Legal form of agricultural entities as a factor in ensuring the sustainability of the economic performance of agriculture

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Abstract: Development of the agricultural sector prior to 1989 in Slovakia, such as in most countries of the Central and Eastern Europe, was affected by the collectivization realized on the principle of the central planning. The main objective became the quantity, while quality and efficiency had only a secondary importance. Entering into a new market environment after 1990 meant for agricultural enterprises complicated structural, economic and social changes. The aim of the paper is to evaluate the economic performance of agricultural entities depending on their legal form in Slovakia. We assume that the legal form or the way of organizing and management of processes within the agricultural enterprises has an impact on the economic performance of the agricultural subjects. The analysis confirmed the assumptions. On the basis of the testing results, it was found that business companies show a higher rate of economic success measured by the selected economic indicators.

Keywords: agricultural cooperative, business company, economic performance, entrepreneurship, legal form, paired *t*-test

The transformation of the economy from a centrally planned economy to a market economy was accompanied by a decline in GDP and a decline in the industrial production in virtually all countries of the Central and Eastern Europe. The decline was caused by a number of factors such as: the deformed structure of the economy, the loss of markets of the former COMECON association, trade liberalization and the associated formation of a very hard competitive environment (Adamišin and Kotulič 2013).

Buchenrieder et al. (2009) point out that the challenges of transformation were formidable. The private and public market-oriented institutions were absent and the historical trading paths were interrupted. Many state-owned enterprises collapsed, the private sector was underdeveloped and the market organisations, as well as the producers and processors involved in the agri-food markets, did not know the rules of the "market" game. These issues led to deep and lasting economic distortions.

The scientific study of Andreff (2000) points to the quality problems of the privatization of enterprises in transition economies and highlights the necessary role of the state in economic restructuring and its complementary position in the process of economic transition. The European perception of the importance

of agriculture for society is not limited to the production functions (Andrejovský and Dušecinová 2006). A large emphasis is placed on the non-productive functions of agriculture – erosion control, ecological, cultural, relaxing and more. Due to the transformation the agriculture, there was recorded an increase in the share of the value of the non-productive functions of agriculture in the production functions (Huttmanová and Synčáková 2009).

By entering the new market environment after 1990, the firms embarked on a journey of complex structural, economic and social changes that were reflected in measurable improvements in only some aspects of technical performance and competitiveness. There were created new forms of business, the number of subjects increased and their average concentration decreased. The evaluation of new forms was also studied by Hanousek et al. (2012), who analysed the corporate effectiveness and the impact of the ownership structure after the transformation process, which was characterized by restructuring, privatization and support of the institutional reforms. Subsequently, the entry of the Slovak Republic to the European Union opened a large European agricultural market for Slovak agricultural producers, but also removed all protective barriers of the domestic market. These led to new challenges in the field of competitiveness of the domestic agriculture (Bielik and Rajčániová 2004; Grznár et al. 2009; Bujňáková 2010).

The aim of the scientific contribution was to evaluate the economic performance of agricultural entities according to their legal form. We assume that the legal form, or the way of organizing and management of processes within the agricultural enterprises, has an impact on the economic performance of the agricultural subjects. This analysis confirmed our assumption.

LITERATURE REVIEW

The concepts of performance and the evaluation of business performance are currently relatively very frequently used terms. The term performance is derived from the word power, which is a general term for the activity, product or service that is the subject of the economic activity of the firm. By Vrábľová and Gregor (2010), the performance can be understood as the ability to recover the invested capital, respectively the amount of work done per unit of time. This is why measuring business performance is an important and crucial factor for achieving a stable position in

the market and gaining a competitive advantage. According to Frost (2005), the performance represents the ability of firms to best evaluate the investments made in the business assets.

Also according to Neumaierová and Neumaier (2002), the value of the company is determined primarily by the above-mentioned performance. For increasing the value of the company, it is necessary to increase the performance of its individual processes. The strategy of increasing the performance of an individual processes means the profit, the increase of the competitiveness and a better market position for the enterprise. The company performance can be evaluated from different perspectives, such as the technical, economic, innovative one, etc. In our study, we aimed at the evaluation of the economic efficiency of enterprises in the agricultural sector, which can be defined as the ability to evaluate the enterprise in relation to its assets, liabilities and the overall market strength. Nowak et al. (2015) argue that to evaluate the performance and effectiveness of agriculture is quite complicated, not only due to the instability of the climatic conditions but also due to the wide variety of households in view of their economic strength and production profile.

One of the main legal form of the entrepreneurship in agriculture is cooperative. The cooperative is a voluntary grouping which consists of least five people. Its main purpose is to perform the economic activity. As with business companies, the cooperative members purchase shares, but the administrative costs are lower than in the case of business companies. One feature of the cooperative is the private property of its members, as well as the fact that members can withdraw the value of their shares any time (Beckmann et al. 2015).

The entrepreneurship through cooperatives in agriculture is the major form of business on the soil in Slovakia in contrast to the Czech Republic and Hungary. It is so despite the fact that the number of entrepreneurs who choose the form of cooperatives in agriculture is minimal, at present. The fact is that the newly established agricultural enterprises prefer another form of legal form especially that of business companies, respectively self-employed farmers.

Many researches are focused on the problems associated with the traditional organizational form such as the cooperative, which creates a disadvantages for the members of the cooperative (Vitaliano 1983; Porter and Scully 1987; Cook 1995; Royer 1999; Fuchs 2009; Bijman et al. 2012). Cook (1995) lists

five main problems in the cooperative, such as: free-riding, horizon, portfolio, control, and influence cost problems. However, according to Valentinov and Iliopoulos (2012), these issues of property rights in agricultural cooperatives are identified by the school of new institutional economics. New institutional economics defines the cooperatives in terms of their unique property rights structure. In cooperatives, there is the membership also restricted to a specific class of member patrons, and the membership rights are tied to patronage.

The first problem is a free-riding problem. This problem is a type of problem that occurs when the property rights are not negotiable and are not sufficiently well defined and enforced to ensure the fact that individuals bear the full costs of their activities and receive all the benefits they create. Both the internal and external free riding problem is often associated with the conventional types of cooperatives.

The horizon problem occurs when a residual claim of a member on the net income generated by an asset is shorter than the productive life of that asset (Cook 1995). According to Hacherová and Bojňanský (1998), the discrepancy between the increasing needs and insufficient creation of resources in many cases forces the companies to finance the activities with the immediate effect, thereby the investment activities are neglected. Only minimum cases ensure the reproduction of fixed assets. The portfolio problem occurs in the conventional type of cooperatives because the members invest in the cooperative in proportion to their use and because the equity shares in the cooperative generally cannot be freely purchased or sold. Therefore, the members are not able to diversify their individual investment portfolio according to their personal wealth and preferences (Cook 1995; Royer 1999).

The control problem can occur in any organization in which the ownership and control are separated, due to the differences of interests between the owners and the management. The company is not a plantation with slaves where the owner dominates with the unlimited power. It is a "network of contractual relationships" that holds the participants of the company together, and everyone can "get off" from the company. The interests of the people who form the company are not identical and it can be said that they are rather contradictory. On the one hand, there is the entrepreneur who tries to maximize profit, and on the other hand, there are the employees who want to get the highest wages. The objective "profit

maximization" may be at a risk if the entrepreneur employs the manager for the management of the company. This is a phenomenon that is usually referred to as the Principal-Agent Problem or simply the Agency Problem.

The agency problem occurs mostly when the manager has a fixed salary and he/she is not involved in profits, but he/she will pursue his/her own objectives, which may be in conflict with the profit maximization, what will be reflected in the economic performance of such entity. Another situation can occur in case that the state is the ultimate owner (Holman 2002). Hanousek and Kočenda (2011) conducted a study about the impact of the direct and integrated state ownership on performance of companies in the Czech Republic. The results of the study indicate that the state control leads to declining or even to a negative performance of those companies in which the state was committed through various means of control.

The influence cost problem is associated with the activities in which the members or groups within the organization engage in an attempt to influence the decisions that affect the distribution of wealth or other benefits within the organization (Royer 1999). Cook (1995) argues that the cooperative is involved in a wide range of activities, and diverse objectives among its members can result in costly influence activities. The cooperatives as legal form of agricultural enterprises may experience greater influence costs than other forms of organization because the interests of the cooperative members, which are linked to the individual farm production activities, are more diverse than the interests of the corporate stockholders, who share a common objective of maximizing wealth (Royer 1999).

In the last decade of the twentieth century, the business companies began to appear as an alternative, new and unique business entity (Grznár et al. 2009). From the original agricultural cooperatives, there were created the limited liability companies by transforming. A limited liability company is a legally recognized business company, where its owners are called members and in general the members are not liable for the debts of the company. Another legal form in the agricultural sector is a joint stock company. Joint -stock company has a basic capital divided into shares with a nominal value and it can have any number of shareholders. The large-scale state farms and agricultural cooperatives in Slovakia were gradually replaced by those business companies with a smaller area of land and natural persons.

In 2012, the business companies (79%) had a greater proportion of profitable enterprises than agricultural cooperatives (61%) (MPSR 2013). Both legal forms achieved positive economic results, with a higher level in business companies. Despite the fact that to both forms were provided the support under the same criteria and conditions, there is a deepening differences in their economic results for several reasons. The persistent differences in economic results were caused by the impacts of the formation of the business companies, which mainly originated from the creditworthy parts of the property of the former agricultural cooperatives without adequate taking over the liabilities to banks and other business partners as well, without the compensation of the shares, which determined the lower production cost ratio (MPSR 2012). The performance and efficiency of the agrarian enterprises according to the organizational and legal form of the company were studied by Mathijs (2002), too. In his study, he compared the effectiveness of various organizational legal forms of farms from the sample files in 1998 in Hungary and Bulgaria, taking into account a larger number of the factors of production. The results of the analysis of Hungarian enterprises with a focus on the crop production showed that the highest average level of efficiency was achieved by family farms (58%), followed by the business companies (50%) and agricultural cooperatives (44%). An analogous analysis in Bulgaria presents as an average the most efficient mainly the business companies (51%), followed by the family farms (44%) and cooperatives (43%). A similar study was also conducted by Zieseniss (2014) on a sample of German enterprises of the dairy industry. The presented results show significant differences between cooperatives and other legal forms. The cooperatives have a higher performance in the field of financial security and disadvantages in earnings indicators.

To imagine the farmers as a homogenous group is a mistake and it prevents further their development. There is a gap of skills in many fields that the agricultural enterprises need to develop, mainly the general managerial and entrepreneurial skills as the marketing or the financial and business planning. Among other skills that need to be improved, we include the communication and mutual cooperation. The fact is that if the agricultural enterprises want to be successful, they need to be supported in their business activities. The researches of McElwee (2006) showed that there is no difference between the ability of large and small farmers to respond to the changes in the environment, although some respondents indicate that large farms are better because they have more advanced structural and functional abilities.

In general, the economists also agree that the economic growth is largely influenced by new technologies and the innovation activity of firms. According to Zemplinerová (2010), it is important for the dynamic efficiency to know about the competition, about who wins in the market of the products and technologies which are related to the static allocative and technical efficiency. The result of such competition leads to a gradual improvements and changes. In her study, she confirms that the innovation activity need not take place only in the large enterprises respectively corporations, and it does not require a high concentration of firms on the market.

Hýblová (2014) argues that all enterprises not only in agriculture endeavour to achieve the economic growth. The current economic situation is complicated, the consequences of the economic crisis are still visible and the companies are searching for ways to achieve the growth. In the face of growing competitive pressures that are encouraged also by the free trade, declining agricultural support and domination of the transnational agrarian sector, the farmers are looking for new ways to keep profit. The challenge for them is therefore to choose a suitable form of business for the proposed company. This is an important decision because the chosen corporate legal form will have an impact on a number of issues, including the division of profits between the investors, paying taxes on profits, as well as the fact which investors can join or invest to the company. The determinants of decision making about choosing the right legal form are an interesting question, which is suitable for the future analysis, because we are aimed at the sector, which is so diverse in the terms of geography, topography, location respectively restrictions because farmers work in a strictly limited and regulated environment which acts as a significant barrier to their business activities (McElwee 2006).

MATERIAL AND METHODS

The material for analysis was obtained from the official data of the Ministry of Agriculture and Rural Development, the Research Institute of Agricultural and Food Economics and the Statistical Office of the Slovak Republic. The data were obtained for the

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period 1999–2011. The processing of analyses was conducted in an environment of the software products SPSS and Statistical.

The economic and financial indicators of primary agricultural production for the monitored period were analysed from data of agricultural enterprises. The data were ensured by the Ministry of Agriculture and Rural Development of the Slovak Republic in the form of the Information Sheets, which we have obtained from the company Radela Ltd. The evaluated file included 2572 subjects of legal and natural persons with to 19 and over 20 employees. Due to the fact, that the Information sheets capture the data from agricultural holdings which cultivate 83.2% of the area of the utilized agricultural area in Slovakia (1 930 570 ha), they form a set, which is not exhaustive, so the results were converted per 1 ha of agricultural land.

The starting points for the analysis of the data were economic indicators for the primary agricultural production converted per unit of area by the LPIS (Land Parcel Identification System). The data for the whole primary agricultural production were divided into the economic data on agricultural cooperatives (AC) and the data on business companies (BC). Other legal forms with respect to the frequency of samples and specifications of accounting performance (eg. self-employed farmers – SHR) were not taken into account.

From the available economic parameters, it was possible to choose six indicators that cover a dominant performance of the primary agricultural production, respectively they are identical summary indicators for the declaration of the performance of the segment:
(1) Proceeds from the sale of own products and services per ha a.l. (EUR/ha a.l.)
(2) Added value per ha a.l. (EUR/ha a.l.)
(3) Subsidies granted (since 2005 all Subsidies granted) per ha a.l. (EUR/ha a.l.)
(4) Labour costs per ha a.l. (EUR/ha a.l.)
(5) Management results before taxation per ha a.l. (EUR/ha a.l.)
(6) Share of profit making enterprises (amount)

With the exception of the last indicator (expressed in %), all other variables were converted in EUR per hectare of agricultural land (EUR/ha a.l.).

Because the analysed period is longer than 10 years, the indicators were primarily expressed in financial units re-converted using the conversion rate to EUR for ensuring the monitoring the parameter changes in time (data from 1999–2007). In the indicator "subsidies

granted/all subsidies granted" and in the indicator "share of profit making enterprises", there are missing official data for years 2003 and 2004. Therefore, in the reports of the partial results of analyses, these indicators have a lower number of measurements.

The starting point for the analysis was the verification of the normality distribution of each monitored parameter. Normality of the distribution was verified by the Shapiro-Wilk test (Meloun and Militký 2012).

$$W = \frac{(\sum_{i=1}^{n} a_i x_{(i)})^2}{\sum_{i=1}^{n} (x_i - \overline{x})^2} \tag{1}$$

where:
$x(i) = i$- th smallest order statistics of selection
$\overline{x}$ = selective arithmetic average
a_i = The constants of the Shapiro-Wilk test calculated by

$$(a_1, a_2, ... a_n) = \frac{m^T V^{-1}}{(m^T V^{-1} V^{-1} m)^{1/2}}$$

while

$$m = (m_1, m_2, ..., m_n)^T \tag{2}$$

where:
m_i = the expected values of order statistics of normal distribution file
V = the covariance matrix of rank statistics of normal distribution file

Because in many cases it was not possible to accept the hypothesis of the normal distribution of files (BC_proceeds, AC_added value, BC_subsidies), we used the parametric as well as non-parametric tests for the compliance testing of mean values. When we did not reject the normality of both compared parameters, we applied the parametric t-tests of dependent files. The test characteristic has a Student distribution, and if the calculated value was in the absolute value less than the tabular value for the significance level of 0.05 and for the given number of degrees of freedom, we do not reject the null hypothesis of the compliance of mean values (Pacáková et al. 2003).

$$t = \frac{\overline{d}}{\sqrt{\dfrac{\sum_{i=1}^{n} (d_i - \overline{d})^2}{n(n-1)}}} \tag{3}$$

Where
t = t-test
d_i = differences between the values of monitored parameter in the i-th period
n = frequency

In the case of *r* the ejection of normality of at least one comparing parameter of test files, we applied the nonparametric Wilcoxon test with the test characteristics *Tw*. We rejected the null hypothesis for equality of mean values, if the calculated test characteristic was greater than the tabular value, respectively, if the *p*-value was less than 0.05 (Rimarčík 2007).

$$T_w = \min\left(\sum(+), \sum(-)\right) \tag{4}$$

where:

T_w = Wilcoxon test

$\sum(+)\sum(-)$ = the amounts of order numbers corresponding to positive or negative values of differences $x1-x2$ for all pairs of observations

The main tests were based on the verification of the compliance of mean values of the files, while one of the sets were the business companies, the other were the cooperatives. In both files, the actual values constituted the dependent values of the performance parameters during each year. At first, we tested the selected files on the normality of the distribution by applying the Shapiro-Wilk test in alternation with the Kolmogor-Smirnov test. In many cases, it was not possible to accept the hypothesis of the normal distribution of the selected files. Therefore, we conducted the actual compliance testing of mean values of individual pairs of the files (according to the analysed performance parameter) by the parametric and non-parametric tests. The parametric testing was based on the application of the Students't test for dependent files, the non-parametric testing was based on the application of the Wilcoxon test.
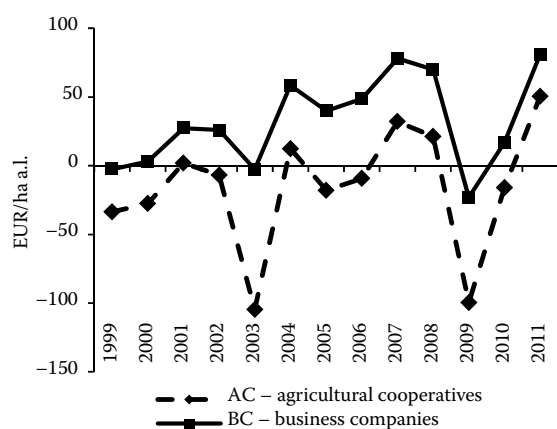

Figure 1. The development of management results (EUR per ha a.l.) according to the legal forms

Source: authors' calculation

RESULTS AND DISCUSSION

The development of the economic results at the time has a similar pattern in both compared legal forms (Figure 1). However, the differences remain in the values between the two legal forms.

The business companies (BC) regularly achieve better management results from 25.4 to 102 €/ha a.l. than the agricultural cooperatives (AC). The largest decline in management results was achieved by the cooperatives as well as business companies between 2003 and 2009, when the values of the management results had a very low or even negative character. But in 2011, both legal forms achieved the positive management results with a higher level in the business companies than in the agricultural cooperatives. We can consider this fact as positive, because the effectiveness of management in both forms legal has increased.

There was provided support by the same criteria and conditions for enterprises of both legal structures, the cooperatives as well as the business companies. Nevertheless, there were deepening inter-differences in the management results between the cooperatives and business companies for several reasons. One of

Table 1. The descriptive statistics of the selected economic indicators

Variables		Mean	Valid N	Std. Dev.
Pair 1	AC_proceeds	791.58	13	118.547
	BC_proceeds	923.50	13	214.713
Pair 2	AC_added_value	231.28	13	58.509
	BC_added_value	197.69	13	44.706
Pair 3	AC_subsidies	236.00	11	96.122
	BC_subsidies	231.26	11	94.999
Pair 4	AC_labour costs	214.83	13	22.192
	BC_labour_costs	171.03	13	31.699
Pair 5	AC_mng_results	−15.20	13	45.324
	BC_mng_results	32.38	13	33.589
Pair 6	AC_profit_share	62.45	11	13.441
	BC_profit_share	76.09	11	8.432

Pair 1 = Proceeds from the sale of own products and services per ha a.l. (EUR/ha a.l.); Pair 2 = Added value per ha a.l. (EUR/ha a.l.); Pair 3 = Subsidies granted (since 2005 all Subsidies granted) per ha a.l. (EUR/ha a.l.); Pair 4 = Labour costs per ha a.l. (EUR/ha a.l.); Pair 5= Management results per ha a.l. (EUR/ha a.l.); Pair 6 = Share of profit making enterprises (amount)

Source: authors' calculation

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Table 2. The results of the tests of normality

Variables	Kolmogor-Smirnov		Shapiro-Wilk	
	D	sig.	W	sig.
AC_proceeds	0.151	> 0.2	0.913	0.200
BC_proceeds	0.229	< 0.1	0.844	0.024
AC_added_value	0.218	< 0.1	0.849	0.028
BC_added_value	0.120	> 0.2	0.395	0.658
AC_subsidies	0.193	> 0.2	0.856	0.051
BC_subsidies	0.248	< 0.1	0.808	0.012
AC_labour_costs	0.184	> 0.2	0.903	0.147
BC_labour_costs	0.157	> 0.2	0.896	0.118
AC_mng_results	0.189	> 0.2	0.908	0.172
BC_mng results	0.116	> 0.2	0.955	0.679
AC_ profit_share	0.269	< 0.05	0.919	0.309
BC_ profit_share	0.224	> 0.2	0.909	0.235

In the case of Kolmogor-Smirnov test was applied Lilliefors significance correction

Source: authors' calculation

those causes of the persistent differences in management results between the agricultural cooperatives and business companies are also the reverberant effects of the creation of business companies, which to a large extent originated from the creditworthy parts of the assets of agricultural cooperatives without the adequate taking over of the liabilities to banks and other business partners (MPSR 2011). The summary of comparison of the values of monitored parameters is given in Table 1.

The difference in management results in favour of business companies is proven also by the following descriptive statistics of the selected economic indicators. The business companies achieved in average for the whole monitored period, besides better management results, also higher levels of the proceeds from the sales of own products and services per ha

a.l. (€ 923.50) than the agricultural cooperatives (€ 791.58). In average, the business companies also achieved a greater share of profit making enterprises (76.09%) than agricultural cooperatives (62.45%). In their favour was also the indicator of the labour costs per ha a.l., which was in average by about 43.8 € lower than in the agricultural cooperatives.

On the other side, the level of the added value was in average higher in the agricultural cooperatives, which because of the reached higher employment also reached a higher cost burden of labour costs (MPSR 2011). There is worth noting also the economic indicator in the form of the subsidies granted. Although the support to businesses of both legal structures was provided according to the same criteria and conditions, more subsidies flowed into the agricultural cooperatives than business companies.

Due to the fact that in the analysis of the of business companies, we take into account only those that are working on the soil, it is not possible to conclude that the better results of business companies across all measured parameters are determined by the very low to no area of agricultural land. However, since the sample of the subjects represents only the selected file, for the general conclusion, it is necessary to apply the methods of statistical induction.

In the event, that these two applied normality tests led to inconclusive results about the normality of the files, in a further analyses with a given variable, there were applied nonparametric methods (namely the variables: BC_proceeds, AC_added_value, BC_subsidies and AC_ profit_share). The test results of the conformity of the values of the analysed performance indicators depending on the nature of the testing are contained in Tables 2 to 4.

The results of testing the conformity of mean values except one test parameter (the amount of the subsidies per ha) authorize to reject the null hypothesis of conformity of the mean values.

Table 3. The test results of the paired *t*-test (parametric testing)

Pair of variables		*t*-test for dependent samples						Confidence (%)	
		N	diff.	std. dv. diff.	*t*	df	*p*	95.000	+95.000
Pair 4	AC_labour_costs BC_labour_costs	13	43.80	21.490	7.349[++]	12	< 0.001	30.815	56.788
Pair 5	AC_mng_results BC_mng_results	13	−47.58	21.974	−7.808[++]	12	< 0.001	−60.863	−34.305

Marked differences are significant at the level *p* < 0.05000

Source: authors' calculation

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Table 4. The test results of the paired test (nonparametric testing)

Pair of variables		Wilcoxon matched pairs test			
		valid *N*	*T*	*Z*	*p*-value
Pair 1	AC_proceeds BC_proceeds	13	10	2.481[+]	0.013
Pair 2	AC_added_value BC_added_value	13	12	2.341[+]	0.019
Pair 3	AC_subsidies BC_subsidies	11	21	1.067	0.286
Pair 6	AC_profit_share BC_profit_share		0	2.934[++]	0.003

Marked differences are significant at the level *p* < 0.05000

Source: authors' calculation

Therefore, we argue that the economic performance of entities working the soil is demonstrably determined by the legal form of the subjects. The subjects with the legal form of business companies achieve in the parameters "proceeds from sales of own products and services per ha a.l.", "labour costs per ha a.l.", "management results per ha a.l." as well as the parameter "share of profit making enterprises" significantly better results than the subjects in the legal form of cooperatives.

The agricultural cooperatives achieve the demonstrably better results only in the parameter "added value" from all analysed economic performance parameters.

The results were created not only by assessing the test results presented in the table, but also by testing and evaluation of the unilateral hypotheses for each test pair. The differences in the measured parameters of the selected file are also shown on the box plots in Figure 2.

The legal form has a significant impact on the achieved differences in achieving the economic performance. A statistically significantly higher values of the proceeds from sales of own products and services per ha in the business companies may be associated with a more flexible organizational structure of the company management focused on a more operational adaptation to the production of economically more favourable outputs, obviously with an emphasis on the plant production, eventually the service area. The analysed aggregated secondary data do not allow a deeper analysis of the causes of the differences. Therefore, we can only assume this is a given fact with taking into account the state of the knowledge in the current reality of Slovak agriculture. By analysing the differences of the given parameter in the individual years, the clear trends can be observed.

The cooperatives achieved higher proceeds per 1 ha a.l. during the first analysed years. In the whole subsequent period, the situation was turned in favour of the business companies (see Figure 3). It supports our assumption about a higher flexibility of management, a higher rate of professionalization of management of business companies, a significantly higher orientation to generate the proceeds. While the cooperatives were able to increase the generating proceeds per 1 ha a.l. by half (55.4%) during the analysis period, the business companies doubled the proceeds (an increase of 97.4%).

The economic performance indicator of added value is the only one from the analysed parameters, where there was identified a statistically significant difference in favour of the cooperatives (Figure 4). With regard to the results of the other analysed parameters, this result achieved in the analysis of this parameter is surprising. If we start from one of the methods of quantifying the added value that is the sum of the personnel costs, amortization, finance costs and profit, the statistically significant higher added value per 1 ha a.l. in cooperatives should be determined by the statistically significant higher value of one or more of its components.

The development trend is partly similar to the previous indicator. However, also in this indicator, the starting position of business companies is worse than that of cooperatives. During the reporting period, the performance of business companies measured by the monitored parameter is improved. In the recent years, it is even higher than in the cooperatives, respectively it oscillates around differences close to zero.

From the above, there can be observed the continuously reducing disparities in the generation of the added value per 1 ha a.l. of analysed legal forms, however, the realized analysis significantly points out the differences in the observed indicator. During the reporting period, the business companies recorded a double dynamics of increase (60%) compared to the cooperatives (an increase of 32%). As we will see later, an important determinant of results in the given parameter is just the indicator of personal expenses.

The third monitored parameter – the amount of the subsidy per 1 ha of a.l. was not a parameter that reached statistically significant differences between the monitored legal forms. It also satisfies us, because this unverifiable level of disparities contributes to the non-discrimination of entities and non-preferred groups working on soil. The above considerations may be used in the analysis of the labour costs (Figure 5).

As mentioned above, the labour costs are also reflected in the parameter of the added value.

Throughout the whole period (excluding one year), the labour costs of business companies did not achieve the labour costs in cooperatives. The price difference was relatively constant. Similar was also the increase in labour costs during the monitored period – by 29% in the cooperatives and by 27% in the busi-
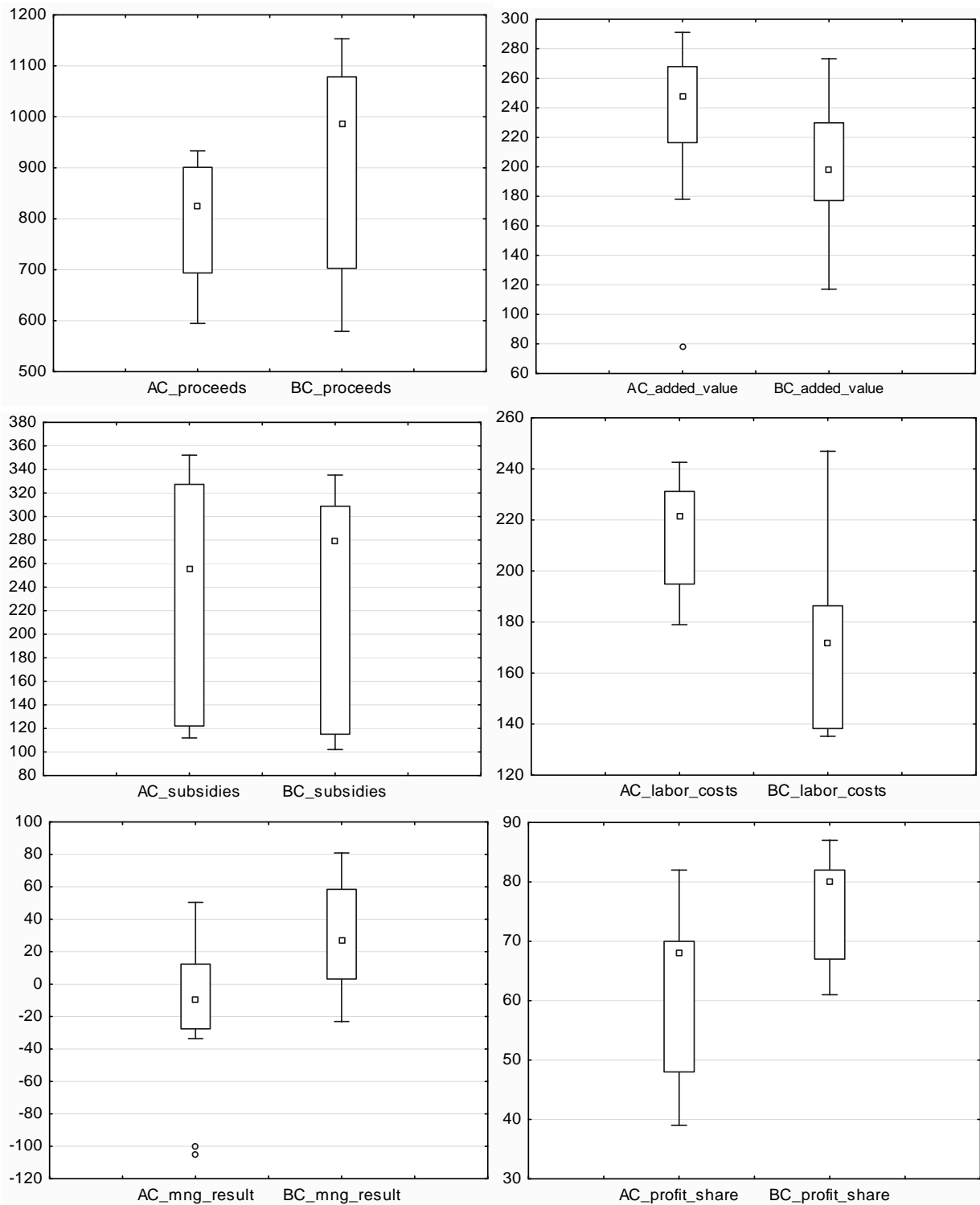

Figure 2. The box plots of analysed economic parameters by the legal form

Source: authors' calculation

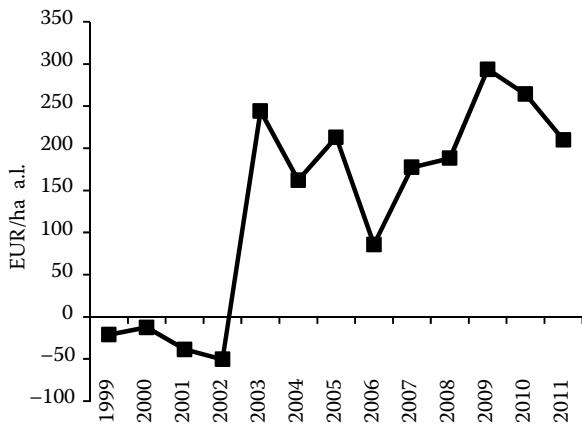*Agric. Econ. – Czech, 63, 2017 (2): 80–92*

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Figure 3. About how much the proceeds of the business companies exceed the proceeds of the cooperatives (in EUR/ha a.l.)
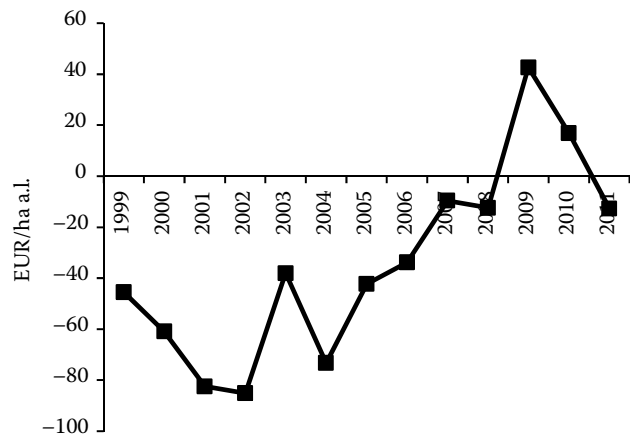
Source: authors' calculation

Figure 4. About how much the added value of the business companies exceed the added value of the cooperatives (in EUR/ ha a.l.)

Source: authors' calculation

ness companies. Based on the above, we can assume that the statistically significant differences in wages (calculated per 1 ha all.) can be determined by the efficient use of workers in the business companies and therefore by the lower absolute amount of labour costs. The cooperatives (also with respect to their history) have a greater problem with the effective solution of personal activities, however, the extremely important function of keeping the workforce in rural areas comes to the fore. By comparing the increase of labour costs and the added value, we can positively evaluate the trends in both legal forms during the reporting period.

The management results as one of the most comprehensive economic indicators have been presented in the study above. Even in this case, we conclude the significant differences between their value in the business companies and cooperatives. On the one hand, it can be a result from the processes of the past, when many business companies arising from the transformation of the original cooperatives were created as new companies that were not burdened with the obligations and inappropriate capital structure. This advantage had a major impact especially in the first years of transformation, however, its impact is gradually disappearing with time (and other operating determinants).
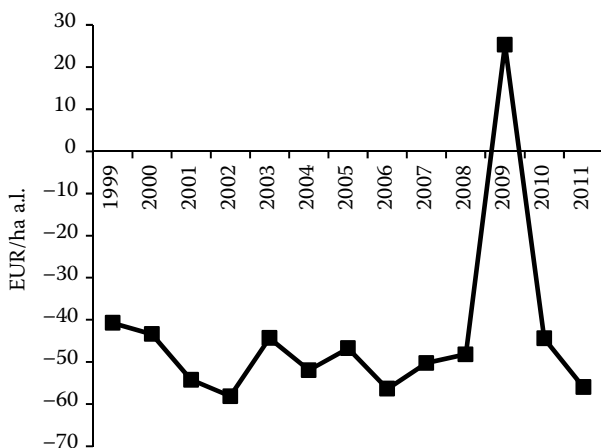

Figure 5. About how much the labour costs of the cooperatives exceed the labour costs of the business companies (in EUR/ha a.l.)
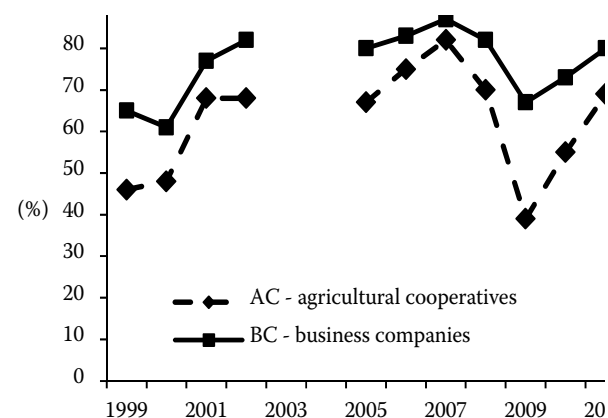
Source: authors' calculation

Figure 6. The development of the share of profit making enterprises (in %)

Source: authors' calculation

If the only consequence of the differences in the management quantified by management results was this factor, during the analysed period there should be clear the convergence of values of the management results. We see that during the period, there does not occur any convergence of values of the given parameter. The transformation process with its negative consequences (especially for the original cooperatives) is not the key determinant of the persistent differences. From our perspective, the legal form seems to be the key factor, because in the case of business companies, it allows (also by the concentration of ownership of the company) an efficient management, a higher level of the motivation and the concentration of ownership and responsibility. The management results are generally determined by the most favourable climatic conditions during the year and the situation in deformed markets for agricultural output. These factors are the dominant factors affecting the fluctuation of values of the monitored parameter. However, the variability of the indicator is very similar in both pursued legal forms, while the absolute value of the indicator was significantly more favourable in the business companies than in cooperatives.

We expect similar conclusions also in the analysis of the share of profit making enterprises in the total number of enterprises (Figure 6). This proportion has much to do with the external factors discussed above and thus to some extent it follows the course of the previous parameter.

The agricultural cooperatives, not only in the absolute amount, but also in the ratio of profit making entities in the total number of the entities, do not achieve the values of the business companies. In neither observed year, the share of profit making cooperatives in the total number of cooperatives does exceed the share of the profit making business companies in the total number of the business companies.

CONCLUSION

The differences in the economic performance of agricultural enterprises can be seen not only among agricultural enterprises working in different natural conditions but also among agricultural enterprises of different legal form. On the basis of the test results, we find that the business companies have a higher rate of economic success measured by the

selected economic indicators. Only in one case – in the parameter of the amount of support per 1 ha a.l. cannot be reported statistically significant difference. This failure to prove indicates to a larger extent that business companies can manage better than the cooperatives and it is also supported by the results per hectare of agricultural land, which was not statistically significantly different.

The conclusions are consistent with the economic theory and the phenomenon known as the Principal-Agent Problem. The analysis results show that in addition to the factors of the production (labour, capital, and natural resources), the agricultural enterprises need also subjective assumptions such as: imagination, ambition, willingness to bear the risk, better organizational and management skills, the patience and sense of innovation. The holders of these assumptions are mostly the business companies and their management structures that can effectively solve the way of organizing and managing different business processes, thereby to save the transaction costs. The results are also consistent with a study published in the journal Harvard Business Review (Olson et al. 2008), which showed that 87% of the factors of the company decay depend on the work of the senior management and only 13% depend on external factors.

According to Adamišin et al. (2015), the effective management of the agricultural entity even in worse weather conditions can be a good inspiration not only to other companies in the neighbourhood. The validated effective elements in the management could be applied in the entities operating in better conditions and so they can contribute to an even higher economic performance of the individual entities or agriculture as a whole.

We can discuss whether it is the form of management, what so greatly determines the diversity of the economic performance of the subjects. The higher economic performance of companies can be determined not only by different approaches to the management of entity and risk management as well as the creation of the decision-making structures. Overleaf, it may be also due to the better starting position in the past (compared with the cooperatives), training and educational programs, and the potentially poorly chosen basis for the comparison of economic performance. A further analysis will therefore also focus on measuring the differentiated economic performance of subjects according to different criteria in order to further objectify the results.

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