DOI: 10.18515/dBEM.M2014.n01.ch02

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1.2. COMPETITIVENESS OF HUNGARIAN AGRICULTURAL ENTERPRISES AT DIFFERENT FARM TYPES

Summary
Nine years has passed since the EU accession, thus, it is possible to make an objective evaluation about the impacts of the accession. Several reviews were made in this topic, but most of them made their assessment at macroeconomic level. This research focuses on the impacts of accession at farm level, using the data of the EU Farm Accountancy Data Network (FADN) database. The main goals of this research were to explore the impacts of the accession on different farm sizes and types of farming and to find which types of farming were the 'winners' or the 'losers' of the accession. For the research, the primary data of the Hungarian FADN database were used (between the years 2002 and 2009) created by the Hungarian Research Institute of Agricultural Economics. Based on the domestic and international sources, the ROE ratio was chosen as a top-indicator for measuring profitability, and was used during the further examinations. Based on the research results I show how the profitability of different farm types and farm sizes have been changed and which farm types and sizes may be considered more and less successful since the date of EU accession.

Keywords: EU, competitiveness, agricultural enterprises, farm types

Introduction

The EU accession has brought not only new opportunities, but also many challenges for the new member states. Nine years after the first round of the EU enlargement, the new member states are able to examine and evaluate the impacts of the accession. The scientific reviews of this field discussed the problems and the results mostly at macro-level and examined the general macroeconomic impacts of the accession in the agricultural sector (see among others at Wilkin, 2007; Doucha és Foltýn, 2008; Csáki and Jámbor, 2010 and 2012; Kapronczai, 2011; Popp and Székely, 2011). The main objective of our research was to make this evaluation at farm level.

EU accession has brought many changes and many questions. What changes and what type of development can be observed in the agricultural sector and among the farms after the accession? Which types of farming could take the advantages of the accession, which could work successfully and became competitive and which ones became the losers after the accession?

When examining competitiveness, we have to consider the basic statements of Porter (1980), who described the microeconomic business environment by his five forces model, where the connections and the rivalry between the players of a given industry were illustrated. According to Porter (1990) three levels of competitiveness may be differentiated, the level of enterprises (micro-level), regions or sectors

(meso-level) and nations (macro-level). At macro-level, those countries may be competitive, which have more – and enduring – competitive advantages at industrial and corporate level. On the contrary, according to Krugman (1994), competitiveness cannot be measured at the level of nations; it may be evaluated only at corporate level.

Hoványi (1999) recommended that the evaluation of the international competitiveness of a company should be started by the evaluation of its international environment, and introduced the so-called "triple diamond" model, with three different levels. At the first level, the closest economic environment of the company shall be examined and the most important tendencies shall be recognized. At the second level, the reasons of these tendencies must be explored, while at the third level the global tendencies are to be discovered.

Mizik (2004) stated that the competitiveness of the enterprises is directly connected to its profitability, but he highlighted that the two expressions shall not to be considered as synonyms. Chikán and Czakó (2007) examined the companies' competitiveness based on a comprehensive survey of Hungarian SMEs. In their research, they examined different aspects: company operations and functions, production, business strategy, cooperation, and innovation attitudes.

Udovecz et al. (2000) focused on the competitiveness of agricultural enterprises. According to their opinion, the competitiveness of the agricultural enterprises shall be differentiated according to time periods. In short term aspects, the competitiveness in the agricultural sector is determined by the income and marketing possibilities of the farms, while in long-term aspects the competitiveness of a product is determined by its quality, price and the connected services, moreover, competitiveness is also influenced by the organizational level of the sector.

The Hungarian agriculture was one of the most important players of the European agriculture for many decades. After the political transition in the 1990s, the former system of the Hungarian agriculture has undergone fundamental changes. As in all CEE countries, the agricultural sector had to face serious problems: structural changes, need for modernization, financial problems and the loss of the former Eastern markets. In Hungary, the food processing industry started to collapse, the processing plants has lost their well organized former suppliers – the cooperatives and state farms – and most of them could survive only with foreign financial help. The financial and structural problems also affected other fields of the agricultural sector, such as technical development. Without modern technical solutions, agricultural enterprises are nearly unable to survive the hard circumstances, to be stable, to develop their business, and to improve their competitiveness (Daróczi, 2005), while Husti (2013) added that Hungarian agriculture was only able to be successful when the players of innovation processes could manage their activities in a harmonized way. Another possibility for improving the performance is increasing the quality of the products by added value or getting a higher quality level. It may be conducted by modernization of the technology. (Ubreziová, 2005)

Some authors underlined the importance of organizational problems. According to Jámbor et al. (2008) the state and EU supports, the improved quality and ecologic features of the production may improve the competitiveness of the farms, but they underlined the importance of organizational management and the role of cooperation.

Popp and Székely (2011) suggested renewing or establishing new vertical connections between the players of the whole supply chain, in order to improve the bargaining power of the producers. Lakner et al. (2007) highlighted that the most important problem in the Hungarian agriculture and the whole food chain, is the dominance of the processing industry and the retailers (some examples: late payment, forced price reduction, slotting fee, etc). This dominance in many cases can destroy the liquidity of the producers and make their operation nearly impossible.

The competitiveness of the Hungarian agricultural sector was also examined in financial aspects. Borbély et al. (2011) and Baranyi et al. (2012) underlined that the unfavourable tendencies of the profitability, efficiency and financial position of the Hungarian agricultural enterprises have started after the political changes, and the financial performance of the Hungarian agricultural enterprises have not improved significantly in the examined period (between 2002 and 2009). They observed that the accession has influenced the ratios of the agricultural enterprises only for short time, the number of the businesses increased, but they had been established with low issued capital. The retained profit of the years slightly increased, especially in 2005 owing to favourable agricultural output prices. Some of these effects was only temporary and their influence was eliminated after 2006. The results of the cited authors show that assets – primarily fixed assets – and the investment activity also show an increasing trend because of the new credit facilities and EU support possibilities. One of the greatest problems is the high rate of stocks and receivables; the financing between creditors and receivers has many problems. Most of the agricultural enterprises have liquidity problems. (Baranyi et al., 2012)

Hustiné (2012) analyzed the performance of the Hungarian agricultural enterprises and the food-processing sector. According to her results, most of the agricultural enterprises cannot take the advantages of several supports (e.g. tax allowances) because of their poor financial performance. Törőné (2012) highlighted that there is a significant difference between Hungarian agricultural enterprises according to their size; the small sized enterprises (mostly family farms) are unable to develop and they are lagging behind the better-developed large agricultural companies.

Material and methods

This research work was conducted in two steps: at first, an evaluation was made at international level, in which the FADN (Farm Accountancy Data Network) data of the Visegrad countries (Czech Republic, Hungary, Poland and Slovakia) were examined, analyzed and compared to the average of the FADN data of the EU-15 member states. A part of the results of this stage has already been published (Illés et al., 2012; Törő-Dunay et al., 2012).

After the international comparison, a detailed analysis of the Hungarian farms was conducted, based on the primary data of the Hungarian FADN system. The ultimate goal of this stage of the research was to explore which types of farming may be considered as most competitive, which sectors became the “losers” and which became the “winners” of the accession. The results of both research stages confirmed the

hypothesis that different farm types could use differently the available EU supports and they could take the advantages of the EU accession in a different way.

The research data for the international comparison were imported from the secondary data of the FADN international public database for the four Visegrad countries and the EU-15 countries.

In accordance with the definition of Annex II of Commission Regulation (EEC) No 2237/77, data in the farm return concern exclusively the agricultural holding, they refer to activities of the holding itself, including forestry and farm tourism if they are managed as part of the holding. Non-farming activities of the farmer and his family are not included. (Official Journal, 1977)

The FADN, which was established in 1965, is a survey carried out by the Member States of the European Union. Every year it collects accountancy data from about 80.000 agricultural holdings in the member states. The FADN is the only source of micro-economic data that is harmonised (the bookkeeping principles are the same in all Member States) and is representative of the commercial agricultural holdings in the EU. Holdings are selected to take part in the survey on the basis of sampling plans established at the level of each region in the Union. The Community typology defines the (economic) size of an agricultural holding according to its potential gross added value (total standard gross margin). Specialisation (i.e. the type of farming) of the farms is determined based on the contributions of the different lines of production to the total standard gross margin (SGM). In the past years the system has changed the base of the calculations for standard output (SO) but in the period of the research only the SGM was in use. The holding's economic size is expressed in European size units (ESU). (EC, 2007)

For the international comparison and the analysis of the Hungarian farms, the same methods were used. After the data procession, a detailed financial analysis of the examined enterprises was completed and the results were controlled by statistical methods. The statistical analyses were taken by the SPSS 18 programme, the differences were verified by one-way ANOVA.

For the analysis of the financial situation of agricultural enterprises, 20 indicators were determined and classified into the five groups: indicators of capital structure, profitability, efficiency, liquidity and special indicators for EU supports.

According to the results of the former, international comparison, the support policy of the CAP could just slightly improve the financial situation of the agricultural enterprises, but it was not enough to increase competitiveness and efficiency of the farms. In case of small farms, this help was enough to maintain their operation and production, but it was not enough to improve their production. The advantages of the accession – the expanded market, the co-financed investments and modernization programmes, the higher income level increased by the payments etc. – could not been utilized by most of the farms. (Illés et al., 2012)

As the results of this international comparison Hungary showed the worst results among the V4 countries, therefore the more detailed data of the Hungarian farms were taken into further investigation.

The primary data of the Hungarian agricultural enterprises were imported from the Hungarian FADN database on the courtesy of the AKI (Research Institute of

Agricultural Economics). The Hungarian FADN system consists of approximately 1900 sample farms. The sample represents nearly 90 thousand agricultural enterprises over 2 ESU. The Hungarian FADN makes accrual accounting not only for corporate farms but also for individual farms. (Keszthelyi and Pesti, 2010).

As the main goal of this research stage was to evaluate the impacts of the EU accession on the different farm types, a common basis should be selected for comparison. Different literature sources suggest using financial performance indicators for comparing the different enterprises, because financial performance may be linked to the assessment of the profitability, efficiency and competitiveness of the enterprises. The comparison may be conducted using so-called top-indicators and indicator systems, which provides information in a concentrated way about the financial performance. Based on the domestic and international sources (Körmendi and Tóth, 2003; Milbourn and Haight, 2005; Kresalek, 2007), the ROE ratio (Return on Equity) was chosen as a top-indicator, and its values were used during the examinations.

The ROE values were calculated by the following formula from the original farm data:

$$ROE = Net\ income / Equity$$

After filtering the databases, a complex financial analysis of the agricultural enterprises were conducted. 22 indicators were determined and calculated, which were classified into five groups: capital structure, profitability, efficiency, liquidity indicators, and special indicators for EU supports.

The results of the financial analysis were controlled by statistical methods. The statistical analyses were taken by the SPSS 18 (PASW Statistics 18) for Windows programme; where we used cross table analysis (Chi-square tests), one-way and multi-way ANOVA, and regression analysis methods.

Results and discussion

At first, the original database should be filtered, because the research was focused only on those farms, which provided data for the FADN in the whole examination period (between 2002 and 2009), therefore the original database of the Hungarian FADN farms were reduced, and only 742 farms were chosen for our further researches. By this selection, the distorting effects of the changes among data suppliers could be avoided.

Data processing (Hungarian FADN database)

The main objectives of the research were to explore the impacts of the accession on different types of farming. Types of farming were determined in accordance with the FADN principles (European Commission, 2007), but for this research, the groups were aggregated in order to provide the correct sample size, thus the following farm type groups were examined:

- fieldcrops,
- horticulture, grapes, fruit production, permanent crops,
- dairy farms,

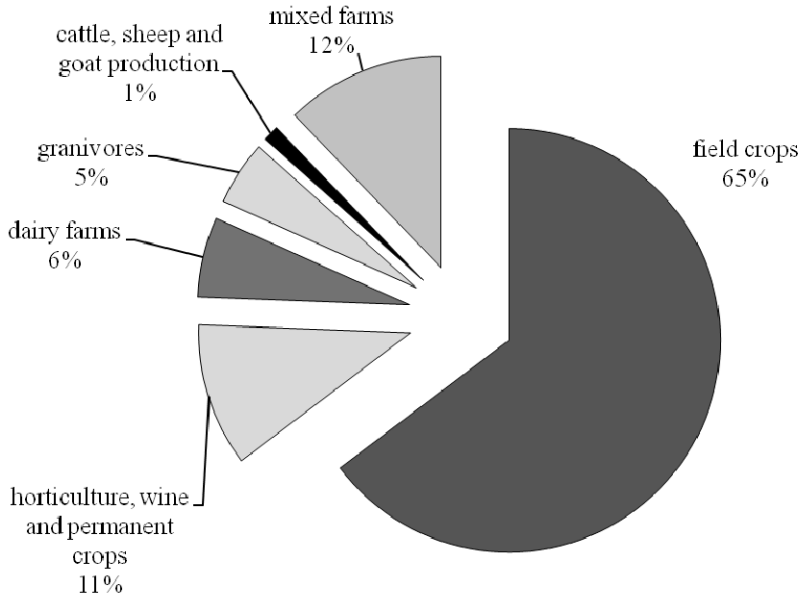
- cattle, sheep and goat production,
- granivores (pig and poultry),
- mixed farms.

The basic concept of the research was to disclose the distorting effects of the different years (e.g. the different weather conditions, prices, inflation) as much as possible, in order to evaluate only the impacts of the EU accession. Therefore, two periods were formed from the original eight-year long period – before and after the accession – and the arithmetic average values of ROE were calculated for both periods. The pre-accession years were represented by the data of 2002 and 2003, while the years between 2005 and 2009 were used as post-accession period. The year of the EU accession (2004) was not classified into these periods, as the EU regulations were not in force nearly in the first half of the financial year, which could have been an additional distorting effect.

In order to make better comparison, only those farms were selected into the further examinations, which production structure and their size was not changed. Only 499 of the original 742 farms did not change their farm size, and only 329 of them did not change their farm type either. These 329 farms were drawn into the further examinations because they can be considered as the most stable farms.

The 329 farms were ranked according to their average ROE ratios, and by appointing the quartile values, the farms were ranked according to the quartile groups (lower 25%, lower middle, upper-middle, upper 25%). The assessment was conducted according to these quartile groups.

Figure 1: Share of different farm types in the examined sample (Hungarian FADN system)



Source: own calculations based on the Hungarian FADN database

Figure 1 illustrates the share of different farm types in the sample of 329 Hungarian farms. The greatest share (64,7%) of the farms was specialized in field crops production, the second largest groups were farms with horticulture, wine and permanent crops, and the group of mixed farms, they are followed by the dairy and pig and poultry farms (granivores) and the smallest share represents the cattle, sheep and goat production.

Impacts of the types of farming on the profitability of agricultural enterprises by evaluating the average ROE values

The distribution of farms according to types of farming given by the quartile groups according calculated with the average ROE values are detailed in Table 1, for both periods (pre-accession: 2002-2003, and post-accession: between 2005 and 2009). Analysing the values of Table 1, in the pre-accession period (2002-2003) the dominance of the field crop producing farms may be observed in the upper 25% group, which means that more than 75% of the most successful farms were specialized in field crops before accession to the European Union. Horticulture, wine and permanent crop producing, dairy farms and the granivores production represent nearly the same share in the upper 25% quartile group (6-7%), while cattle farms are not represented at all among those farms, which may be regarded as most successful.

In the lower 25% and lower-middle groups – that means less successful farms – the share of horticulture, wine and permanent crops and the mixed farms was much higher than their share in the total sample (given by Figure 1), which implies, that most of the horticultural and mixed farms were not among the most successful farms before the accession.

Table 1: Distribution of farms according to types of farming by quartile groups according to average ROE values

Farm types	Period	Lower 25%	Lower middle	Upper middle	Upper 25%
Fieldcrops	2002-2003	57,3%	59,0%	65,9%	76,8%
	2005-2009	37,8%	66,3%	74,4%	80,5%
Horticulture, grape, fruits	2002-2003	14,6%	14,5%	7,3%	7,3%
	2005-2009	25,6%	7,2%	4,9%	6,1%
Dairy farms	2002-2003	2,4%	4,8%	11,0%	6,1%
	2005-2009	8,5%	4,8%	4,9%	6,1%
Cattle, sheep, goat	2002-2003	2,4%	1,2%	1,2%	Not repr.*
	2005-2009	2,4%	1,2%	1,2%	Not repr.*
Granivores	2002-2003	6,1%	3,6%	3,7%	6,1%
	2005-2009	9,8%	3,6%	1,2%	4,9%
Mixed	2002-2003	17,0%	16,9%	11,0%	3,7%
	2005-2009	15,9%	16,9%	13,4%	2,4%

* Not represented

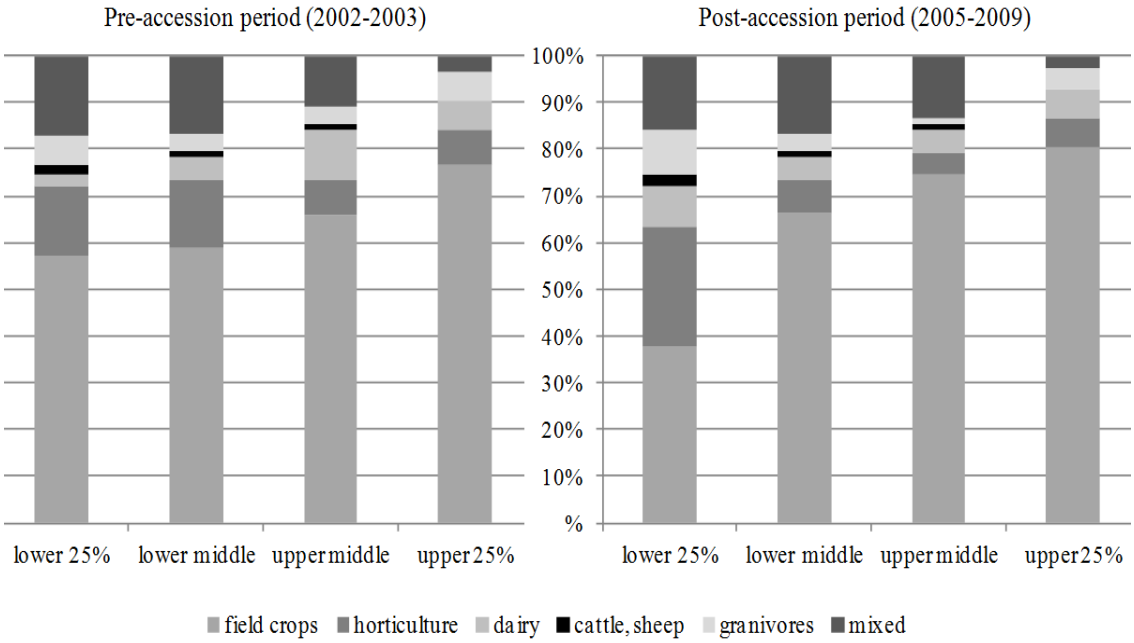
Source: own calculations based on the Hungarian FADN database

After the EU accession (between 2005 and 2009), many changes could be observed (see Table 1.). The most obvious change in the post-accession period is the significant decrease (by 20%) of the field crop producing farms in the lower 25% quartile group (from 57,3% to 37,8%). This suggests the stability and the more favourable situation of the field crop farms, in comparison with the other farm types.

In the lower quartile groups – that means, in the less successful farm types – the share of horticulture, wine and permanent crop farming enterprises increased significantly (these farms represented 14,6% in the pre-accession period, and more than 25% after the accession). The share of dairy farms and granivores producing farms also increased in the lower quartile groups after the accession (from 2,4% to 8,5% and from 6,1% to 9,8% respectively).

The dominance of field crop farming is obvious in the most successful group (i.e. in the upper 25%), and it shows a slight increase after the accession, meanwhile the share of all the other farm types has been reduced. These changes show a clear evidence of the success of field crops farming. On the contrary, the decrease of the specialized, labour- and capital-intensive farm types (such as horticulture, wine, dairy farms) and the granivores production (which has no EU-supports is also significant in the upper 25%.

Figure 2: Distribution of farms according to types of farming by quartile groups according to average ROE values in the examined period



Source: own calculations based on the Hungarian FADN database

Figure 2 illustrates the changes between the two examined periods. The diagram shows clearly the decreased share of fieldcrop producer farms in the lower quartile, which implies the stability and the greater chance of these types of farms for being competitive. The situation is reverse in case of horticultural farms, their share increased in the lowest 25% group. The dairy farms and the pig and poultry

(granivores) producing farms has also increased their share in the lower 25%, which shows their relative unsuccessfulness.

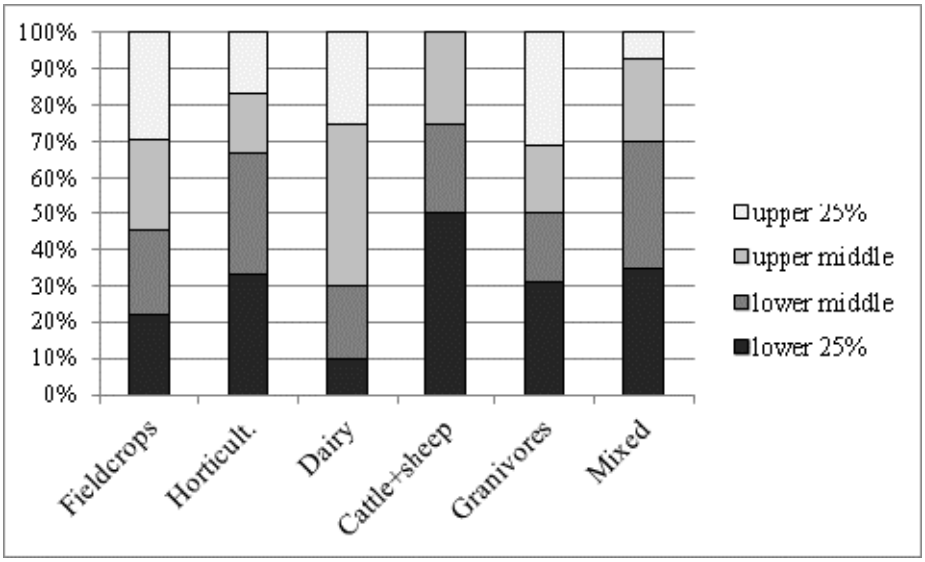
If we examine the distribution of the different quartile groups calculated by the average ROE values of the farms, it is also be observed that in the pre-accession period, the highest share in the upper 25% was represented by field crop farms, dairy farms and granivores producing farms. (See Figure 3 for the pre-accession period and Figure 4 for the post-accession period.)

The share of dairy farms was outstanding in the upper middle quartile group. In the lower 25% the share of cattle, sheep and goat producing farms was the highest, while the dairy farms represented the lowest ratio.

After the accession, the share of farms in the lower 25% (black colour) and lower-middle group (dark grey colour) have increased in all farm types, except for fieldcrop producing farms. It means that field crop producers were could improve their profitability better than farms operating in other farm types. The most radical decrease may be observed in horticulture, dairy farms and in granivores production, where the share of farms in the lower quartile group has increased dramatically (from 20% to nearly 60% in horticulture, from 10% to 35% in dairy farms, and from 30% to 50% in granivores production.

The upper quartiles (upper 25% and upper middle groups) may be considered as the 'successful' group; with higher average ROE values (see white and light grey columns). The changes were not significant in the upper 25% in all farm types, which means that the most profitable farms could be probably stable. The changes are more remarkable in upper middle category (light grey coloured columns), where the most significant decrease may be observed in dairy farms and granivores producing farms.

Figure 3: Distribution of farms according to the quartile groups calculated by the average ROE value by types of farming (pre-accession period: 2002-2003)

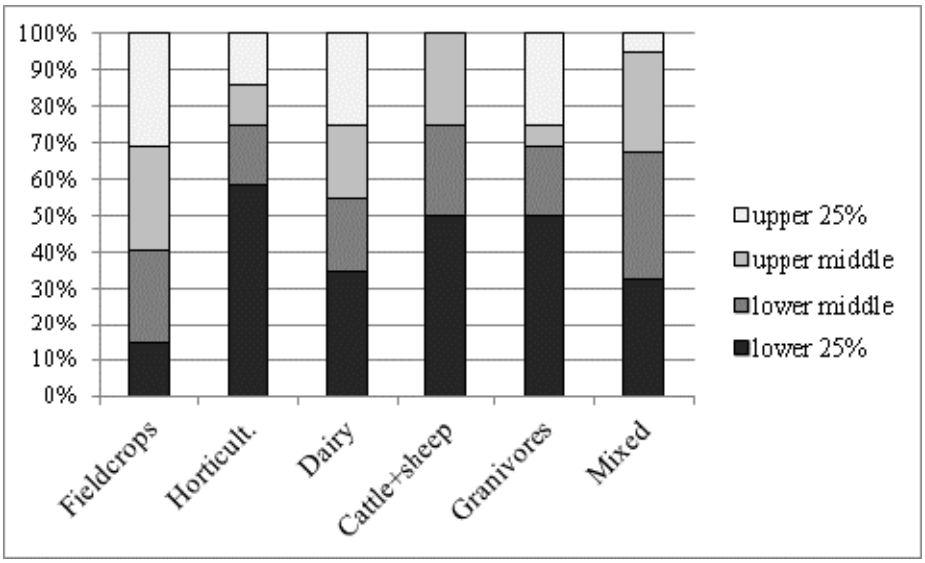


Source: own calculations based on the Hungarian FADN database

The situation of cattle, sheep and goat producing farms remained nearly unchanged, and the changes of mixed farms show only a slight decrease in the upper 25%, but it also may be considered as relatively stable.

According to the results given by Figure 3 and Figure 4, we can state that the changes between the two periods are likely to be observed in the share of farms in the lower quartile groups. The share of horticulture, grapes and fruit producing farms, dairy farms and pig and poultry (granivores) farms increased significantly, which means that they lost their former profitability position.

Figure 4: Distribution of farms according to the quartile groups calculated by the average ROE by types of farming (post-accession period: 2005-2009)



Source: own calculations based on the Hungarian FADN database

Summary of the results

As it has already been mentioned, the results of our research – the changes in the ROE values of the farms – can be considered as the impacts of the EU accession, which brought different market and economic conditions and a new supporting system, because:

- those farms were excluded from the examinations, which changed their size categories and types of farming, and
- the positive and negative impacts of the different years (weather, prices, inflation) were excluded by using the average data of the two periods.

The examinations carried out by the average ROE ratios have resulted that the position of field crop producing farms strengthened; the role of cattle and mixed farms remained unchanged, the importance of granivores decreased slightly, while the horticulture, wine and permanent crop producing farms and dairy farms may be considered 'unsuccessful' as they lost their role after the accession. These changes are summarized by Table 2, where the arrows show the direction of the changes, i.e. the increase or the decrease of the share of different farm types in the given quartile group.

We also examined the distribution of farms according to the different quartile groups, which also confirmed this observation.

Table 2: Changes in the share of farms according to types of farming, based on quartile groups calculated by average ROE values between pre-accession and post accession period

Quartile groups	Types of Farming					
	Field crops	Horticulture, grape, fruits	Dairy	Cattle, sheep, goat	Granivores	Mixed
Lower 25%	↓	↑	↑	—	↑	↓
Lower-middle	↑	↓	—	—	—	—
Upper-middle	↑	↓	↓	—	↓	↑
Upper 25%	↑	↓	—	*Not repr.*	↓	↓

Legend: ↑: increase; ↓: decrease; – : no change; Not repr: not represented
Source: own calculations based on the Hungarian FADN database

Other Hungarian authors (Keszthelyi and Pesti, 2008) have given similar conclusions, when they had examined the possible changes of the EU supports by the introduction the SPS system. According to the results of their model, the 'winners' of the new system could be the fieldcrop producer farms, while the greatest 'losers' would be the granivores producers. This situation is very strange, because according to Illés (1998), granivores production sector is more flexible then other livestock sectors, and reacts well to the changes of the economic environment.

It is suggested that the agricultural strategy should pay a special attention on these unfavourable changes. Hungarian authors also concluded that one of the most important factors that determine the profitability of the farms and the production structure is the supporting system, but the general economic factors (supply and demand conditions, prices, etc.) play a similarly determinant role.

Conclusions

In Hungarian and international literature sources the impacts of EU-accession were evaluated mainly at macroeconomic level, where the assessment of farm-level impacts were determined as only as partial objectives. The researches connected to this paper clearly focused on the farm level impacts.

In Hungary, after the accession, the EU support policy could slightly improve the financial situation of the farms, but it was not enough to increase competitiveness and efficiency in every type of farms and every size categories. For small farms, this support was enough to maintain their operation and production, but it was not enough to improve their production.

As a result of the examinations, which were conducted on the database of the Hungarian FADN system (years between 2002 and 2009), significant differences may be distinguished in the profitability of agricultural enterprises according to types of farming.

The ROE ratio was chosen for a key element of the financial comparison, for which a detailed analysis was conducted based on the data of the different farms. By the results of statistical examinations of the ROE ratio, we could determine the 'winners' and 'losers' of the accession according to types of farming.

Examining the six most important farm types (fieldcrops, horticulture, grapes and fruit producers, dairy farms, cattle, sheep and goat farms, pig and poultry producers (granivores) and mixed farms) the significant expansion of field crop producing farms was determined.

According to the results, it can be stated that the position of the fieldcrop producing farms has been strengthened, and this type of farming can be considered as the most successful sector of the Hungarian agriculture.

The 'winner' position of the fieldcrop producing farms is may be caused by the less market risks, as the storage of the products of this type of farms can be well managed because cereals are non-perishable products. The market possibilities are wider, as the products may be sold at the stock market as well, and besides the mill-industry, the rest of the products may be used in livestock farming sector. Fieldcrops have relatively less fixed costs when compared with livestock farming farm types. In summary, field crop farming is more flexible for changes after unexpected problems (i.e. weather damages), this flexibility may allow the use of different technology options (for example secondary crops).

The relative disadvantages of the livestock sector were also confirmed by these calculations. From the livestock sector, the dairy farms showed the strongest decrease, the share of the cattle, goat and sheep sector has not been reduced, but its share was very low even before the accession. The pig and poultry producer farms also has lost their former presence among the more successful quartile groups (upper-middle and upper 25%), which may be resulted by the lack of supports, the compulsory modernisation processes (for example animal welfare measures) and the market problems.

The 'loser' position of the livestock sector is highly determined by the less flexible production structure, the higher production costs (mostly increased by the high feedingstuff prices) and the quality features of the products, which are below the international average results.

The horticultural farms are also among the 'loser's' group, which is also due to the high production costs, the lack of modernization, the out of date variety structure and quality problems.

A general problem of the sectors belonging to the 'losers' is the lack of investments, the unfavoured financial situation, and the less value added of the products. For improving this situation, the improvement of the cooperation between the producers is inevitable, because without cooperation along the whole supply chain the development process and improving competitiveness will not occur.

References

1. Baranyi A.; Csernák, J.; Pataki, L.; Széles, Zs. (2012): A magyar mezőgazdasági vállalkozások vagyoni, pénzügyi helyzetének elemzése, összehasonlítva az erdőgazdálkodást folytató vállalakozások teljesítményével. *Közgazdász Fórum* 15 (105) pp. 53-80.
2. Borbély, K.; Pataki, L.; Vágyi, F. R. (2011): Examination of the financial position of Hungarian agricultural enterprises between 2002 and 2009. *Agrár és Vidékfejlesztési Szemle*, 2011. Vol. 6. (1)
3. Csaki, Cs.; Jambor, A. (2010): Five Years of Accession: Impacts on Agriculture in the NMS. *EuroChoices*, Volume 9. Issue 2., pp. 10-17.
4. Csáki, Cs.; Jámbor, A. (2012): Az európai integráció hatása a közép-kelet-európai országok mezőgazdaságára. *Közgazdasági Szemle*, LIX évf., pp. 892–910.
5. Czakó E.; Chikán A. (2007): Gazdasági versenyképességünk vállalati nézőpontból 2004-2006. (Corporate competitiveness – a survey of Hungarian enterprises between 2004 and 2006) *Vezetéstudomány*, 38. évfolyam, 5. szám
6. Daróczi, M. (2005): Gépberuházási döntések motivációi a mai magyar mezőgazdaságban. (Motivations for decision-making in agricultural machinery investments in Hungary) In: Tóth L., Magó L. (szerk.): MTA Agrár-Műszaki Bizottság XXIX. Kutatási és Fejlesztési Tanácskozásának kiadványa. FVM Mezőgazdasági Gépesítési Intézet, Gödöllő, pp. 176-179.
7. Doucha, T., Foltýn, I. (2008): Czech agriculture after the accession to the European Union – impacts on the development of its multifunctionality. *Agricultural Economics, Agric. Econ. – Czech,* 54, 2008 (4), Praha, pp.150–157.
8. European Commission (2007): Definitions of Variables used in FADN standard results. RI/CC 882 Rev. 8.1. Brussels, 12. April 2007, 32 p.
9. Hoványi, G. (1999.): A vállalati versenyképesség makrogazdasági és globális háttere – Michael Porter két modelljének továbbfejlesztése. *Közgazdasági Szemle,* XLVI. évfolyam 1013-1029.
10. Husti, I. (2013): Kiútkeresés az agrárinnovációban. *Gazdálkodás* 2013.1. 57. évfolyam. pp. 3-15.
11. Hustiné Béres, K. (2012): A hazai kis- és középvállalkozások innovációs tevékenységét befolyásoló makrogazdasági szabályozórendszer, kiemelten az adóztatás összefüggései. PhD értekezés (The main relations of the macro-economical regulatory system influencing the innovation activities of the Hungarian small and medium-sized enterprises with the focus on taxation. PhD Thesis) SZIE Gödöllő. 161 p.
12. Illés, B. Cs (1998): Az állattenyésztési ágazatok versenyképességének értékelése, figyelemmel a várható mezőgazdasági struktúraváltozásokra. (Analysis of the competitiveness of livestock sector focusing on the structural changes of the Hungarian agriculture) GATE-GTK, Tudományos Közlemények I., Gödöllő, pp. 187-193.
13. Illés, B. Cs.; Dunay, A.; Pataki, L. (2012): The impact of EU-accession on the economic support level of farms in Visegrad countries. *Annals of the Polish Association of Agricultural and Agribusiness Economists* 14:(6) pp. 95-98.
14. Kapronczai, I. (2011): A magyar agrárgazdaság az EU-csatlakozástól napjainkig. Szaktudás Kiadó Ház Rt., Budapest, 199 p.
15. Keszthelyi Sz.; Pesti Cs. (2008): A gazdaságok jövedelmének és a mezőgazdaság üzemszerkezetének várható változása 2010-ig. *Agrárgazdasági Információk*. 2008. 2. szám, AKI, Budapest, 78 p.
16. Keszthelyi, Sz.; Pesti, Cs. (2010): A tesztüzemi információs rendszer 2009. évi eredményei Agrárgazdasági Információk, 2010. 8. sz., AKI, Budapest, 146 p.

17. Körmendi, L.; Tóth, A. (2003): A controlling tudományos megközelítése és alkalmazása. Perfekt Kiadó Rt., Budapest, 218 p.
18. Kresalek, P. (2007): Mutatószámrendszerek a vállalati elemzésben. In: *BGF Tudományos Évkönyv*. Stratégiák 2007 és 2013 között. BGF, Budapest, pp. 138-153.
19. Krugman, P.: Competitiveness – a dangerous obsession. *Foreign Policy*, March/April 1994, Volume 73, No. 2.
20. Lakner, Z.; Hajdu I.; Kajári, K.; Kasza, Gy.; Márkusz, P.; Vizvári, B. (2007): Versenyképes élelmiszergazdaság – élhető vidék. *Gazdálkodás*, LVI. évf. 4. sz., pp. 1-12.
21. Milbourn, E. F. ; Haight, T. (2005): Providing Students with an Overview of Financial Statements Using the Dupont Analysis Approach. *The Journal of the American Academy of Business*. 6(1)
22. Mizik, T. (2004): Jövedelmezőség és versenyképesség a tesztüzemi rendszerben. PhD értekezés, BKÁE, Budapest, 136 p.
23. Official Journal (1977): Commission Regulation (EEC) No 2237/77 of 23 September 1977 Official Journal L 263 , 17/10/1977, pp. 1-41.
24. Popp, J.; Székely, Cs. (2011): Az Agrárgazdasági Tanács állásfoglalása az agrárgazdaság 2010. évi helyzetéről. *Gazdálkodás*, LV. évf., 8. szám, pp. 604-614.
25. Porter, M. E. (1990): The Competitive Advantage of Nations. The Free Press, New York, 855 p.
26. Porter, M. E. (1980): Competitive Strategy: Techniques for Analyzing Industries and Competitors. The Free Press, New York, 432 p.
27. Törő-Dunay, A.; Illés, B. Cs.; Vinogradov, S.; Gábriel-Tőzsér, Gy. (2012): Lessons of the EU-Accession for Agricultural Enterprises in Visegrad Countries in the Light of CAP 2014. in: *The Scientific Journal of Warsaw University of Life Sciences, series Problems of World Agriculture,* Vol 12:(Number 3), pp. 138-148.
28. Törőné Dunay, A. (2012): A Közös Agrárpolitika reformja - új lehetőség a felzárkózásra? *Gazdálkodás,* 56. évf. 6. szám, pp. 500-511.
29. Ubreziová, I. (2005): Internationalization process and changes in Slovak milk industry, Agric. Econ.- Czech, 51, 2005 (8) pp. 357–361.
30. Udovecz, G. (2000): Jövedelemhiány és versenykényszer a magyar mezőgazdaságban. Agrárgazdasági tanulmányok 1. szám, AKII, Budapest
31. Wilkin, J. (2007): Agriculture in new Member States – Expectations and Lessons Learned. *Köz-gazdaság,* III. évf., 2. sz., Budapest, pp. 163-174.