

Short Supply Chain: Goals, Objectives and Attitudes of Producers

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Abstract: The research discusses the objectives, goals and attitudes of Hungarian fruit and vegetable producers using the method of Theory of Planned Behaviour. The objective of the paper is to explore the factors which may influence the decision-making process of agricultural producers in choosing the appropriate marketing channel. Research results showed that main goals of producers using direct sales are focused on economic issues, but non-economic goals (tradition, consumer relations, local values, environmental aspects) were highly preferred in their business processes. Producers, who prefer direct sales activities, generally have a wider product supply and undertake to build closer relations with their consumers. They consider stability and traditional products produced by conventional technologies as the key business success factor.

Keywords: short food supply chain; Theory of Planned Behaviour; marketing channel; fruit and vegetable producer; agricultural enterprises

1 Introduction

The aim of our research was to assess the role and acceptance of direct sales as a marketing channel among Hungarian vegetable and fruit producers. The theoretical approach of the research was developed based on the theoretical model of Bergevoet et al. (2004) which was elaborated using Ajzen's Theory of Planned Behaviour (Ajzen 1991; Ajzen 2006). Bergevoet et al. (2004) conducted a survey on the entrepreneurial behaviour of Dutch dairy farmers focusing on their main goals, objectives and attitudes, where they used the psychological model of Theory of Planned Behaviour (TPB) to explore how these psychological factors might influence economic performance and farm sizes.

Present research adapts this approach for describing the main goals, objectives and attitudes of Hungarian vegetable and fruit producers about applying direct sales as a marketing channel. The main aims of our research were to answer the following: (1) what are the main goals, attitudes and intentions of Hungarian vegetable and

fruit producers; (2) how these goals, attitudes and intentions could affect producers' entrepreneurial behaviour and strategic decisions; and finally, (3) how these elements may influence producer's selection among different marketing channels and direct sales in particular.

Although TPB was used by different researchers for understanding farmers' beliefs and motivations (Fairweather *et al.* 1994; Fielding *et al.* 2008; Hansson *et al.* 2012) and for the examination of farmers' managerial decisions (Bergevoet *et al.* 2004; Rehman *et al.* 2003), but – according to our experiences – it was not used for analysing farmers' perceptions towards direct sales activities either in Hungarian or international literature. The research was started for the assessment of the role and acceptance of direct sale as marketing channel among Hungarian fruit and vegetable producers by conducting a questionnaire survey. The results of the research give insight into the background of producers' decision-making process and risk taking attitude (Lazányi *et al.* 2017) and underline the importance of non-economic goals, such as traditional farming, improving local communities, maintaining direct relations with consumers, using environment-friendly technologies and keeping the lifestyle feature of family farms.

2 Literature Review

In the past decade, the role of short food supply chains in the agricultural sector and their impacts on the development of small agricultural enterprises and on rural communities was discussed by many academic studies. Alternative or short food supply chains are good examples for creating new links between agricultural production and society or between producers and consumers, as consumers get closer to the origins of their food and in some cases they are involved more directly in the production (Renting *et al.* 2003). The definition of short food supply chain by Marsden *et al.* (2000) emphasized that 'it is not the number of times a product is handled or the distance over which it is ultimately transported which is necessarily critical, but the fact that the product reaches the consumer embedded with information.' (Marsden *et al.* 2000, p. 424).

Renting *et al.* (2003), identified three main types of short food supply chains, all of which show a special connection between the food consumer and producer (Marija *et al.* 2015). Face-to-face type (1) is characterized by physical connection between producers and consumers, i.e. consumers buy directly from the producer or the processor (e.g. farm shops, farmers' markets, roadside sales, pick-your-own, home delivery, e-commerce). Spatial proximity (2) means that products are produced and retailed in the region of production and consumers consider the local nature of the product. This category includes specialist retailers – bakeries, butchers, grocers – who sell local products and the representatives of the hospitality industry selling local foods (e.g. farm shop groups, community

supported agriculture (CSA), special events, thematic routes, catering for institutions, etc.). Spatially extended category (3) means that consumers are outside of the region of the product, but the information about the place and processes of production is communicated to the consumer (e.g. fair trade products or protected denominations of origin).

Renting et al. (2003) also underlined the importance of information; according to their opinion the critical difference between 'alternative' or short food supply chains (SFSC) and conventional networks is that the food reaches the consumer together with specific information about the product. Venn et al. (2006) draw attention to the ability of these networks "to 'resocialize' and 'respatialize' food through supposedly 'closer' and more 'authentic' relationships between producers, consumers and their food" (Venn et al. 2006, p. 248), which will have significant impacts both on the development of rural communities and the viability of agricultural enterprises. In many cases, short food supply chains might be identified as examples of 'resistance' of farmers to modernization of the food system. Ubrežiová et al. (2015) underlined the importance of alternative networks in activating local human potential and local sources, and they may support strengthening of local social ties. Szegedi et al. (2014) pointed out that cooperation between the members of the chain might improve competitiveness and shorten the cycle-time of the supply chain.

In alternative or short chains, farmers can reach higher revenues because of skipping retailers, and transport and packaging costs. On the other hand, consumers may gain fresh, healthy food at a reasonable price. The wider community may also benefit from these networks because alternative food networks (AFNs) have ecological impacts represented by reduced food miles and carbon emissions that favour sustainable farming (Tudisca et al. 2014). Fehér (2007) highlighted the importance of local products, which represent a common local value. These products reach the consumer in relatively small quantities, the main marketing channel is direct sale, and products represent high quality. They often attached to services of agri-tourism, which show that direct sales activities tend to benefit both farms and rural communities (Aguglia et al. 2009).

In Hungary, alternative food supply systems (farmers' markets, farm sales, pick-your-own, local food festivals, thematic routes) play a more important role in Hungary, whereas other specific forms of SFSCs (food box delivery, buying groups, CSA and community gardens) are usually initiated by urban, well-educated people in urban areas or their agglomeration (Kneafsey et al. 2013). The most important feature of face-to-face or direct channels is the direct connection between producer or processor and the consumer, and a main advantage of direct sales is the opportunity to reduce marketing costs and to add value to the product. Lehota and Csíkné Mácsai (2012) classified direct sales channels according to the profit creating impacts (Fig. 1).

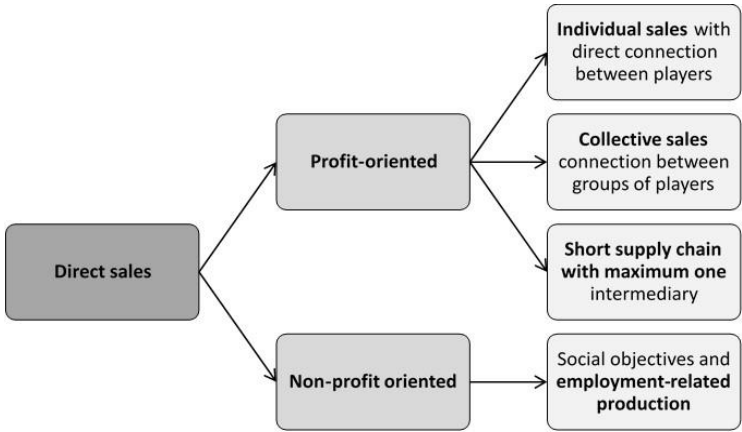


Figure 1
Types of direct sales

Types of direct selling could also be differentiated based on the venue of sale activities. In case of on-farm activities, the producer does not move from the farm and stays at the place of production, for example farm shops, pick-your-own sales (when consumers pick the products on the spot and buy it), or different agri-tourism or village tourism activities (which are emerging sectors of the tourism industry). Off farm activities covers such activities, where the producer does not stay at the place of production, for example farmers markets, farm-to-restaurant sales, e-commerce or mail-order, or taking part at special events, local food festivals (Lehota and Csíkné Mácsai, 2012).

3 Material and Methods

3.1 Theoretical Background

Theory of Planned Behaviour of Ajzen (1991) is a psychological theory that links beliefs and behaviour of individuals (Fig. 2); it states that a person's behaviour depends on the person's goals and intentions, which is influenced by attitudes (behavioural beliefs), subjective norms (normative beliefs) and perceived behavioural control (control beliefs).

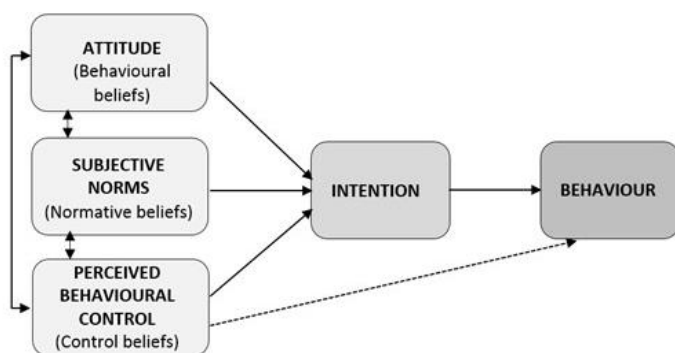


Figure 2
Elements of the Theory of Planned Behaviour

Bergevoet et al. (2004) supposed that farmers' goals, intentions and decisions are influenced not only by economic but also by non-economic factors during their business decision-making process. Their research results proved that farmers' behaviour shows a correlation with their personal and farm-related goals and objectives, which are also influenced by their attitudes, subjective standards and observed behaviour control. They concluded that goals, objectives and attitudes of the farmers determine their strategic and entrepreneurial behaviour and are in close correlation with their farm sizes. In the course of the present research we applied this theory, thus, the steps of our research were formulated in accordance with this approach.

3.2 Sampling Process and Questionnaire Survey

Based on the literature sources and a formerly conducted qualitative research, the main hypothesis of present research was that intentions, preferences and driving forces are different in the case of producers who use different marketing channels, and the acceptance of direct selling as a marketing channel is also different.

The research was conducted among Hungarian vegetable and fruit producers in order to explore the role and acceptance of direct sales as a marketing channel. Before starting the questionnaire survey, the research team conducted a set of semi-structured interviews, which results and experiences were used for finalizing the questionnaire (Csíkné Mácsai 2014). Based on the findings of the qualitative research, we supposed that direct sales is differently assessed by those agricultural producers who are engaged in this marketing channel, and by those who do not apply direct sales.

As the main aspect of our research was to unfold the differences in producers' viewpoint about direct sales, the crucial task was to represent the different opinions. Therefore, in the sampling process we wanted to cover both parties, i.e.

producers who apply and producers who do not apply direct sale as a marketing channel. As there is not any database available about producers who apply direct sales exclusively as a marketing channel, we conducted the research among producers who sell their products directly to the consumers at market halls or local markets. For surveying producers who use direct sales as a supplementary source of income, we interviewed the members of Producers' Organizations because – according to the main rule – members must sell their products through the PO.

The questionnaires were filled in through personal interviews, as in this way we got detailed and valuable background information from the respondents. In each case, the managers of the farms were interviewed, as they are responsible for decision-making and future plans of the enterprise.

The questionnaire survey was realized at four locations. Three markets are situated in the capital, Budapest. Two of them are operated by the Municipality of Budapest (Fehérvári Street Market Hall and Bosnyák Square Market Hall), the third is an Organic Market operated by the Hungarian Bioculture Association (the number of sample at Budapest locations was $n=90$). The fourth location is in Kecel (a city in the Southern Great Plain region of Hungary, approximately 130 km southward from Budapest) where the members of the Fresh Producers' Organization were interviewed ($n=46$).

3.3 Statistical Analysis

The gathered data were processed and filtered by SPSS 16.0 working package. As the main focus of the research was to explore the role and importance of direct sales, the analyses were taken in three main steps: (1) identifying the main goals, objectives and preferences of the farmers based on the analysis of the questionnaire statements; (2) analysing the relationship between the different attitudes, subjective norms and components affecting perceived behavioural control and the goal factors resulted by the first step of the calculations; and (3) analysing the relationship between goal factors and sales channels.

After descriptive statistical analyses, we conducted bi- and multivariate correlation analyses using the methods of linear regression and factor analysis. It should be noted, that due to the sampling method, the results shall not be considered as representative and the conclusions cannot be applied for the whole population.

4 Research Results

4.1 Producers' Goals and Objectives

As a first step, main goals and objectives of producers were analysed based on their farming goals, when respondents were asked to score each goal on a 5-grade Likert scale (Table 1). (In this aspect broad, general and long-term intentions are considered as 'goals', while 'objectives' represent the more specific targets of business performance.)

Table 1

Goals and objectives of producers in the examined sample (Average of a 5-grade Likert scale: 1- not important 5-very important; N=136)

Responds on goals and objectives	Average score
Produce high quality products	4.82
Maintain the present production level	4.68
Realise the highest income level	4.52
Enjoy own work	4.47
Contribute to the positive image of farming as a profession	4.43
Preserve regional/local values (nature, landscape, cultural heritage)	4.38
Increase the share of direct sales	4.12
Earn respect from other farmers	4.05
Have more leisure time after work	3.95
Create an existence for my successor	3.40
Implement new farming technologies	3.18
Increase farm size	2.67
Increase non-agricultural revenue	2.48

According to the results, the most important goals of producers were economic goals: producing high quality products, maintaining present production level and realising the highest income level. However, statements representing non-economic values (e.g. 'enjoy own work', 'contribute to the positive image of farming as a profession' and 'preserve regional/local values') were also considered as important by the respondents. Increasing the share of direct sales was also mentioned as an important goal, while objectives like 'implement new production technologies', 'increase farm size' and 'increase non-agricultural revenue' were assessed as least important. These results show that farmers focus on maintaining their present production level and they do not prefer improving technologies or developing their farm. A correlation analysis was conducted to analyse the relationship between the preference of goals and the share of direct sales, which results showed that there is a medium strong positive correlation between the share of direct sales and the following goals: 'earn respect of other

farmers' (0.426), 'preserve regional/local values' (0.374), 'contribute to the positive image of farming as profession' (0.455), 'produce high quality products' (0.312). Besides exploring the goals and objectives of the producers, we examined which farm types are preferred by the farmers in order to meet their goals and objectives (Table 2).

Table 2

Farm-related goals of the farmers (preferred farm types) (Average of a 5-grade Likert scale: 1- not important 5-very important; N=136)

Responds on farm-related goals and objectives	Average score
Farm with environment friendly production	4.38
Farm based on direct sales activities	4.26
Family farm	4.26
High-tech farm	3.38
Organic/Ecological farm	3.24
Innovative farm	2.99
Large-scale farm	2.27
Farm with agri-tourism/village tourism activities	1.86

It is concluded that respondents prefer farms with environment friendly production, farms based on direct sales activities and family farms. Other types, like high-tech farms, ecological farms, innovative farms, large-scale farms and farms with agri-tourism activities were less attractive for the respondents.

After analysing the goals and the preferred farm types, we conducted a factor analysis to explore the connections between the variables. Thus, we could describe the structure between the preferred objectives and preferred farm types, which results are summarized in Table 3.

Table 3

Factors influencing the selection of marketing channels (Rotated factor matrix)

Objectives and preferred farm types	CV	Factors				
		LS	MO	DS	FS	FD
Preserve regional/local values	0.8946	0.9237	-0.0939	0.0970	0.0142	-0.152
Enjoy own work	0.4868	0.6854	-0.0440	0.0002	-0.0054	0.123
Have more leisure time after work	0.3926	0.5817	0.0387	0.0505	-0.0250	0.222
Earn respect from other farmers	0.5211	0.5759	-0.0829	0.4189	-0.0730	0.042
Increase the share of direct sales	0.2707	0.3884	-0.0319	0.2204	0.0013	0.265
Farm with environment friendly production	0.2695	0.3812	0.1278	0.3135	0.0975	-0.004

Innovative farm	0.9603	-0.0728	0.9332	0.0538	0.2840	0.025
High-tech farm	0.6752	-0.0103	0.7660	-0.0561	0.2809	0.078
Contribute to the positive image of farming as profession	0.6587	0.5664	0.0117	0.5694	-0.0784	0.086
Farm based on direct sales activities	0.4143	0.1248	-0.2267	0.5435	0.2191	-0.063
Produce high quality products	0.3219	0.0684	0.0738	0.5337	-0.1495	0.067
Large-scale farm	0.6105	-0.0188	0.2813	0.2087	0.6148	0.331
Increase farm size	0.6814	-0.0770	0.3297	-0.0855	0.5998	0.447
Farm with agri-tourism activities	0.3192	0.0175	0.1884	-0.0882	0.5217	-0.058
Implement new farming technologies	0.5914	0.0594	0.4538	-0.1087	0.1285	0.595
Create an existence for my successor	0.4013	0.3148	-0.0873	0.1243	0.0854	0.521

Legend: CV: Community values, LS: Lifestyle, MO: Modernization, DS: Direct sales, FS: Increasing farm size, FD: Farm development. Extraction Method: Maximum Likelihood. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 6 iterations. KMO=0.780, Bartlett: (Approx. Chi Sq.) 775.749 (Sig.) 0.000; Communalities: 0.270-0.960, Total Variance Explained: 52.931; Goodness-of-fit Test (Chi Square) 35.042 (Sig) 0.946 N=136.

For conducting the factor analysis, 5 variables from the original 21 (specified in Table 2 and 3) should be excluded from the analysis because their communality values did not reach the 0.25 limiting value. (In the factor analysis we applied the method of Sajtos and Mitev (2007) and included only those variables which reached a communality value higher than 0,25.) The remained variables were classified into five factor groups – Lifestyle (LS), Modernization (MO), Direct sales (DS), Increasing farm size (FS) and Farm development (FD) – which main characteristics are as follows:

Factor 1: Lifestyle (explained variance: 17.155%): Those factors were included into this group which were related to non-economic values, i.e. to farmers' personal life quality objectives or goals with social, cultural or environmental values. Analysing the skewness (S) of the factor, it can be stated that the distribution is significantly right-skewed for the total sample (S=-2.106) that means, these objectives have an increased importance for the respondents in connection with the future of the farm.

Factor 2: Modernization (explained variance: 12.425%): Farm types with innovative targets and values were included into this group, so the focus of this group is on farm modernization aspects. The skewness of the factor is minimally left-skewed (S=0.048), i.e. these goals are less dominant for the producers for the future of their farms. This is in line with the former results of the research, i.e. the

use high-tech technologies and innovative farming was among less important objectives of the respondents.

Factor 3: Direct sales (explained variance: 8.318%): This group includes farms based primarily on direct sales activities and objectives ‘Produce high-quality products’ and ‘Contribute to the positive image of farming as profession’. The skewness of the factor ($S=-0.934$), is moderately right-skewed, i.e. these goals are considered as important for the future of the farm.

Factor 4: Increasing farm size (explained variance: 8.034%): This factor includes variables ‘Increase farm size’, ‘Large-scale farm’ and ‘Farm with agri-tourism activities’. The skewness of the factor ($S=0.358$) is minimally left-skewed, i.e. these aspects are not dominant for the producers. This result is also in line with the former conclusions of the research, namely farmers do not plan increasing farm size and do not consider leading large-scale farms in the future.

Factor 5: Farm development (explained variance: 6.999 %): This group includes the objectives ‘Implement new farming technologies’ and ‘Create an existence for my successor’. Based on the skewness ($S=-0.393$) it can be concluded that factor is a dominant perspective for the producers.

4.2 Relationship between Producers’ Goals and Objectives and their Statements on Attitudes, Subjective Norms and Perceived Behavioural Control related to Direct Sales

As a next step of the research, the relationship between the attitudes, subjective norms and components affecting the perceived behavioural control (i.e. the elements of Ajzen’s Theory of Planned Behaviour model) and the previously determined groups of objectives was examined, for which we used stepwise method of linear regression analysis. Stepwise method is a method for selecting the best explanatory variables (Sajtos and Mitev 2007), where the strongest correlated variable is added at first to the model and then the weaker variables are added gradually. The algorithm does multiple regression a number of times, each time removing the weakest correlated variable in such way that it would not decrease the R^2 value significantly. At the end, those variables are left, which explains the distribution in the best way. The results of stepwise regression analysis are summarized by Table 5.

Table 5

Relationship between producers’ goals and their statements on attitudes, subjective norms, perceived behavioural control (regression results)

	Statements	Goal factors				
		LS	MO	DS	FS	FD
S	The opinion of other producers is important for me	0.388		0.197		

P	I try to reduce chemical use	0.210				
A	I can sell fresh products	0.740				
P	I am open for technical and professional novelties		0.395			
P	I produce wide range of products		-0.235			
P	I produce less common fruits and vegetables		0.173			
A	Vulnerability to retailers will decrease		0.243			
A	I can sell products with higher price		-0.186			
P	I can harmonize production and sales			0.223		
P	I try to produce quality products			0.288	-0.182	
P	I use direct sale as marketing channel			0.256	0.322	
A	The vulnerability to retailers will decrease				0.344	
A	The period between production and sales will be reduced				-0.245	
A	Labour-intensive form of sales				-0.204	
P	I try to employ less employees					-0.267
A	Direct sale is applicable only for selling small amount of products					0.227
P	We can manage production & sales by the help of family					0.232
P	I am able to build appropriate relationship with consumers					-0.226
	Adjusted R²	0.318	0.251	0.487	0.217	0.122

Legend: elements of TPB in statements: A: attitude, S: subjective norm, P: perceived behavioural control. Goal factors: LS: Lifestyle, MO: Modernization, DS: Direct sales, FS: Increasing farm size, FD: Farm development. One-Way ANOVA sig<0.05, N=136, only significant ($P<0.001$) β values are displayed in the table.

This step of the analysis was related to the statements on attitudes, social norms and perceived behavioural control and the identified five goal factors. The results of the regression analysis show that the variance of Direct sales factor is explained most significantly by the selected variables (48.7%). Based on this, it is concluded that producers, who marked direct sales as a targeted marketing channel will focus on the production of high quality products, use direct sales as a main marketing channel, they can harmonize the level of production and sales and they consider the opinion of their colleagues, i.e. other producers.

Variables that have significant positive relation with Lifestyle factor explain 31.8% of the factor's variance. For those producers who focus on non-economic

goals, the opinion of other producers is a highlighted factor, they try to minimise chemical use and consider the delivery of fresh products as a main advantage of direct sales.

The variance of Modernization factor is explained by 25.1% of variables added by the model. Producers, who focused on modernization, were more open for professional and technological novelties, and they produce special, less common fruits and vegetables. The variable 'wide range of products' showed a negative significant relation with the Modernization factor, which suggests that modernization is not associated with broadening of the scale of products, it is rather related to technical modernization. The main advantage of direct sales for those producers, who preferred modernization, was that their vulnerability to retailers would decrease.

Increasing farm size was preferred by farmers who typically deal with direct sales and consider this marketing channel as an appropriate tool for reducing the vulnerability of producers to retailers. They did not consider the production of high-quality products and fresh product delivery as quite important.

The variance of Farm development factor was explained least by the added variables (12.2%). Producers who preferred farm development use the help of their family members in production and sales and do not try to employ others. They do not consider themselves to be able to build appropriate relations with the consumers and in their opinion direct sale is applicable only for selling limited amount of products.

4.3 Relationship between Goal Factors and Sales Channels

In the next step of the research, the relationship between the five factors formulated by the objectives of the farmers and the proportion of direct sales and sales through POs were compared to the total sales. The selection of this method was motivated by the importance of these two channels because according to the answers, 61.6% of the respondents sell their products directly to the consumers, while 22.56% use selling through POs as a marketing channel, while the use of other channels were minimal.

A stepwise linear regression was used for identifying the relationship between the components, which resulted that four factors contribute significantly to the variations in selecting direct sales as marketing channels, which results are shown by Equation (1). It should be noted that the in this aspect the share of direct sales is referred as *Individual sales*, in order to distinguish it from the Direct sales (DS) factor.

$$\text{Individual sales} = 61,60 + 30,43 * \text{DS} + 12,27 * \text{LS} - 11,75 * \text{MO} - 7,30 * \text{FD} \quad (1)$$

$$p < 0.001; \text{Adjusted } R^2 = 0.491$$

Legend: DS: Direct sale; LS: Lifestyle; MO: Modernization; FD: Farm development. (In this equation the constant and the partial regression coefficients B_i are given.)

All elements of the model were significant in relation with the share of direct sales in the producers' selection of marketing channels, and the four factors explained 49.1% of the differences in the share of direct sales.

The results of linear regression analysis reflect that the share of direct sales is related positively to *Direct sales* (DS) and *Lifestyle* (LS) factors, while *Modernization* (MO) and *Farm development* (FD) are negatively related to it. Thus, it is concluded that modernization and farm development are not among the key preferences of the responding farmers, which confirm the results of the previous interviews, when producers expressed their preferences for using conventional farming methods. The same analysis was carried out for identifying the share of *sales through POs*, which results are expressed by Equation (2).

$$\text{Sales with POs} = 22,56 - 7,74 * \text{LS} + 6,44 * \text{MO} - 22,63 * \text{DS} \quad (2)$$

$$p < 0.001; \text{Adjusted } R^2 = 0.624$$

Legend: LS: Lifestyle; MO: Modernization; DS: Direct sales

The results of linear regression analysis reflect that the share of sales through POs is related negatively to *Lifestyle* (LS) and *Direct sales* (DS) factors, which means these factors are not important for those producers who sell their products through POs. However, *Modernization* (MO) factor showed a positive relation, which suggests that modernization of the farm has an increased importance for these producers. Three factors were added to the model and they explained 62.4% of the share of sales through POs in all sales channels. The results are in consistent with the results of the formerly conducted variance analysis, which concluded that PO members do not prefer the statements related to *Lifestyle* and *Direct sales* factors.

Further analyses were carried out to explore how the explained variance would change if selected variables from the farmers' statements on attitudes, social norms and perceived behavioural control were also included in the equations in addition to the farmers' goals. For this reason, a linear regression of was performed, where the previously included objectives entered to the model as fixed variables, while the variables of the statements were entered in a stepwise procedure in addition to these fixed variables. Equation (3) describes the role of *Individual sales* among other sales channels:

$$\begin{aligned} \text{Individual sales} = & -86.16 + 6.32 * \text{LS} - 4.61 * \text{MO} + 11.35 * \text{DS} - 2.68 * \text{FD} + \\ & + 12.31 * \text{S1} + 12.20 * \text{S2} - 7.00 * \text{S3} + 5.00 * \text{S4} + 6.62 * \text{S5} \end{aligned} \quad (3)$$

$$p < 0.01; \text{Adjusted } R^2 = 0.718$$

Legend: LS: Lifestyle; MO: Modernization; DS: Direct sale; FD: Farm development; S1: I am able to build appropriate relationship with

consumers/buyers; S2: Direct sale is a time-consuming form of sales; S3: I produce products on larger farm size than it is appropriate for using direct sales; S4: I produce a wide range of products; S5: I can sell fresh products

By adding more variables into the model, the variance explained increased from 49.1% to 71.8%. Based on the regression equation it is can be observed that farmers who apply direct sales at a greater share, have a wide range of products, use less chemicals, are able to build good relationship with consumers. They consider direct sales as a time-consuming form of sales, but its main advantage that they can sell fresh products.

Analysing the sales through POs resulted Equation (4):

$$\begin{aligned} \text{Sales through POs} = & 175.68 - 2.94 * LS + 0.86 * MO - 4.26 * DS - 11.70 * S1 - \\ & - 7.31 * S2 - 9.46 * S3 - 7.49 * S4 + 2.46 * S5 \end{aligned} \quad (4)$$

$p < 0.01$; Adjusted $R^2 = 0.600$

Legend: LS: Lifestyle; MO: Modernization; DS: Direct sale; S1: I am able to build appropriate relation with consumers/buyers; S2: I use direct sale as marketing channel; S3: Direct sale is a time-consuming form of sales; S4: I try to reduce chemical use; S5: Administrative tasks lay a heavy load on me

The results of Sales through POs show that the variance explained decreased by including more variables into the model which so it is not reasonable to add the statements (S) into the model. Nevertheless, we performed this step in order to make a comparison between PO members and farmers using direct sales as a marketing channel. Compared to farmers with direct sales activities – Equation (3) – in case of farmers who sell products through POs, the share of Sales through POs showed negative relationship with Lifestyle and Direct sales factors, but it was positively correlated with Modernization factor. Statement regarding the relationship with consumers (S1) showed negative correlation with the share of Sales through POs, which also underline the differences in their goals and attitudes.

Discussion and Conclusions

The main aim of this research was to identify the main features of vegetable and fruit producers' decision-making process in the selection between marketing channels, and to explore their entrepreneurial attitudes and behaviour, with a particular focus of direct sales as marketing activity. It should be underlined that present research results should not be considered as representative thus general conclusions cannot be drawn for the total population, but might be used for detecting the main directions of farmers' attitudes and assessment on direct sales as marketing channel.

The main hypotheses of present research – i.e. intentions, preferences and driving forces of farmers using different marketing channels and their assessment on direct sale as a marketing channel are different – was verified by research results.

The research results justified that the goals and objectives of farmers might be differentiated as economic and non-economic goals. These findings are consistent with former literature sources (Fairweather and Keating 1994; Bergevoet et al. 2004; Menozzi et al. 2015). Besides economic goals, non-economic objectives (such as sustainability, preservation of natural and cultural landscape, private goals connected to work-life balance, etc.) are also important for the farmers. The assessment of preferences and intentions are varying in farms using different sales channels. Farms applying direct sales as main marketing channel are focusing on the production of high quality products and non-economic goals like contribution to the more positive image of farming as a profession or the preservation of natural and cultural landscape.

By analysing the economic goals, it can be stated that farm development and modernization aspects have less preferences for farmers who apply direct sales. This observation is consistent with the results of Kuhnert (1998), which highlighted that agricultural enterprises can be characterized by traditional organizational culture, they are less innovative and profit-oriented approach. Besides this, managing and organizing the activities connected to direct sales is a time-consuming task (Juhász et al. 2012) which will take many resources and time from farm planning, innovative ideas, product and production level development (Wirthgen and Maurer 2000; Martinez et al. 2010). This result is also justified by the results of Bietsch and Hintze (2004), concluding that agricultural enterprises which do not apply direct sales use only 10 percent of their working hours for sales, while this proportion for farms based on direct selling is 55% (Bietsch and Hintze 2004). The low preferences of farms applying direct sales in modernization aspects are justified by using conventional technologies and fewer chemicals for the production. These features refer to the use of sustainable technologies, which might increase the recognition and uniqueness of the products. These findings are consistent with some observations of King et al. (2010), Menozzi et al. (2012), Benedek and Fertő (2015), Canfora (2016).

Although respondents indicated that they use less chemicals, most of them were not open for integrated or organic production (except for those respondents who sold their products at the organic markets), but they indicated production of high quality products as one of the most preferred goals. An important result of the present research was that environment friendly production was ranked as first among farm-related goals of the respondents, while large-scale production and increasing farm size were less important aspects for the farmers. Research results confirmed that farms based on direct sale have a wide range of products, which is considered as a success factor of this marketing activity. It affects profitability of farms as well (Uematsu and Mishra 2011). The conclusions of a former Hungarian research (Juhász et al. 2012) highlighted that the main advantage of direct sales is the close connection between seller and buyer, (see also Marsden et al. 2000; Renting et al. 2003). These findings were justified by the present research results,

namely, the opinion of consumers was ranked differently by farmers who sell products directly and those who sell products through POs.

As a summary, it can be stated that those producers who apply direct sales as the main marketing channel give a higher priority for non-economic objectives and direct sales-related objectives, while farm modernization and farm development are less important for them. These findings might be justified by the results of the previously conducted qualitative research, which showed that producers, who use direct sales as the main marketing channel, preferred to build a stable group of consumers and they did not intend apply other marketing channels, which should be essential in case of increasing production level. They considered stability as the key success factor and traditional products produced by conventional technologies were considered as their main competitive advantage. On the contrary, producers who sell their products through POs, had higher preferences on farm modernization and farm development, as they are able to sell their surplus yields through the POs.

Research results indicated that attitudes and subjective norms are determinants of producers' behavior; therefore, they will strongly influence the formulation of their economic and non economic goals and their managerial decisions. In addition, these goals and objectives will determine the preferences of producers in the selection between marketing channels.

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