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COMPETITIVENESS OF FAMILY FARMS IN THE CZECH REPUBLIC IN THE CONTEXT OF EU COMMON AGRICULTURAL POLICY 2014+

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Abstract

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Highly regulated EU agricultural sector via Common Agricultural Policy (CAP) creates conditions for encouraging the competitiveness of farmers not only within the European single market. Farmers in the Czech Republic face not only the challenges of globalization, nevertheless the problem of aging the farmers' population. Under provided major assumptions, there is therefore necessary to implement such instruments of the CAP to ensure sustainable competitiveness of Czech agricultural enterprises and specifically family farms by government authorities, which are considered to be the economically smallest agricultural business entities. There is introduced a specific approach to a more efficient CAP in the current EU programming period till year 2020 through efforts to increase the competitiveness of European farmers as well in the term of the sustainable development within rural areas. The objective of the article is to identify usable financial and nonfinancial instruments to increase the competitiveness of domestic family farms in the context of EU CAP 2020 not only in terms of the Czech agrarian sector, but within the EU single market. Complementarily, there is provided evidence to economic performance of the smallest farmers in comparison with other size categories of agricultural businesses in the EU member countries.

Keywords: family farms, EU Common Agricultural Policy, economic performance

INTRODUCTION

Restructuring of farms in the new EU member countries opened up new challenges consistently both with pre-accession negotiations and further development of EU Common Agricultural Policy (CAP). The agricultural sector not only in the Czech Republic suffers nowadays specifically from growing older workforce. We are witnessing lack of willingness for continuation in farm business activities of the upcoming generation in productive age. There can be identified one ultimate reason for the stated fact, i. e. significantly lower incomes both in the form of wages and entrepreneurial financial benefits from agricultural production in comparison with other industries. Complementarily, it could be stressed that even the accessibility of EU CAP instruments does not significantly changes the situation for bettering of.

Competitiveness of agricultural businesses is based on efficient utilization of production factors, internal organization of business and market actions. Farmers have to find and follow the proper balance between inputs and accessible outputs of their production, while taking into account the market imperfections (e. g. Sarris *et al*., 1999; De Wit *et al*., 2011). Due to the fact that the labor-force input belongs to distinctive factors of production taking part in forming the competitive advantage not only within agri-business, it is important to solve the problem of the insufficient age structure in coherence with CAP effort for increasing the efficiency of labor force input, especially among the smallest size categories of farms together with need for further development of good agro-environmental practice (e. g. Pouliquen, 2001; Wicki, 2012; European Commission, 2015b).

Focus on Family Farms

Agricultural businesses in central and eastern European countries transformed their legal and personal structures as the consequences of reorganization processes of state-owned farms. These farms were transformed majorly into either producer cooperatives or other legal bodies such as limited liability and joint stock companies. Some of them were transformed into family farms or partnerships (e. g. Csaki and Lerman, 1997; Swinnen *et al*., 1997). It was expected that such a transformation of state-owned farms would lead to establishment of broad scope of family farms entrepreneur bodies, similarly to western European countries. However this expectation was not met (Sarris *et al*., 1999).

The aforementioned changes among farms results in a continuous effort at improving the labor force structure in agricultural sector by specific CAP instruments especially for young farmers. These subsidies are aimed to encourage employment rate in the agricultural sector and subsequently at rural areas as well. A special role in this initiative plays so called family farms. Especially the encouragement of family farms dynamism is in the focus of nowadays CAP's interest (e. g. European Commission, 2014).

The importance of family farms in the economic development of rural areas is stressed not only at the EU level, however at global level as well. The United Nations has announced the year 2014 to be the year of family farms. Globally, the importance of family farms is stressed especially in following areas (UN, 2014):

- production of safe food,
- development of rural areas,
- sustainable utilization of natural resources and global agri-biodiversity,
- stimulation of local economies' development followed by suitable policy regulations.

The evidence regarding the Czech Republic reveals that domestic farms prevailingly belongs to non-family ones types and in comparison with other EU countries, agricultural business in the Czech Republic utilize the largest average agricultural land per enterprise. The biggest amount of agriculture production is serviced by medium-sized and large enterprises while smaller businesses suffer a decreasing trend of active entities' amount and subsequent decrease of their agricultural output. So, the sufficient encouragements for family farms via CAP can reduce the described insufficient situation among the smallest entities. The Association of Private Farmers of the Czech Republic (Asociace soukromého zemědělství ČR) belongs to one of the most active promoters within family farming structures in the Czech Republic.

While the forming the price of agricultural production cannot be influenced by individuals, together with agricultural market imperfections interaction, the competitiveness of farmers regardless the economic size is then anchored in the factors of production efficiency. Especially the smallest agricultural business entities are forced in order to be competitive on the Single European Market to involve unpaid labor force input, i.e. usually family members. The need for unpaid labor input is connected with lower level of technical efficiency of agricultural production among smaller businesses in comparison with larger business units (e.g. Latruffe *et al*., 2004; Čechura, 2010; Cankurt *et al*., 2013).

Authors consider this article to be the explorative one within the competitiveness development of agricultural producers according their economic size via development of labor productivity in new and core EU member countries, taking into account the paid and unpaid labor inputs

Aim of Article

This paper aims at identification of suitable financial and nonfinancial instruments to increase the competitiveness of domestic family farms in the context of EU CAP for years 2014–2020. The insight into this problem area does not cover only the agricultural sector of the Czech Republic, however it is broadened to the level of the EU member countries. Complementarily, there is provided evidence to economic performance with focus on competitiveness of the smallest agricultural business entities via labor force input efficiency in comparison with other size categories of enterprises.

METHODOLOGY AND DATA

There are employed explorative methods, which help to reveal the economic performance within observed size categories of businesses beside methods of analysis and synthesis of relevant documents and law and order statements. Database EU Farm Accountancy Data Network (FADN) is utilized as the source of the secondary financial data and other data on agricultural production of a representative sample of single business entities with mixed farming type of specialization, settled in EU member countries. The observed categories of businesses are sorted in respect to its economic size according to the following breakdown, which takes into account the standard output of their production (Regulation (EC) No 1242/2008):

- Micro and small businesses with standard output of production lower than 24,999 EUR,
- Medium sized businesses with standard output of production within 25,000–99,999 EUR,
- Large and very large business with standard output of production exceeding 100,000 EUR.

Input and consumption of labor inputs as the distinctive factor of production is measured via Annual Work Units (AWU), which takes into account the part time job and seasonal work. There is specifically recognized also an unpaid labor input within the agricultural sector, which is connected with the consumption of labor of

businesses' owners and respective family members. The consumption of unpaid labor is measured also by conversion to full time job work units according to the methodology of European Commission (European Commission, 2015a).

The selected indicators of economic performance and consumption of labor force are explored within the time period of years 2004–2012. The sample of business entities is constituted according to the accessible secondary data of EU Farm Accountancy Data Network into sample groups representing the Czech Republic, EU 15 and EU 27/25 member countries, respectively. The data time series are evaluated by identification of dependencies among labor demandingness of farm production outputs using correlation analysis. There are taken into account both paid and unpaid labor inputs. Differences among utilization of unpaid and paid labor inputs are identified by comparison of mean values within observed shares of paid and unpaid labor inputs among observed size categories of farms and respective EU member countries by two-tailed t-test for equal/unequal variances (Meloun and Militký, 2002).

RESULTS

The endeavor to encourage competitiveness of family farms in the EU in the current programming period of years 2014–2020 is anchored and implemented via its Common Agricultural Policy. Namely, there are prepared Rural Development Programs for respective EU member countries, which encounters both financial subsidies (operational and investment one) and non-financial supportive instruments. Respective Rural Development Programs in EU member countries are prepared in accordance with the Regulation of the EU Parliament and the Council Nr. 1305/2013. The Rural Development Program of the Czech Republic for the current programming period of years 2014–2020 introduces the thematic goal for encouraging the smallest farms. This goal is defined as "Increasing competitiveness of SMEs", covering areas:

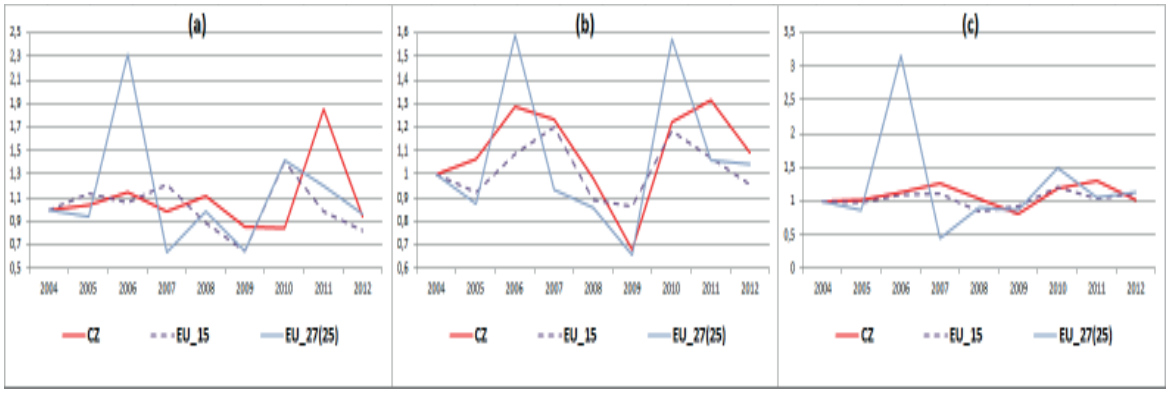
- management and efficiency of strategic processes,
- cooperation of companies using networking and clustering, incorporation of innovations,
- competitiveness of agricultural business mainly via increasing efficiency of factors of production,
- change of negative development of labor forces' age structure in the agricultural industry (Ministry of Agriculture of the Czech Republic, 2014).

The thematic goal "Increasing competitiveness of SMEs" is implemented by the following measures, which should be utilized for diminishing weaknesses of agri-business in the Czech Republic described in the Rural Development Program (RDP) 2014–2020 (Ministry of Agriculture of the Czech Republic, 2014):

- "Investments into tangible assets of businesses" contributing among others to increase efficiency of factors of production's efficiency and fulfils the priority No. 2 "Increasing competitiveness of agricultural enterprises and their business activities".
- "Development of agricultural businesses and their business activities" contributing mainly for improvement of insufficient age structure of workforce in agricultural sector and meets the priority No. 2 similarly as the previous measure by the specific sub-measure "encouragement of young start-ups of agricultural business".
- "Increasing of animal welfare" contributing to implement progressive technologies in breading of animals and respective procedures; the measure meets the priority of Rural Development Plan Nr. 3 "Organization of food chain".
- "Cooperation" that contributes for increasing the competitiveness of farms; the measure meets also the priority of Rural Development Plan Nr. 2 and 3 as well, similarly to aforementioned measures and other priorities, namely Nr. 1 "Sharing of knowledge and innovation in agriculture", Nr. 4 "reinforce of ecosystems within agricultural practice" and Nr. 5 "efficient use of resources".

The general idea of encouragement instruments for increasing competitiveness of economically smaller farmers as it was identified for the current EU programming period have been applied during the previous one of years 2007–2013 as well. The following empirical analysis is using the secondary data of EU FADN database and is providing exploration of agricultural businesses' competitiveness development via employing factors of economic performance, namely Farm Net Value Added and Total Output of agricultural production according to economic size of business entities and involvement of labor input in the Czech Republic and groups of EU member countries (EU 15, EU 25/27). The empirical evidence of economic performance within the observed size categories of business entities is provided by development of indicator Farm Net Value Added per Annual Working Unit (AWU). This indicator takes into account surplus of total agricultural output over total intermediate consumption, covering the balance of subsidies and taxes as well. So this indicator provides an insight into the ability of agricultural business entities to create value to be shared within the stakeholders. Fig. 1 summarizes the development of indicator Farm Net Value Added per AWU during time period of years 2004–2012.

The highest average growth trend of the indicator Farm Net Value Added per AWU was identified among all size categories of farms settled in the Czech Republic. The average year–on–year growth was ranging from 6.5% for micro and small farms, to nearly 9% for medium, large and very large companies. The average growth trend within other EU member countries was identified as follows. The largest companies were those with the highest growth trend both in case of EU 15 and EU 27 countries.



1: *Development of Farm Net Value Added per AWU according size categories of companies (a) Micro and small (b) Medium-sized (c) Large and very large during years 2004–2012. Year 2004 = 100%*
Note: Data of EU 27(25) countries is excluding the Czech Republic

I: *Comparison of mean values of indicator Farm Net Value Added per AWU according to size categories of farms within period of years 2004–2012 (significance level alpha = 0.05)*

Indicator	Micro and small enterprises			Medium enterprises			Large and very large enterp.		
	EU15	CZ	EU27(25)	EU 15	CZ	EU 27(25)	EU 15	CZ	EU27(25)
Mean	15026	6755	9707	40475	26685	34606	76560	30887	45597
Variance	5867636	2407203	8156401	16423780	41515102	43495524	77900966	61858523	341019948
Two-sample F-test p-value	-	0.052		-	0.475		-	0.013	
	0.115	-		0.120	-		0.376	-	
Two-tailed t-test p-value	-	0.015		-	0.020		-	0.050	
	< 0.001	-		< 0.001	-		< 0.001	-	

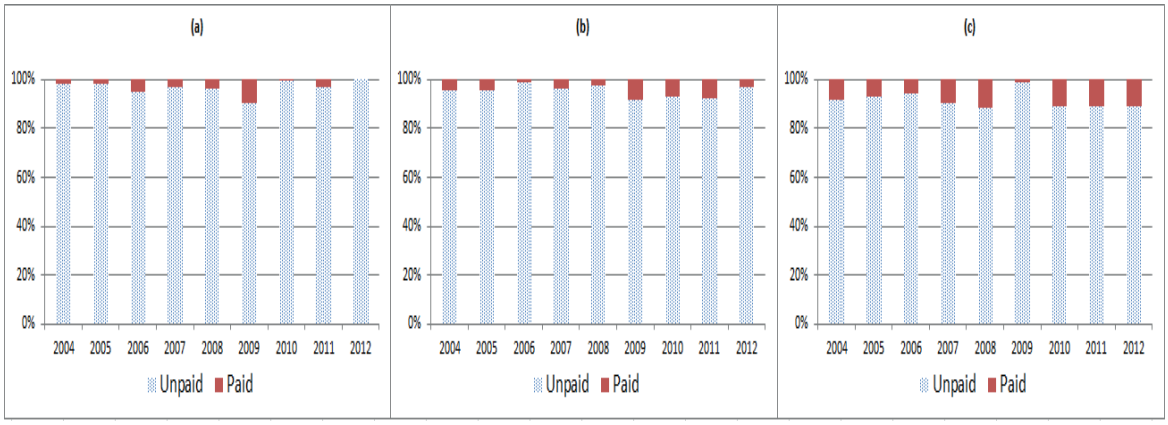
On the other hand, there was identified rather stagnation within micro and small farms settled in EU 15 countries. The identified growth trend in the Czech Republic can be described by the fact that according the EU association agreement there was guaranteed year-on-year increase the operational subsidies for all size categories of companies till year 2013. Nevertheless, the comparison of absolute mean values of the indicator Farm Net Value Added reveals that despite the mean growth trend all size categories of farms settled in the Czech Republic are lagging behind the EU 15 and EU 27(25) countries respectively (see Tab. I).

Comparison of mean values of indicator Farm Net Value Added per AWU according to size categories of farms, which is provided in Tab. I reveals the following facts. There was proved statistically significant difference between the indicator Farm Net Value Added among Czech and other EU member countries' farms. More precisely, farms settled in the Czech Republic created lower Farm Net Value Added in comparison with EU 15 and EU 27(25) countries. This fact can be connected both with competitive advantage anchored in higher operational subsidies and technological level of agricultural production mainly in EU 15 countries. The exploration of family farms is provided by identification of unpaid labor among size categories of farms (see Figs. 2–4).

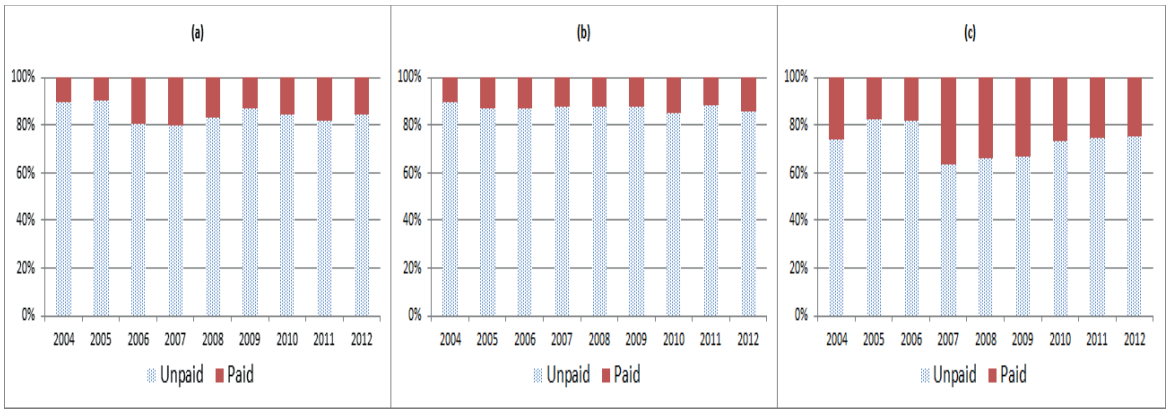
The biggest share of unpaid labor is identified among all observed sample groups within micro and small farms. The share of unpaid labor decreases with the growing economic size of farms. The biggest difference between share of paid and unpaid labor inputs within observed sample groups was identified within the largest farms settled in the Czech Republic and EU 15 countries (see Fig. 4). All observations of paid and unpaid labor were compared within the sample groups and respective size categories of companies. Results of these comparisons involving statistical testing are provided in Tab. II.

Statistically significant differences in share of paid and unpaid labor inputs were identified in comparison of both EU 15 and EU 27(25) countries within the largest size category of companies. Unlike the case of the Czech Republic, there is significantly higher input of unpaid labor even among the largest category of enterprises. Regarding the level of demandingness for unpaid labor within the largest companies, there were explored relations among total output of agricultural production and unpaid labor input, total labor input, respectively, within all sample groups of size categories of farms (see Tab. III).

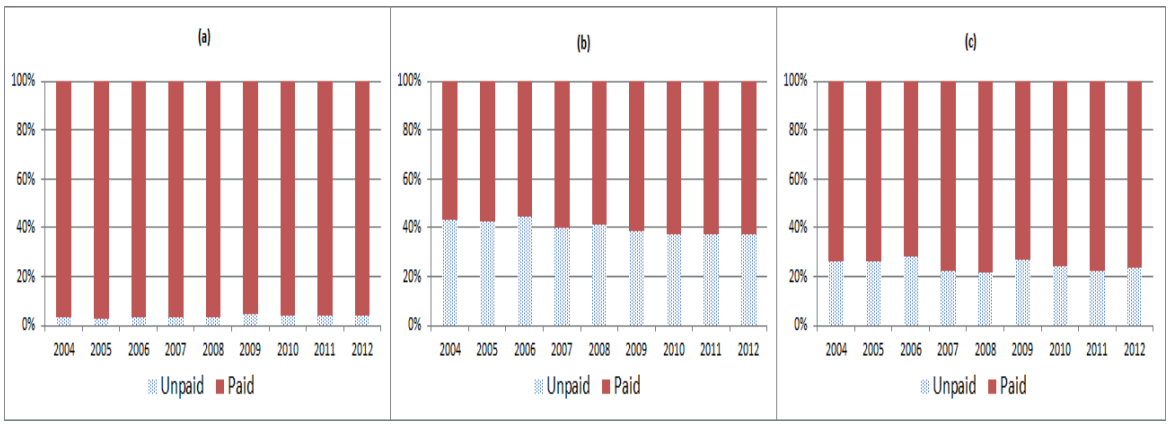
The strongest statistically significant positive correlation between the total output of agricultural production and total labor input was identified



2: *Share of paid and unpaid labor input within micro and small enterprises (a) Czech Republic (b) EU 15 countries (c) EU 27(25) countries during years 2004–2012.*
Note: Data of EU 27(25) countries is excluding the Czech Republic



3: *Share of paid and unpaid labor input within medium-sized enterprises (a) Czech Republic (b) EU 15 countries (c) EU 27(25) countries during years 2004–2012*
Note: Data of EU 27(25) countries is excluding the Czech Republic



4: *Share of paid and unpaid labor input within large and very large enterprises (a) Czech Republic (b) EU 15 countries (c) EU 27(25) countries during years 2004–2012*
Note: Data of EU 27(25) countries is excluding the Czech Republic

within the largest size category of companies settled in EU 27(25) countries. Similar result of positive correlation between the total output of agricultural production and total labor input is stated within the largest farms settled in EU 15 countries and medium–sized farms settled in the Czech Republic. Unlike the total labor input the demandingness of the unpaid labor inputs means prevailingly negative or no correlation between total output of agricultural production with exception of

II: *Comparison of mean values within observed shares of paid and unpaid labor inputs (significance level alpha = 0.05)*

Indicator	Micro and small enterprises			Medium enterprises			Large and very large enterp.		
	EU15	CZ	EU27(25)	EU 15	CZ	EU 27(25)	EU 15	CZ	EU27(25)
Mean	0.952	0.961	0.913	0.872	0.845	0.730	0.401	0.036	0.246
Variance	< 0.001	< 0.001	0.001	< 0.001	0.001	0.004	< 0.001	< 0.001	< 0.001
Two-sample F-test p-value	-	0.253		-	0.061		-	<0.001	
	0.365		-	0.004		-	< 0.001		-
Two-tailed t-test p-value	-	0.005		-	< 0.001		-	< 0.001	
	0.461		-	0.068		-	< 0.001		-

III: *Correlation between total output of agricultural production and total labor input, unpaid labor input within observed sized categories of agricultural businesses (significance level alpha = 0.05)*

Samples of size categories of entities	Correlation between Total Output of agricultural production and total labour input		Correlation between Total Output of agricultural production and unpaid labour input	
	Correl. coef.	P-value	Correl. coef.	P-value
CZ micro & small	0.408	0.138	0.366	0.167
CZ medium	0.639	0.032	–0.176	0.325
CZ large & very large	–0.285	0.229	–0.514	0.078
EU15 micro & small	–0.082	0.417	–0.041	0.458
EU15 medium	–0.548	0.063	–0.541	0.066
EU15 large & very large	0.570	0.055	0.125	0.375
EU27(25) micro & small	0.176	0.300	–0.268	0.243
EU27(25) medium	–0.057	0.442	–0.504	0.083
EU27(25) large & very large	0.654	0.028	–0.066	0.433

the smallest farms settled in the Czech Republic. In other words, the smallest farms settled in the Czech Republic are lagging behind in the economic performance measured by farm net value added when we compare it with those settled mainly in EU 15 countries. Nevertheless, this gap in economic performance cannot be interrelated with the high share of unpaid work, because the share of unpaid labor input was proved to be not differing to the share of unpaid work within farms settled in EU 15 countries. So, differences within the economic performance of the smallest, family farms, respectively, can be marked to areas as technical equipment of labor and inequalities of subsidy schemes of CAP in core and new EU member countries.

DISCUSSION AND CONCLUSION

Family farm type of agricultural businesses can be in the Czech Republic interconnected with economically smaller entities. Unlike the previous statement, family farms in other EU member countries are larger business entities as well. This fact authors explain in terms of different conditions in economic development after socio-economic changes in former Czechoslovakia and respective structure of larger agricultural cooperatives.

Current EU Common Agricultural Policy for period 2014–2020 tries to refocus on problem areas of sustainable development of agricultural businesses in respective member countries. The aforementioned incentive also strategically aims to encourage development of rural areas, which are suffering from unfavorable situation within decreasing of population, caused by negative development of the labor market. The refocus of EU CAP in period of years 2014–2020 provides financial and non-financial encouragements for operating small agricultural businesses and young start-ups as well in order to increase competitiveness of this size category of farms.

Results of conducted empirical analysis of selected economic performance indicators, which influence the competitiveness of farms, provide the framework feedback on efficiency of competitiveness encouragement measures of EU CAP during previous programming period of years 2007–2013. The economic performance of the smallest farms with mixed type of farming in the Czech Republic and observed groups of EU member countries, measured by productivity of labor indicators, was identified as significantly lagging behind the performance of larger farms, which is coherent with findings of e.g. Střeleček *et al.* (2012) or Kizos *et al.* (2011). On the other hand, there is stressed

within the current EU CAP 2014+ a broad scope of positive outcomes, which are internalized with the agricultural practice of smaller farms such as good farm practices for sustainable use of natural resources and biodiversity. This outcomes or positive externalities of agriculture are subject of research for longer previous period (Gerowitt *et al*., 2003; Grega, 2003; Zasada, 2011).

Nevertheless, the financial benefits of positive externalities have not been distinctively established by CAP to better off the competitiveness of the EU smallest agricultural business or family farms, respectively, by the positive influence on their economic performance, yet. This explorative study however does not provide answers on sources of economic performance inefficiencies, which influence the competitiveness of family farms settled in the Czech Republic. Authors intend to carry on research of the key factors of family farms competitiveness by employing primary research involving the qualitative data on organizing the production processes.

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