



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Factors Influencing the Decision of Small-scale Farmers on Marketing Channel Choice: a Hungarian Case Study

Zsófia Benedek^{1,§}, Imre Fertő^{1,2}, Lajos Baráth¹, József Tóth²

¹ Institute of Economics, CERS, Hungarian Academy of Sciences.

² Corvinus University of Budapest.

[§] Corresponding author. E-mail: benedek.zsofia@krtk.mta.hu



**Paper prepared for presentation at the EAAE 2014 Congress
'Agri-Food and Rural Innovations for Healthier Societies'**

August 26 to 29, 2014
Ljubljana, Slovenia

Copyright 2014 by Zsófia Benedek et al. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.

Abstract

The local food movement is rapidly evolving in Hungary. Three market types can be identified: traditional, farmers' and organic markets. Results show that farmer- and farm-specific characteristics as well as attitudes greatly and variously influence the decision of small-scale farmers on finding the proper market type. A relatively young, educated and innovative farmer group is interested mostly in selling at farmers' markets. The outcomes are important in the light of the coming EU funding schemes as small-scale farmers using different marketing channels may require targeted supporting frameworks and solutions.

Keywords: short food supply chain, local food system, farmers' market, organic farming

1. Introduction

Conventional food supply chains may cause several sustainability problems (Farnsworth et al., 1996) including issues of food security or environmental damages due to long-distance transport and logistics. Alternative and short food supply chains (SFSCs) may be able to eliminate or diminish negative impacts and also, rural development possibilities are attributed to them (see e.g. Meter and Rosales, 2001, Tregear, 2011, Watts et al., 2005). SFSCs can be identified usually by two main characteristics (Kneafsey et al., 2013, Parker, 2005): food production, processing, trade and consumption occur within a particular narrowly defined geographical area; and the number of intermediaries (retailers) is minimised (ideally to zero).

There is an increasing body of literature on various aspects of SFSCs including potential economic, social and environmental benefits (Kneafsey et al., 2013, Lea et al., 2006, Martinez et al., 2010, Pearson and Bailey, 2009). Positive impacts on human health (via the reduction of obesity and the related diseases such as high blood pressure, diabetes and so on) are also observed (Berning, 2012, Bimbo et al., 2012, Salois, 2012). Other related strand of literature understands SFSCs as rural innovations (Hinrichs, 2000) based on small-scale farmers and local communities.

Despite the research on supply chain modernisation in Central and Eastern Europe (Fertő, 2009), the role, innovative potential or arrangement of SFSCs in this region are still unexplored. To bridge the gap, this paper focuses on farmers' motivations regarding SFSCs in Hungary.

The local food approach in Hungary is still evolving by means of establishment and development of novel concepts such as community supported agriculture (estimated to involve approximately 10 CSA farmers in 2013, Réthy and Dezsény, 2013) or vegetable box schemes (with the first one established in 2008 in Budapest). On the other hand, forms such as markets, roadside or on-farm sales have long tradition. They have not disappeared during the transition; though official statistics are not available about them. The legal environment regulating the opening of farmers' markets in Hungary changed in June 2012, which resulted in the outburst of the number of this market type.

Besides academic importance, research on SFSCs has also policy implications. Local food systems attract particular attention in the European Union. To answer the call, the Hungarian National Focus of the Rural Development Programme (2014–2020) involves the development of SFSCs in the coming budget period, which emphasizes the need for research input. In order to allocate the EU funds efficiently, the main peculiarities (capacities and needs) of small-scale farmers must be highlighted and the factors that determine their choices must be understood.

“Markets” is by far the most important way of direct selling in Hungary, with respect to farm income (Juhász, 2012) that is why it is in the focus of this paper. However, this channel is heterogeneous. Three market types can be identified: “traditional” markets (that are

government-run, open to all small-scale farmers, with no restriction on geographical distances), farmers' markets (that are defined by law; only producers operating within a distance of 40 km can sell their products) and organic markets (where certification of organic production is needed). Farmers selling at different markets greatly differ from one another (Benedek et al., in press). Vendors of traditional markets are typically middle-aged; organic and farmers' market farmers are younger and more educated. Farm size is relatively small in all cases; however traditional market farmers are remarkably smaller than the rest (in terms of area size, number of employees, etc.). Motivating factors are different in the farmers' groups. Higher price is appreciated most by farmers' market farmers, while organic farmers put emphasis on the fact whether all (their highly specialized) products can be sold along a certain channel. Traditional market farmers are driven mostly by family traditions and personal habits.

This paper addresses the question whether and how these structural factors (farmer- and farm-specific characteristics, motivations and attitudes) influence the decision of small-scale farmers on finding the proper marketing channel (market type). The literature offers various theoretical perspectives to analyse SFSCs (see the review of Tregear, 2011). For our purpose we investigate SFSCs as a mode of governance. Research on vertical coordination along food supply chain is commonly based on transaction cost theory or agency theory framework especially to study the choice of farmers between various marketing channels. However, our focus is different, because we address the issue why farmers do sell their products via SFSCs. Contrary to previous studies which concentrated mainly on potential economic benefits of farmers (e.g. Bakucs et al., 2012, Kirwan, 2006, Morris and Buller, 2003) we investigate producers' motivations regarding to SFSCs. This approach allows us to get more insights to better understand SFSCs.

We believe that structural characteristics and attitudes of farmers do influence the decision on the market type to sell. Decisions on traditional and farmers' markets are studied as selling over there is directly open to all small-scale farmers (unlike at organic markets, where certification is required). Based on empirical evidence, we also hypothesize that the same factor may have different role in case of decisions related to traditional and farmers' markets (see Table 1).

Table 1. Hypotheses.

	Hypothesis	Expected impact on the decision: to sell at	
		traditional markets	farmers' markets
<i>H1</i>	<i>Age, experience</i>	Positive	Negative
<i>H2</i>	<i>Farm size (area, number of products, number of employees, etc.)</i>	Negative	Positive
<i>H3</i>	<i>Main motivation: higher price</i>	Negative	Positive
<i>H4</i>	<i>Main motivation: traditions</i>	Positive	Negative
<i>H5</i>	<i>"Openness" (involvement in cooperation, plans for the future, etc.)</i>	Negative	Positive

Survey data is analysed with semi-nonparametric models to present an empirical analysis of the key determinants of participation in SFSCs.

The rest of the paper is organised as follows. Sampling and key variables are described in section 2. This is followed by the presentation and discussion of the empirical results to explain the participation in SFSCs. The final section concludes.

2. Materials and methods

Our survey was conducted from April to June, 2013. 20 different traditional, organic and farmers' markets were visited in Budapest (the capital, population of 1.7 million), Debrecen (the second biggest city of 207,000 inhabitants, county capital) and Tura (a small town of 8000 inhabitants in Pest County). All markets are held at least weekly, and many of them (especially the traditional markets), daily.

Independent variables (see Table 2) are classified into four groups:

- a. Farmer-specific characteristics, such as age, education (measured on a scale of 5; 1: primary education (total studies of 8 years); 2: secondary education (total studies of 12 years); 3: secondary education, with specialization in agriculture; 4: higher education; 5: higher education, with specialization in agriculture), years of experience, family background (farming traditions in the family), etc.;
- b. Farm-specific characteristics, such as location (at settlement level), area size, size of rent, product diversity (number of products), number of permanent employees, use of organic methods, organic certification; investments in logistics (measured on a scale of 4; 0: no storing facilities; 1: storage with air-conditioning; 2: cellar, pantry; 3: other), etc.;
- c. Motivations for selling at a specific market. Based on previous studies (Bakucs et al., 2012, Bakucs et al., 2011, Juhász, 2012), the following motivating factors were identified *a priori* (and responses were categorized accordingly): higher price, prompt purchase in cash, all products can be sold; family and other traditions, other;
- d. Future plans, external funding (support), participation in cooperation. These questions were used to analyse the openness of farmers.

To better understand the choices of small-scale farmers, questions are also raised about the main channel used (both short and long ones). Respondents were asked to characterize the importance of a mentioned channel on a scale ranging from 1 (occasionally used, not important in terms of revenue) to 5 (most important in terms of revenue). This scale resembles the one of school grades in Hungary; therefore it can be easily interpreted by everyone. To analyse the differences, non-parametric Kruskal-Wallis test is applied. We employ pairwise comparisons using Wilcoxon rank-sum (Mann-Whitney) tests with Bonferroni-corrected alphas, according to Marascuilo and Sweeney (1977).

Dependent variables are calculated based on the last part; namely, which channel (market type) is considered as the most significant (4 or 5). If more types are mentioned as important, the following rank is applied: traditional market (TM) < farmers' markets (FM) < organic markets (OM); the respondent is classified according to the market of highest ranking.

To identify factors that drive farmers' decisions on where to sell their produce (whether to sell at traditional or farmers' markets), we apply various discrete choice models. Data collected at organic markets are included in the analysis as organic farmers can freely choose to visit other market types.

Discrete choice models usually adopt Maximum Likelihood techniques, using *a priori* chosen distributional assumptions. However, parametric estimations are extremely sensitive on distributional assumptions; therefore, we employed the semi-nonparametric approach of Gallant and Nychka (1987) and the semi-parametric maximum likelihood approach of Klein and Spady (1993). We report only those models which perform better.

3. Results and Discussion

Final sample includes 156 observations. Most farmers are involved in horticulture, less in animal husbandry, while the number of mixed farms is the smallest. The number of farmers who apply organic methods is 33, and 21 of them are certified, too. The number of TM, FM and OM farmers (farmers who regard traditional, farmers' and organic markets as the most important marketing channel) is 87; 43; 13, respectively. 13 farmers sell their produce mostly to wholesalers or to speciality shops or use other marketing channels; markets are of less importance among them.

Table 2 is arranged as follows: first, the whole sample is characterised for a given variable; then average values of the three farmers' groups are reported and compared with Kruskal-Wallis tests (p values are shown). Finally, the results of post tests are displayed. Having three pairwise comparisons, Bonferroni-corrected alphas are 0.033 (10%); 0.0167 (5%); 0.0033 (1%).

HoReCa stands for the sector of Hotels, Restaurants and Catering. Currently, vegetable box schemes and home delivery services are typically provided by consumer cooperatives in Hungary. Other channels mentioned include wholesalers, farmers' cooperatives, public procurement, roadside sale, pick-your-own. Sample size seems to be too small to reveal characteristic differences along these channels.

Table 2. Marketing channel use in the total sample and in case of farmers attending different market types

Variable	Descriptive statistics - total sample					TM	FM	OM	Kruskal-Wallis p	Post tests		
	N	Average	SD	Min	Max					TM × FM	TM × OM	FM × OM
<i>Independent shops</i>	155	0.187	0.859	0	5	0%	2.33%	15.4%	0.0017	0.1501	0.0002	0.0825
<i>Specialized or speciality shops</i>	156	0.269	0.986	0	5	0%	9.30%	46.2%	0.0001	0.0040	0.0001	0.0050
<i>HoReCa</i>	156	0.263	0.881	0	5	0%	23.3%	23.1%	0.0001	0.0001	0.0001	0.7428
<i>On-farm sales</i>	156	0.615	1.307	0	5	16.1%	41.9%	30.8%	0.0039	0.0009	0.2570	0.3097
<i>Festivals, fairs, special events</i>	155	0.413	1.127	0	5	0%	32.6%	46.2%	0.0001	0.0001	0.0001	0.4474
<i>Consumer cooperatives</i>	156	0.154	0.581	0	5	0%	25.6%	23.1%	0.0001	0.0001	0.0001	0.7388
<i>Online sales (through own homepage)</i>	156	0.141	0.657	0	5	1.15%	9.30%	23.1%	0.0030	0.0226	0.0002	0.2300
<i>On-farm sales; within rural tourism (e.g. own guesthouse)</i>	156	0.038	0.339	0	4	0%	2.33%	7.69%	0.0743	0.1549	0.0097	0.3652

Notes: TM: traditional markets; FM: farmers' markets; OM: organic markets. Ratio of respondents mentioning the channel is shown among TM, FM and OM farmers. Bonferroni-corrected alphas are 0.033 (10%); 0.0167 (5%); 0.0033 (1%)

Source: Own calculations based on the survey.

On average, TM farmers use much less marketing channels: 63% of them sell along only one channel, traditional markets (and typically, they spend all market days at the same market). FM and OM farmers use more channels in parallel (3.23 and 3.61 on average, respectively). Sales for specialized or speciality shops is more typical among OM farmers; otherwise they cannot be distinguished from FM farmers, based on how important they consider a given marketing channel. However, the second most often used channel is different: while FM markers seem to prefer on-farm sales besides sales at farmers' markets, organic farmers much more rely on festivals to sell their produce.

Table 3 displays the variables that are included in the models of selling at different markets, and descriptive statistics.

Table 3. Descriptive statistics.

Variable	Descriptive statistics - total sample				
	N	Average	SD	Min	Max
<i>Attending traditional markets</i>	156	0.558	0.498	0	1
<i>Attending farmers' markets</i>	156	0.276	0.448	0	1
<i>Gender</i>	156	0.597	0.491	0	1
<i>Age (years)</i>	156	53.9	14.3	26	85
a. <i>Education</i>	156	2.5	1.3	1	5
<i>Farming experience (yrs)</i>	155	21.0	16.3	0	65
<i>Farming traditions in the family</i>	153	0.758	0.430	0	1
<i>Area size (ha)</i>	151	12.9	46.0	0	367
<i>Rent size (ha)</i>	155	3.2	16.9	0	150
<i>Family members working on-farm</i>	156	2.97	2.65	0	25
b. <i>Number of permanent employees</i>	155	0.8	5.2	0	50
<i>Income of alternative source</i>	154	0.584	0.494	0	1
<i>Number of products</i>	150	22	34	1	350
<i>Use of organic methods</i>	155	0.303	0.461	0	1
<i>Investments in logistics</i>	151	1.570	0.829	0	3
<i>Higher price</i>	155	0.168	0.375	0	1
<i>Prompt purchase in cash</i>	156	0.096	0.296	0	1
c. <i>All products can be sold</i>	156	0.295	0.457	0	1
<i>Family and other traditions</i>	156	0.321	0.468	0	1
<i>Other</i>	156	0.474	0.501	0	1
<i>External supports</i>	155	0.329	0.471	0	1
<i>Informal partnership</i>	154	0.208	0.407	0	1
<i>Cooperative membership</i>	155	0.129	0.336	0	1
d. <i>Plans to continue farming activities</i>	156	0.923	0.267	0	1
<i>Plans to extend farming activities</i>	156	0.276	0.448	0	1
<i>Plans to reduce farming activities</i>	156	0.103	0.304	0	1
<i>Plans to start non-farming activities</i>	156	0.199	0.400	0	1
<i>Plans to invest in farm infrastructure</i>	156	0.365	0.483	0	1

Source: Own calculations based on the survey.

First, models are estimated for all variable groups (a-d) separately; then all the combinations are calculated. This results 15 models altogether, for both cases (selling at TMs as well as FMs), see Table 4 and 5. The semi-nonparametric approach of Gallant and Nychka provides good results for most models, based on Wald-test and/or likelihood ratio test. The rest of the models are estimated with the semi-parametric maximum likelihood approach of Klein and Spady; these results are marked with ^s in Table 5.

Table 4 shows the discrete choice models; the choice is whether to sell at traditional markets; Table 5 stands for farmers' markets.

Table 4. The 15 semi-nonparametric models of 'Selling at traditional markets'.

<i>Variable</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
<i>Gender</i>	-0.83***															
<i>Age</i>	0.00															
<i>Education</i>	-0.39***															
<i>Farming experience</i>	0.05***															
<i>Farming traditions in the family</i>	0.20															
<i>Area size</i>		-0.05***														
<i>Rent size</i>		-0.01**														
<i>Family members working on-farm</i>		0.08***														
<i>Number of permanent employees</i>		-0.39***														
<i>Income of non-farming source</i>		0.44*														
<i>Number of products</i>		-0.01														
<i>Use of organic methods</i>		-1.59***														
<i>Investments in logistics</i>		-1.43***														
<i>Higher price</i>			-0.63***													
<i>Prompt purchase in cash</i>			-2.84***													
<i>All products can be sold</i>			0.22													
<i>Family and other traditions</i>			1.87***													
<i>Other</i>			-0.47													
<i>External supports</i>				-1.57***												
<i>Informal cooperation</i>				0.82***												
<i>Formal cooperation</i>				1.53***												
<i>Plans to continue farming activities</i>				-0.06												
<i>Plans to extend farming activities</i>				-0.85***												
<i>Plans to reduce farming activities</i>				0.72***												
<i>Plans to start non-farming activities</i>				-1.16												
<i>Plans to invest in farm infrastructure</i>				-1.67***												
<i>N</i>	153	139	155	153	138	152	150	138	138	152	137	149	137	137	136	
<i>Wald test (p value)</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Likelihood ratio test</i>	0.0001	0.0077	0.0080	0.0078	0.0011	0.0005	0.0004	0.0008	0.0226	0.0002	0.0001	0.0000	0.0149	0.0023	0.0036	

Table 5. The models of 'Selling at farmers' markets'.

<i>Variable</i>	1 ^s	2 ^s	3 ^s	4 ^s	5	6	7	8	9	10	11	12	13	14	15
<i>Gender</i>	-0.84**				0.63*	-0.64***	-0.71*				-0.67***	-0.18	-0.48*		-0.91***
<i>Age</i>	-0.09				-0.02**	-0.02***	0.01				-0.03***	0.00	0.00		-0.01
<i>Education</i>	0.07				0.27***	-0.03	0.01				-0.07	0.14**	0.18**		-0.12
<i>Farming experience</i>	0				-0.05***	0.00	0.00				-0.01	0.00	0.01		0.00
<i>Farming traditions in the family</i>	-0.03				-0.74**	-0.49*	-0.2				-0.39	0.11	0.07		0.16
<i>Area size</i>		0.02**			0.00			-0.01**	0.00		-0.01**	-0.01**	-0.01**	0.00	-0.01***
<i>Rent size</i>		0.10**			0.01*			0.03***	0.02***		0.03***	0.02***	0.02***	0.02***	0.04***
<i>Family members working on-farm</i>		-0.30**			-0.12***			-0.03*	-0.11***		0.00	-0.09**	-0.09**	-0.01	-0.04
<i>Number of permanent employees</i>		-1.02***			-0.18***			-0.07	-0.24***		-0.14**	-0.28**	-0.28**	-0.52***	-0.16***
<i>Income of non-farming source</i>		-0.35			0.55**			-0.32*	-0.15		0.33	-0.32	-0.32	0.21	0.18
<i>Number of products</i>		0.20**			0.01***			0.01	0.02***		0.02**	0.02***	0.02***	0.01*	0.02***
<i>Use of organic methods</i>		-0.46**			-1.27***			0.16	0.49*		-0.66*	0.42	0.42	-0.24	-0.92**
<i>Investments in logistics</i>		0.66***			0.19			0.14	0.17		0.06	0.22*	0.22*	-0.16	0.15
<i>Higher price</i>			2.39***			0.65***		0.57***		0.18**	0.61***	0.16*		0.41***	0.43***
<i>Prompt purchase in cash</i>			-0.82**			1.91***		0.32		-0.94***	3.14***	-0.97***		1.52***	3.13***
<i>All products can be sold</i>			-3.18***			-0.04		-0.21		-0.68***	-0.19	-0.76***		-0.29	0.02
<i>Family and other traditions</i>			-1.52**			-1.35***		-0.87**		-1.40***	-1.65***	-1.46***		-1.88***	-1.81***
<i>Other</i>			0.59*			0.26		0.04		0.1	0.16	0.06		-0.21	-0.02
<i>External supports</i>				-4.01**			0.39*		0.67*	-0.25		-0.28	0.80**	0.28	0.01
<i>Informal cooperation</i>				0.55			-0.25		-0.37	-0.11		-0.04	-0.66**	-0.18	0.2
<i>Formal cooperation</i>				-0.86***			0.12		0.35	0.11		0.16	0.82***	1.03*	1.44***
<i>Plans to continue farming activities</i>				10.98***			1.06***		0.83***	1.51***		0.87***	0.45	1.32***	2.64***
<i>Plans to extend farming activities</i>				1.86**			0.58		-0.53*	-0.12		-0.16	-0.32	-0.3	0.01
<i>Plans to reduce farming activities</i>				-1.44**			0.03		-1.00***	-2.62***		-2.53***	-0.89**	-2.18***	-0.11
<i>Plans to start non-farming activities</i>				4.68**			0.07		2.02***	0.50**		0.35	2.09***	0.63**	1.32**
<i>Plans to invest in farm infrastructure</i>				2.49***			2.09***		2.74***	0.93***		1.08***	2.61***	3.08***	0.94***
<i>N</i>	153	139	155	153	138	152	150	138	138	152	137	149	137	137	136
<i>Wald test (p value)</i>	0.0003	0.0041	0.0129	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Likelihood ratio test</i>	-	-	-	-	0.0102	0.0003	0.0121	0.0036	0.0006	9.66e-06	0.0000	2.65e-06	0.0001	0.0005	0.0001

Note (to Table 4 and 5): * significant at 10%, ** 5%, ***1%. [§]: The semi-parametric approach of Klein and Spady was applied.

All variables are included in altogether 8 models out of the total 15. Tendencies are summarized and compared in Table 6. Any impact was taken as significant if it was found to be significant in more than 4 models (at either significance level). Any impact was taken as partially significant if it was found to be significant in 3 or 4 models (at either significance level). Signs were conservative in most cases (maximum 1 different sign was allowed); otherwise mark “?” shows in Table 6 that the given tendency is ambiguous.

Table 6. Factors influencing the decision “At which market to sell”.

Variable		Impact on the decision whether to sell at		Similar patterns
		traditional markets	farmers' markets	
<i>a. Farmer characteristics</i>	<i>Gender</i>	Significant (females)	Significant (females)	x
	<i>Education</i>	Negative	<i>Positive</i>	
	<i>Farming experience</i>	Positive	<i>Negative</i>	
<i>b. Farm characteristics</i>	<i>Area size</i>	Negative	Negative	x
	<i>Rent size</i>	Negative	Positive	
	<i>Number of family members working on the farm</i>	n.s.	Negative	
	<i>Number of permanent employees</i>	<i>Negative</i>	Negative	x
	<i>Income of non-farming source</i>	? (<i>Positive</i>)	n.s.	
	<i>Number of products</i>	<i>Negative</i>	Positive	
	<i>Use of organic methods</i>	Negative	Negative	x
	<i>Investments in logistics (e.g. air-conditioned storage)</i>	Negative	n.s.	
<i>c. Motivations</i>	<i>Higher price</i>	<i>Negative</i>	Positive	
	<i>Prompt purchase in cash</i>	Negative	? (Positive)	
	<i>All products can be sold</i>	Negative	<i>Negative</i>	x
	<i>Family and other traditions</i>	Positive	Negative	
	<i>Other</i>	Negative	n.s.	
<i>d. Future plans, funding source, participation in cooperation</i>	<i>External supports</i>	<i>Negative</i>	<i>Positive</i>	
	<i>Formal cooperation</i>	n.s.	<i>Positive</i>	
	<i>Plans to continue farming activities</i>	n.s.	Positive	
	<i>Plans to extend farming activities (e.g. involvement of new types, rent of more area)</i>	<i>Negative</i>	n.s.	
	<i>Plans to reduce farming activities</i>	<i>Positive</i>	Negative	
	<i>Plans to start non-farming activities (e.g. rural tourism)</i>	n.s.	Positive	
	<i>Plans to invest in and develop farm infrastructure</i>	n.s.	Positive	

Note: Bold: significant (significant in 5-8 models). Italic: partially significant (significant in 3 or 4 models). n.s.: not significant. ?: significant, but the sign varies in the models.
Source: Own calculations based on the survey.

Altogether 23 factors are identified as at least partially significant in shaping the decision on market type to sell at in one or both arrangements. Similarities are found only in case of 5 factors. Females seem to choose markets as such as this is a very efficient way to maintain and develop social relationships. Males prefer to sell along other SFSCs or to wholesalers. Organic farmers, though they could sell at the analysed markets, tend to avoid them, which is reasonable in the light of lower prices. The effect of farm size is mixed: farmers of the smallest farms definitely choose traditional markets. FM farmers try to extend their capacity either by means of renting further area or increasing product diversification.

In general, results are in line with the previous expectations. Traditional and farmers' markets farmers do form distinct groups, based on their farmer- and farm-based characteristics and motivations. Compared to TM farmers, FM farmers are typically more educated, have less farming experience (the age itself seems to have no effect). Farmers' market farmers are much more open (one may call them initiators): they have development plans for the future, e. g. to invest in the farm infrastructure (for which they occasionally try to find some external financial support) or to launch non-farm but farm-related activities.

Motivations have different effect. All the identified motivations have their role; apparently their combination matters. Only FM farmers seem to decide rationally, based on financial considerations; they definitely reject habits and traditions as driving factors to make their choices.

4. Conclusions

In response to the rapid and profound changes taking place in the Hungarian agri-food sector, the aim of this paper is to analyse factors that have impact on a farmer's decision to sell their products via SFSCs. Our key findings are the following. A relatively young, educated and innovative group of small-scale farmers are interested mostly in selling at the newly introduced farmers' markets. Farmers selling at traditional markets typically do not use this new option so they seem to require further assistance (education, organizing body, etc.) to efficiently take part in the growing local food movement and so be able to achieve fair prices – if they are also able to produce high-quality products.

The main limitation of our work is its representativeness. There are no previous national or regional statistics within the direct sales sector so results cannot be compared to any expectations. Furthermore, the number of farmers' markets is still growing, importance of other marketing channels is increasing so further changes are anticipated.

Acknowledgements

The help of Zsuzsanna Nagy, Anett Privigyeyi, Zsolt Baráth and Gáborné Pecze interviewers and József Baráth, Irma Hellinger, Arnold Kucsera market managers in data collection is highly appreciated. The authors acknowledge the financial support of the National Agricultural Advisory, Educational and Rural Development Institute of Hungarian National Rural Network. Zs. B. was also supported by a grant of the Hungarian Scientific Research Fund (OTKA PD 109177). J. T. has got financial support from the Hungarian Scientific Research Fund (OTKA K 84327) 'Integration of small farms into the modern food chain'.

References

- Bakucs, L. Z., Fertő, I., Szabó, G. G. (2012). Benefits of a Marketing Co-operative in a transition agriculture: Mórakert Purchasing and Service Co-operative. *Society and Economy* 34: 453–468.
- Bakucs, L. Z., Forgács, C., Elek, S., Fertő, I. (2011). The contractual relationships along food chains: a Hungarian example. *EAAE Congress 2011, 30 August - 2 September*. Zurich, Switzerland.
- Benedek, Zs., Fertő, I., Baráth, L., Tóth, J. Termelői heterogenitás a rövid ellátási láncokban: a piacokon értékesítő gazdák jellemző különbségei (Producer heterogeneity in short food supply chains: typical differences of farmers selling at markets). *In Hungarian. Gazdálkodás, in press*.
- Berning, J. P. (2012). Access to Local Agriculture and Weight Outcomes. *Agricultural and Resource Economics Review* 41: 57-71.
- Bimbo, F., Viscecchia, R., Nardone, G. (2012). Does the alternative food supply network affect the human health? , *126th Seminar, June 27-29, 2012, Capri, Italy*. European Association of Agricultural Economists.
- Farnsworth, R. L., Thompson, S. R., Drury, K. A., Warner, R. E. (1996). Community supported agriculture: filling a niche market. *Journal of food distribution research* 27: 90-98.
- Fertő, I. (2009). How can producers access the modern agri-food chain? A Central and Eastern European perspective. *CAB Reviews: perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources* 4: 1-9.
- Gallant, A. R. and Nychka, D. W. (1987). Semi-nonparametric maximum likelihood estimation. *Econometrica: Journal of the Econometric Society*: 363-390.
- Hinrichs, C. C. (2000). Embeddedness and local food systems: notes on two types of direct agricultural market. *Journal of Rural Studies* 16: 295-303.
- Juhász, A. (ed.) (2012). *A közvetlen értékesítés szerepe és lehetőségei a hazai élelmiszerek piacrajutásában [The current performance and opportunities of farm-direct sales in the food supply chain in Hungary]*. Budapest: Agrárgazdasági Kutató Intézet [Research Institute of Agricultural Economics]. *In Hungarian*.
- Kirwan, J. (2006). The interpersonal world of direct marketing: examining conventions of quality at UK farmers' markets. *Journal of Rural Studies* 22: 301-312.
- Klein, R. W. and Spady, R. H. (1993). An efficient semiparametric estimator for binary response models. *Econometrica: Journal of the Econometric Society*: 387-421.
- Kneafsey, M., Venn, L., Schmutz, U., Balázs, B., Trenchard, L., Eyden-Wood, T., Bos, E., Sutton, G., Blackett, M. (2013). Short Food Supply Chains and Local Food Systems in the EU. A State of Play of their Socio-Economic Characteristics, International Food Policy Research Institute (IFPRI). Washington DC: IFPRI.
- Lea, E., Phillips, J., Ward, M., Worsley, A. (2006). Farmers' and Consumers' Beliefs About Community-Supported Agriculture in Australia: A Qualitative Study. *Ecology of Food and Nutrition* 45: 61-86.
- Marascuilo, L. A. and McSweeney, M. (1977). *Nonparametric and distribution-free methods for the social sciences*. Brooks/Cole Publishing Company CA.
- Martinez, S., Hand, M., Da Pra, M., Pollack, S., Ralston, K., Smith, T., Vogel, S., Clark, S., Lohr, L., Low, S., Newman, C. (2010). Local Food Systems: Concepts, Impacts, and Issues. ERR. 97., International Food Policy Research Institute (IFPRI). Washington DC: IFPRI.
- Meter, K. and Rosales, J. (2001). *Finding Food in Farm Country*. Community Design Center of SE Minnesota.

- Morris, C. and Buller, H. (2003). The local food sector: a preliminary assessment of its form and impact in Gloucestershire. *British Food Journal* 105: 559-566.
- Parker, G. (2005). Sustainable food? Teikei, Co-operatives and Food Citizenship in Japan and the UK.
- Pearson, D. and Bailey, A. (2009). Business opportunities in local food supply chains: an investigation in England and Australia. *83rd Annual Conference of Agricultural Economics Society, Dublin*.
- Réthy, K. and Dezsény, Z. (2013). Közösség által támogatott mezőgazdaság [Community Supported Agriculture], International Food Policy Research Institute (IFPRI). Washington DC: IFPRI. *In Hungarian*.
- Salois, M. J. (2012). Obesity and diabetes, the built environment, and the 'local' food economy in the United States, 2007. *Economics & Human Biology* 10: 35-42.
- Tregear, A. (2011). Progressing knowledge in alternative and local food networks: Critical reflections and a research agenda. *Journal of Rural Studies* 27: 419-430.
- Watts, D. C., Ilbery, B., Maye, D. (2005). Making reconnections in agro-food geography: alternative systems of food provision. *Progress in human geography* 29: 22-40.