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Citizens' attitudes towards multifunctional agriculture

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CITIZENS' ATTITUDES TOWARDS MULTIFUNCTIONAL AGRICULTURE

Abstract

This paper examines Finnish citizens' attitudes towards multifunctional agriculture and further, the connections among these attitudes, consumers' willingness to pay, and some socio economic factors. Attitudinal dimensions were executed by using factor analysis. The respondents (N=1300) were distributed into clusters based on their attitudes. It would be expected that people who have positive attitudes, would also state high values of WTP. Instead, this study suggests that attitudes and WTP do not have a positive relation. People are willing to support domestic agriculture as a provider of safe and high-quality food. However, a remarkable proportion of Finnish citizens have a positive attitude towards externalities and joint products of agriculture.

Keywords: Multifunctional agriculture, agricultural policies, attitudes

JEL classification: Q18

1. Introduction

Multifunctional agriculture has been extensively studied in recent years. In fact, the whole 90th EAAE Seminar in Rennes in 2004 was dedicated to this issue. However, most of the studies have been focused on the supply, rather than the demand aspects of multifunctional agriculture (e.g. Romstad et al. 2000, Randall 2002, Vatn 2002, Ollikainen and Lankoski 2003). Although there are several opinion polls where people have been asked about their views on and expectations of multifunctional agriculture, these polls and surveys have rarely examined citizens' attitudes more thoroughly, and further examined what kind of impacts these attitudes might have on agricultural policy choices. Further, there are a number of studies concerning consumer attitudes towards various pro-environmental products, nature amenities and animal welfare (e.g. Gregory 2000, Nielsen 2001, Cook et al. 2002, Pouta 2003). Our aim is to combine these two themes; we try to find out Finnish citizens' attitudes towards multifunctional agriculture and to examine how these attitudes are reflected to estimated willingness to pay for multifunctional agriculture.

During the past few decades consumers have become increasingly concerned about environmental issues. This development is connected to the so-called 'Green Consumerism' that has its roots in popular movements of the 1970s and 1980s. According to Moisander (2003) Green Consumerism is most often understood to be based on ecologically oriented consumption activities that exhibit and reflect a relatively consistent and conscious concern for the environment. This development reflects also to the demand for agricultural products and to consumers' views on how these products should be produced. Citizens use their power both by voting and through their consumption choices. These decisions can have an impact on, in addition to the agricultural production in the short and medium term, future policies and the world, in which the future generations will live. Contemporary consumers demand a variety of high quality, safe and ethical food, and they also want high-quality public goods and services in exchange for the taxes they pay.

The economic significance of agriculture has diminished in developed countries at the same time as consumer incomes have increased. This development has promoted the demand for the non-marketable goods produced by agriculture. Governments have planned policies that would be capable of taking account of the various roles and functions of agriculture. Agriculture is not only a provider of food and fibre, but also a provider of public goods. In spite of their attempts, policy-makers still have difficulties in including these positive externalities of agriculture in product prices.

The European Union's Common Agricultural Policy (CAP) has had a direct impact on the well-being of its citizens through price, quality, safety and availability of food. Among the objectives of the CAP, there have traditionally been both consumer and producer oriented objectives. In spite of these common goals, the

views and benefits of consumers have not been represented in agricultural policies at an equal and sufficient rate (Ritson 1997). Analysis of consumer and citizen preferences and attitudes can provide information from which policy-makers can draw some conclusion on whether the aims and measures are in line with citizens' views and expectations. At its best, this understanding can contribute to the development of commonly accepted and efficient agricultural policies.

The world trade liberalisation and the enlargement of the European Union have put pressure on the EU to reform its agricultural policy. As the Union has defended and justified its agricultural protection, and aimed at stricter budget discipline, agricultural policy has been modified to be closer to the views and objectives of the citizens. Multifunctionality is one of the objectives of the European Model of Agriculture. Multifunctionality can also be considered as a principle behind the agricultural policy. The introduction of this principle as a part of the Common Agricultural Policy can be considered as a step towards an increasingly consumer and citizen-oriented agricultural policy.

The OECD (2001) analyses multifunctional agriculture from two different origins. On the one hand, multifunctionality is a characteristic of economic activity. Thus, the qualities that make economic activity multifunctional are those interconnected products and impacts that activity at issue produces. These impacts can be positive or negative, intended or unintended, and complementary or contradictory. This kind of multifunctionality is not tied only to agriculture; it is more like a characteristic of various economic actions. Multifunctionality can further be interpreted through the various tasks and objectives that are given to agriculture. Accordingly, agriculture fulfils the obligations that society has put on it. That way, the promotion of multifunctionality can become a policy object.

According to Romstad et al. (2000) multifunctional agriculture, in addition to traditional food and fibre production, has several other functions and social impacts. Agriculture produces both private goods and non-marketable public goods. Environmental effects, amenity services, food security and food quality, the viability of countryside and in some cases food security are essential components of multifunctional agriculture. Thus, multifunctional agriculture has tree different dimensions: economic, social and ecological dimension. Lankoski's (2003) definition for multifunctional agriculture is, to a large extent, convergent to the one above, though he takes joint production and agriculture's role as a producer of multiple products more clearly into the consideration. He further stresses the public good and externality nature of multifunctional agriculture.

This study is grounded on neoclassical consumer's theory. That theory can provide a sound background for a research, but it also has certain weaknesses and shortcomings. For example, it does not take into consideration the psychological and social factors underlying an individual's preferences and choices. Accordingly, the theoretical base was reinforced with Ajzen's & Fishbein's (1975, 1980) Theory of Reasoned Action and Ajzen's (1985) Theory of Planned Behaviour. These theories served as instruments to explain how attitudes are formed, and to understand the factors behind consumer's willingness to pay. We employed these theories in connection to an extensive data set, which was earlier collected to find out consumers' willingness to pay for multifunctional agriculture.

Our main objective is to examine Finnish citizens' attitudes towards multifunctional agriculture. The further aim is to examine the connections among these attitudes, consumers' willingness to pay and some socio economic factors. This study also tries to combine some social and psychological dimensions of consumer behaviour to the standard economics.

The rest of the paper is structured as follows. The introduction section is completed with a brief view of previous research. Chapter 2 presents values and attitudes from the point of view of social psychology. It also presents some value concepts that are often connected to public goods. Methods are presented in Chapter 3 and the results in Chapter 4. Finally, Chapter 5 concludes the paper.

Previous research

Hall et al. (2004) reviewed a range of polls, surveys and some more rigorous surveys that tried to quantify public preferences using e.g. WTP methods. These polls and surveys were conducted by conservation organisations, government departments and the EU. Researches wanted to assess how appropriate those methods were for framing the broad policy tradeoffs. All of these surveys and polls were connected to the contents of multifunctional agriculture. These sources proved that the public opinion is both unstable and somewhat suggestible, and that public preferences for complex goods are hard to identify. Hall et al. attempted to find out if those analysed methods were appropriate and reliable of explaining what the public wants from agriculture. They concluded that it was impossible to derive meaningful quantitative conclusions from the existing literature. Though results reviewed were not statistically robust, they suggested that "the public see a definite role for farming as an intrinsically valued provider of rural environment and public goods."

Opinion survey EUROBAROMETRE 57.0 "Europeans and the Common Agricultural policy 2001-2002" was one of the surveys referred above. European Union Opinion Research Group (EORG) conducted it over the whole European Union. The objective was to analyse Europeans' perceptions of the CAP and changes in those perceptions since 2001. The subjects were the benefits of the CAP for consumers and farmers, the role of the CAP, the way the CAP fulfils its role and the evolution of the CAP. Both in 2001 and 2002 the proposition with which most people agreed was "The Common Agricultural Policy ensures that the food you buy is safe to eat" (36%/40%). Over 30 % also agreed that the CAP ensures that the food people buy is of good quality and healthy. Also the roles of the CAP were asked. The strongest support was given to the roles "Ensuring that agricultural products are healthy and safe" and "of promoting respect of the environment ". Minority of the citizens considered that CAP is fulfilling its role well in areas which were considered as its functions. More than 60 % considered that the way the CAP is developing, away from production subsidies and towards more direct support to farmers and to the development of the rural economy, was a very good or fairly good one. Farmers were distinctly less satisfied with this reform than other people.

Recently, number of consumer attitude studies, somehow related to the principles and contents of multifunctional agriculture, has been published. Aakkula's (1999) research "Economic value of pro-environmental farming" is one, objects and method of which have certain similarities to this study, though Aakkula's overall purpose was to investigate the applicability of the CV-method. First Aakkula estimated consumers' WTP of pro-environmental farming with a contingent valuation method. Further he identified the connections among individual preferences and attitudes and the stated willingness to pay, and finally he analysed what kind of effect additional information had on WTP.

In her research on attitudes and ecologically responsible consumption Moisander (1996) investigated the role of consumers' general pro-environmental attitudes as motivators of ecologically responsible consumption. Concern for environmental problems and perceived moral responsibility for environmental protection were emotions that helped people to overcome the temptation to disregard the negative environmental consequences of their acts. A conceptual model used was based on Ajzen-Fishbein attitude theory. The findings of the study suggested that consumers' general pro-environmental attitudes were relevant motivators of ecologically responsible consumer behaviour, though a strong positive attitude-behaviour was not found in every ecologically relevant behaviour.

Saba's and Messina's (2002) questionnaire was constructed to assess attitudes and beliefs towards the consumption of organic fruits and vegetables. They further analysed the role of trust on perception of risks and benefits associated with pesticides on foods. In their research they utilized the Ajzen and Fishbein's model. The questionnaire contained questions of beliefs, attitudes and intentions of consuming. On the average, people considered that organic fruits and vegetables were healthy and environmentally friendly. The study indicated that component attitude was found to be a significant predictor of intention to eat organic food and vegetables.

In Norway, Storstad and Bjorkhaug (2003) analysed consumers' and farmers' attitudes towards organic farming and organic food. The researchers analysed three separate questionnaires that contained claims about how Norwegian agriculture deals with the environment and animal welfare. Their further aim was to find out if there were any differences between the attitudes of organic and conventional farmers and organic and conventional consumers. The study's results indicated, among other things, that organic farmers and organic consumers had common attitudes towards environmental questions and animal welfare in Norwegian agriculture. Unlike consumers and organic farmers, conventional farmers considered than contemporary farming system do not cause major environmental problems or problems with animal welfare.

2. Focal concepts

2.1. Values and public goods

Non-marketable goods produced by agriculture can have both direct and indirect use values. Direct use values are associated with good's tangible uses, such as outdoor recreation, whereas indirect values are connected to intangible uses, e.g. pleasures of scenic views. Existence value is not connected to good's actual or potential use. It only refers to the very existence of that good. When people consider that the pure existence of certain characteristic or good gives them utility, then that particular characteristic has value. Further, bequest value causes present WTP in order to make sure that certain goods are preserved for the future generations. Correspondingly, option value means that an individual wants to preserve the option to use a resource in the future even though he or she would not be able to use it at present. Altruistic value expresses individual's concern about the other people. Thus, the good is valuable, not only because of the personal utility gained, but also because other people are able to use it. It has been suggested that existence value is a link that connects economics, environmental sciences and humanities (e.g. Kula 1994, Kahn 1998).

2.2. Attitudes and values

Culture, norms and values are important determinants of human behaviour. In the long run, values become especially important because they provide direction and purpose to behaviour. A value is a permanent belief that certain behaviour and end states are preferred to alternative ones. Values constitute a value system which is an organization of these referred beliefs. Thus, a value is a way of believing how one should behave, and correspondingly, values define desirable end goals. Values are more or less permanent which implies that values hardly ever change (Antonides and van Raaij, 1998). Puohiniemi (2002) defines values as principles that guide choices that people make. Accordingly, people rely on their values in choices made in unpredictable situations. He further claims that values are conscious motives.

Values are relatively permanent, whereas attitudes are often susceptible to changes. Contrary to values, attitudes are directly related to attitude objects.

> "Goals are the motives for concrete behaviours and for the attitudes and interests that concur with these behaviours. Values and goals give direction to knowledge, attitude and behaviour. Values are more general than attitudes, because one value can give direction to several attitudes, because values are not directly linked to specific objects. An attitude is the individual predisposition to evaluate an object or an aspect of the world in a favourable or unfavourable manner. Attitudes can briefly be described as likes and dislikes with regard to products, services, people, ideas, behaviours, and other attitude objects."
> (Antonides and van Raaij, 1998)

Ajzen (1988) defines attitudes as latent, hypothetical characteristics that can only be inferred from external, observable cues.

Attitudes are often, but not necessarily, based on previous personal experiences. Person's environment shapes type, quality and quantity of these available experiences and information. Moreover, characteristics and dimensions of attitudes vary. These characteristics and dimensions are for example the qualities based on likings and disliking of people, and resistance and extremity of attitudes. The confidence of attitude has also effect on the relationship between attitude and behaviour. When confidence is weak people look for additional information to confirm their decisions. The stability of attitude is dependent on, whether it is based on object's perceived utilitarian or hedonistic qualities. Utilitarian qualities refer to use values and purposes of use. On the contrary, intangible goods are evaluated according to how they contribute to feelings (Engel et al. 1993).

Attitudes are likely to be relatively good predictors of behaviour. However, there are several limitations to this connection. Attitudes are not static; on the contrary, they are susceptible to changes. The time interval between the measurement and behaviour affects the dependence between attitude and behaviour. Attitude that is based on personal experience, e.g. consumption of certain product, is more stable than attitudes that are based on the information attained from secondary sources. Moreover, the pressures from the social environment sometimes have stronger impact on behaviour than personal attitudes (Engel et al. 1993). If attitudes are employed as predictors of consumer behaviour, there should be a clear connection between these attitudes and behaviour. However, researches have reported findings of an attitude-behaviour inconsistencies, or of a very weak relation between attitudes and behaviour (e.g. Heslop et al. 1981, Hutton and Ahtola 1991). In this study, willingness to pay can be considered more like an intention than an actual behaviour.

2.3 .The component of attitudes

According to the traditional perception, attitudes consist of three different components: cognitive, affective and conative. A cognitive component includes the knowledge of and beliefs about the attitude object. Feelings towards the attitude object are, in turn, included in an affective component, whereas behavioural tendencies, intentions, and actions with respect to attitude object are included in a conative component.

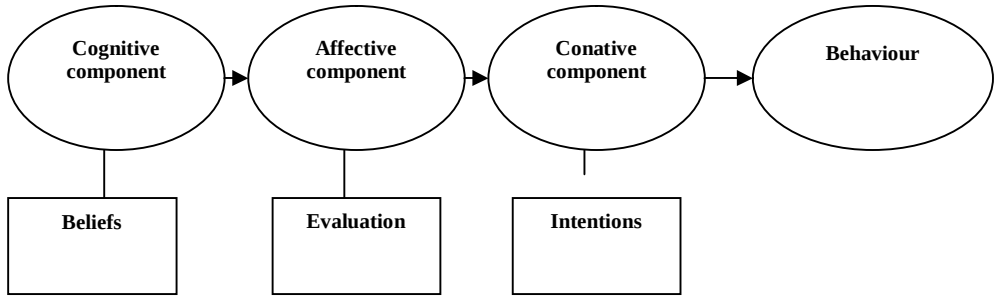

Figure 1. Cognitive, affective and conative components of attitude (Engel et al. 1993).

From a more contemporary point of view, attitudes are restricted to the cognitive component. Thus, the affective and the conative components are, though quite closely related to attitudes, distinct entities. The cognitive component has an essential impact on the affective component. Further, both of these have effect on the conative component, which in turn is an immediate definer of the actual behaviour (Figure 1) (Engel et al. 1993). Ajzen (1988) interprets these component as being different categories of activities that reflect attitudes. Thus, the distinction to cognitive, affective and conative components is only a way of classifying the actions that reflect attitudes

3. Methods

In this study, previously collected data was utilized. The data had been collected in 2002 in order to reveal Finnish consumers' willingness to pay for multifunctional agriculture. The commercial research company had installed a computer-aided interviewing system in 1 300 Finnish households. The selection of these households based on demographic information assured that these people constituted a representative sample of all Finnish citizens aged between 18 and 75 years. Consumers' willingness to pay had been revealed through an open-ended contingent valuation method. Estimated average open-ended WTP for multifunctional agriculture was 94 euros / year / person and the median annual willingness to pay was 50 euros.

Factor analysis was utilised to reveal the latent attitudes behind the respondents' opinions. According to Hair et al (1995) factor analysis is a statistical approach that can be used to analyze interrelationships among a large number of variables and to explain these variables in terms of their common underlying dimensions. The objective is, with a minimum loss of information, to condense the information contained in a number of original variables into a smaller set of factors. The factor analysis was executed by using the SPSS 10 software package. Factor analysis was carried out with both maximum-likelihood method and principal axis factoring. On the grounds of results attained, both methods were feasible and both resulted in a four-factor solution. Factors attained with maximum likelihood method were more clearly interpretable. Warimax was the chosen method for factor rotation.

Factor analysis is able to condense the information contained in data and to reveal the main attitudinal dimensions. However, the results of the factor analysis cannot be used for further analysis as such. The information from the factors can be attached to observations by using means of the factor scores. These scores express how each respondent is ranked in respect of a certain factor (Alkula et al. 1994).

The respondents were distributed into clusters based on their attitudes. Cluster analysis was conducted by using the Quick Cluster k-means cluster procedure included in the SPSS 10. Cluster analysis is a multivariate procedure for detecting groupings in the data. It attempts to identify relatively homogenous groups of cases based on selected characteristics. Cluster distances were computed by using simple Euclidian distance.

4. Results

In this research the summated variable measuring attitudes consisted of three different sets of claims and questions. These sets measured respondents' views regarding environment, agriculture, rural areas, the functions of agriculture and agricultural policies. It was possible to combine these different sets, because all of them were measured with five-point category scales (ranging from 1 to 5). Between the first and second sets, the respondents were informed about the concept and contents of multifunctional agriculture. The internal reliability of the summated variable was measured with Cronbach's alpha coefficient. According to Hair et al. (1995), the commonly used coefficient's limiting value of acceptable reliability is 0.7. The final set consisted of 19 different claims and questions. The final value of the alpha coefficient was 0.857. This indicator can be considered relatively reliable in measuring consumers' attitudes towards multifunctional agriculture.

Factor analysis was carried out with both maximum-likelihood method and principal axis factoring. Both methods concluded a four-factor solution. Maximum likelihood factor analysis was chosen, both because the results met the indicating criterion and because it provided clearly interpretable factors. Orthogonal rotation further clarified this interpretation. Only factors which had eigenvalues greater than one were included in the final factor solution. Another measure to decide the number of factors used was Cattell's scree test. The core idea of this test is to derive the number of factors from the relations among successive eigenvalues. This inference can be made graphically by presenting eigenvalues along the Y-axis and their serial position along the X-axis, and observing where the curve stabilizes. Further, the first four

factors accounted for 42.9 per cent of the total variation, and fourth factor alone for 5.8 per cent (Appendix A).

According to all these referred criteria, the maximum number of factors to be extracted was four. In addition, the three-factor solution was also interpreted, but the existence and bequest value dimension were lost in that solution. The rotated factor pattern is presented in Table 1. Factor loadings lower than 0.3 are excluded from the table.

Table 1. Varimax-rotated factor matrix.

Variable	Factor 1	Factor 2	Factor 3	Factor 4	h^2
MFA14D	0.739				0.577
MFA14F	0.675				0.506
MFA14B	0.649				0.477
MFA14C	0.541		0.307		0.462
MFA14E	0.523		0.351		0.408
MFA13D	0.507				0.274
MFA14A	0.401	0.326			0.366
MFA13E	0.385				0.213
MFA15B		0.729			0.624
MFA15A		0.707			0.649
MFA15C		0.636		0.317	0.589
MFA13A		0.388			0.266
NMFA13B			0.582		0.367
NMFA13F			0.501		0.321
NMFA13C			0.467		0.230
MFA13H			0.457		0.219
MFA13G			0.442		0.319
MFA15D		0.364		0.612	0.602
MFA15E	0.384	0.373		0.584	0.692

The verbal description of the factors:

Factor 1: This factor represents an attitude, which emphasizes communality and the individual's responsibility to the environment. It illustrates a positive attitude towards the values of sustainable development. Human advantages are not prior to the well-being of nature and the environment. On the contrary, the human is a part of nature, and an individual is aware of the consequences of humans' deeds, and he/she is prepared to take responsibility for these consequences.

Factor 2: This factor expresses perception that rural areas are for vacation and recreation. The most important function of the rural areas is to provide aesthetic experiences and rest.

Factor 3: Behind this factor is the idea that domestic agricultural production is important both in practice and in principle. Agriculture should focus on its core functions: the production of safe and high-quality agricultural products.

Factor 4: Behind this factor is a perception that it is important to preserve and sustain rural landscapes and the state of the environment, even if it is not possible to personally benefit from these public goods. This attitude reflects existence values and a concern for the rights of future generations.

After the attitudes were defined, the respondents were grouped on the basis of these attitudes. Clustering was executed with five, six, seven and eight initial groups. The six-cluster solution was chosen first, because it appeared to offer a meaningful interpretation for underlying attitudes. Secondly, the one-way variance analysis that was executed supported this solution and finally; a relatively large number of group members in each cluster further strengthened this conclusion.

The significance of the cluster mean differences were tested against WTP and socio-economic variables. The socio-economic variables employed were gender, age, income, place of residence, education, profession, political orientation and place of residence during the childhood. In addition, respondents'

opinion on how multifunctionality support should be collected was used to compare the group mean differences.

The distributions of the continuous variables were tested. According to this information and the scales of the variables, the most appropriate measures of testing the group differences were chosen. The group differences were tested with χ^2 tests based both on cross-tabulations and of the non-parametric analysis of variances (Kruskall-Wallis). Both methods found statistically significant differences in cluster-related WTP, gender, political orientation, place of residence during childhood, the way multifunctionality support should be collected and the questions concerning on the place of residence. Age was tested by using the analysis of variances and further, the Sceffe post hoc test was conducted to determine differences between specific groups. These results are presented in Table 2, where the symbol S refers to significance and I to insignificance at a 5 % risk level.

Table 2. The statistically significant and insignificant differences (t=0.05) in the cluster related means.

Variable	χ^2 **df**	**p = Crosstabulations**	χ^2 **df**	**p = Kruskall-Wallis**	
MFA17 WTP			126.147 df=5	.000	S
TK1 Gender	12.355 df=5	.030	12.346 df=5	.030	S
TK38 Education	32.715 df=35	.579			I
TK39 Profession	96.887 df=50	.000	7.028 df=5	.219	S/I
TK40 Line of business	40.183 df=35	.251	14.149 df=5	.015	I/S
TK44 Income	108.142 df=100	.272	16.380 df=5	.006	I/S
TK60 Political orientation	70.007 df=20	.000	19.176 df=5	.002	S
MFA1 Place of residence during childhood	111.859 df=10	.000	94.133 df=5	.000	S
MFA21 Method of collecting multifunctionality subsidies	77.291 df=15	.000	55.623 df=5	.000	S
LAANI Province	104.527 df=50	.000	62.100 df=5	.000	S
KUN2 Place of residence	100.833 df=15	.000	95.217 df=5	.000	S
ALU2 Place of residence	73.441 df=15	.000	63.880 df=5	.000	S

Age	**Analysis of variances**	**F= 2.049**	**p = .069**		I

Pair wise comparisons for ordinal scale variables were carried out by applying Dunn's (1964) formula which allows for unequal sample sizes (Siegel and Castellan Jr 1988). These comparisons were made to assure that each cluster had statistically significant difference compared to at least one other cluster. Otherwise, the expediency of maintaining that particular cluster would have been questionable.

The essential information concerning this solution can be found in Table 3. The mean factor scores represent the mean value of factor scores that the factor in question has received in the cluster. A positive mean value of factor scores indicates that the clusters having a positive mean value have a stronger-than-average tendency to support the views expressed in that specific factor. Further, the mean and median willingness to pay, together with the percentage proportion of gender and mean age in each cluster is presented in Table 4. The information attained by comparing the cross tabulations' observed and expected counts is interpreted in the verbal characterization of the clusters below.

Table 3. Solutions with six clusters.

Cluster	N=1375 Frequence n	%	Mean score F1	Mean score F2	Mean score F3	Mean score F4
1	135	9.8	1.53	-0.39	-0.36	-0.28
2	170	12.4	-0.20	0.65	-0.03	1.28
3	134	9.7	1.38	0.70	0.91	0.54
4	278	20.2	-0.44	-0.47	0.72	-0.26
5	481	35.0	-0.35	-0.50	-0.57	-0.18
6	177	12.9	-0.39	1.23	0.02	-0.53

Table 4. Cluster related means of certain socio-economic variables

Cluster	WTP mean	WTP median	Gender % female /male	Mean age
1	48.47	20.00	47.4 / 52.6	43.89
2	97.52	50.00	50.0 / 50.0	47.48
3	42.76	0.00	39.6 / 60.4	44.07
4	103.69	100.00	54.7 / 45.3	46.71
5	118.44	100.00	55.1 / 44.9	46.28
6	81.02	50.00	50.8 / 49.2	46.87

The verbal characterizations of the clusters are expressed in the following way:

Cluster 1.

10 % of the respondents belonged to this cluster. There were slightly more men than women in this cluster. The mean age was the lowest of all the clusters: 43.9 years. The mean and median WTP had the second lowest values (mean 48 euros and median 20 euros). Typically, a member of this group was born in the countryside or in a sparsely populated area and was living either in Central Finland or Vaasa province (on the west coast). In addition, he or she was a politically independent worker or entrepreneur.

The members of this group bear common responsibility for nature and for other people. Human interest is not prior; on the contrary, human beings are part of nature and should bear responsibility for their own acts. In addition, these people consider that agriculture should produce high-quality and safe food with production methods that respect farm animals and pay attention to the environment. This view is very close to the principles of sustainable development.

Cluster 2.

Both sexes were evenly represented in this group. The mean age was highest: 47.5 years. WTP measures represented average levels: the mean was 98 € and the median was 50 €. 12 % of the respondents belonged to this cluster. A typical member was a person who was born in a population centre and was politically a slightly left or clearly right oriented student or senior citizen who considered that multifunctionality subsidies should be collected via higher product prices.

These people consider that it is important to maintain rural landscapes and a good state of environment, even though they would not directly be able to benefit from these services. Yet, these people also appreciate beautiful scenery and clean environment in their own neighbourhoods.

Cluster 3.

The cluster consisted of 10 % of the respondents. There were clearly more men than women (60%/40 %). Group members' mean age was the second lowest: 44.1 years. Both the mean and median WTP were the lowest of all the clusters. Typically, a member of this group was born in a town and was living either in Uusimaa (on the south coast) or Vaasa province. Typical occupation was front-runner, superior employee or student. He or she was politically either clearly right oriented or alternatively left oriented. The method on how the multifunctionality subsidies are collected did not play any role to these people.

These are people who have a positive attitude towards the whole content of multifunctional agriculture and towards the values this concept represents. Agriculture is important as a provider of both marketable and non-marketable products. On the one hand, agriculture should take account of the environment and the society in which it operates and produces services. On the other hand, agriculture deserves respect and compensation for these services.

Cluster 4.

20 % of the respondents belonged to this group. There were slightly more women than men in this cluster (55 %). The mean age was 46.7, which represented an average level of all clusters. WTP was second highest: mean was 104 euros and median 100 euros. The typical member was born in town, was living in Southern Finland or Uusimaa province, and his or her occupation was superior employee, blue–collar worker or unemployed. Cluster members' political orientation was clearly or modestly left oriented. They considered that multifunctionality subsidies should be collected via taxation.

These people think that domestic agriculture is important and valuable as such. Agriculture should produce healthy and clean food, other functions of agriculture being quite unimportant.

Cluster 5.

This cluster was the largest, representing 35 % of all the respondents. There were slightly more women than men (55%). The mean age was 46.3 years. In spite of attitudinal indifference, these people stated the highest values of WTP: mean 118 € and median 100 €. Most farmers belonged to this cluster. These people were born in the countryside or sparsely populated areas and were living in Northern Finland or Central Finland. They considered that multifunctionality subsidies should be collected via taxation.

These people have a negative or indifferent attitude towards all the values and functions that multifunctional agriculture represents.

Cluster 6.

13 % of the respondents belonged to this cluster where both sexes were evenly represented. The mean age was second highest of all the clusters. WTP was on the average level: mean was 81 € and median was 50 €. Typically, these people were born in town and they were living in Uusimaa province. Further, typical occupation was white collar or blue collar worker. These people considered that multifunctionality subsidies should be collected via taxation or via higher product prices.

For these people the countryside is a source of recreation and a place for leisure. They consider agriculture and the countryside as providers of services and of safe and pure food. These people can be considered hedonists. They are looking for enjoyment from beautiful nature resorts and landscapes. It can be suggested that agriculture has instrumental value for these people.

If the clusters are sorted after increasing WTP, the ranking of the occupations is the following. In the cluster of the lowest WTP, the proportions of front-runners, superior employees and students were higher than the expected values. The typical member of the second lowest WTP-cluster was a blue-collar worker, and in the next cluster white-collar worker or blue–collar worker. In the cluster where existence and bequest

values were highly appreciated, the groups were, not surprisingly, students and pensioners. In the cluster of second highest WTP superior employees, white-collar workers and the unemployed were overly represented. Finally, the highest WTP was typically among farmers and pensioners. According to Moisander (2001) women are more often concerned about environmental issues, and they also express this concern in the way they act. Nevertheless, in this study the majority of the members in clusters that represented the most positive attitudes towards multifunctional agriculture were men. Instead, in the clusters of high WTP women constituted a majority. Consequently, for both sexes attitudes and intentions were not in line.

There was not linear dependence between attitudes and WTP. The results were also examined against the socio-economic variables. The economic theory presupposes that, as consumers' income grows, the demand for so-called normal goods grows, as well. In this study, there was no linear dependence between consumers' income and their WTP. However, because income was measured as a whole household's pre-tax income, while WTP is personal, these two were not unambiguously comparable. In addition, there was no statistically significant difference between the clusters with relation to households' pre-tax income.

Consumer theory presupposes that people are capable of comparing expected costs and benefits and of making them commensurable. Accordingly, it would be expected that people who have positive attitudes towards multifunctional agriculture would also state high values of WTP. Instead, this study suggests that attitudes and WTP may have a more or less inverse relation. However, past research (e.g. Moisander 2001, Aakkula 1999) also suggests that the presence of a pro-environmental attitude does not necessarily lead to pro-environmental actions or intentions. The results are interpreted against this background, although the utilized open-ended WTP includes the possibility of a number of biases.

The respondents were told that they should pay extra for multifunctional agriculture. Yet, the relatively high proportion of zero WTPs (20 % of respondents) indicates that instead of collecting more taxes or increasing prices, the reallocation of the agricultural subsidies would be a preferable choice. Moreover, the mean WTP is very sensible to the outliers. The outliers were not excluded because there was a desire to maintain comparability with the results that were previously attained from this data. One further source of bias is that people do not have experience in valuing these goods in monetary terms. Accordingly, their stated WTP may differ from the situation in which they actually are obliged to pay that sum.

5. Conclusions and Discussion

The main objective of this study was to examine Finnish citizens' attitudes towards multifunctional agriculture. Moreover, the connections among these attitudes, citizens' willingness to pay and some socio-economic factors were examined. This section concludes the main findings and also discusses the implications and interconnections of the results attained.

In addition to use value, non-marketable products have non-use values such as existence value, bequest value, and option value. The contingent valuation method is able to produce monetary estimates for these values. In this study attitudinal dimensions were executed using factor analysis. These attitudes can be interpreted as reflections of the values that guide human actions and attitudes. Factor 1 reflects the values of sustainable development, Factors 2 and 3 the use values of agriculture and rural areas (food and recreation), and Factor 4 existence value and bequest value.

Consumer theory presupposes that people are capable of comparing expected costs and benefits and of making them commensurable. Accordingly, it would be expected that people who have positive attitudes towards multifunctional agriculture would also state high values of WTP. Instead, this study suggests that attitudes and WTP do not have a positive relation. The highest mean and median WTP was in the cluster whose members had negative or indifferent attitude towards all the values and functions that multifunctional agriculture represents. These people had typically lived their childhood in the countryside, and they lived in Northern or Central Finland. Thus, because of the circumstances, these people are familiar with the problems of agriculture and rural areas. It is possible that the concepts multifunctional agriculture and externalities and their contents are not familiar enough to these people. Since most of the farmers belonged to this group, it is

presumable that farmers do not consider multifunctional agriculture, or at least some of its contents, very important, though they are the ones who are supposed to put these principles and actions into practice. Many farmers consider that agricultural production already complies with ethical and pro environmental principles. Previous research suggests (e.g. Drake 1991, Aakkula 1999) that this can be interpreted as strategic behaviour. Accordingly, farmers state high values of WTP to ensure higher subsidies and thus a higher level of income in the future. Traditional food production and the quality and safety of food supplied were the most important functions of agriculture in the cluster of second highest WTP. These people emphasized the practical and everyday impact of agriculture on their lives.

To summarise about the connections of attitudes, WTP and socio-economic factors, a high social rank was reflected as positive attitudes towards multifunctional agriculture, but not as high WTP. Further, women had higher values of WTP, but men had more positive attitudes than women. As to place of living, people who lived in Southern Finland and Vaasa province expressed positive attitudes. Young age was connected to positive attitudes and alternatively to low values of WTP. According to this, young people appreciate non-marketable goods of agriculture, whereas older people prefer traditional products.

Among young city dwellers, it is perhaps fashionable to express green attitudes without even considering actually paying anything to attain these public goods. In the background of this kind of behaviour may be superficial attitudes without concrete value basis. This kind of contradiction can also indicate strategic behaviour. Moisander (2001) suggests that rent-seeking, the perception that a single individual does not have any influence over this kind of issue, and distrust of other peoples' actions are the main factors that prevent people from acting in a pro-environmental manner.

It would be possible to go deeper into the issues and the results of this study and to recover some of the perceived limitations by further researching the influential factors behind the WTP. For example, to find and research the 'subjective norm' and 'perceived behavioural control' which are referred to in the Ajzen's Theory of Planned Behavior.

In conclusion, Finnish people are willing to support domestic agriculture, first and foremost, as a producer and provider of safe and high-quality food. The other functions of agriculture are still secondary. However, the findings indicate that a remarkable proportion of Finnish consumers have a positive attitude towards the externalities and joint products of agriculture.

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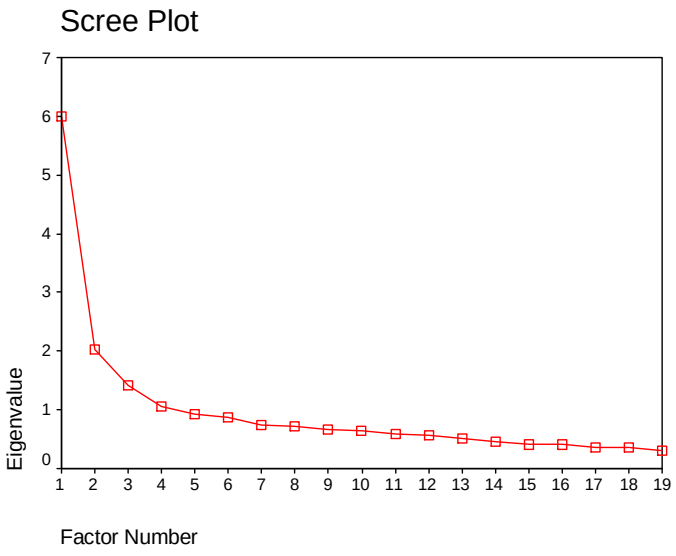
Appendix A

Eigenvalues and variances explained by each factor.

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5,994	31,545	31,545	5,450	28,687	28,687	3,011	15,849	15,849
2	2,029	10,678	42,223	1,405	7,396	36,083	2,225	11,712	27,561
3	1,410	7,419	49,642	,930	4,893	40,976	1,828	9,623	37,184
4	1,048	5,515	55,157	,376	1,977	42,953	1,096	5,769	42,953
5	,920	4,843	59,999						
6	,866	4,556	64,555						
7	,753	3,966	68,521						
8	,720	3,789	72,310						
9	,663	3,488	75,798						
10	,631	3,320	79,118						
11	,581	3,056	82,173						
12	,554	2,914	85,088						
13	,518	2,728	87,815						
14	,460	2,421	90,236						
15	,414	2,178	92,415						
16	,411	2,162	94,576						
17	,368	1,939	96,515						
18	,348	1,832	98,347						
19	,314	1,653	100,000						

Extraction Method: Maximum Likelihood.

Cattell's Scree Test.