

III.1 Consumer Demand for Organic Foods – Domestic and Foreign Market Perspectives

Acronym: COF

Date: June 2000

1. Summary

The project consists of 2 distinct Work-Packages, examining topics of importance for organic food demand and production:

- *Work-Package 1 Consumer preferences and demand*
- *Work-Package 2 Alternative distribution channels*

In *Work-Package 1*, we estimate demand functions for Danish household consumption of organic foods. We utilize a household level panel data set with daily registration of food purchases combined with preference information elicited from panel members through a questionnaire surveyed after the registration period.

Background variables make it possible to model demand dependence on household characteristics such as income, geographic location, occupation, age, number of children, etc. Furthermore by combining the detailed registration of consumption behavior with elicited information on underlying attitudes and valued attributes, we hope to be able to shed new light on the structure and relative importance of various motives for purchasing organic foods within various consumer segments. We intend to focus specifically on (1) purchasing motives (personal health, animal welfare, environmental effects, etc.), (2) on attitudes towards organic convenience food and underlying processing technology, and (3) attitudes towards conventional versus alternative sales channels.

An estimated demand system including explicit representation of valued good attributes and underlying attitudes makes it possible to evaluate different information and labeling strategies in addition to more traditional evaluation of the demand effects of prices and demography. We will also exploit the possibility of confronting willingness to pay information elicited through a CV-design with revealed demand behavior of the same group of households.

In the work-package we conduct similar analyses in one or two neighboring countries. This is done for; first, it is highly relevant to explore export markets for Danish organic producers, i.e. identification of foreign consumer preferences and market barriers; second, the importance of specific markets factors such as sales channels or labeling of organic products, can be analyzed through comparison between countries that differ with respect to these factors.

Work-package 2 analyzes the driving forces behind the origin and growth of pioneering firms (e.g., organic dairies, slaughterhouses or sales cooperatives/networks) and the barriers for further marketing. The study will highlight differences between established firms and alternative initiatives and differences among alternatives by means of three analytical fields: (1) how reliance between producer and user is established, (2) how various initiatives are organized, and (3) how distribution is carried out. Case studies of success and failure will constitute an essential part of this work-package.

2. Research group

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Work-Package 1

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Work-Package 2

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CVs and a short description of participants (their role and qualifications) and participating institutions are attached (Appendices A, B and C)

3. Introduction

Organic farming is pesticide free and is attributed a number of other environmental advantages as well. This is why increasing the proportion of cultivated area that is organically farmed is an important element of Danish environmental policy.

Accurate estimates of current organic food demand functions are important steps towards assessing the feasibility of large increases in Danish organic food production. However, understanding and quantifying the underlying motives for organic food demand is also important for at least two reasons.

First, organic foods are an emerging market where development of products in new areas and consumer learning of product attributes may cause substantial shifts in demand functions. A good understanding of motives and valued attributes is essential if meaningful predictions of such shifts are to be attempted.

Second, such an understanding is also essential for assessing the future role of alternative versus conventional sales channels, different types of information and labeling strategies and, ultimately, alternative development strategies for organic farming practices.

4. State of the art

Background

Background for Work-Package 1 (Consumer preferences and demand)

If a major part of the Danish cultivated area is to be converted from conventional to organic farming, a substantial market expansion is required. Thus, assessing consumer demand for organic foods is highly relevant. However, only limited research has been made in this area (see Wier and Calverley [1999] for a survey of both Danish and international research). We lack knowledge of the long-term development of domestic as well as foreign markets and of which factors would be crucial to future development. For instance, we lack knowledge of how organic demand is related to consumer attitudes and values as well as socioeconomic and demographic characteristics (income, education, type and location of residence, type of family, number and age of children, occupation, age). A preliminary study of the Danish market can be found in Wier and Smed (2000), however.

Furthermore, we lack knowledge of how these variables act together with market conditions such as prices, marketing and sales channels, as well as knowledge of the effects of policy instruments such as labeling of organic products, subsidies, levies, consumer information, and promotion of the products. A recent study (Michelsen et al 1999) shows that there is considerable potential for organic foods in all the European countries included in the study. Nevertheless, the study also demonstrates that differences in market conditions are a main reason for substantial differences in sales volumes between the countries. This makes it relevant to compare differences in market conditions between two or three countries, to identify the most important factors and to include these factors in the demand modeling of the present study.

Finally, we have only limited knowledge of consumers' motives for purchasing organic foods, (i.e., which product characteristics the consumers value) and their willingness to pay. The most important distinction is between product-specific characteristics directly benefiting the consumers (purchasing motives such as food safety/health concern or product quality/taste) and the process-specific characteristics indirectly benefiting the consumers (e.g. concern for environmental effects or animal welfare).

Process specific characteristics are particularly relevant for the category of convenience food and other prepared meals. Some consumer groups may find that the very idea of industrially processed and prepared food conflicts with organic farming principles, while others may not regard these as opposites. Thus, studying the demand for organic convenience food is of special interest. Likewise, it is relevant to reveal their willingness to pay and to identify barriers for future market expansion.

Process specific characteristics are also highly relevant for "alternative" and "small-scale" food production firms and sales channels. As the conventional food sector increasingly produces organic products sold in supermarkets, the supply of low-price organic foods is growing. Thus, it is relevant to identify those consumers who prefer alternative/small-scale sales channels and manufacturing firms and reveal how they distinguish themselves with respect to purchasing motives, willingness to pay and preferences for different attributes, specifically product characteristics, underlying processing technology, and store choice.

Background for Work-Package 2 (Alternative distribution channels)

About 25% of organic food is distributed outside conventional retail chains (cf. Wier and Calverley, 1999): about 20% is distributed through health food stores and various specialized shops and 5% through farm shops and networks. The latter distributors sell produce (e.g., vegetables and meat) from organic farmers, as well as processed food (e.g. cheese, bread) from small-scale manufacturers, and imported goods such as fruit. The small-scale initiatives among manufacturing and distribution firms are assumed to play an essential part in innovative processes to bring organic food to the market and to establish further relations between producers and users.

Former and ongoing projects

Work-Package 1 (Consumer preferences and demand)

AKF has completed a preliminary study on consumption of organic foods as part of the FØJO center during the period 1996-1999. The results are published in Wier and Calverley (1999) and in Wier and Smed (2000). In this study, the European market was considered with special attention to the Danish and German markets. The study suggested that the German market has a large organic foods demand potential, but that further expansion is blocked by barriers such as very high price premiums, inefficient sales and distribution channels, confusing and ambiguous labeling, and the fact that only a minor part of production is sold in conventional super markets. The main part of the study, modeled the Danish consumption of organic foods in an econometric demand system (the AID system, introduced by Deaton and Muellbauer, 1980), by use of aggregated data. The estimations indicate higher price elasticities compared to studies of conventional food demand. Furthermore, organic foods seemed to be luxury goods with budget shares increasing with income. Modeling dairy goods and bread/cereals products was most successful, as these goods have high market shares and the organic markets function relatively well. The meat market was very difficult to model, as this market is immature – being characterized by insufficient and unstable supply, very high price premiums and unstable product quality. The budget shares for various household types were considered, suggesting that the age of the consumers, the age of their children and urban were the most important factors. Nevertheless, the effects of these factors varied considerably from one type of organic commodity to another. Finally, the model was estimated for various household types, suggesting that groups with low organic budget share also had the lowest price sensibility of organic consumption.

The present project is based partly on the same data applied in the study mentioned above. In the former project, the analysis was based on aggregated data (i.e., total Danish consumption of aggregated commodity groups). In the new project, in contrary, the analysis applies information at the individual household level (panel data), which makes possible a much more detailed and informative approach. In addition, data are also used from one or two neighboring countries are applied, which

makes it possible to explore the export markets and assess the importance of differences in market conditions in two countries. Finally, the modeling is supported by a questionnaire, surveying households in the very same panel as applied in the model estimations. An essential feature and ultimate strength of the project is that it can reveal differences between actual and postulated behavior and enlarge the analyses by information on attitudes, values, food habits/eating patterns and food interests.

Work-Package 2

In the last few years AAU has concentrated research efforts on the evolution of organic production. The task has been primarily to relate the notion of sustainability to social trends in general and to the evolution of organic technology in particular. In this connection, three studies have been carried out on behalf of the Danish EPA: one concerns first mover potentials in relation to marketing of organic food abroad, second on evolution of product chains and provision of knowledge in relation to organic conversion, and finally, a third study on the interpretation of the concept of “sustainability” among various social key institutions.

Furthermore, in 1999, AAU succeeded in establishing a multidisciplinary research network (POET) in which social scientists collaborate with technical and natural scientists in researching: dynamic processes of change due to post-industrial demands for sustainability. The task is to investigate such processes from a social as well as technical point of view and to investigate interrelations between social demands, technical opportunities, and provision of sustainable innovations, especially related to organic food. The task is to develop and apply methods of environmental assessment related to organic food (agriculture as well as fishery). For the moment, POET is undertaking a pilot study on Danish dairies processing organic milk, the results of which are to be published by the end of year 2000. Finally it should be added that AAU is involved in several educational activities at Master’s, International Master’s (ESST) and PhD levels related to the tasks mentioned above.

Ongoing projects

The Organic Service Center (Helle Bossen, Økologisk Landscenter) performs an ongoing monitoring of the Danish market for organic foods as well as for specific export markets. For the most recent publication, see Økologisk Landscenter & Mejeriforeningen (2000).

The Danish Consumer Council (Bjarne Pedersen, Forbrugerrådet) has recently initiated a project on future consumer demands for organic foods (Danish title: “Fremtidens forbrugerkrav til økologiske fødevarer”). The purpose of the project is to identify consumer expectations to organic production, to support policies protecting consumer interests and to establish a dialog with relevant interested parties.

Susanne Beckmann, Copenhagen Business School, has recently initiated a research project on the Danish consumer interest in organic foods (Danish title: Den danske forbruger og økologiske fødevarer). The purpose of the project is to analyze factors influencing Danish consumers decisions in relation to organic foods. The project will identify factors causing consumers to prefer organic foods as well as the barriers preventing them from buying. The project will utilize questionnaires, personal interviews, and focus group interviews.

All the above mentioned researchers in this field have agreed to co-ordinate and co-operate on relevant issues in the following years. Twice a year a meeting will take place in which preliminary results will be discussed among the group of researchers in organic foods.

5. Objectives and expected achievements

The overall goal is to assess the long-term potential of demand for organic food from Danish agriculture. Thus, we will attempt to identify the market potential at home and abroad and identify the conditions of utilizing this potential - including the effects of various policy instruments, sales channels and information strategies. In order to accomplish these objectives during the 5 year period, the project is divided into 2 work-packages:

WP1: Consumer preferences and demand: potentials and barriers for market expansion

WP2: Alternative distribution channels: driving forces and potentials

Goals for Work-Package 1:

To analyze consumer demand for organic foods, including estimation of a system of household demand functions for organic foods with explicit representation of valued good attributes and underlying attitudes. Domestic as well as foreign demand is considered. Special attention is given to

- evaluation of the effect of policy instruments, such as levies, subsidies, labeling and consumer information,
- identification of the relations between purchasing motives and willingness to pay,
- examination of consumer attitudes towards industrially manufactured organic food, specifically convenience food/prepared meals versus alternative small-scale manufacturing and distribution.

Goals for Work-Package 2:

- To identify driving forces behind “alternative” and “small-scale” market initiatives, their opportunities, including institutional and structural limits for further innovations.
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6. Description of work packages including methods**Table 1: Work-package list**

Work-package No	Work package title	Responsible participant	Budget	Start	End	Deliverable No
1	Consumer preferences and demand – potentials and barriers for market expansion	AKF	3.73 mill. DKK	2000	2004	
2	Alternative distribution channels – driving forces and potentials	AAU	0.5 mill. DKK	2000	2003	

Table 2: Description of work-packages**WP1: Consumer preferences and demand – potentials and barriers for market expansion**

Work-package number:	1					
Start date or starting event:	August 2000					
Responsible person:	MW					
Contributing persons:		LGH	OR	MB	KM	HS
Person-months:	20	18	4	8	9	Cf.*

*HS, GfK Danmark participates as a consultant on data base and interviews

Objectives

The purpose of the project is to analyze the market potential for organic food at home and abroad and to identify the conditions for exploiting this potential, including the effect of various policy instruments, sales channels and information strategies in relation to the sale of organic food. Specifically, consumer demand for organic food has to be examined, and the importance of various explanatory factors should be revealed. Relations between socio-demographic characteristics, purchasing motives, store choice, and willingness to pay have to be identified. Likewise, we will identify product attrib-

utes valued by the consumers, including their interest in convenience food and underlying processing technology. The core of this is household level estimation of the demand functions for individual products. In addition, the effect of subsidies and levies, labeling, product promotion and consumer information has to be evaluated, including the interaction among consumer characteristics, market conditions and policy instruments. Finally, development of market potential for organic food at home and abroad as a result of demographic developments and under differently assumed changes in sales channels and application of policy instruments will be examined through scenario calculations.

In sum, goals are as follows:

To analyze consumer demand for organic foods by

- Estimating a system of household demand functions for organic foods with explicit representation of valued good attributes and underlying attitudes.
- Utilizing the explicit representation of valued good attributes and underlying attitudes within the estimated demand system to evaluate different information and labeling strategies in addition to more traditional evaluation of the demand effects of prices, demography and policy instruments.
- Conducting similar estimations and analyses in one or two neighboring countries for exploring export markets and for comparison of the importance of differences in market conditions from country to country.
- Confronting willingness to pay (WTP) information elicited through a Contingent Valuation design with revealed demand behavior of the same group of households, thus addressing the problem of designing and interpreting WTP studies on organic foods.
- Analyzing demand for organic convenience food/prepared meals and underlying attitudes, including valued product attributes and willingness to pay.
- Analyzing consumer preferences in relation to processing technology, sales channels, and identifying those consumer groups who prefer alternative and small-scale processing technology and sales channels.

Description of work, data and methods

The project

In the project, the individual households' consumption of organic foods is modeled, and its dependence on important factors such as prices, household income, geographic location, consumers' occupation, age, number of children, etc. This is done both for individual goods and aggregated commodity groups of Danish as well as foreign consumers, including estimates of demand curves plus price and income elasticities. 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. Furthermore, the project will identify and quantify factors having a crucial influence on the future development in consumption.

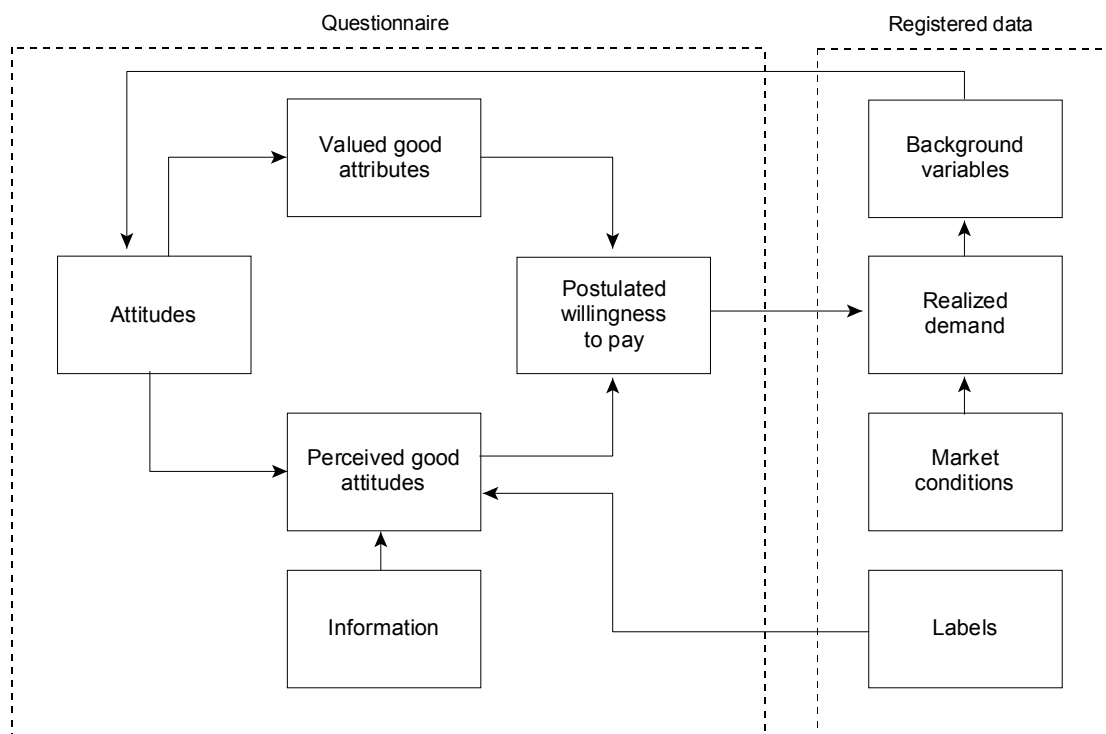
The detailed demand modeling at household level makes it possible to estimate aggregate demand as a function of economic variables like prices and income, and as a function of the share of different types of households. This makes possible the evaluation of the effect of policy instruments such as subsidies, labeling, information etc. on total consumption as well as on individual consumer segments. Furthermore, it will be possible to examine changes in aggregated demand function (and thus the effect of different policy instruments) as a result of expected demographic developments under

different assumptions of developments in sales channels and food culture (attitudes towards imported goods, preferences in relation to prepared/ unprepared products etc.). An important element is evaluation of the importance of demand on the price premium on organic goods on interaction between demand, price premiums and market supply.

The theoretical basis of the model is economic utility theory. Each consumer is modeled as a utility maximizing neo-classical agent.

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. Data for parameterization can be divided into nine types and will be collected through two vehicles, according to figure 1.

Figure 1



On the basis of focus group interviews we will structure the theoretical model of household preferences and the questionnaire. Panel data estimates will then be used to estimate the system of demand equations derived from the model of household preferences. Subsequently, the estimated system will be used for evaluation and simulation.

The panel data

Studies based on actual purchase data are rare. Previous research using survey methods distinguished the following factors as important in determining consumer demand for organic versus non-organic food (Misra, Huang and Ott, 1991; Huang, 1996; Thompson and Kidwell, 1998; Fu, Lin and Hammett, 1999; Kafka and von Alvensleben, 1998; Menghi, 1997, Byrne et al, 1991; Groff et al, 1993):

- age of children
- age of adults
- income level
- level of education
- sales channels

The influence of these variables is not conclusive, however, and in particular, their interaction with

price elasticities has not been explored in-depth. Further surveys asking hypothetical questions about intended purchases can suffer from various forms of biases due to the experimental situation (see Mitchell and Carson, 1989).

We use panel data from the market research institute “GfK Danmark” who register the daily purchase (both price and quantity) of both organic as well as conventional products in a representative Danish household panel. The data distinguish themselves by not being based on hypothetical, but on (self-registered) actual consumption. As shown by Wier and Calverley (1999) almost all research up till now has been based on postulated behavior, e.g. interviews and questionnaires. GfK Danmark has corresponding institutes and databases in various other European countries, e.g. Germany, Sweden and England. In Denmark however, registration of the organic consumption is subject to a far higher degree of uncertainty.

The individual household in the data from GfK Danmark contains information on a series of socio-demographic characteristics (e.g. age, education, income, occupation, number and age of children, type and location of residence) and on total annual consumption. The core of the data set is a registration of household purchase of goods on a daily basis during the period 1997 to 1999, covering 80% of the goods sold in grocery stores. In addition to price, quantity, and a detailed commodity code, information on the type of store is recorded. The commodity code makes detailed modeling possible of the demand, including specifying income, own- and cross-price effects for organic products. Furthermore, the database contains information on labeling of the products, e.g. the Ø-label, which is the Danish label for organic state certification and control. As data are available at the individual household level, it is possible to identify the variations between the demand behavior of different types of households.

The use of household level panel data has at least three advantages over estimations based on aggregated data. First, it becomes possible to take account of variation in unobserved time-invariant household background variables by modeling with fixed/random effects and coefficients. It is well known that not taking account of such effects may result in substantial parameter bias. Second, household level data make it possible to systematically explore and test the effects of observed background variables. These are to some extent implicitly assumed a priori when data are aggregated. Finally, the substantially higher number of observations makes it possible to estimate more sophisticated models than when data are aggregated to fewer observations.

As mentioned above, the foreign data are more uncertain and incomplete than the Danish data regarding the registration of organic consumption. For the purpose of the present project, a data set matching the Danish data must be constructed for a selected country. Nevertheless, we assume the data quality will limit both the possibilities of the analysis and the validity of the conclusions. Therefore, we will most probably analyse selected commodity groups on the markets abroad.

The questionnaire to the panel

In this study, the objective of the questionnaire is solely to elicit information on household attitudes, valued and perceived food attributes. We will also illicit willingness to pay for purposes of comparison and we will ask supplementary questions on labels, information and demand rationing (see figure 1 for an overview).

Initially, we will undertake a number of focus group interviews in order to specify a structure for the household utility function i.e., specifying the vector of potential attitudes and corresponding valued good attributes. Some starting points for this process can be found in the literature:

- S Consumers' risk perception may play an important role (Huang, 1993). A household with a higher perception of the health risk of conventional food should, be willing to pay more for organic food containing no pesticides. An early study, however, shows that the price premium did not vary with the level of perceived risk reduction from buying organic produce rather than conventional produce (Eom, 1994). This may be an important attitude attribute pair. Goldman and Clancy (1991) found that a high level of concern appeared necessary in order to affect the frequency of organic purchases. As regards Danish consumers, Land (1998) found that pesticide residue concern was the most important purchasing motive.
- S A recent study on consumer willingness to pay for pesticide-free produce involved a contingent ranking valuation in which consumers were asked to rank different “bundles” of characteristics involving trade-offs between price, level of pesticide residue in bread, personal health impact, and reduction in bird species (Foster and Mourato, 1997). The study suggests that concern for natural

bio-diversity may be an important attitude. More broadly speaking, several studies find that environmental concern is found to be an important motive to buy (e.g. Swanson and Lewis, 1993; Hack, 1993; Goldman and Clancy, 1991).

S Concern for domestic animal welfare may be a third important attitude (cf. Menghi, 1997).

The proposed survey of a sample of consumers will be designed to identify those motivations ranked highest among consumers in determining their choice of organic produce: e.g. personal health risks, domestic animal welfare or concern for the environmental quality? Considering that organic produce presents a bundle of different characteristics to the consumer (health benefits, environmental benefits, taste, appearance), the method of choice experiments is probably most suited to evaluate consumer preferences for different attributes.¹ In a choice experiment, consumers are asked to do pair-wise comparisons between two bundles. Such an experiment would involve exposing the consumer to situations involving a choice between different purchases combining varying price and risk characteristics (level of pesticide content, for instance). Choice experiments should normally be carried out through personal interviews, and since this method is costly to administer, it will be necessary to use only mailings followed up by telephone calls. An alternative approach could then be to ask consumers to rank those characteristics of the produce they feel are most important to them.

Subsequently, implicit willingness to pay for the different attributes can be calculated using discrete choice random utility models.

The model estimation

The estimation of the demand system takes its point of departure in current panel data estimation methods (see, e.g., Hsiao, 1986 or Baltagi, 1995). As the material is very detailed, we expect to obtain a large amount of corner solutions (i.e. most households will have zero demand for one or more goods) as well as a considerable auto-correlation and seasonal variation. The handling of auto-correlation and seasonal variation is more or less standard, whereas the corner solution problem may lead to the use of more advanced panel-estimation models.

Although we will undertake aggregation to some extent, we must envision that the problem of many corner solutions will persist. This gives rise to at least two potential estimation problems:

- *Parameter variation*: even if households have the same unrestricted utility function, demand functions derived under different choice restrictions will differ. Thus, we must estimate several sets of function parameters - one set for each combination of restrictions.

- *selection bias*: if error terms in the process of selecting the goods to be demanded are correlated with error terms in the demand functions, we will have selection bias.

Weaver and Lass (1989) discuss both problems in the context of multi output/input agricultural modeling. They address the first problem simply by subdividing the data set and undertaking separate estimation for each of the (in their case two) parameter sets. They address the second problem by estimating a Heckman selection model. Several other selection models are also possible (see Bockstael et al. [1990] for a useful comparison of alternative selection models).

However, these estimation approaches are based upon a selection process dividing data into two groups. In our case, we will have a large number of zero-demand combinations. Thus, the partitioning and separate estimation strategy of Weaver and Lass may not be applicable, since the number of parameters to be estimated easily becomes too large. We therefore envisage a different approach.

To address the problem of parameter variation, we may instead take a point departure in quadratic specifications of the utility function emitting linear demand functions. It can be shown that the parameters of the system of first order conditions for a linear demand system are not affected when the utility maximization problem is restricted. This, in turn, allows simultaneous estimation of all first order conditions irrespective of the combination of zero-demand restrictions. Thus, when using the quadratic functional specification, we are able to avoid the problem of parameter variation if we estimate the first order conditions rather than the derived allocation functions (see e.g. Hansen and Jensen (1998) for an example of this approach). On the other hand, this means that estimations must utilize instrument variable techniques since explanatory variables in the estimated system (realized demands) are not exogenous.

In order to address this selection model, we could utilize the result of Lee (1983). Lee showed that

¹ See Hanley, Wright and Adamowicz, 1998 for an introduction

a simple two-step estimation procedure, similar to the one derived for the Heckman model can be used for a general class of data selection/regression models - one of these being the multi-nominal Logit data selection model. Lee's results imply that such a selection process combined with a normal regression model can be estimated by a two-step Logit-OLS procedure, where suitably adjusted Mills type ratios are derived from the Logit estimation and included in the OLS-estimation so as to correct for selection bias. Since the multi-nominal Logit model is suitable for a large number of categories, this approach is a computationally feasible way of addressing the selection problem in our case. However, this also implies making the restrictive assumption of independence of irrelevant alternatives.

In conclusion, the estimation problem we are faced with is not straight forward and will require some exploration. On the other hand, there seems to be usable avenues of pursuit.

Evaluation and simulation

Based on the modeling results, a large number of analyses may be carried out. The main analyses are listed below:

- If the price sensitivity of organic food consumption is high, it means that the price conditions between the two groups are decisive determinants for the demand for organic products. This also means that policy instruments like levies and subsidies will be effective. Scenarios of the effect of the instruments will be carried out.
- Examination of differences between postulated willingness and observed willingness to pay and analysis of the implications of that in relation to food demand studies.
- Examination of differences in people's confidence in organic product labeling among countries and among different consumer groups within the individual countries and evaluation of labeling as a regulatory instrument.
- Analysis of differences in food consumption and consumer preferences from country to country, based on the identification of the explanatory factors behind the differences. Of particular interest are differences in food culture (favorite types of food, attitudes towards imported goods, preferences of prepared/unprepared products, etc.), and differences in sales channels (whether the products are sold in supermarkets, through alternative sales channels like health-food shops, in farm shops, food co-ops, or on markets).
- The development in market potential for organic food at home and abroad as a result of the demographic development under differently assumed changes in sales channels, processing technology, product development, policy instruments, food culture, etc. will be examined through scenario calculations.

Major tasks:

Data acquisition and estimation:

- **T1:** Specification of the theoretical utility model (with underlying attitudes and valued attributes) taking a point of departure in literature and using focus group interviews
- **T2:** Design of the questionnaire through use of focus groups and tests
- **T3:** Surveying of questionnaire (this is part of the GfK Danmark standard procedure).
- **T4:** Estimation of income elasticity of various organic products and of cross-price elasticities between organic and non-organic products.
- **T5:** Investigation of alternative model approaches implementing relevant socio-economic and demographic variables, plus underlying attitudes.

Analyses:

- **T6:** Evaluation of the implications of the estimated price sensitivity of demand for organic foods, including evaluation of the effect of economic policy instruments such as levies and subsidies.
- **T7:** Examination of difference between postulated willingness and observed willingness to pay.
- **T8:** Identification of differences in purchasing motives, attitudes towards convenience food and towards alternative sales channels and processing technology and in the demand (and in its price sensitivity) between different consumer groups dependent on age, number and age of children, income, education, number of preschool children and place of residence.
- **T9:** Examination of differences in people's confidence in organic product labeling among countries and among different consumer groups within the individual countries.
- **T10:** Analysis of differences in food consumption and consumer preferences from country to country, and identification of key factors behind the differences. Of particular interest is differences in food culture (favorite types of food, attitudes towards imported goods, preferences of prepared/ unprepared products etc.), and differences in sales channels (whether the products are sold in supermarkets, through alternative sales channels like health-food shops, food co-ops, in farm shops or on markets).
- **T11:** Examination of differences in purchasing motives, willingness to pay, store choice and the importance of socio-demographic variables for different types of organic products.
- **T12:** Analysis of the effect of policy instruments such as levies, subsidies, information campaigns and different types of labeling depends on both market conditions like sales channels as well as on consumers' socio-demographic characteristics and purchasing motives.
- **T13:** Scenario calculations

Deliverables

D1: Working paper with data documentation

D2: Time table version 2

D3: First annual status report

D5: Working paper on modeling and estimation approach

D6: Working paper stating main hypotheses based on our previous study, literature, and focus group interviews

D7: Time table version 3

D8: Second annual status report

D9: Working paper documenting results from questionnaire

D10: International paper documenting results concerning the importance of prices and income for different types of organic products

D11: International paper documenting estimation results concerning the importance of socio-demographic variables

D13: International paper, with examination of difference between postulated and observed willingness to pay

D14: International paper, analyzing differences in purchasing motives, willingness to pay, and the importance of socio-demographic variables for different types of organic products

D15: International paper, with identification of differences in purchasing motives, attitudes towards convenience food and towards alternative sales channels and processing technology between different consumer groups

D16: Time table version 4
D17: Third annual status report
D21: International paper, with examination of differences in people's confidence in organic product labeling among countries and among different consumer groups within the individual countries
D22: International paper, with an analysis of differences in food consumption and consumer preferences from country to country, and identification the explaining factors behind the differences. Of particular interest is differences in food culture and differences in sales channels
D23: Time table version 5
D24: Fourth annual status report
D25: International paper, with an analysis of the effect of policy instruments like subsidies, information campaigns and different types of labeling depends on both market conditions like sales channels as well as on consumers' socio-demographic characteristics and purchasing motives
D26: International paper, with results from scenario analyses
D27: Time table version 6
D28: Final annual status report

Milestones

M1: Decision of modeling approach
M2: Completion of analysis of the importance of prices and income
M3: Completion of analysis of the importance of socio-demographic variables
M4: Results from questionnaire collected
M5: Completion of analysis of purchasing motives and (observed as well as postulated) willingness to pay
M6: Completion of analysis of differences in purchasing motives, attitudes towards convenience food and towards alternative sales channels and processing technology
M7: Completion of analysis of people's confidence in organic product labeling among countries and among different consumer groups
M8: Completion of analysis of differences in food consumption and consumer preferences from country to country
M9: Completion of analysis of effect of policy instruments like subsidies, information campaigns and different types of labeling
M10: Scenario analyses

WP2: Alternative distribution channels – driving forces and potentials

Work-package number:	3
Start date or starting event:	April 2000
Responsible person:	JHI*
Contributing persons:	NN*
Person-months:	1* 12*

JHI act as a supervisor to the Ph.D. student (NN). AAU will apply for supplementary funding.

Objectives

To identify driving forces behind “alternative” and “small-scale” market initiatives and their opportunities, including institutional and structural limits for further innovations.

Description of work

Our point of departure is a hypothesis stating that marketing structures related to organic food, are innovated

primarily by a very limited number of pioneers (individuals as well as small-scale firms) characterized by a distinctive bottom-up approach. We acknowledge an evident requirement to survey these innovative undergrowth activities and especially to examine, which opportunities the pioneers are able to utilize, and which barriers they encounter, but also to examine their potential significance as source of inspiration to more established firms wanting to include organic food in their product program.

As a basis for this work-package it is assumed, that differences between established and alternative structures as well as reciprocal differences among the alternatives can be described and analyzed in terms of three analytical fields:

- Credence
- Organisation
- Distribution

Organic food can be considered as *credence* goods. Motives to prefer organic can be founded upon ethical deliberations – e.g. pointing at environmental or animal welfare considerations - or upon considerations concerning personal health. In both cases the assumed quality can not be read out of the product in immediate sense but should be attached the production process. The derived double dimension of quality considerations – one related to sensory characteristics of the product, and another related to invisible characteristics of the process - infer a need to reconsider reliance between producer and user. The characteristics of the process must then be communicated from producer to user by means of confidence-building certification and labeling, or by means of specific connections between producer and user.

In relation to *organization* of marketing structures, it is possible to distinguish between user-pull and producer-push initiatives on the market. The firm Aurion in Northern Jutland for instance was established and organized as a result of users in search for producers, while the firm These Mejeri was established and organized as a result of producers in search for users. In the former example, a group of users needed food at a certain quality level after which the firm was established to provide these products. In the latter example a group of producers (farmers) wanted to produce food at a certain quality level after which the firm was established to find markets for these products. However, contours of new ways to organize connections have recently emerged. For instance, a group of producers (organic farmers) and users (organic consumers) have joined in a new organization (Projekt Landbrugslaug), founded on a common wish to produce and use organic goods. The participants aim at creating an organization where producers and users share ownership and responsibility and hereby build the organization upon a close personal relationship between the two.

In the last decade established retail systems have evolved to become the primary means of *distribution*. However, the numbers of farm shops have simultaneously increased and sales by means of the Internet have been established. Besides, a co-operative (Spidsroden) has been established in Copenhagen stating general environmental friendliness as benchmark. The latter infer that not only the product and the process but also the distribution system has to achieve certain environmental standards, considered from an overall point of view.

The method will involve three elements:

1. **Historical review.** Description and analysis of the evolution of marketing structures in Denmark related to organic food from 1980 to the present, involving the three analytical fields outlined above. The survey will be based primarily upon written sources, followed by qualitative interviews with key figures.

2. **Case-studies.** 2-4 cases will be selected among relatively new pioneering enterprises. Their evolution from idea to success or failure will be described and analyzed. The data-collection will be based primarily on qualitative interviews and secondarily on written sources. Analysis will be carried out involving evolutionary theories of innovation and social organization.

3. **Outlook.** On the basis of 1., and 2., in comparison with results from work-package no. 1., and in comparison with recent studies of technological and general social trends, an outlook for future marketing structures and possibilities as well as structural and institutional limits confronting pioneer initiatives will be sketched.

Please notice that this work-package will be carried out as a PhD scholarship subject to necessary supplementary funding. The scholarship will have a professional basis in the Agricultural Economics programme at the Department of Economics, Politics and Public Administration, in collaboration with the interdisciplinary network POET. Agricultural Economics and POET aim at raising further funds for projects to follow and follow-up the project described above. In conjunction, a project including environmental assessment of various distribution systems in comparison with the ideals embedded in notions of organic food will be prioritised.

Major tasks:

- T1. Final description of PhD Scholarship for advertising
- T2. Appointment
- T3. Final description of educational program for appointed scholar.
- T4. Preparation of historical review.
- T5. Selection of adequate cases.
- T6. Selection of adequate evolutionary theories.
- T7. Preparation of case studies.
- T8. Preparation of outlook.
- T9. Preparation of final Ph.D. dissertation.

Deliverables

- D4. Working paper: Historical review.
- D12. Working paper: Theoretical foundation.
- D18. Working paper: Case-studies.
- D19. Working paper: Outlook.
- D20. Dissertation.

Milestones

- M1. Final appointment
- M2. Final selection of cases.
- M3. Presentation of D4.
- M4. Presentation of D12.
- M5. Presentation of D18.
- M6. Presentation of D19.
- M7. Presentation of D20.

7. Implementation and time schedule

Table 3: Deliverables list

Deliverable No	Deliverable title	Delivery date	Meeting	Nature
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D1	Working paper with data documentation	11.2000	WP1:W1	O
D2	Time table version 2	11.2000	G1	O
D3	First annual status report	11.2000	G1	Re
D4	Working paper: Historical review	04.2001	WP2:W1	O
D5	Working paper on modeling and estimation approach	06.2001	WP1:W2	O
D6	Working paper stating main hypotheses based on our previous study, literature, and focus group interviews	06.2001		O
D7	Time table version 3	11.2001	G2	O
D8	Second annual status report	11.2001	G2	Re
D9	Working paper documenting results from questionnaire	01.2002	WP1:W3	O
D10	International paper documenting results concerning the importance of prices and income for different types of organic products	04.2002	WP1:W4	Pu
D11	International paper documenting estimation results concerning the importance of socio-demographic variables	09.2002	WP1:W5	Pu
D12	Working paper: Theoretical foundation.	09.2002	WP2:W2	O
D13	International paper, with examination of difference between postulated and observed willingness to pay	11.2002		Pu
D14	International paper, with an analysis of differences in purchasing motives, willingness to pay, and the importance of socio-demographic variables for different types of organic products	11.2002		Pu
D15	International paper, with identification of differences in purchasing motives, attitudes towards convenience food and towards alternative sales channels and processing technology between different consumer groups	11.2002	WP1:W6	Pu
D16	Time table version 4	11.2002	G3	O
D17	Third annual status report	11.2002	G3	Re
D18	Working paper: Case-studies	02.2003	WP2:W3	O
D19	Working paper: Outlook	04.2003	WP2:W4	O
D20	Ph.D. Dissertation	09.2003	WP2:W5	Th
D21	International paper, with examination of differences in people's confidence in organic product labeling among countries and among different consumer groups within the individual countries	11.2003	WP1:W8	Pu
D22	International paper, with an analysis of differences in food consumption and consumer preferences from country to country, and identification the explaining factors behind the differences. Of particular interest is differences in food culture and differences in sales channels	11.2003	WP2:W3	Pu
D23	Time table version 5	11.2003	G4	O
D24	Fourth annual status report	11.2003	G4	Re
D25	International paper, with an analysis of the effect of policy instruments like subsidies, information campaigns and different types of labeling depends on both market conditions like sales channels as well as on consumers' socio-demographic characteristics and purchasing motives	11.2004		Pu
D26	International paper, with results from scenario analyses	11.2004	WP1:W9	Pu
D27	Time table version 6	11.2004	G5	O
D28	Final annual status report	11.2004	G5	Re

Table 4: Time table

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8. Collaborative partners

National collaborative partners

The projects participants will co-operate on relevant issues with The Organic Service Center (Helle Bossen), The Danish Consumer Council (Bjarne Pedersen), Copenhagen Business School (Susanne Beckmann,) and Danish Institute of Agricultural and Fisheries Economics (Søren Frandsen).

International collaborative partners

Through former positions and visiting scholarships the project participants have contacts at The London School of Economics (UK), University College London (UK), University of York (UK), UC Berkeley (USA), UC Davis (USA), Stanford University (USA), Princeton University (USA), University of Connecticut (USA), Pennsylvania State University (USA), Centre CIRED (France), Institut National de la Recherche Agronomique (France), Stockholm School of Economics (Sweden), Norges Landbrugshøjskole (Norway), Wageningen Agricultural University (The Netherlands).

9. Budget

AKF	2000	2001	2002	2003	2004	Total
Salary (scientific)	110.085	541.883	512.648	481.171	14.455	
Salary (technical)	69.501	134.518	134.004	133.339	1.446	
Operation	648.000	10.000	15.000	15.000		
Overhead	165.517	137.280	132.330	125.902	3.180	
Total	993.103	823.681	793.983	755.412	19.081	3.385.261
CIRED						
Salary (scientific)	0	75.860	93.762	96.575	21.086	
Salary (technical)	0	0	0	0	0	
Operation	0	0	0	0	0	
Overhead	0	15.172	18.752	19.315	4.217	
Total	0	91.031	112.515	115.890	25.303	344.739
UC						
Salary (scientific)	0	0	0	0	0	
Salary (technical)	0	0	0	0	0	
Operation	0	0	0	0	0	
Overhead	0	0	0	0	0	
Total	0	0	0	0	0	0
AAU						
Salary (scientific)	100.765	148.269	152.717	0	0	
Salary (technical)	0	0	0	0	0	
Operation	5.000	5.000	4.900	0	0	
Overhead	21.153	30.654	31.523	0	0	
Total	126.918	183.922	189.140	0	0	499.980
Total	1.120.021	1.098.635	1.095.638	871.303	44.383	4.229.980

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