation is crucial for our survival and to acknowledge that farming is dependent on access to biological resources found primarily in countries elsewhere, especially in developing countries around the equator.

Effects on the welfare of livestock

Animal health and welfare must be considered in the context of how organic farming has evolved in the past decades. Research studies in Sweden have indicated that dairy cows in organic farming systems have better udder health and that there were fewer bacteria in the milk than in conventional dairy farming. While this result may not directly influence the health of the consumer who drinks a processed organic milk product bought in a supermarket, it provides some level of ethical and moral satisfaction and may actually add to the consumer's psychological well-being. Eggs from hens in organic systems do not look different from conventional eggs, but for the consumer there is an added value, depending on his or her understanding of the way in which the eggs are produced. A number of such examples, also looking at how rules and standards for animal transportation and other PPMs (production and processing methods) are perceived, should be collected and evaluated. CI welcomes other studies and further work to attempt to explain how animal welfare is actually perceived as a valuable benefit to many consumers. For consumers who choose to pay more for organically labelled meat or eggs this is a conscious and responsible consumption strategy. Hence, consumers expect controls and inspections of how organic farming affects animals in order to have continued confidence in organic farming with regard to animal health and welfare.

Optimum animal welfare has repeatedly been shown to decrease the need for antibiotics and other veterinary medicines. Necessary medication should never be withheld from sick animals, and consumers understand that even in the most ideal organic livestock farms, animals can get sick. The rules and standards for organic livestock farming should be explicit in this regard. In the EU there seems to be a very strong awareness about the rising number of cases of antibiotic resistance in both humans and livestock, and CI is glad that antibiotics will not be allowed in conventional animal feed for growth promotion from 2006. This is an example of how the rules and standards of organic farming, that have never allowed such use, are now influencing the legislation regarding the conventional farming system as well.

Studies in the United States have indicated that consumers are concerned about the way in which pork is produced and that they want to purchase organic pork in response to that concern. In an interesting paper by Wheatley (2001), a number of studies are summarised, such as that by Hurley and Kliebenstein (1998), who researched consumer preferences for pork produced in such a way as to minimise the environmental impact and found that many consumers do value environmentally conscious pork production.

Finally, abattoirs for organic animals should be designed for the best possible slaughter methods, with as little stress for the animals as possible.

Animal breeding

Animal breeding for organic food production must be encouraged to take animal health and welfare concerns into account. Of interest is how the body, muscles and organs develop, as well as how the entire lifespan of the organism is affected. Even animals destined for slaughter at an early age should be bred for a lifespan of healthy living. Rules and standards for minimum slaughter age should be set to allow for a balanced growth of the livestock, depending, among other factors, on the particular breed.

The agrogenetic diversity in domestic livestock allows farmers to select stock or develop new characteristics in response to changes in the environment, threats of disease, market conditions and the needs of society. Traits that are not recognised today may also turn out to be very valuable in future. FAO has shown how landrace livestock breeds may possess valuable traits such as disease resistance or good maternal qualities that form the basis of sustainable agriculture. Further work should be encouraged in this area, both in support of organic and conventional breeding strategies. CI cannot accept fraud in the organic sector, just as it is not accepted in any other food production system. Policies in the area of organic food production need to pay attention to this and suggest possible strategies on how to deal rapidly with incidents, for example by assigning responsible officials who can be prepared to communicate with the public and media if necessary. Consumer organisations can act as a watchdog and report products that are labelled or marketed in a fraudulent or misleading way.

Rules regarding transition farming must be clear and unambiguous. From a consumer perspective it is not desirable to have both organic and conventional food production on the same farm. The issue of transition periods is not necessarily a consumer concern, but it could become a concern if the transition is not handled properly. The rules should be easy to understand and ideally the same everywhere, except in heavily polluted areas, where longer transition periods are inevitable.

Need for wider sustainability

Consumers expect organic farming policies to pay special attention to responsible practices that ensure that farming will continue to be possible both on the small family farm and in the larger industrial setting. There is also a need to consider rules and standards for processing and distribution beyond the farm gate *i.e.* packaging materials should be recyclable and made from safe substances.

Life Cycle Assessment (LCA) could be a very useful tool to evaluate the total cost in a production system, and LCA should also be increasingly used for evaluating organic foods. Food miles should be considered to avoid unnecessary transportation. It is not necessarily in correspondence with consumer perceptions of the organic concept to have organically farmed foods transported over large distances. Frozen processed organic foods in particular may need special attention to avoid dilemmas where the consumer starts to question if the final product can really be considered environmentally friendly, even if each ingredient has been farmed organically.

Other concerns regarding energy use and preservation should be considered. It is necessary to develop policies that allow organic farms to convert to sustainable energy sources, such as wind power or solar power, through special tax breaks or low-interest loans.

Trade and marketing

A study by the International Trade Centre (ITC) has made it clear that there are good reasons to conclude that the market for organic food and beverages is growing rapidly in most developed countries, as well as in a few developing countries, though to a lesser degree. The fact that the share of organic food is still small in all of them indicates a very large long-term potential. According to the work done at ITC, expectations of growth are underscored not only by a strong and increasing consumer awareness of health and environmental issues, but also by more goal-oriented and aggressive marketing and promotion by the major retail groups. Product development and innovations in packaging by food processors and manufacturers, as well as supportive government policy in many countries, will also help to increase consumer demand.

Codex Alimentarius

The standards agreed on by FAO/WHO Codex Alimentarius Commission (Codex) are important for consumers in all countries as they ensure some level of safety protection and also because they may facilitate trade in foods. Organic foods have been discussed by the Codex Committee on Food Labelling that has developed guidelines for the production, processing, labelling and marketing of organically produced foods. The Codex guidelines for organic food were adopted by the 23rd Session of the Commission and revised by the 24th Session of the Commission in 2001. The Codex guidelines for organic food are significant since many different certification schemes had evolved around the world. CI welcomes the Codex guidelines which are important for producers, consumers, regulators and enforcers. Also, in its recent strategic vision statement, Codex recognised the growing interest in organic foods, which, it predicts, will capture a significant share of the international market in future.

The continued work on international organic standards will also affect EU and other regional and national standards. It will, for example, be very difficult for a state or government organic control body to justify banning processes or substances that have been approved by Codex. This is due to the status that Codex standards, guidelines and other recommendations have acquired under the WTO

Agreement on the Application of Sanitary and Phytosanitary Measures. The WTO Agreement on Technical Barriers to Trade is also of great relevance, given the significance of the provisions pertaining to product description, labelling, packaging and quality descriptions for consumer information and at the same time fair practices in trade. Codex wants its norms to be applied to the widest extent possible by all members. Thus OECD countries, in close co-operation with consumer organisations, must actively participate in Codex work regarding organic food.

Consumers have recognised the importance of Codex while also asking for a number of changes and reforms as the standards are becoming so important for a growing number of people on our planet. One major issue and challenge for CI within Codex has been to ensure that consumers' views are acknowledged at all stages in the decision-making process. In addition, it is vital that undue attention is not placed on the demand to base Codex standards only on science, in isolation from other important principles such as health protection, food labelling, and Other Legitimate Factors (OLF).

The precautionary principle should be a cornerstone of food legislation. The OECD countries should clearly define and enshrine the principle in Codex to improve international food legislation. With regard to animal welfare and health legislation that may not easily be scientifically proven to directly affect consumer health, WTO rules must not be used to influence organic legislation in any way. Consumer organisations and many health professionals have strongly urged Codex to take scientific uncertainty into account and recognise the need for the precautionary principle.

Identification of organic products in international trade

The issue of country-of-origin labelling and geographical indications (GIs) has been discussed by consumer organisations, which strongly support better rules in this area. Some argue that all organic foods should be clearly labelled so consumers will know where a fruit or vegetable has been farmed. Others think this may place an unnecessary burden on the producer and retailer. For meat products there is a general regulation for traceability that gives consumers this information, regardless of whether the meat is organic or not. The country-of-origin rule only applies to European meat, but a label on the imported product will have to state that the meat was produced outside the EU. As this is still in the start-up phase, consumers are impatiently waiting for better controls and monitoring. The work in this area must take organic meat products into consideration.

CI strongly supports improved traceability systems that may aid the identification of organic foods. This is important to make sure that consumers are given full information, as detailed as possible, about all ingredients and the final product.

Country-of-origin labelling is also discussed in the Codex Committee on Food Labelling. Consumers have voiced concern that they might be misled about the country of origin of their food. The country-of-origin label must neither be obscured nor misinterpreted by consumers.

Codex has defined traceability as: "The ability to trace the history, application or location of an entity by means of recorded identifications". Traceability is closely linked to product identity, but it can also relate to the origin of materials and parts, product processing history, and the distribution and location of the product after delivery. On the basis of this definition, it is possible to show that traceability is a recognised process in adopted Codex texts and texts under elaboration, even if the word "traceability" has not been used. A recent report from the Codex Secretariat cited some 13 examples of adopted or proposed texts that are either based on, or acknowledge, traceability. Codex has identified consumer confidence as one aspect that is linked to traceability.

The WTO Doha Ministerial discussed issues relating to the extension of the protection of GIs to products other than wines and spirits, as provided for in Article 23 of the WTO TRIPS Agreement. This will be addressed in the Council for TRIPS. Discussions on this issue, however, need to be speeded up, and the Ministerial Declaration simply acknowledges that these are on-going without committing members to a resolution. CI sees important links between the issue of consumer confidence in organic foods and international protection of GIs.

In the TransAtlantic Consumer Dialogue resolution of February 2000, it was proposed that the country-of-origin must be stated on all organic foods. In response, the European Commission argued that there seemed to be no particular reason for this request. Moreover, the Commission "did not understand" how such a requirement should be applied to foods with ingredients originating from several countries. CI believes a debate on this issue would be very useful to encourage an open discussion on this matter, with a special focus on how inspection and traceability can increase consumer interest and confidence in organic food.

Consumer involvement

In many respects, the objectives of organic farming are more important to consumers as citizens than as purchasers of food. Not only do consumers eat the products, they also live in countries where agriculture has changed the landscape through the centuries. As taxpayers, they also pay for the intervention and support through the various support schemes. As for all other resource-consuming and polluting industries, consumers and citizens set up conditions for our support to agriculture.

Consumer education will have to focus on raising the awareness of organic food and farming among national consumer organisations. Misunderstandings must be cleared up and concerns be answered, for example though more dialogue between consumer organisations, farmers, retail and other stakeholders.

The consumer choice of organic products has been explained as a risk-reducing strategy; *i.e.* consumers, through their choice, attempt to eliminate environmental or health risks. However, consumers are not necessarily rational choice-makers with a built-in probability estimator. Therefore, risk-reducing strategies explain only part of the demand for organic production. As previously indicated, a broader view on the reasons consumers desire organic food is required. These include: the wish to support local producers, better animal welfare and health practices, the search for trustworthy exchange-partners, and a wish to make a political statement are also reasons often interwoven with the traditional marketing explanations.

In general, consumers connect organic products with raw or pure products. The more elaborated or processed a food product, the less likely it is to be sold solely for its organic quality. When it comes to basic foodstuffs and less-processed food like raw meat, milk, fruit and vegetables, consumers do, in general, prefer products from their own country. These are the products most consumers want to buy organic. The increasing international trade with organic products has therefore a built-in weakness: it is difficult to make consumers buy imported organic products, especially when similar products that are locally produced are available.

Another shared consumer expectation is that organic products have added value compared to conventional products. This expectation has at least two explanations: the organic product is often more expensive to the consumer, which leads to an expectation of higher product quality. Another explanation is that the organic producers often have to find a niche to penetrate the market, which often results in specialised or even luxurious products, which are then associated with the organic

origin. What different consumers refer to when they discuss quality is much harder to summarise: to some the environmental considerations in the primary production is enough, to other consumers the organic product needs to taste better, and still others consider that the producers must in general display a less exploiting market behaviour for their products to be perceived as high quality.

Finally, retail firms need to be strongly encouraged to develop environmental policies that include a commitment to organic foods. Binding agreements should be formulated. For example, in the United Kingdom, the market has been benefiting from a period of less intense price competition as well as the emergence of new high-end sectors, such as luxury own-brand meals, organic foods and other high-margin products.

CI is especially concerned about some global retail chains with a high level of vertical integration. Competition policies need to be strengthened. The establishment of large, low-price stores with "loss leader" policies has been found to give consumers fewer products in each store, which is a worrying trend.

Research

CI supports research programmes that include consumer concerns and expectations, as well as other projects that attempt to develop more environmentally friendly and sustainable methods of agricultural production. Considering the vast amount of resources spent on genetic modification research, there is a need for support to projects that try to develop weed control and pest resistance through natural means. Projects dealing with crop rotation also have an obvious priority, as this is fundamental to organic farming. Good experiences and results should be shared rapidly through magazine and/or Internet publication.

It is desirable to support continued and co-ordinated research into organic production and the link to best practice in terms of sales. This includes research on processing, marketing, and consumer expectations and demands. Research into animal breeds is time-consuming and may be very expensive, but it should be given high priority and also be viewed over a very long-term perspective.

The *Label Rouge* breeding programme in France started as a grassroots movement over 40 years ago. The products are vividly distinguishable from industrial poultry products in areas such as quality and flavour.

As a national certification programme French farmers are making use of speciality poultry genetics, processing and marketing and outreach techniques that have been a success among consumers. Another attractive feature is that the grow-out period for the *Label Rouge* chicken is 81 days, compared with 45 days for standard broilers. The *Label Rouge* system focuses on providing chicken with much lower levels of salmonella contamination than conventional systems (*e.g.* only 2% of *Label Rouge* birds have been found to be contaminated with salmonella compared with 70% of birds from flocks produced in conventional systems).

An essential element of such programmes is that a national organisation can collect a levy from the sale of each bird to fund national consumer education and publicity campaigns for the organic products. The *Label Rouge* programme has also been recognised in other countries outside the EU. Similar projects should be designed that would benefit the development of organic farming, not only in Europe, but all also over the world.

Conclusion

The following quote from the FAO illustrates consumer interest on the matter:

Interest in organic agriculture methods is growing, especially in areas where the present farming system has degraded resources essential to agricultural production (especially land). Non-production factors, such as the farmer's health, are also mentioned as a reason for shifting to organic management. Consumers also have an interest in organic agriculture. Consumer awareness of the environmental costs of agriculture (such as the deteriorating quality of drinking water and soil, and the impact of agriculture on landscape and wildlife) is increasing. The awareness of environmental quality and health is often promoted by environmental groups, especially in developed countries. The resulting demand for organic products creates the opportunity to sell organic products at premium prices, enabling organic farmers to continue, and often expand.

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CONSUMER PREFERENCES FOR ORGANIC FOODS

Mette Wier, Lars Gaarn Hansen, Laura Moerch Andersen and Katrin Millock[1]

Abstract

The Danish market for organic foods is especially well suited for consumer analyses because it is relatively mature, meaning that it does not suffer seriously from the supply shortages and barriers which dominate most of the markets outside Denmark. The well-functioning Danish market makes it possible to collect and analyse reliable data on purchases. Our study distinguishes itself by being based on observations of stated as well as actual purchasing behaviour of a large number of organic as well as conventional foods. The project applies information at the individual household level (panel data), which makes possible a detailed and informative approach. The panel data were provided by a marketing research company. In addition, the modelling is supported by a questionnaire, surveying households in the very same panel as applied in the model estimations. An essential feature and the ultimate strength of the project is that it can reveal differences between actual and postulated behaviour and enlarge the analyses by information on attitudes, values, food habits/eating patterns and food interests. In the paper, preliminary results from the project are presented.

Introduction

Demand for organic foods has increased considerably during the past decade, though organic consumption still only constitutes a small percentage of total food consumption in most countries. Consumption has especially increased in Denmark, which today is estimated to have the highest *per capita* consumption of organic food in the world (Wier and Calverley, 2002). The Danish market is especially well suited for consumer analyses because it is relatively mature, meaning that it does not suffer seriously from the supply shortages and barriers which dominate most of the markets outside Denmark. This holds especially for organic dairy and cereal products, and these products exhibit higher budget shares than other organic products. Consequently, the Danish organic market may offer information about future markets of organic foods in other countries.

The well-functioning Danish market makes it possible to collect and analyse reliable data on purchases. Very few studies on the estimation of demand for organic foods, based on actual purchases, have been published previously. The few exceptions are Brombacher (1992), Glaser and Thompson (1998, 2000) and Jörgensen (2001), who all use sales data from market researchers in Germany, the United States and Sweden, respectively. Our study distinguishes itself by being based on observations

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of stated as well as actual purchasing behaviour of a large number of organic as well as conventional foods.

Almost all previous studies on organic foods are based solely on postulated behaviour, *i.e.* stated willingness to pay. Several studies (Beharrell and MacFie, 1991; Bjerke, 1992; Bugge and Wandel, 1995; CMA, 1996; Coopers and Lybrand Deloitte, 1992; Drake and Holm, 1989; Fricke, 1996; Grunert and Kristensen, 1995; Jolly, 1991; Krämer *et al.*, 1998; Misra *et al.*, 1991; Scan-Ad, 1998) report consumer interviews about their willingness to pay for organic foods, and thus hold information on this issue. However, stated willingness to pay may not reflect revealed behaviour (Cook 1991; Kramer 1990). The literature on contingent valuation (CV) has studied the issue of strategic bias in depth. For quasi-public goods, Carson *et al.* (1996) undertook a large meta-study of 616 estimates from 83 studies where CV estimates were compared to revealed preference (RP) estimates for the same good. Based on the sample of 616 comparisons, the mean CV/RP ratio was 0.89. Other studies typically find that hypothetical (stated) willingness to pay exceeds revealed willingness to pay (Cummings *et al.*, 1995; Frykblom, 1997). In our particular context, Hansen and Sorensen (1993) conducted both (in-store) interviews and (in-store) experiments on purchases of organic products. When comparing results from these two different approaches, they found that elicited willingness-to-pay has a tendency to be overestimated in comparison to "real" willingness-to-pay from experiments.

The Danish market

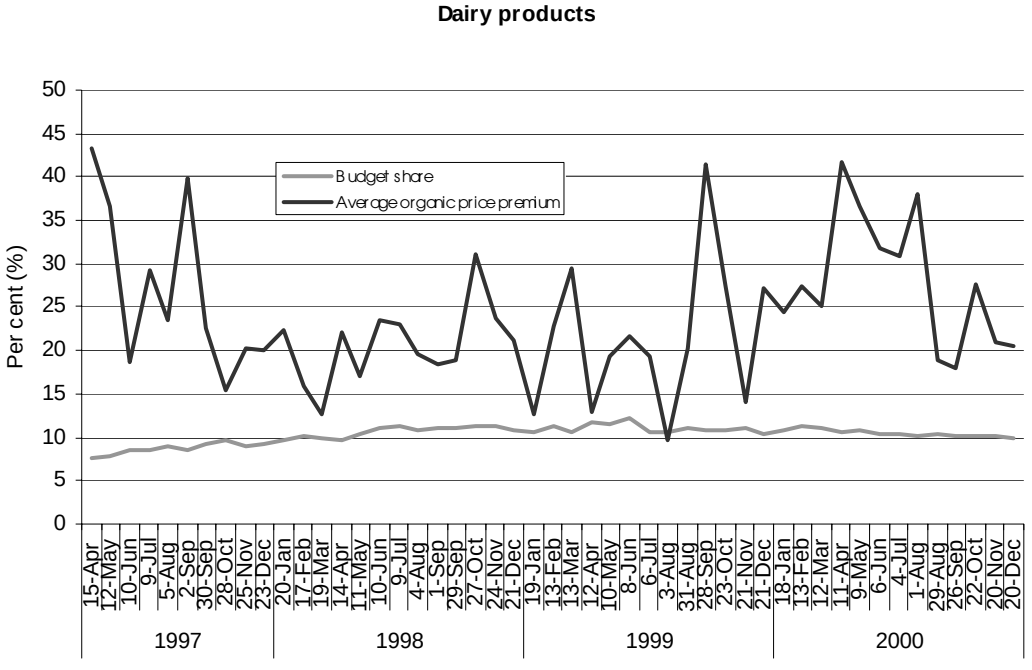
Budget shares, price premiums and growth of organic products

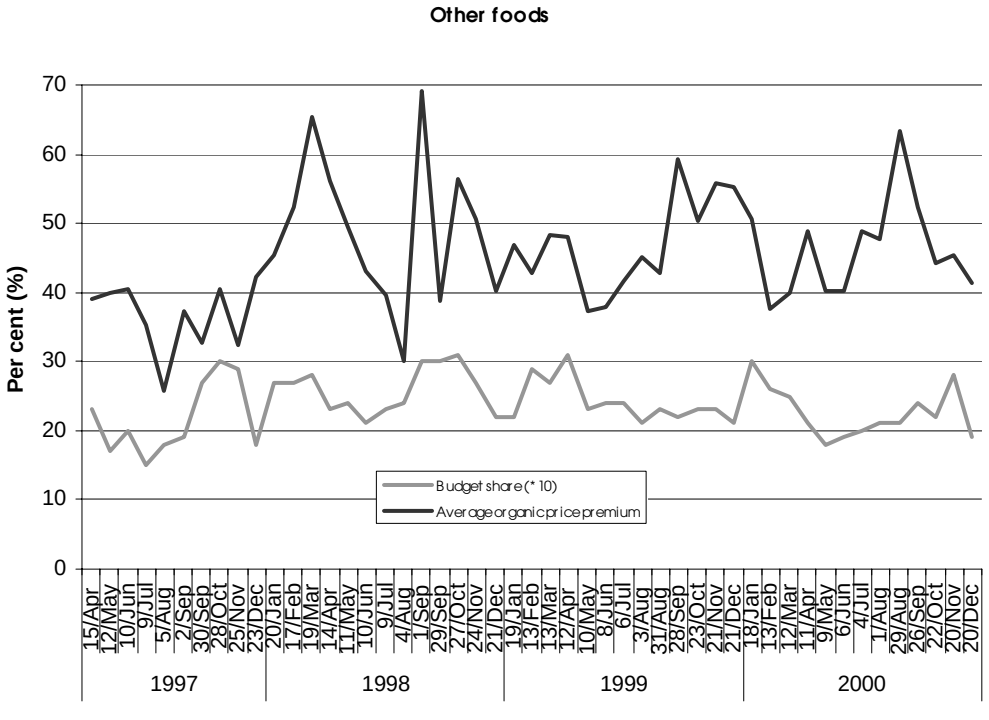
Figure 1 shows the development in budget shares and organic price premiums (four-weekly observations) of 3 aggregated organic products between 1 April 1997 and 31 December 2000. The budget share is defined as the ratio of budget of organic on total foods, and average price premiums are calculated as the mean of individual price premiums within the group, using individual good budget shares as weights.

Dairy products hold the highest budget share, followed by cereal products. There was a steady upward trend in the budget shares for dairy products and cereal products (bread, flour, cereals, pasta, rice, etc) until late 1999. From the middle of 1999 and onwards, budget shares were decreasing somewhat for these two food groups. Analogously, average price premiums decreased continuously for dairy products and cereals until the middle of 1999. From mid-1999 onwards, no clear trend in development of price premiums can be observed. The group of "other foods" (including meat, fruit and vegetables,) has much lower budget shares and much higher price premiums than the dairy and cereal products do, and no clear trend can be observed.

Within the three aggregated food groups, a large variation in budget shares can be observed. Table 1 shows various estimates for the five most established products, within each food group for the period 1 April 1997 to 31 December 2000. For each product, the table shows the average budget share and the average percentage organic price premium, the average organic consumption in euros per family per week, and the average annual growth in this weekly consumption. Milk and eggs hold equally high budget shares at 23%, followed by carrots, rye bread and pasta. The lowest price premiums are observed for cereals, various dairy products, rye bread and eggs. The highest price premiums are observed within the group of other foods, for oil, carrots and onions. This group also encompasses meat products (not shown in Table 1 as no meat products reach the top five), where lamb holds the highest budget share (budget share 5.8%, price premium 22%), followed by minced beef (budget share 2.2%, price premium 58%).

Figure 1. Development in market share and average price premiums for three aggregated organic product groups





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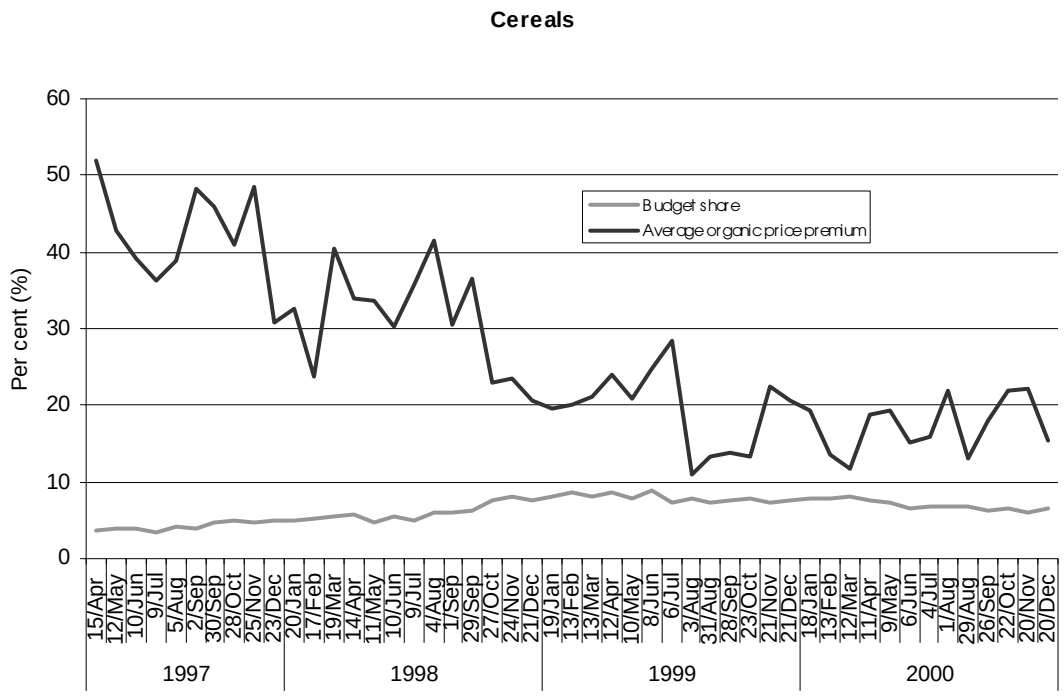


Table 1. Top five within each aggregated food group, April 1997-December 2000

	Budget share (%)	Average price premium	Average organic consumption per family per week* (euros)	Average annual growth rate (%)
Dairy products				
Milk	23.00	22.53	0.57	8.23
Yoghurt	7.30	12.87	0.06	11.53
Cream**	6.20	13.35	0.03	-6.40
Butter	5.60	5.62	0.05	21.17
Cheese	2.40	22.30	0.05	-3.47
Cereal products				
Flour	13.40	50.62	0.03	15.70
Rye bread	9.40	18.10	0.10	12.97
Pasta	9.30	40.59	0.02	43.77
Cereals	7.10	5.91	0.04	8.70
Rice	6.20	53.82	0.01	24.10
Other foods				
Eggs	23.00	19.74	0.16	9.40
Carrots	20.70	62.28	0.05	1.27
Onions	9.00	59.32	0.01	5.90
Oil***	6.70	115.50	0.01	-17.60
Potatoes	6.00	43.64	0.04	-1.60

* The Danish kroner/euro rate was 743.40 on 30 April 2002.
** Includes observations from 1 June 1999 to 1 June 2000 only.
*** Includes observations from 1 July 1999 to 31 December 2000 only.
Please note that price premiums are calculated from all prices, including special offers.

During the period, the highest growth was experienced for products in the cereal group, as many of these products were introduced during the period 1997-2000. Consumption of organic oil, cream, cheese and potatoes actually decreased. Carrots and onions, which have been supplied since the 1980s, experienced low growth rates, too. Looking at annual growth rates (not shown in the table), a general pattern of decreasing growth rates can be observed for almost all food types. Until 1998, organic consumption was still booming, but negative growth rates are observed from 1999 and onwards for many products.

Is the Danish market different?

There are substantial differences between the European countries in their consumption of organic foods (Wier and Calverley, 2002; Michelsen *et al.*, 1999) and these differences cannot be explained solely by differences in consumer preferences. Wier and Calverley (2002) argue that differences across countries are not only due to differences in consumer demand for organic foods, but also to market barriers, which prevent the potential demand being fulfilled.

Most studies show that consumers primarily buy organic food because of health considerations (CMA, 1996; von Alvensleben, 1998; Meier-Ploeger *et al.*, 1996; Sylvander, 1995; Infood, 1997, 1998; Land, 1998; Scan-Ad, 1998; Coopers and Lybrand Deloitte, 1992; Byrne *et al.*, 1994; Huang, 1996; Huang *et al.*, 1990; Jolly, 1991). German consumers, for example, are very concerned about health and food safety (Kafka and von Alvensleben, 1998). Brunsoe (1996) and Brunsoe and Bredahl (1997), compare consumer segments in various European countries, and show that German consumers are more interested in organic food than Danish consumers. But the market share of organic food in Germany is considerably below the market share in Denmark where, in spite of having the world's highest consumption of organic food *per capita*, consumers are not very concerned about health and food safety (Kafka and von Alvensleben, 1998).

In Denmark, consumption of organic foods was low until 1993, the general market share of organic foods being less than 1-2%. Until 1993, the main driving force behind the expansion of the organic foods market was government subsidies and advisory services to organic farmers during the conversion period (Hamm and Michelsen, 1996). However, consumption began to increase in 1993, when supermarkets lowered the prices of organic products by 15-20%, increased supply considerably, and initiated intensive marketing of organic products (Hamm and Michelsen, 1996).

The current Danish market fulfils three important conditions for a well-functioning market. First, organic foods are primarily sold through conventional supermarkets, ensuring stable supplies and promotion of organic products where most of the consumers do their shopping already. Secondly, there is a very well-functioning and trustworthy labelling and certification program. Finally, price premiums for organic products are in most cases relatively low. In most other countries, at least one of these barriers is prevalent (Michelsen *et al.*, 1999).

Distribution and sales channels

Several studies (Vogtmann, 1988; Haest, 1990; Sylvander, 1995; Bugge and Wandel, 1995; CMA, 1996; von Alvensleben and Altmann, 1986; Krämer *et al.*, 1998; Menghi, 1997; Hack, 1995) note that one of the most substantial barriers to the penetration of organic goods is that it is difficult for consumers to locate and identify organic commodities, and that only a few organic products are offered regularly in supermarkets. A considerable number of European markets for organic products suffer from insufficient supplies.

However, the distribution of organic products in the EU is, to an increasing extent, being taken over by conventional supply channels (Produce Studies, 1998). This is especially true for Sweden, Denmark and the United Kingdom, where a relatively small number of conventional retail chains and organic food distributors dominate the market. In Sweden and Denmark, 85% of all organic goods are distributed through conventional sales channels (75% in the UK) and the majority (85-95%) of these sales pass through supermarket chains.

In contrast, the Netherlands and Germany for example, are characterised by a completely different sales structure (Produce Studies, 1998). In these countries health food stores and direct sales have dominated the distribution of organic products for many years and are still powerful, even though their growth is stagnating compared to the growth of organic products in supermarket chains.

Labelling

Since it is impossible for consumers to check the authenticity of organic products, it is necessary to build up a control system with clearly defined rules for production methods and labelling of certified products (McCluskey, 2000). Previous consumer studies suggest that trustworthy labels guaranteeing organic production are very important for the consumers. The results indicate that clear and unmistakable labelling is an important condition for buying organic foods (Trijp *et al.,* 1997; Hack, 1995; Sylvander, 1995). In many countries, however, there are many competing labels. This has been a problem in Germany, for example, where consumers have had great difficulty identifying the authenticity of organic products (Hamm and Michelsen, 1996; Krämer *et al.*, 1998; CMA, 1996).

The Danish certification label, which is controlled by the Danish state, is well known by a majority of all consumers, and consumers in Denmark have great confidence in the Danish control system (Infood, 1998; Scan-Ad, 1998; Bjerke, 1992). Preliminary results of our own suggest that in 2000, 96% of Danish consumers recognise the Danish label, and 64% state that, in general, they trust the label. A large majority have a good understanding of the rules of organic production; 96% know that application of synthetic pesticides is not allowed in organic production, 90% know that fertiliser application is not allowed, and 71% know that organic production encompasses requirements for animal welfare. In general, however, consumers believe that the standard of the Danish label is more comprehensive than it actually is: 20% believe organic production has a requirement of energy conservation, and 35% believe that packaging of organic products must be environmentally friendly.

Price premiums

High price premiums for organic goods limit demand. Results from Glaser and Thompson (1998, 2000) and Wier, Hansen and Smed (2001) indicate high price sensitivity in demand. These studies modelled substitution between various (organic and non-organic) food types, using the AIDS system on actual purchase data. In these studies, a similar pattern appears: demand for organic products are much more price-elastic than demand for conventional products. In contrast to these results, however, Jörgensen (2001), who estimated demand for various cereal products and coffee using an *"ad hoc"* specification and Swedish GfK data, found comparatively low price elasticities for certified organic products.

In addition, several studies evaluate consumers' willingness to pay, most often based on interviews. For a review, see Thompson (1998) or Wier and Calverley (2002). Based on consumers' own statements, Fricke and von Alvensleben (1997), Krämer *et al.* (1998), Meier-Ploeger *et al.* (1996), Haest (1990), Hack (1995) and Jolly (1991) point to high price premiums as one of the most important reasons for not buying organic foods.

In Denmark, price premiums are in general low, compared to other countries (Michelsen *et al.*, 1999). Results from Michelsen *et al.* (1999) suggest that the average price premium is reduced by increasing volumes and increasing sales through supermarkets.

The data

The data used in our study are provided by a market research company, GfK Denmark, part of the GfK Group (www.gfk.com). GfK Denmark registers the consumption of approximately 2 300 households of (certified) organic and conventional foods and the corresponding prices (www.gfk.dk). Every year, 20% of the households change, partly because of households leaving the survey, and partly in order to ensure that the panel is representative of the Danish population. The panel is representative with respect to the location and size of the household, as well as the age of the consumer. The consumers respond by recording their weekly purchases in a diary. This record encompasses a large variety of commodities, representing 80% of the consumer's budget for grocery shopping. Data for organic foods exist from the beginning of 1997 and onwards. For this paper, data were available until the end of 2000.

The modelling is supported by a questionnaire, surveying households in the very same panel as applied in the market research. An essential feature and ultimate strength of the project is that it can reveal differences between revealed and postulated behaviour and enlarge the analysis by information on attitudes, values, food habits/eating patterns and food interests. In summer 2002, we mailed the panel a questionnaire in order to reveal information on attitudes, values and food habits, with special attention to valued food attributes and perceived food-safety risks. In addition, we asked the panel members their stated willingness to pay, making it possible to compare stated (revealed from questionnaire data) and actual (revealed from purchase data) willingness to pay for the same individuals in the panel.

Comparing stated and revealed preferences

For the present paper, questionnaire data are not yet available. Instead, we use pre-test data from a sample of 400 respondents. The pilot study was mailed to 400 households, representatively distributed across geographical regions and within each region, randomly chosen. The response rate was 31%. The questionnaire consisted of four sets of questions: questions on purchase habits and food culture (choice of store, important product characteristics, statements on risks from eating certain foods); questions on organic food production (identification of the Danish O-label, statements on organic production and its effects); questions on habits and environmental attitudes (use of recycled toilet paper, aluminium foil, membership of environmental associations, statements on the consumer's role in environmental protection); and finally questions on willingness to pay for organic milk. The respondent had to indicate whether (s)he agreed with the attitudinal questions on a scale from 1 to 5. The respondents who stated a positive willingness to pay were asked a follow-up question requiring them to rate whether different characteristics of the organic product were more or less important in their decision to pay more for the organic product (taste, absence of pesticide residue, environmental concerns, good conscience). For more details, *cf.* Millock *et al.* (2002) or www.akf.dk/organicfoods.

The elaboration of results from the test sample indicates the following characteristics of the Danish consumers:

- Salmonella, pesticide and medicine residues are the top food safety concerns for foods in general. Cholesterol and mad-cow disease ranked lower.

- Avoidance of chemicals is a top concern and the most highly-valued product attribute for organic foods.
- The order of valued attributes does not vary across organic product types.
- Stated main barriers for not purchasing organic foods are too high price premiums, poorer appearance, and lack of trust in control.
- 64% of consumers lack confidence in imported organic foods.
- 25% of consumers state that a large supply of organic foods is a main reason for store choice.
- 66% state that even if organic standards were totally obeyed, organic agriculture would make no difference to the environment: 57% state it would make no difference to the health of consumers eating organic.
- 35% of consumers willing to pay more for all types of organic products have been members of an organization that protects nature. In comparison, 18% of consumers, not willing to pay more for any organic product, have been members of an organisation that protects nature.

A large part (59%) of the pilot sample stated a willingness to pay more than the conventional market price for organic milk. Average stated willingness to pay is a price premium of 32% for a litre of milk. In comparison, purchase data during 1 June 1999-31 May 2000 shows that on the market, 55% of all consumers in the household panel are willing to pay more for organic milk. The average price premium (revealed willingness to pay) — estimated from purchase data — is 24% for organic milk. Thus, the consumers are on average actually paying less for organic milk than they state they are willing to pay. This may indicate two things. First, consumers may state that they are willing to pay more than they actually are, suggesting that contingent valuation may be associated with uncertainty. Alternatively, the results may indicate a considerable consumer surplus, as consumers would be willing to pay more than they actually are.

As part of the analysis of the pilot study, we performed logistic maximum likelihood estimates on the probability of being a BUYER, defined as willing to pay more for organic milk in the survey (*cf.* Millock *et al.*, 2002). We used the attitudinal information in the questionnaire to construct indicator variables for environmental behaviour and awareness, health risk concern, nutrition concern, good conscience from buying organic products, price sensibility, and the attitude towards the statement that "environmental problems are exaggerated". We also constructed an indicator variable based on attitudes towards three statements on the impact of consumer behaviour on the environment.

The estimated model seems to generate good predictions of buyer behaviour, with the model correctly predicting buyer rate for 82% of the sample. Among the significant variables, price consciousness and the belief that "environmental problems are exaggerated" decrease the probability of being willing to pay for the four products by about 100%. The presence of small children in the household has a positive significant influence on the probability of being willing to pay more. However, based on this limited sample, we did not find any significant impact of the indicator variables on health, nutrition and environmental awareness.

Price and income sensitivity in demand

A demand model system based on purchase data from the beginning of 1997 to the end of 1999 has also been developed (*cf.* Wier and Smed, 2000; Wier, Hansen and Smed, 2001; Wier and

Smed 2002). Results from these studies suggest that price sensitivity in demand for organic products is high, compared to other food demand studies. An important reason for the high elasticities is that the organic and conventional products are close substitutes. Furthermore, it appears that organic products respond much more to price changes than conventionally produced products. This is partly due to the high budget share of conventional products, and indicates that organic products, often newly introduced on the market, may be subject to more price comparison. Similar results can be found in other studies on demand for organic foods (Glaser and Thompson, 1998; 2000).

In the preferred model specifications, the budget elasticity was set to unity. However, if this restriction is relaxed, the budget elasticity for organic products is larger than 1. This indicates that organic foods are luxury goods, as the budget share increases with the budget.

Organic products are demanded in all types of households. However, some household characteristics are associated with higher propensity to buy organic foods. Previous studies have found that household size is positively correlated with buying propensity for organic foods. This result cannot be confirmed in our study, as it is the age of children in the household and not the mere presence of children that yields higher volume shares. Thus, families with small children have a higher buying propensity than families without children or with teenage children.

Some studies find that urbanity is positively correlated to organic buying propensity, and this is partly confirmed in our study. The highest organic budget shares are found in the metropolitan area and the lowest in rural areas in western Denmark. Households in eastern rural Denmark are an exception to this rule, however. Regarding consumer age, previous Danish studies conclude that younger consumers have a higher buying propensity. Most studies on countries other than Denmark confirm this, but in addition some studies find that also the oldest consumers have a high buying propensity. In our study, we find that younger consumers, especially between 30 and 40 years, exhibit higher organic budget shares than other consumers. The dependence of age, however, varies somewhat across product type.

Price sensitivity of demand varies across different household types. This implies that reducing the price premium for organic foods will cause an increase in consumption, but this will, however, primarily happen in some household types. In general, households with low organic budget shares show the highest price elasticity in demand and *vice versa*. This indicates that the price premium is an important reason for not buying organic foods in some households, and policies aimed at reducing price premiums will be highly effective with respect to these households. In contrary, other household types will respond more to other policy measures.

Current and future research

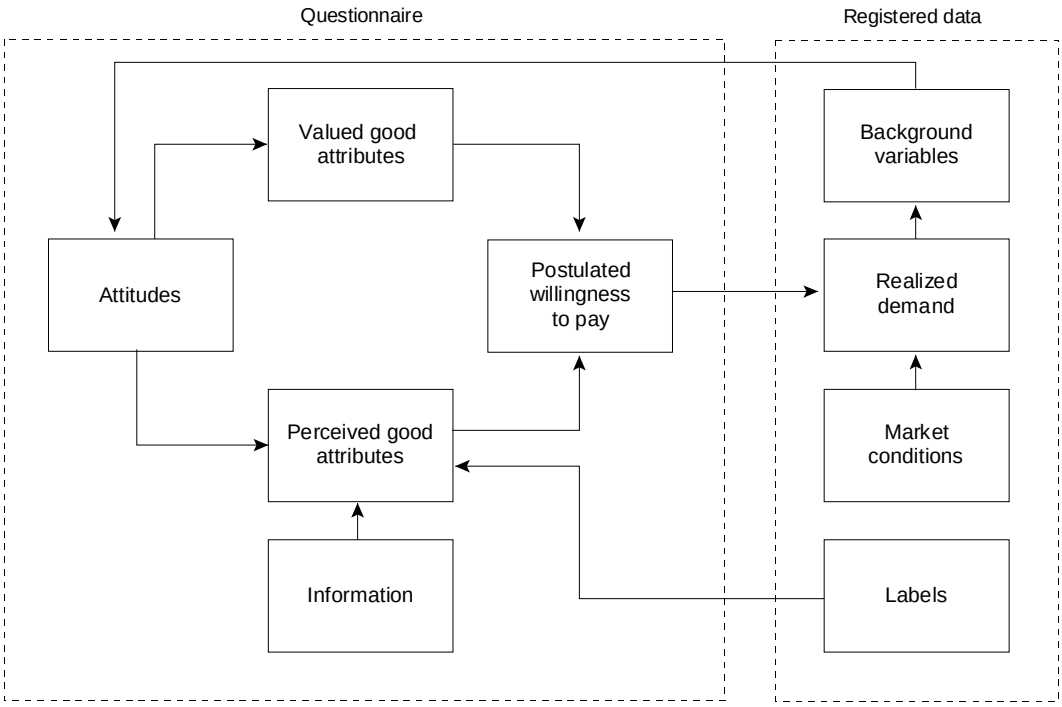
At present, we are developing and improving the demand modelling on household purchase data from 1997-2001. We are currently applying micro-econometric estimation of demand for aggregated food groups, utilising the panel nature of data. In the model, the individual household's consumption of organic foods is modelled, and its dependence on important factors such as prices, household income, geographic location, consumer's occupation, age, number of children, etc. In the current modelling work, we hope to confirm our previous results, described under *Price and income sensitivity in demand*, in addition to accomplishing new insights.

Three main approaches are followed: first, we have had good results when modelling demand for the aggregated food groups of dairy goods, bread and cereals, and other foods (including meat, vegetables and fruit). Another approach — also with good preliminary results — is modelling

demand for various meal types. The meal types are breakfast and lunch (bread, filling and spread for sandwiches, cereals, etc.); dinner (meat, fruit and vegetables); basic foods, *i.e.* food types that may appear in any meal type (flour, milk, sugar etc) and, finally, additional food, *i.e.* food consumed in addition to ordinary meals (coffee, wine, candy, cakes, fruit). The third approach is modelling-revealed preferences, *i.e.* modelling demand for (and implicitly valuing) products' characteristics like fat content, with/without organic label, small/large producer, convenience and origin. At the current stage this is done for the milk market. At present, however, it is too early to evaluate the contributions from these estimations.

The core of the project is to establish the parameters of a utility-based model of household preferences for organic food, incorporating explicit representation of valued product attributes and relevant underlying attitudes. The GfK Group has household panel data from several other European countries and in the project we will apply data from other countries as well. Data for parameterisation can be divided into nine types and will be collected through two vehicles (Figure 2).

Figure 2



The detailed demand modelling at household level will enable us to evaluate the effect of policy instruments such as subsidies, labelling, information, etc. on total consumption as well as on individual consumer segments. It is of particular interest to examine differences in consumers' confidence in organic product labelling, differences in food culture (attitudes towards imported goods, preferences for prepared/unprepared products), and differences in sales channels (supermarkets, direct sales, health food shops, etc) among countries and among different consumer groups within the individual countries. Identifying differences in demand parameters for different types of households is both important as part of understanding the willingness to pay (for organic foods as compared to

conventional foods) of different consumer segments and as part of an evaluation of the market potential.

Conclusions

Today, Denmark probably has the highest consumption of organic products *per capita* in the world. This high consumption of organic foods in Denmark is not due to higher consumer interest in organic products, because this interest is just as strong in many other countries. The preconditions for this high consumption are as follows: first, Denmark has a relatively well-functioning and reliable certification and labelling system; secondly, the majority of organic foods are sold in supermarkets, ensuring stable supplies; finally, price premiums for organic products are low, compared to other countries. In most other countries, at least one of these barriers is prevalent. Consequently, the Danish market is a well functioning market, where consumers in general have easy access to the organic foods, trust the authenticity of organic products, and can afford to pay for them.

Econometric estimations reveal that price sensitivity in demand for organic products is high, compared to other food demand studies. Thus, it appears that organic products respond much more to price changes than do conventionally produced products. This may be due partly to the fact that the organic and conventional products are close substitutes, and may partly indicate that organic products, often newly introduced on the market, may be subject to more price comparison. In addition, the budget elasticity for organic products is larger than 1, indicating that organic foods are luxury goods.

What can be learned from the Danish market? Our results suggest the following:

- It is crucial that consumers can identify the food as organic or else they will not be willing to pay a premium for it. Thus, establishing a well-known and trusted labelling system is essential.
- Future expansion requires increased supply in supermarkets, which are able to reach a wider range of customers, especially the busy, urban consumers, who do not have time to shop in speciality shops or at farms.
- A substantial fall in price premiums is likely to increase sales. Higher prices today are mainly due to an immature market, hindered by inefficiency and a costly processing and transport sector. Gradually, as markets mature and more production is initiated, processing and transport will be possible on a larger scale, and prices will, in all probability, stabilise at a lower level.
- Wherever the consumption of organic food is very price sensitive, policy measures affecting price premiums will be highly effective. Thus, our study indicates that measures such as subsidies to organic products or production, levies on conventional agricultural products, or levies on pesticides or commercial fertilisers may have remarkable effects on the consumption of organic foods.

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Chapter 9. **Research, Information and Communication**