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Determining the target groups of Hungarian short food supply chains based on consumer attitude and socio-demographic factors

Consistent with the trend witnessed in other European countries, in recent years there has been an increasing demand among Hungarian consumers for products purchased directly from farmers. However, no research has been published on the determination of clusters of consumers of short food supply chain (SFSC) products in Hungary. This study describes which groups of consumers are more likely to purchase such products, and their reasons for doing so. In the summer of 2013, 1,015 randomly-sampled adults were asked to complete questionnaires during face-to-face, on-street meetings with trained staff. The survey explored their willingness to support direct sales and production of local foods, their perceptions of product reliability, and their attitudes toward global supply-driven systems. As it was not possible to identify a clear structure of factors determining opinions, perceptions and attitudes directly from the results of the questionnaires, principal component analysis was performed, and K-mean cluster analysis was used to partition the respondents into five clusters. These were labelled '*Favouring imports and large farms*', '*Favouring small farms*', '*Informed and empowered consumers group in favour of local farms*', '*Universally positive*' and '*Unconcerned*'. This method was effective in identifying groups of potential target consumers. The level of support for local foods rises with increasing age, and is higher among women, the more highly educated, those that are economically active or retired, and those that consider themselves as having an average income. The results can be used to promote the demand for SFSC products in Hungary through more effective targeting of marketing activities by farmers involved in direct selling, and their organisations.

Keywords: consumer behaviour, consumer clusters, food consumption, local foods

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Introduction

Analysis of consumer behaviour is primarily a marketing instrument that can help to understand how consumers think, feel valued and choose from among a variety of alternatives on offer. The results obtained can also provide information on how consumers are influenced by their environment, and how they make decisions based on what motivations and preferences and purchase products. Analysis of consumer behaviour is a multidisciplinary field: an understanding of economics, psychology, social psychology and sociology are all necessary for interpreting the results (Solomon, 2004). The social and cultural environments, personality and psychological factors can all influence the individual consumer when making a decision, and these factors can be important in understanding the elements of marketing strategies that will satisfy consumers' needs (Rani, 2014).

Examining consumer behaviour is also an important tool in food consumption, including short food supply chains (SFSC). These can be defined as supply chains "involving a limited number of economic operators, committed to co-operation, local economic development, and close geographical and social relations between producers, processors and consumers".[1] The direct or one-intermediary marketing forms of SFSC are of four main types: via intermediary, via delivery, in open farms and in points of sales, and in which there are two sub-categories: traditional and modern. This classification by logistical aspects indicates which SFSC participant should travel to carry out the sale.

Farmers' markets belong to the group of modern points of sales. For these, Williamson (2014) showed that the analysis of consumer attitudes may assist both the market organisers and producers selling at the market. The results of his consumer survey conducted in Kentucky and Ohio, USA indicated that consumers' behaviour as well as their values and orientation are related to the frequency of purchases from farmer's markets. Visiting farmers' markets is not only determined by the food consumption habits, but also other ethical and social considerations such as supporting the local small farmers, protecting natural ecosystems for future generations and/or more appropriate distribution of agricultural products.

Other research has identified several reasons why consumers buy from farmers' markets. Surveys in the United States (Wolf *et al*., 2005; Lyon *et al*., 2009) have shown that consumers choose farmers' markets mainly for fresh, high-quality agricultural products. Among the motivating factors are: better taste of products (Teng *et al*., 2004); local production (Baker *et al*., 2009); support for the local economy (Gumirakiza, 2013); free-range and organic production (Holloway and Kneafsey, 2000; Dodds *et al*., 2014); wide range of commodity in markets (Onianwa *et al*., 2006); and markets as public space (Gao *et al*., 2012).

Studies on producer markets initially focused on economic aspects; however, attention then shifted from producers to consumers. The research mainly sought to determine the typical customer profile of the markets, primarily the demographic characteristics of consumers, the factors motivating the selection of the place of purchase and the extent of preference for local products. The results of international studies (e.g. Varner and Otto, 2008 and Onianwa *et al*., 2006 in the United States) have mostly shown the customers of producer markets to have similar features. The most loyal purchasers of producer markets typically are women, people aged between 45 and 65, and those with higher education.

Cluster analysis has been widely used to examine consumer attitudes and to analyse customer groups. This approach can be used to determine the profiles of groups of

[1] Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005.

potential target consumers, particularly their demographic characteristics, the factors motivating the choice of the place of purchase and the extent of preference for local products. The information gathered can be valuable both for marketing and public policy, as different consumer behaviours require different strategies to enhance the importance of organic and local food products in food consumption for more people. For example, while an emphasis on the health impact of the foods concerned may be especially important for one group, the interest of other segments in organic and local foods might be enhanced by highlighting their ethical values.

These ideas are confirmed by Nie and Zepeda (2011) who examined the attitudes of 956 consumers to the consumption of organic and local food. They showed that the preference for the products concerned is correlated with the degree of environmental awareness and health awareness of consumers, and demographic factors such as age, gender, education and income, all of which are not equally accessible to all consumers. Four food-related lifestyle groups were identified: '*Rational consumers'* (29.2 per cent), '*Adventurous consumers'* (24.1 per cent), '*Careless consumers'* (17.8 per cent) and '*Conservative, uninvolved consumers'* (28.8 per cent). The '*Adventurous consumers'* were enthusiastic about shopping, preparing and consuming food. All the following aspects were very important to them, such as the healthiness, freshness and safety of food. Both '*Adventurous'* and '*Rational'* consumers were active organic and local food shoppers. The demographic characteristics that predicted the lifestyle choice of '*Rational consumers'* were: more children living in the household, being middle aged, being white and having a high income. They were also more likely to have a farmers' market in their neighbourhood. '*Adventurous consumers'* were more likely than the average population to be female, minority and to be in a lower middle-income household. Like '*Rational consumers'*, they could easily access farmers' markets in their neighbourhood.

Elepua and Mazzocco (2010) distinguished five consumer groups based on the popularity of urban and suburban producer markets in the United States. '*Market enthusiasts*' were the second biggest cluster (8.2 per cent of 379 respondents), and for them the most important criteria were the market environment, its services, cleanliness and the quality of organisation of the market. They were characterised by older age, higher educational level and income, and the majority were females.

Rocchi *et al*. (2011) evaluated the importance of sustainable agriculture for 94 customers of farmers' markets and shops in Toscana, Italy. An attitude scale was used and two consumer clusters were created using hierarchical cluster analysis. Group 1 (21.3 per cent) was formed primarily by consumers aged between 34 and 56 years, with a high level of education and good economic status. Their participation in farmers' markets was mainly motivated by a positive attitude towards environmental and rural development goals, and by a willingness to participate in a particular 'social' event. In group 2 (82.2 per cent), most consumers had a lower education level and a modest economic status. Consequently, the most important motivation in participating in farmers' markets was the direct relationship with producers, considered as the main guarantee of quality offered by this marketing form. Overall, the survey confirmed the methodology as suitable for providing evidence about attitude, motivations and purchasing behaviour of consumers participating in farmers' markets.

As far as is known, cluster analysis has not been applied to SFSC consumers in Hungary, but the methodology has been used on two related topics. Among consumers of traditional food products, Szakály *et al.* (2010) identified five groups from among a representative national sample of 1,000 participants. Of these, the '*Young trend makers*' (36.3 per cent of the total) combined care for the environment with pride in their Hungarian nationality and a willingness to support domestic industry by purchasing Hungarian products. This mostly young group was the one with the largest share of those with higher education. Most considered their income to be average, and some considered it above the average. By contrast, the small study by Szabó and Juhász (2013) looked at customers' attitudes to service levels in public markets. Again, five groups were identified. Seven per cent of respondents belonged to the group '*Market lovers*': this was the only cluster that collectively rated the markets with a score above 4 on a 1-5 Likert scale. Its members were typically economically-active metropolitans with a family and a higher level of education. In general, economically-inactive participants with low educational level and living in villages did not prefer this purchase option.

The important lesson learned from the literature is that the demographic characteristics of the communities living close to the markets should be considered when mapping the potential and existing purchasers. The information collected, based on the experiences and feedback according to existing consumer needs, enables markets to decide which products to stock. In Hungary, National Regulation 51/2012. (VI. 8.) VM, introduced in 2012, simplified the criteria for starting farmers' markets and the number of such markets more than doubled from 118 in 2012 to 237 in 2016. Despite the highly topical nature of the subject, no research has been published using cluster analysis specifically on SFSCs in Hungary. The purpose of this study is to fill this gap in the literature by identifying groups of potential target consumers of SFSC in Hungary, and their purchasing habits. The results obtained may provide valuable guidance to farmers and market organisations with an interest in SFSC in Hungary.

Methodology

A wide-ranging survey of the consumer shopping habits of 1,015 adults (i.e. over the age of 18) was conducted in the summer of 2013, during which respondents were asked to complete questionnaires during face-to-face, on-street meetings with trained staff. The survey was carried out at the main railway stations and public spaces of Budapest and four other (NUTS 3) county seats (Debrecen, Győr, Kaposvár and Szeged) distributed across Hungary. Firstly, the respondents were asked to indicate their gender, age, educational level, economic status, subjective income level, household size, the type of settlement in which they live (farm, village, town, county seat, capital) and their NUTS 3 (i.e. county) region of

residence. Of the respondents, 40.3 per cent were male and 59.7 per cent were female. The interviewers sought to make the sample demographically representative and, in most respects, it reflected the profile of the Hungarian adult population. However, people under 35 years of age, the higher educated and those living in cities were over-represented (Table 1).

One section of the questionnaire was designed to assess consumers' views on sustainable food production, including the purchase and consumption of local and/or traditional food products. This paper reports the results obtained and their subsequent analysis.

Based on evidence from the literature (Nie and Zepeda, 2011; Rocchi *et al*., 2011; Williamson, 2014) and the experience of several experts, 26 statements were compiled which explored (a) respondents' willingness to support direct sales and production of local foods; (b) their perceptions of the reliability of these products; and (c) and their attitudes toward global supply-driven systems. The respondents were asked to evaluate the statements using a five-point Likert scale where a score of 1 meant that the person did not agree with the statement, and a score of 5 meant that he/she agreed with it fully. For the results of each question, a mean value and the standard deviation were calculated.

Principal component analysis was performed to study the relationships between the 26 statements. Based on the results of earlier research (Nie and Zepeda, 2011; Williamson, 2014), these statements were sorted into groups which covered four main topics: *supporting domestic small farms*, *supporting bigger farms and food imports*, *supporting local foods and direct sales*, and *informed and empowered consumer*. K-mean cluster analysis involving the four principal components was then used to partition the respondents into five clusters. In line with the literature (e.g. Vanhonacker *et al*., 2007; Elepua and Mazzocco, 2010), the clusters were analysed in terms of the collected data on gender, age group, educational level, economic status subjective income level, household size, the type of settlement in which they live and their region of residence.

During the data collection, in a second set of questions the respondents were asked to indicate how often they purchased food at a particular type of retail outlet. A five-point Likert scale again was used: a score of 1 applied to those who did not buy food at all in this type of outlet, and 5 indicated that the respondents always visited this type of outlet. The outlets listed in the questionnaire covered both the 'long' and 'short' food supply chains. The types of outlet where the members of each cluster generally do their food shopping were then examined.

Data were processed using the SPSS 19 software package (IBM Corporation, Armonk, NY, United States). Chi-square test and F-test were used to quantify the strength of the relationships, and only those results which were significant at the 95 per cent confidence level (sig <0.05) are presented here.

Results

Consumer survey data

On average, the survey respondents attach great importance to supporting Hungarian small farms, direct sales and the production of local foods (Table 2, statements 1-12) because they recognise the social as well as the economic benefits. The most important factor for them is that Hungary and the European Union (EU) should support farmers' markets through project financing (mean: 4.4). The second and the third highest scores reflected the importance attached to the role of small farms in economic and social terms (mean: 4.3). The importance of Hungary becoming self-sufficient in food was also rated highly (mean: 4.2). Additional statements with scores exceeding 4.0 (5, 6, 8, 10, 11) further emphasise the importance attached by the respondents to local foodstuffs and to supporting small farms (7, 9, 12).

Factors that reflect the consumers' perceptions of the reliability of these products (statements 16-18) attracted a mean score of less than 4.0. Respondents believe that the food products from small farms are produced in a traditional way. They do not always trust that these foods are always safe and that the food products the farmer sells are always self-produced (mean: 3.8). While participants 'agree' with these statements on average, around 15 per cent of participants either 'tended to disagree' or 'absolutely disagreed' with them. By comparison, for the statements discussed earlier reflecting support for direct sales and local food, this figure was around just 5 per cent. The statements prioritising global supply-driven systems (21-23, 26) are ranked the lowest, with a substantial proportion of the participants either 'tending to disagree' or 'absolutely disagreeing' with them.

Four principal components were calculated from the 26 statements. Numbers 14, 22, 24 and 25 are excluded as their communalities are below 0.25, which is the limit value of the variable in the main component. The four principal components were:

- PC1: *Supporting domestic small farms*: emphasising the economic, social and environmental roles of domestic small farms, preferring Hungary's aspiration to self-sufficiency;

Table 1: Profile of the survey respondents and of the Hungarian adult population by age, educational level, economic status and subjective income level, per cent (n=1,015).

Age			Educational level			Economic status			Income level	
	Survey	Census		Survey	Census		Survey	Census		Survey
Under 25 years old	35.0	26.7	Primary school	8.6	35.7	Employed, self-employed	44.2	39.7	High	1.7
25-35 years old	19.8	15.6	Vocational school	9.3	14.2	Retired	20.0	29.7	Above average	10.5
36-50 years old	18.9	21.1	Secondary school	38.9	32.1	Out of work	7.0	5.7	Average	59.8
51 years or older	26.4	36.6	College, university	43.2	18.8	Homemaker	2.0	2.0	Below average	18.9
						Student	26.8	24.9	Low	9.1

Note: Subjective income data are not collected by the Hungarian Central Statistical Office
Data sources: own survey and national census, 2011

Table 2: Degree of importance attached by Hungarian consumers to factors influencing their attitudes towards food production, purchase and consumption.

No.	Item	Mean	SD	No.	Item	Mean	SD
1	Hungary and the EU should support the local farmers' markets (963)	4.4	0.91	14	Hungary imports too much food from other countries (966)	3.9	1.18
2	Small farms are important for the country's economy (959)	4.3	0.87	15	I like to taste new types of food (960)	3.9	1.10
3	Small farms play an important role in the social life of rural areas (962)	4.3	0.92	16	Food products from small farms can be characterised by special home-made flavours, traditional methods and recipes (949)	3.8	1.07
4	Hungary should make more efforts to be self-sufficient in food (966)	4.2	1.08	17	Food products from small farmers are safe (941)	3.8	0.98
5	There are benefits to consumers in buying local foods (960)	4.2	1.05	18	I am confident that small farmers sell only their own products in the market (946)	3.8	1.08
6	Delicious, fresh products are available from small farmers (950)	4.2	0.92	19	I always read the label carefully before trying new products (961)	3.6	1.27
7	Small farms can be modernised and increase their competitiveness by receiving appropriate financial support (960)	4.1	0.98	20	I pay special attention to my diet (963)	3.5	1.11
8	Customers receive direct information about products from the farmers (949)	4.1	1.04	21	Hungary should make greater efforts to export more food (954)	3.5	1.36
9	SMEs should be preferred for financial support over big enterprises (953)	4.1	1.03	22	Products from small farmers are too expensive to buy regularly (949)	3.2	1.19
10	When purchasing, trust between farmers and consumers is important (953)	4.0	1.10	23	Imported food is necessary because it ensures a wide range of products is available (964)	3.0	1.17
11	Using labels to mark local products would be helpful for consumers (954)	4.0	1.08	24	Food products from small farmers are produced organically (942)	3.0	1.28
12	Small farms contribute to the beauty of the countryside (958)	4.0	1.07	25	As a consumer, I can easily define the origin of the product (960)	2.9	1.27
13	I care about what I eat (952)	4.0	1.01	26	Financial support should be given to enterprises based on scale – the larger the business the more it should get (955)	2.7	1.25

5 = fully agree; 1 = completely disagree; number of respondents shown in parentheses
Source: own data

- PC2: *Supporting bigger farms and food imports*: preferring global supply systems and supporting large enterprises;
- PC3: *Supporting local foods and direct sales*: emphasising the benefits of local products and direct sales;
- PC4: *Informed and empowered consumer*: paying attention to nutrition and the nature of the food purchased.

The minimum and maximum values of the principal components are shown in Table 3. The variables to be standardised form new principal components, therefore the mean is equivalent to zero in all cases and the standard deviation should be 1. The positive values of the new variables mean that the respondents agree with the concept embodied in the principal components; the negative values indicate the contrary.

Development of the consumer clusters

Differentiating the respondents into clusters allows the groups of consumers with a positive interest in SFSC products to be identified and described. Five clusters were distinguished, based on the interpretation and using the well-defined group features (Table 4). Each cluster was given a name. To identify cluster-specific attitudes related to purchasing and products, the principal component mean values for each cluster were compared using variance analysis. The key features of the preferences of each cluster are as follows:

- Twenty-two per cent of the respondents belong to the cluster *'Favouring imports and large farms'*. They

Table 3: The parameters of the principal components, the composition and communality of the variables that make up the principal components, and the amount of information saved by the aggregated factor.

	PC1	PC2	PC3	PC4
Number of respondents	927	939	914	943
Saved amount of information (%)	54.2	43.9	43.7	54.2
Minimum	-4.443	-2.499	-4.524	-3.383
Maximum	1.117	2.325	1.434	1.493
Item	**Communality**			
4	0.298			
9	0.466			
3	0.662			
2	0.705			
12	0.543			
7	0.578			
23		0.465		
26		0.456		
21		0.396		
1			0.405	
5			0.375	
11			0.302	
10			0.338	
8			0.424	
6			0.591	
17			0.506	
18			0.520	
16			0.473	
13				0.556
15				0.411
20				0.658
19				0.543

See Table 1 for identities of items and text for descriptions of principal components
Source: own calculations

Table 4: Sample size and distribution of consumer clusters, and the mean values of principal components based on clusters.

Cluster name	Sample size (persons)	Share of total (%)	PC1	PC2	PC3	PC4
Favouring imports and large farms	190	22.0	-0.852	0.338	-0.506	0.102
Favouring small farms	174	20.1	0.161	-0.386	-0.110	-1.064
Informed and empowered consumers' group in favour of local farms	212	24.5	0.618	-0.916	0.560	0.481
Universally positive	219	25.3	0.646	0.981	0.669	0.703
Unconcerned	70	8.1	-1.726	-0.385	-1.974	-1.274
Entire sample			0.021	-0.011	0.014	0.001

Source: own calculations

disagree with the ideas of supporting the Hungarian small farms and small enterprises, and prioritising local food as well as direct sales. They prefer global food supply systems, and in parallel with that they are mindful of the importance of prudent food consumption.

- The *'Favouring small farms'* cluster (20.1 per cent) consider it important only to support small farms; everything else was evaluated negatively. Attention to nutrition and the nature of the food purchased is low.
- The third cluster is the '*Informed and empowered consumers' group in favour of local farms*' (24.5 per cent). They object to the idea of supporting large farms and encouraging imports, but they positively evaluated all other factors, although none of the components received an exceptionally high score.
- The *'Universally positive'* group was the largest in the survey (25.3 per cent). These respondents consider both the support and development of local foods, and global food security to be important. They also attach high priority to local sales and pay attention to the nature of the food purchased. All components received the highest positive value from this group.
- The fifth group *'Unconcerned'* has the fewest participants (8.1 per cent). They disagree with all the principal component statements. In this group, apart from the support for large farms and imports (PC2), all components were far below the mean values for the entire sample (Table 4).

Demographic features of the clusters

The five clusters were stratified according to the demographic factors for which statistically significant differences between the groups were identified, namely: gender, age, educational level, economic status and subjective income level.

In terms of gender, slight differences occurred between two clusters (Figure 1). A larger share of men (22.7 per cent) than women (18.1 per cent) belonged to the cluster '*Favouring small farms*', while 27.1 per cent of women belonged to the '*Informed and empowered consumers' group in favour of local farms*' cluster, compared to 21.0 per cent of men. The '*Unconcerned*' cluster accounted for 9.2 per cent of the men surveyed and just 7.4 per cent of the women, but this difference was not statistically significant.

The differences according to age groups were bigger. While 30.9 per cent of those under 25 years belonged to the cluster *'Favouring imports and large farms'*, among people 25-35 years old the figure was 23.5 per cent, and among participants aged 36-50 and those over 51 years old the percentages were 14.7 and 13.2 respectively (Figure 2). Similarly, the share of respondents in the '*Unconcerned*' cluster ranged from 9.9 per cent of those under 25 years old to just 5.4 per cent of those aged 51 years or older. For the group *'Favouring small farms*' the differences were smaller; the largest share of respondents (22.6 per cent) were under 25 years old, and the smallest shares were in the age groups 36-50 and 51 years or older, with 18.2 and 17.6 per cent respectively. By contrast, in the cluster '*Informed and empowered consumers' group in favour of local farms*', representation of respondents was inversely correlated with age: almost 30 per cent of the members were aged 51 years or over, compared to just 17.2 per cent of those under 25 years old. A similar pattern was observed in the '*Universally positive*' cluster.

Distribution of the respondents by their level of education shows a less consistent picture than for age. At 19.4 per cent, the share of '*Unconcerned*' was the highest among participants with primary school education only, three times higher than among those with college or university education (5.8

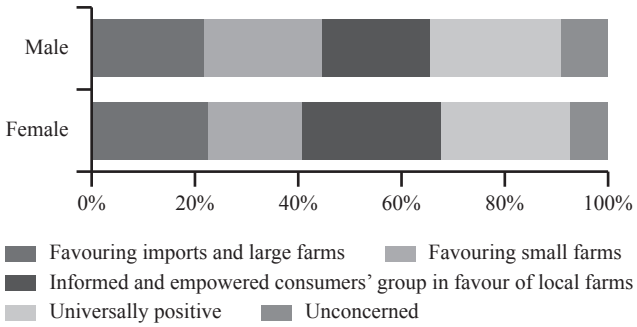

Figure 1: Distribution of the respondents between consumer clusters according to gender.
Pearson Chi-Square sig.: 0.19
Source: own data

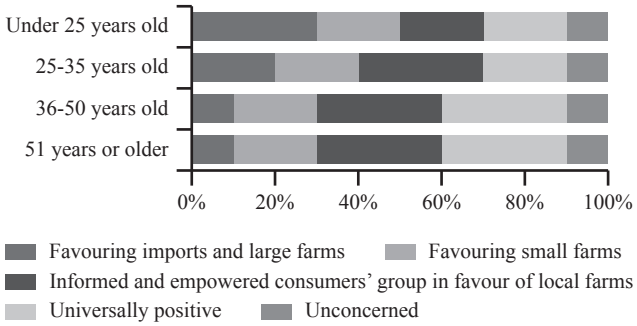

Figure 2: Distribution of the respondents between consumer clusters according to age groups.
Pearson Chi-Square sig.: 0.00
Source: own data

per cent, Figure 3). Among this latter educational group, the largest share (30.0 per cent) belonged to the '*Informed and empowered consumers' group in favour of local farms*' cluster, while, with 35.8 per cent of respondents, the '*Universally positive*' cluster was dominant among those with vocational school education (skilled workers). 24.8 per cent of respondents with secondary school education belonged to the '*Favouring small farms*' cluster, and the '*Informed and empowered consumers' group in favour of local farms*' cluster claimed the largest share (30 per cent) participants having higher education.

As regards economic status, a substantial share (43.8 per cent) of full-time homemakers belonged to the '*Favouring imports and large farms*' cluster, while the equivalent figure was just 11.0 per cent among the retired respondents (Figure 4). This latter group was dominated (38.7 per cent) by the '*Universally positive*' cluster. Twenty per cent of students identified with the '*Universally positive*' cluster, but among this group '*Favouring imports and large farms*' accounted for the largest share (29.6 per cent). Around ten per cent of students and out of work respondents fit within the '*Unconcerned*' cluster. The '*Informed and empowered consumers' group in favour of local farms*' cluster accounts for substantial (ca. 29 per cent) shares of employed and self-employed, and retired respondents, but only 6.3 per cent of full-time homemakers.

There is a clear, positive relationship between subjective income level and the percentage of respondents in the '*Favouring imports and large farms*' cluster (Figure 5). Fifty per cent of respondents with very high incomes, but only 13.2 per cent of those with low incomes, are included here. By contrast, the clusters '*Favouring small farms*' and '*Informed and empowered consumers' group in favour of local farms*' each accounted for only 7.1 per cent of respondents with very high incomes, the lowest percentages in these two clusters of any income group. In all other groups, the combined percentages of these two clusters ranged from 40.0 to 46.5. In each of the three groups with the lowest subjective income levels the shares of respondents in the '*Informed and empowered consumers' group in favour of local farms*' cluster exceeded 22 per cent. A very high (35.5 per cent) proportion of respondents with low incomes formed part of the '*Universally positive*' cluster, and these respondents also had the biggest share (10.5 per cent) in the '*Unconcerned*' cluster, although in this case the differences between the income groups were not substantial.

The research also looked for statistically-significant differences between the attitudes of the respondents on the basis of the type of settlement and NUTS 3 region of residence, but none were identified. However, it can be noted that the group with the highest proportion (30.8 per cent) in the '*Universally positive*' cluster was those living in villages, while only 21.9 per cent of those living in Budapest were part of this cluster. By contrast, 26.6 per cent of Budapest residents were part of the '*Favouring imports and large farms*' cluster, compared to just one fifth of respondents living in villages.

Purchasing habits of consumer clusters

The types of retail outlet most frequently visited by the respondents were specialised shops, discount stores and supermarkets, and hypermarkets, followed by small grocery

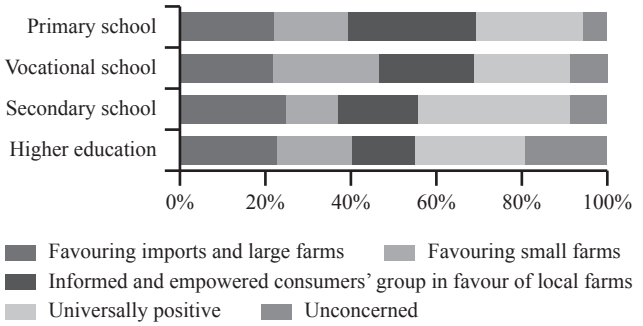

Figure 3: Distribution of the respondents between consumer clusters according to educational level.

Pearson Chi-Square sig.: 0.00
Source: own data

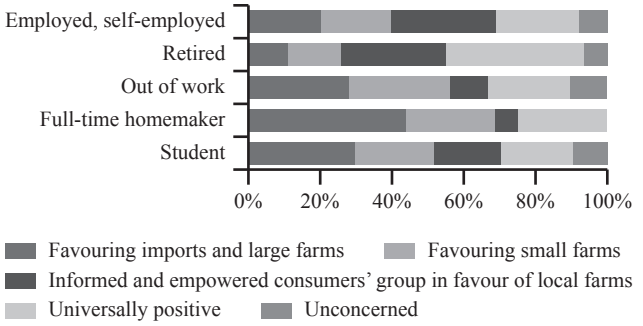

Figure 4: Distribution of the respondents between consumer clusters according to economic status.

Pearson Chi-Square sig.: 0.00
Source: own data

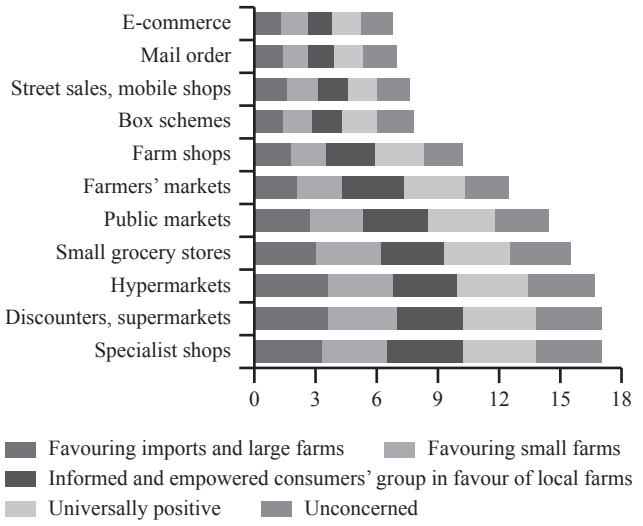

Figure 5: Distribution of the respondents between consumer clusters according to subjective income level.

Pearson Chi-Square sig.: 0.04
Source: own data

stores and markets (Figure 6). Among the options for buying food directly from the producer, farmers' markets and farm shops were the most popular. Other options scored low average values, with purchasing options from the Internet (mail order and e-commerce) being the least popular.

Members of the various clusters used particular types of retail outlets with different average frequencies. Outlets belonging to the so-called 'long' supply chains (e.g. hypermarkets, discounters and supermarkets) were – perhaps

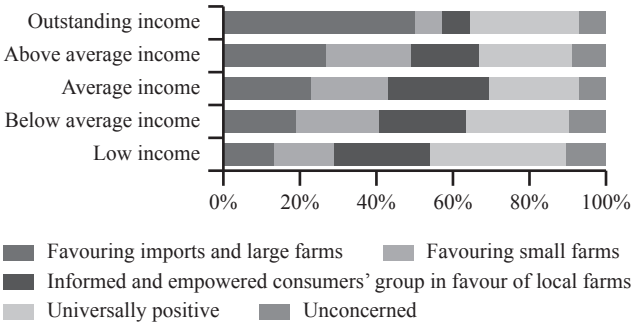

Figure 6: Average frequency of patronising food retail outlets by consumer cluster.

F-test sig.: 0.000
Source: own data

not surprisingly –the most popular among the '*Favouring imports and large farms*' cluster (mean: 3.6), but the '*Universally positive*' cluster also frequently patronised these shops (mean: 3.5-3.6). The '*Informed and empowered consumers' group in favour of local farms*' group visited these outlets less frequently (mean: 3.1-3.2). In general, the outlets where sales take place through an intermediary among 'short' supply chains (especially speciality shops, small grocery stores and public markets) were the most popular with the '*Universally positive*' and the '*Informed and empowered consumers' group in favour of local farms*' clusters and, in the case of small grocery stores, also the '*Favouring small farms*' cluster. Mobile shops seem to be an exception among this group of outlets. Among the direct supply chain outlets, farmers' markets and farm shops are the most often visited by the members of these two groups (mean: 3.0-3.3 vs. 2.1-2.7 among '*Favouring imports and large farms*' cluster), however, opportunities which do not necessarily require personal contact (such as the box system and on-line sales) were the most popular among the '*Unconcerned*' cluster.

Discussion

In recent years, especially since 2012, there has been an increasing demand among Hungarian consumers for SFSC products and, consequently, a growing need to characterise the profile of these consumers. Until now, no such analysis has been reported in the scientific literature. Previous research in Hungary (e.g. Szakály *et al*, 2010; Szabó and Juhász, 2013) has been carried out only on related topics. This study used principal component analysis involving a set of 26 variables (designed to measure consumer attitudes related to food production, purchase and consumption) to produce four aggregated variables (PC1-PC4). Cluster analysis was conducted using these aggregated variables and five distinct groups of consumers were identified in terms of their attitudes, preferences and consumer habits. The five groups, *'Favouring imports and large farms'*, *'Favouring small farms'*, '*Informed and empowered consumers' group in favour of local farms*', *'Universally positive'* and *'Unconcerned'*, differed not only in the way they are thinking, but also according to several demographic characteristics, namely gender, age, subjective income status, educational level and economic status. Only the type of settlement and NUTS 3 region of residence did not appear to influence consumer attitudes significantly, although even here some indicative trends were detected.

Almost 70 per cent of the respondents in the survey can be considered as potential customers of SFSC products, and these belong to three of the five clusters. Members of the '*Favouring small farms*' cluster (20.1 per cent) consider it important only to support small farms, while those belonging to the '*Informed and empowered consumers' group in favour of local farms*' (24.5 per cent) are favourably disposed to small farms, local products and food quality. This cluster may be the most accessible target group for products sold through SFSC. Members of the most populous cluster, the '*Universally positive*' group, to which 25.3 per cent of the respondents belonged, also attach high priority to local sales and pay attention to the nature of the food purchased. This is undoubtedly a very encouraging result for the future further development of SFSCs in Hungary.

People under 35 years of age and the higher educated were somewhat overrepresented in the survey sample, but it should be noted that the former group includes the consumers of tomorrow while the members of the latter group tend to have higher disposable incomes. Thus, the sampling errs towards the over-inclusion of the economically more 'important' groups in Hungarian society. In any case, the analysis of the clusters involved the stratification of the sample according to, *inter alia*, age and educational level. For example, among the respondents in the cluster of most interest, namely '*Informed and empowered consumers' group in favour of local farms*', there are higher shares of females, those aged above 35 years, with a high level of education, economically active or retired, and having an average income. In Hungary, the support for products of SFSCs increases according to these parameters, and this result is mostly consistent with the findings of studies in other countries. Of interest is that the results from these other studies have not been consistent regarding income. Most research suggests that consumers of SFSC products typically have high incomes (Onianwa *et al*., 2006; Varner and Otto, 2008; Elepua and Mazzocco, 2010; Rocchi *et al*., 2011). On the other hand, Nie and Zepeda (2011) described their '*Adventurous consumers'* cluster as having a level of income similar to the results of the current survey. This is a point where further research is needed.

Accurate knowledge of purchasing habits is necessary to determine the potential target groups of SFSC products. Yet the study of customer attitudes is location-specific because the characteristics of consumer behaviour can differ between countries depending on their history, development and economic status. Empirical studies published to date on consumer attitudes to SFSC have mostly been conducted in economically advanced countries, and no similar research from central and eastern European countries has previously been reported. The purpose of this study was to redress the lack of information currently available for this region of Europe.

In addition to the analysis of socio-demographic factors, this study has shown that there are measurable differences between clusters regarding the choice of the place where the food is purchased. Such information allows the extent and target groups of potential demand for each SFSC product range to be defined. Taken together, the socio-demographic

and retail outlet results represent a first step towards aligning the needs of producers and consumers by allowing both the food chain operators and the decision makers to develop and use a set of tools adapted for the motivation of each cluster according to the identified characteristics.

In conclusion, these results show that the method reported here is an effective way of identifying groups of potential target consumers of SFSC in Hungary, and their purchasing habits. But this research is only the first step towards identifying the characteristics of the existing and potential buyers of SFSC products. Further investigation of the consumer attitudes towards SFSC products and exploration of the causes of differences between the groups is needed. This knowledge will allow more concrete tools for SFSC products, consumers, organisers and public policy to be identified which can help increase the share of SFSC products in the food retail market both in the short and long term. The potential demand among almost 70 per cent of the Hungarian population clearly indicates the value of such studies.

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