COMPARISON OF THE SIZE STRUCTURE OF FARMS IN SLOVAKIA AND FRANCE AND THEIR POSITION IN THE FOOD CHAIN

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ABSTRACT
Generally, the appropriate size structure of farms is considered a positive factor towards achieving competitiveness in agricultural enterprises. The structure of farms in Slovakia shows a high share of large scale farms, established during the period of forced collectivisation, mirroring the Soviet model, when the factors of production were withdrawn from individual farmers and given to combined larger units. Older EU countries moved away from smaller scale family farms by integrating these farms into larger units in the form of producer groups, without surrendering the ownership of the factors of production. In this way they significantly increased their influence in the food chain. Therefore it should be a valid comparison to consider the size structure of farms in Slovakia and to contrast this with France, as well as to examine their position in the food chain in the dairy sector. The question as to whether the size structure of farms in Slovakia is sufficient for the long-term development of the Slovak agri-food sector, and whether there is a strong enough position of producers in the food chain in the milk sector, can also be answered. The abolition of milk quotas, price volatility in agricultural markets and increasing competition threaten the stability of farms, and it can therefore be assumed that integrated primary producer associations in the food supply chain will be able to better withstand the current challenges.

Keywords: Agriculture, Structure of farms, Milk sector, Producer groups, Food supply chain

INTRODUCTION

In the period of transformation from a centrally planned system to a market economy in most countries of Central and Eastern Europe, the old system of strong vertical integration was broken into separate units. The state had previously centrally managed vertical integration and took the responsibility for ensuring that contracts were fulfilled. Disruption of the agricultural products market, however, meant that independent private firms themselves began to vertically integrate in order to take the responsibility for contracts and to improve coordination in the supply chain (SWINNEN, 2005).
In the framework of vertical integration, Slovakia has its own particular characteristics which include farm size structure and the processing industry. While in other countries, generally, the processing industry is concentrated and primary production is fragmented, in Slovakia food industry suppliers are large farms with a relatively concentrated supply. This could imply that the bargaining position of such farms would be very high and that the power is weighted towards the agricultural sector. However, this relatively high concentration was subjected to the chronic undercapitalisation of primary production during the whole period of transformation towards a market economy (BLASS, 2005).
The vertical food chain is a set of concatenated functional and technical disciplines and activities in the production and sale of food and beverages (HUTNÍK, 2004).
Modern markets are characterised by large-scale supermarket retailers and wholesale operations. High volume and low price produce, together with strict quality control and

high safety standards characterise these markets. They are highly sophisticated, organising supplies in a way which allows them to be efficient also thanks to their vertical integration along the supply chain. They aim to meet the high turnover experience by supermarkets with maximum efficiency. Such markets are also highly dynamic, responding very quickly to price changes, consumer demand and new technological opportunities.
The objective of this paper is to compare the size structure of farms in Slovakia and France, their performance in the milk sector and to analyse the position of the primary producers in the food supply chain with a primary focus on the milk sector in view of its horizontal and vertical integration.

MATERIAL AND METHOD

Data on farm size structure were obtained from the database of Farm Structure Survey of EUROSTAT for 2007. Analysis of the gross margin of milk farms in France and Slovakia is provided, based on the FADN data published in the Milk report for 2011.
The current information on the development of producer groups in Slovakia was provided by the Slovak Agricultural Paying Agency (APA).

RESULTS

Size of farms in EU27

In Figure 1 the total Utilised Agricultural Area (UAA) of all farms for a number of countries is broken down into eight classes according to the size of the holding's UAA.

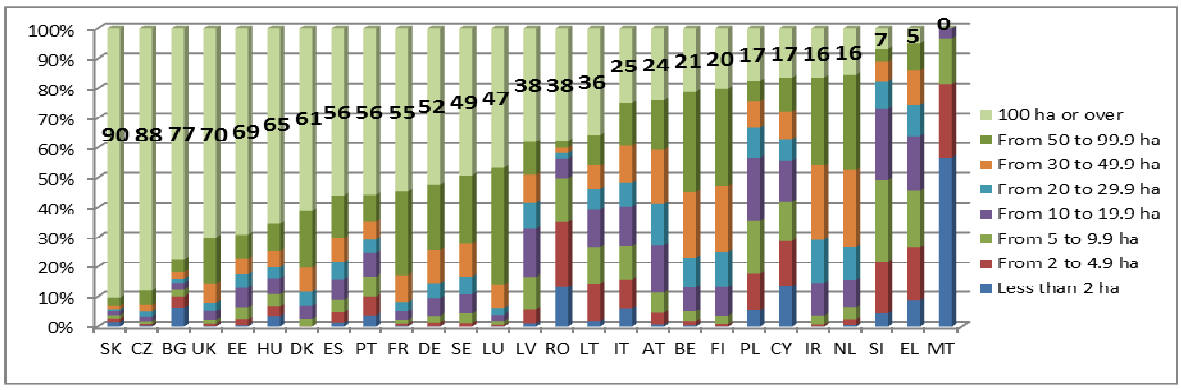

Figure 1. Distribution of UAA by UAA size of farm in the EU27, 2007
% of UAA
Source: Eurostat – Farm Structure Survey - 2007, own calculation

As we can see the distribution of the utilised agricultural area (UAA) by the size of farms varies between countries ranging from Slovakia (SK) with the biggest proportion (90 %) of UAA by farms with 100 ha and more, followed by Czech Republic (CZ) with 88 %, Bulgaria (BG) with 77 %, United Kingdom (UK) with 70 % and others, down to Malta (MT) with no farms above even 20 ha.
The distribution of dairy cows by the UAA size of farm in the EU 27 in 2007 varies between countries and the same relationship is observed as was present in the previous figure for the distribution of UAA. *Figure 2* indicates that the production inputs such as land and dairy cows are highly concentrated in holdings with 100 ha or more in SK, CZ, Estonia (EE), UK and Hungary (HU).

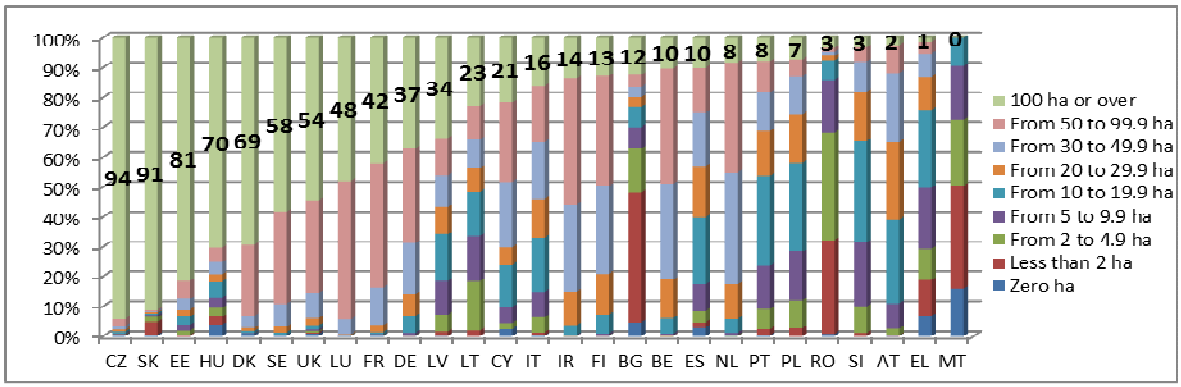

Figure 2. Distribution of dairy cows by the UAA size of farm in the EU 27, 2007

% of dairy cows

Source: Eurostat – Farm Structure Survey - 2007, own calculation

However, the real differences in the concentration of the mentioned production factors can be observed in the following *Table 1* which indicates that the average area of fodder crops and grasslands per holding with 100 ha or more and the average number of dairy cows per breeding holding with 100 ha or more of UAA is far higher in the post-communist countries than in old EU countries.

Table 1. The average area of fodder crops and grasslands per holding and average number of dairy cows per holding with more than 100 ha, 2007

farms 100 ha or more	AT	BE	BG	CY	CZ	DK	EE	FI	FR	DE	EL	HU	IR
fodder ha/farm	205	65	101	108	313	51	219	46	86	97	128	160	125
dairy cows no/farm	23	62	62	159	256	150	139	46	60	119	43	259	109

farms 100 ha or more	IT	LV	LT	LU	NL	PL	PT	RO	SK	SI	ES	SE	UK
fodder ha/farm	192	121	85	100	83	86	307	360	417	153	226	87	207
dairy cows no/farm	134	61	58	53	163	108	126	32	234	194	89	84	122

Source: Eurostat – Farm Structure Survey - 2007, own calculation; without Malta

The largest average size of fodder crops and grasslands per holding is in Slovakia (417 ha), followed by Romania (RO) (360 ha) and CZ (313 ha). The size of herd in farms with more than 100 ha was the largest in Hungary (259), followed by CZ (256) and SK (234).

With the exception of United Kingdom (UK) (207 ha; 122 dairy cows), the concentration of those inputs is much lower in Western Europe countries. In France, the average size of fodder crops and grasslands is 86 ha and the average size of herds is 60 cows.

The different averages of fodder crops and grasslands and the size of herds confirms a significantly higher concentration of those inputs in the milk sector in the post-communist countries which inherited this situation as a result of their collectivisation in the past.

Analysis of gross margin of milk farms in France and Slovakia

Based on the latest reports on the milk sector in 2011, a comparison of revenues and operating costs per tonne of milk produced in France and Slovakia can be undertaken. The FADN data are composed of samples of specialised farms in the milk sector, but due to difficulties in identifying those farms in Slovakia, as their activities have been significantly diversified, the sample only covers 23 % of milk production. On the other side, according to the average forage area of fodder crops (641 ha) and the size of heard of dairy cows (168) in specialised dairy farms, it is logical to conclude that the sample is in line with the analysis presented on the concentration of inputs in the large farms in Slovakia.

Revenues

Figure 3 indicates the evolution of the milk price in France and Slovakia over the last few years. They were higher in France than in Slovakia for the whole period. After accession to the EU, milk prices in Slovakia were approaching those in France until 2007. The milk price in France does not take into consideration coupled aids (12 €/t 2004 (22 €/t) in 2005. In both countries, the peak in price was in 2008 when the prices of agricultural products rose sharply. However, according to the price estimates in 2009 and 2010 the price fall in Slovakia was higher by 16 %, and the price was significantly below the price in 2004.

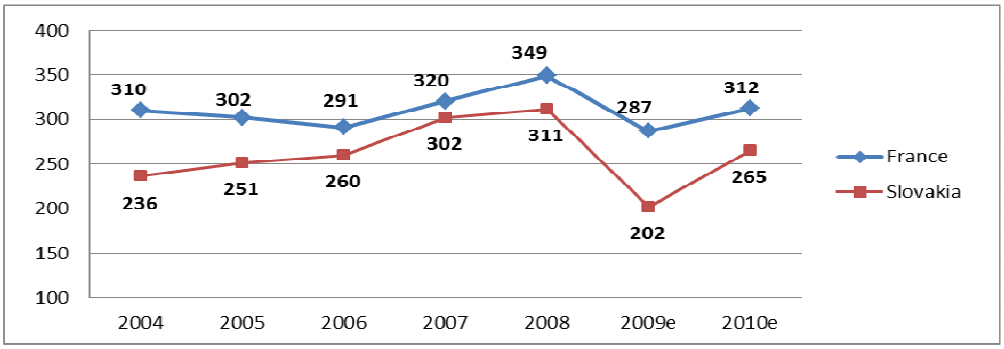

Figure 3. Price in € per tonne of milk in France and Slovakia in 2004 - 2010

Source: FADN data, own calculation, 2009 and 2010 estimates based on DG AGRI data

Production costs

Figure 4 shows that lower milk prices in Slovakia were not compensated by lower operating costs (production costs), but that these were in fact significantly higher than in France.

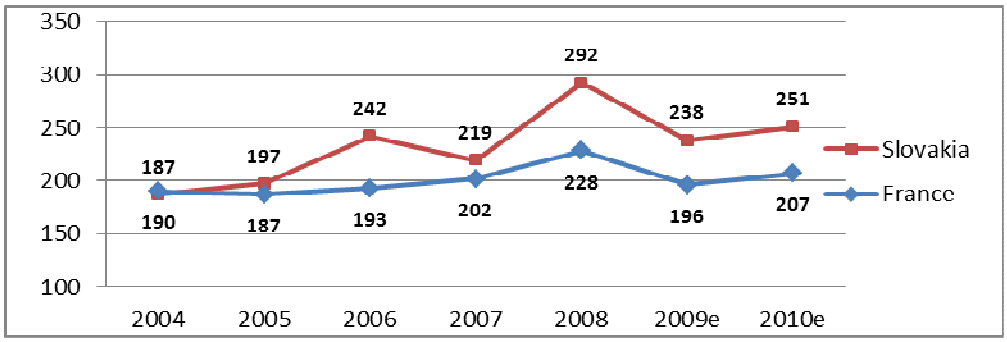

Figure 4. Total operating costs in €/t milk in France and Slovakia in 2004 – 2010

Source: FADN data, own calculation

Table 2 shows the values of specific costs which differ significantly between Slovakia and France.

Table 2. Selected specific operating costs in the milk sector in Slovakia and France

Specific opeating costs	2004	2005	2006	2007	2008	2009e	2010e
homegrown feed SK	27	32	45	44	57	46	46
homegrown feed FR	*33*	*32*	*32*	*33*	*36*	*32*	*31*
purchased feed SK	43	43	46	64	79	50	60
purchased feed FR	*47*	*44*	*46*	*52*	*64*	*51*	*59*
Other specific costs SK	43	28	20	18	20	22	22
Other specific costs FR	*12*	*12*	*12*	*12*	*14*	*14*	*14*

Source: FADN data, own calculation

In 2008, the costs of homegrown feed, purchased feed and other specific costs were higher by 42 € in Slovakia than in France. This difference represents 13 % of the SK milk price which indicates that the income of SK holdings is negatively hit not only by lower milk

prices but also by significantly higher specific costs. Also, the volatility of input prices is higher in Slovakia than in France e.g. as regards the purchased feed costs in years 2006, 2007 and 2008.
The non-specific costs were also higher in Slovakia than in France, as shown by *Table 3*, especially concerning energy costs and other direct inputs. In 2008, they were higher by 22 € in Slovakia when compared to the presented values in France.

Table 3. Non – specific operating costs in the milk sector in Slovakia and France

		2004	2005	2006	2007	2008	2009e	2010e
SK	Energy (fuel and electricity)	32	33	45	41	49	32	36
	Other direct inputs	16	15	36	17	48	49	49
FR	Energy (fuel and electricity)	12	13	14	14	18	15	17
	Other direct inputs	35	34	35	37	39	33	33

Source: FADN data, own calculation

Gross margin
The lower prices for milk sales and the higher operating costs resulted in a significantly lower gross margin in Slovakia in the whole period, as depicted in *Figure 5*.

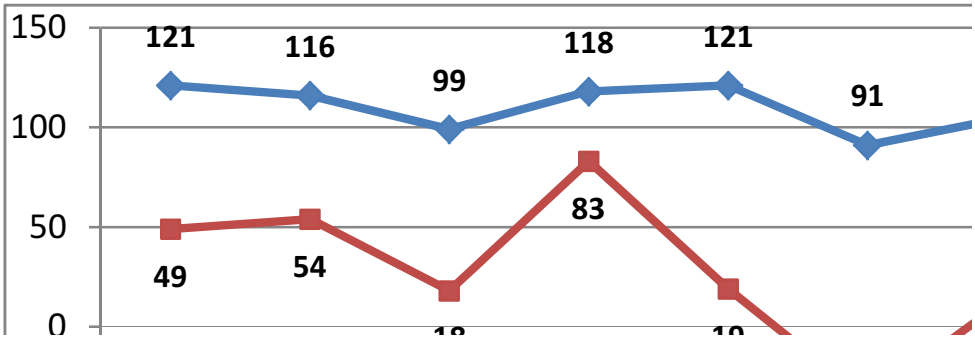

Figure 5. Gross margin in Slovakia and France in €/t
Source: FADN data, own calculation

Finally, the trends in the milk sector in Slovakia are not very positive in the last few years. The number of dairy cows decreased from 178,000 in 2008 to 161,000 at the end of 2010. The gross margin, although mostly positive in the last few years, is in fact well below the average gross margins calculated from the FADN database in EU countries.

The horizontal and vertical integration of food supply chain in the milk sector in FR and SK
According to data available on the website of COOPs in France, there are 45 000 milk producers associated to one of 260 cooperatives, out of which 200 process milk. In total they produce 55 % of the milk in France and process 35 %. These milk cooperatives are members of the organisation, the National Federation of Milk Cooperatives which protects their rights and interests. The National Federation of Milk Industry represents processors in the milk industry. These organisations jointly created a common organisation, the Association of French Milk Transformation which represents the milk sector of France at the national and European political level. In respect of the vertical integration, there are two essential aspects which play a significant role. The first one is that cooperation is not just the production and sale of milk to the processing industry, but the way in which the supply chain can be shortened. This enables the producers to be closer to final customers, and thus to increase the added value which otherwise would stay with the processing industry. The second one takes into account that more alternatives for the primary

producers create a more balanced supply chain than in the case when the whole milk production would be processed only by the processing industry.
In Slovakia, there are currently 24 milk cooperatives associated with 206 agricultural holdings with a turnover of 64 Mio € in 2009 which accounts for a 36 % share in the milk sector. These data indicate that more than 1/3 of supplies are delivered by the new milk cooperatives of primary producers in Slovakia. According to the information available from APA, none of the milk cooperatives processes the collected milk. The main advantage for members was the increase of bargaining power towards processors and suppliers of the inputs.

CONCLUSIONS

Following the analysis of the size structure of farms in the EU27, it can be anticipated that Slovak farms would have a good starting position to be competitive in the global markets. However, in-depth analysis of the revenues, costs and gross margins points out that there are significant differences between those figures in France and Slovakia. The volatility of milk prices and operating costs was higher in Slovakia which can be interpreted as representing a higher imbalance in the vertical food chain. The position of primary milk producers in Slovakia differs in both horizontal and vertical integration, as the share of milk cooperatives is lower than in France, and also the vertical integration does not include the processing of milk by their own enterprises.
Further, there is not the optimum concentration of production inputs as regards agricultural land when compared with the EU27. The larger size structure of farms does not automatically ensure better prices for outputs and lower prices for inputs. The success of any primary producers depends much more on the horizontal and vertical organisation of the relevant food supply chain. The better organisation of milk producers in France and the more sophisticated vertical organisation of the food supply chain provide a model by which to face the current challenges experienced by the milk sector in Slovakia.
Finally, from the analysis it results that the primary agricultural sector in Slovakia should move towards a more integrated vertical organisation, especially in respect of shortening the milk supply chain, increasing the bargaining power within input demand and output supply, in order to increase its competitiveness, stability and future prospects on the milk markets.

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