

THE ISSUES HOW TO EXPRESS THE CONCENTRATION PROCESSES IN EUROPEAN AGRICULTURE

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Received: August 30, 2013

Abstract

ZDRÁHAL IVO, BEČVÁŘOVÁ VĚRA: *The issues how to express the concentration processes in European agriculture*. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 2013, LXI, No. 7, pp. 2951–2964

The paper deals with one of the current problems of the agrarian economics and policy, and this approaches to the definition, measurement and interpretation of farm size, as one of the key indicators of evaluation the processes shaping the entrepreneurial structure in the current agribusiness. The results of research into causation factors and processes shaping the business structure of modern agriculture are presented there. It evaluates approaches to express the magnitude of company and its explanatory power in the context of the selected evaluation criteria of the processes and phenomena. It deals with the potential risks of a narrow criterion-oriented agricultural policy in terms of strategy and fulfillment of role allocation and distribution in order to support of enterprises in today's business environment. The basic trends in the farm size structure in the member countries of the European Union are evaluated including their impact of the significance of individual size segments and their share of the output sector. In this context it evaluates and compares the results of the analysis of developments in business structures in the old and new EU Member States.

agricultural holding, agricultural policy, concentration process, farm size indicators, farm size structure

In October 2011, the European Commission presented a package of legislative proposals outlining the Common Agricultural Policy (CAP) framework after 2013. Already this first version along with subsequent general discussion on the follow-up amendments triggered a series of often conflicting and contradictory views concerning not only the priorities, pathways and criteria related to the proposed strategies, but the very vision of the European model of agriculture for the 21st century. It has become clear that, even in this relatively “protected” environment, the processes of globalization are uncompromisingly pursuing their way, with all their positives and negatives.

Moreover, in view of the diverse geographic production- and particularly performance-characteristics of agriculture in the current EU 27 resp. 28 member states, the overall development

does not seem to confirm that the proclaimed common agricultural market constituted a unified environment for all participants and led to a convergence in the structure and in effect of the results. It is clear that a sound knowledge of the dynamics of the agribusiness general environment and its interaction with the environment and conditions defined at a given stage by the applicable framework of the Common agricultural policy plays an increasingly important role (and not only in the aforementioned common market). In this economic and political interaction, specific conceptual and “implementing” materials related to the agenda on specific policies of individual countries have been drafted, usually including involvement of the Member States in the accepted idea of development through direct commitment and budgetary measures.

It goes without saying that reactions to the general framework and defined and adopted rules of the common policy shall be, at this level, different and that at this stage the clarity, elaboration and complexity of the agricultural strategy itself and of perception of the role of agriculture in society play indeed a significant role. In addition to a number of indisputable and objective particularities of agriculture, it is indeed the perception and expert evaluation of causal changes in the whole chain – i.e. in agribusiness – that transform the centuries old conservative production structure of the sector and the corresponding business structure, in dynamically shaping system with both positive and negative symptoms in the general processes of regionalization and particularly of rural development.

The problem mentioned above concerns almost 14 million agricultural enterprises in the 27 Member States faced with declining share of the European agriculture in the world markets and growing disparity of size and performance of agriculture between the old and new EU member states. This diversity is reflected in the evolution of views on the content and strategy of reform measures after 2013, including finding adequate criteria and incentive mechanisms in the system of the CAP financing itself.

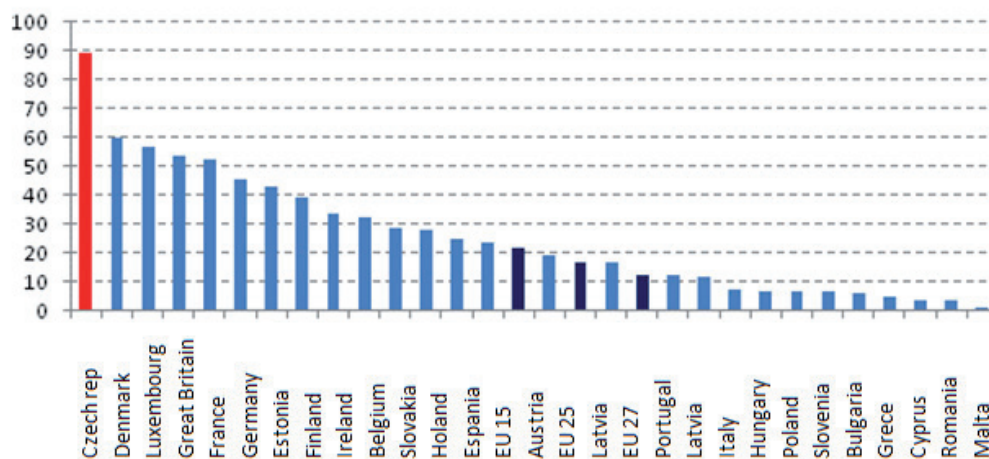
One of the issues that is becoming a “grateful” topic of conversation at both domestic and European level is the size of the agricultural enterprise itself. The question of defining the optimal size of an agricultural enterprise in the current business environment, as well as efforts of defining the optimal size of an enterprise in agricultural primary production in terms of levels and forms of support to target groups under agricultural policy, is in the EU member states currently considered a quite relevant topic.

MATERIALS AND METHODS

The challenges associated with the need for systematic solution for increasing the competitiveness of European agriculture on global stage are gaining prominence within the CAP for the 21st century strategy and choice of priorities and it is clear that this is a dynamic problem. It actually affects the approach to and development of the company size criteria in the implementation of agricultural policy instruments and their impact over time.

The aim of the paper is to deepen the knowledge on the impact of changes in the business environment of European agriculture in a broader socio-economic context of shaping agribusiness markets on the formation of the size structure of agricultural holdings. On this basis, verify whether and to what extent they reflect concentration processes in general and what specificity are typical for the business development of agricultural structures in the old and new member states of the European Union. For the actual analysis and comparison of characteristics of the size structure of farms be used two basic approaches namely (1) development of size structure in terms of farmed land and (2) development of size structure in terms of economic size of the holding. At the same time verify the explanatory power of these indicators and to draw attention to limitations and conditionality of their use for systematic evaluation and conclusions in the context of agrarian policy measures. The current state and compare the average size of agricultural enterprises in member states, the Czech Republic has indeed the highest average size and its size structure is cited as very atypical. This frequently mentioned figure is based on the following comparison (Fig. 1).

In each particular case, it is the question of legitimacy and objectivity of the company size criterion in the allocation and distribution processes related to specific implementation of agricultural



1: The average size of an agricultural holding in the European Union in ha

Source: DG AGRI, Eurostat

policy in a given European region at particular development stage.

In this process, the objective assessment of relationship between farm size and its success is clearly important and relevant.

This review shows clearly that in terms of the average size of an agricultural enterprise, there are truly significant differences, not only among the old member states, but also among the new ones.

The analysis and comparison of the size structure of farms, due to the availability and comparability of data, mainly based on statistical database EUROSTAT. Even this, however, does not offer an “ideal” data set, which reduces the breadth and depth of possible analyzes. Of the 27 Member States are available in time series data from 1990 to 2010 only three of them. Especially in the new Member States, it significantly reduces the possibility of assessment of the dynamics of size structure of farms. Data for in addition the year 2010, from structural surveys, presents nowadays the information about numbers and areas of agriculture holding. So they are used in the comparisons, for analyzing of long term trends, the data until 2007 are used.

The second problem was the definition of segment size in this database.

This category offers free land to 2 ha, 2–5 ha, 5–10 ha, 10–20 ha, 20–30 ha, 30–50 ha, 50–100 ha and 100 ha or more. Especially definition of the maximum category just over 100 hectares, again significantly reduces the possibility of capture the position and the tendency for large farms. This limitation did not allow further specify precisely the structure of the current crucial players in the common agricultural market and their role in individual member countries. Yet research offers a number of findings that, compared to commonly used averages for individual Member States, significantly more accurately characterize the structural development of enterprises in this sector within the European region.

RESULTS AND DISCUSSION

Several theoretical and methodological notes to begin

The basis for describing the structure of the industry is **number and size distribution of units (farms)**. In practice, the most widely used indicator relating to the characteristics of size is the average size of the enterprise.

A useful concept to express the size and even the definition of specific population of agricultural holdings is its assessment on the *basis of its production capacity* or production capacity as controlled by

the farmer (Ntsebeza and Hall, 2007). However, this “refined” definition captures a number of institutional and technical characteristics and is still too general in nature to be used e.g. in international comparison (von Braun, 2005) and therefore it is more common further operationalize this concept with regard to the statistically available and adequately monitored (and thus valid enough) indicators. It is used in so many ways of expressing the size of the agricultural holding, and we can divide them, in principle (whether measured in physical or monetary units), into indicators of the size of the input or output type (Ahern, Korb and Jet Yee, 2009).

The most commonly used concept is the **farmed land acreage**. The advantage of this indicator is that the size of the farmed land does not change too often and it is relatively easy to quantify, it gives us clear information on all the farms and in the literature it is also largely used for political, economic and statistical analysis. On the contrary, significant differences in quality of soil for agricultural purposes and sometimes ambiguous relationship to productivity reduce the relevancy of this size expressing indicator. Different demands on soil in different production systems also play their role. *The concept of expressing the size of the enterprise area based on farmed land acreage thus gives some information on the structural changes; its information capability then grows especially if this trend is observed in the group of similar farms.*

The size of farmed land, along with the amount of work involved may not yet provide sufficient benchmark and other information may provide indicators related to **share in total agricultural production**. This can be partly inferred from the number of livestock, their products or physical quantity of crop commodities.

Another benchmark of the size of the farm expressed as market produce i.e. evaluation in relation to market share implies a market valuation of output. In this case, the data can not be considered sufficiently objective (representative) as not all primary producers produce their entire agricultural production for the market. Many of them produce only for their own consumption or market only part of the production.

Unlike statistical records of the size structure of farms in the U.S., in the EU there is no available information on the revenue for agricultural production (mainly in small farms) and the indicator of **economic size of farms** is used instead.

Farm size in terms of the European Union is measured by the ESU¹, *European size unit*. The advantage of using ESU lies in possibility of comparison between differently oriented

1 European Size Unit (ESU 1 = 1200 EUR) is derived as the potential gross value added of the agricultural holding calculated as the sum of SGM (standard gross margins) of each agricultural activity carried out in the farm. SGM is calculated as the difference between average production and average cost of each agricultural activity per hectare (head) of each type of crop (livestock) production at the regional level.

agricultural holdings and thus assessment of farm's ability to remain in the market. The main limitation of this criterion is the use of standardized values because in given region, the SGM per hectare of a crop has the same value for all farms that produce it. No specificities of the holding's production affecting the final output are taken into account.

Size expressed by **indicator of labor input** based on the assumption that in small enterprise the total labor input can be lower than in large farms (DG 6, 2011).

The *simplest form of indicator is the number of workers*. Seasonal nature of agricultural activities which are often carried out as not full time lead to a more accurate expression of work inputs by recalculating them to one-year employment of a worker (in the EUROSTAT database – AWU). Even the information capability of this indicator is limited by agro-ecological and socio-economic factors that define the required amount of work, and requirements of necessary amount of labor of some specialized types of farming are negatively correlated with the physical size of the farm (horticulture production, extensive cattle breeding).

Ahern, Korb and Jet Yee (Ahern, Korb and Jet Yee, 2009) state that further possible indicators of the farm size is the **valuation of land and buildings on the farm or the size of the resulting rent**. To better reflect the nature of the functioning and dynamics of individual size groups of farms it is *necessary to use other characteristics*, whether related to farm management within the family, the use of hired labor, the contribution from non-agricultural activities to farm income, technological level, access to inputs, attitudes to risk, age structure of the workforce, conservative vs. innovative behavior, level of education and degree of specialization.

The above indicators of the enterprise size are usually chosen and combined in relation to specific issues the author addresses, however, always topical question is to what extent any of these ways of expressing the size are relevant for the assessment of the role, performance and prospects of each size group.

Once the method (or methods) of expressing the enterprise size for a certain population of farms in a particular country (region) is chosen, another and significant problem associated with this definition arises, i.e. what is still a small farm and what can be considered a large farm. This is associated with the **choice of criteria** (absolute or relative) for this expression (Hubbard, 2009; DG AGRI, 2011).

If absolute criteria are selected, then it is necessary to establish specific threshold (hectares area, number of employees, volume of production or SGM) based on which the farms are then divided into large and small. This criterion is well understood, clearly applicable, however, it is necessary to take into account the heterogeneity of farms which often differ in size structure not only between countries but also within countries. The choice of the level of given criteria and the possibility of response

to environmental changes is difficult as even the selected threshold may not be appropriate in all situations (in terms of space and time) that may occur.

The problem deepens when trying to apply a single criterion in both economic comparison and, in particular, the choice of policy measures in distinctly structurally inhomogeneous environment such as the current agrarian sector in the world and even in the EU. It is the determination of the threshold that is the subject of discussions related to the preferences of different views on the business structure and strategic plans of support to agriculture in various regions of the agricultural policies.

Particularly sensitive is this problem in the EU where the size of enterprises is one of the criteria for the application of critical instruments of the Common agricultural policy. Search for objectivity is very complicated and in the changing environment insufficiently substantiated. Hubbard (Hubbard, 2009) for example defines a small European farm as less than 10 hectares, the economic size of less than 8 ESU and less than 2 AWU.

Another option is to choose a threshold **with regard to the relative distribution of the variable at the regional level**. Due to the strong differentiation, this ratio has greater information capability as it relates to the distribution of size of the agricultural holdings as such and thus, more accurately, characterizes the business structure of the territory (region). An effective solution for this purpose is the descriptive statistics using one of the characteristics of kurtosis, namely representation using Lorenz curve.

The problem in trying to capture the size of agricultural holdings and their size distribution is the very statistical definition of what it is an agricultural holding.

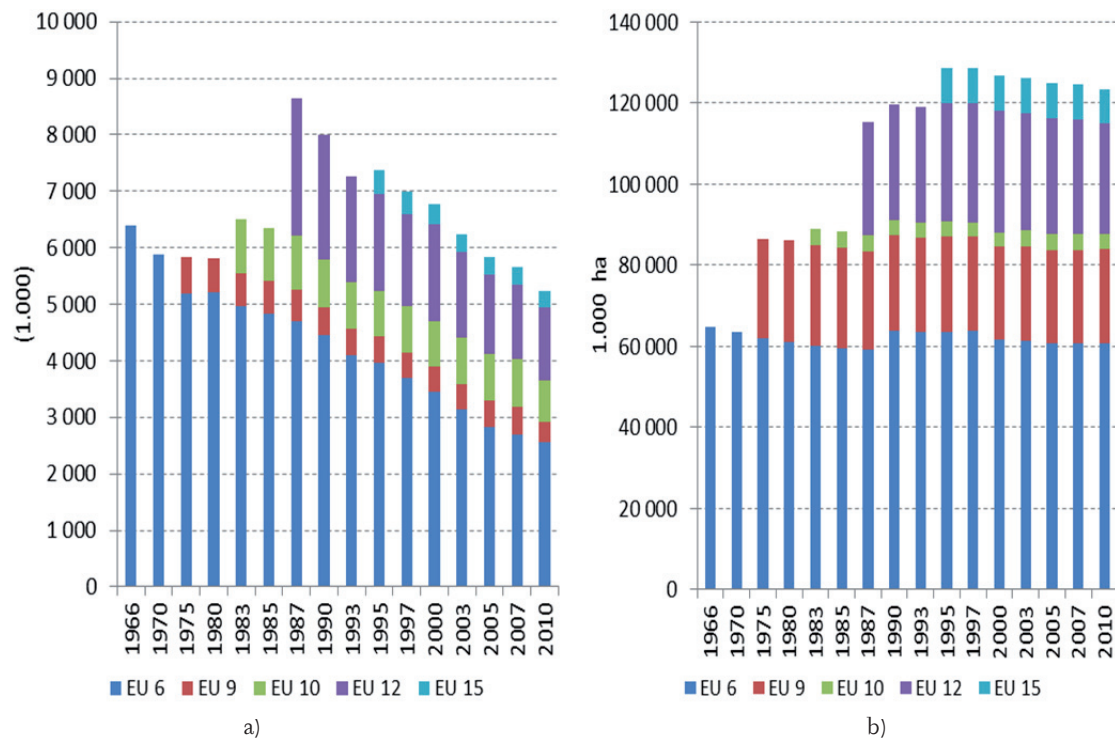
Characteristics and evolution of size structure of agricultural holdings in the EU

To characterize the size structure of agricultural holdings in this part of the work there are used **two basic approaches** allowing to analyze the structure and its evolution over time in international comparison, namely:

- Development of size structure in terms of farmed land
- Development of size structure in terms of economic size of the holding.

First approach gives us an overview of the number and size of enterprises as individual business entities and in this context, allows us to monitor development trends but without the possibility of capturing economic context, structure and effect of economic activities as well as basic interactions with the environment.

Second approach is, to the contrary, inherently based on the economic characteristics of producers and allows take better account of the company's ability to remain in the market, including the possibility of comparison between various



2a: Changes in number of agricultural holdings in the EU-15 between 1966 and 2000

2b: Changes in the area of agricultural land farmed by holdings in the EU-15 between 1966 and 2010

Source: EUROSTAT and DG AGRI, compiled by the author

manufacture-oriented agricultural holdings. By using standardized values in the construction of this type of indicator the ability to identify specific business prosperity is, however, weakened.

Development of the size structure in terms of farmed land

Agricultural sectors in the original Member States are going over long-term restructuring, which is reflected in the development of the size structure of agricultural holdings.

Acreage of agricultural land has changed in the reference period of almost forty years minimally, or has been slightly decreasing (Fig. 2).

The number of agricultural holdings is, however, gradually diminishing, which can be considered the result of ongoing restructuring of the sector in a broader context, but, above all, the result of the application of technological innovations and the results of scientific and technical progress in agricultural enterprises in general.

If we want to further characterize the overall development of the business structure of individual Member States and seek the connection with the influence of the state intervention instruments, in this case of the Common Agricultural Policy, including reforms in its strategy and instruments, an interesting answer is given.

From comparison of the average annual changes in the number of holdings in individual countries it is clear that, in the overall development, the truly innovative processes and general development

of technologies are more significant than state intervention.

Although we may to some extent deduce that in the CAP "golden age" (until 1992) the declines were generally lower, after the reforms of the early 1990's, the decline in the number of enterprises has been broadly accelerating.

However, as documented by specific data from individual countries, this "theoretical" conclusion cannot be reliably interpret in all Member States. Here too the significant heterogeneity in the default business structure, historical development and the formation of general bonds within the agricultural sector and consequently in agribusiness is confirmed, and so is, obviously, the influence of diverse agro-ecological conditions and the very structure of agricultural production.

With different pace and partially with a different mechanism this has logically been reflected in long-term decline in the number of agricultural holdings. As the acreage of agricultural land was maintained, it led to the increasing average size of agricultural holdings with different characteristics in each country.

In 2010 the average size of the agricultural holding in the EU-15 was 22.6 ha. Countries with the highest average size among the original Member States are the United Kingdom with 84.0 hectares and Denmark with 62.9 hectares. The smallest average size of agricultural holdings can be found in countries around the Mediterranean sea, such as Greece (4.8 ha). In the reference period, there was an

increase in the average size of agricultural holdings in all EU-15. This tendency is quite significant in Germany, Denmark, France and other countries.

The average size of agricultural holding in the EU-15 increased between 1995 and 2010 by 5.17 ha (+ 30 %). Comparison of development in individual countries shows the highest absolute increase in the average size of agricultural holdings in Germany (+ 27.7 ha), Denmark (+ 25.8 ha) and France (+ 18.8 ha) = significant EU agricultural producers and also countries with higher average farm size in comparison to other EU-15 Member States.

The above analysis of the average size of enterprises in different countries points to the basic size trends. These land acreage ratings, however, can not be certainly considered typical since, as indicated by the following partial analysis of individual countries, there are significant differences in the structures of sizes of agricultural holdings both between and within the countries.

The countries of Southern Europe typically feature dominance of small agricultural holdings up to 5 ha, in Greece the share of these enterprises is 75.5% of all farms, in Italy 73.2%, in Portugal 72.2% and in Spain 51.5%. Furthermore, the share of farms over 50 ha in Greece (0.1%), Italy (0.8%) and Portugal (2.0%) makes only a fraction of the total number of the agricultural holdings. In the other EU-15 Member States, agricultural holdings of larger size categories (over 50 ha here) are already represented more substantially. This size segment at the major agricultural producers, Denmark (34.2%), France (37.4%), the UK (24.7%) and Germany (24.7%) as well as Sweden (23.0%) makes about one-quarter of the agricultural holdings.

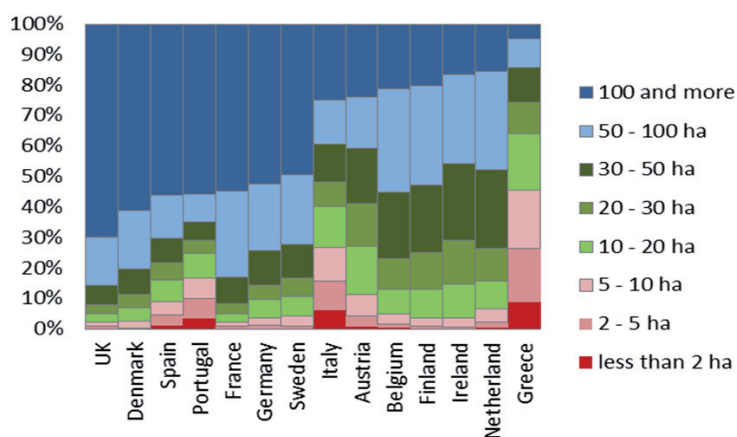
Even more conclusive view of the significance of individual size segments of agricultural holdings in the agricultural sectors of the original Member States brings comparison of business structure of manufacturers in terms of farmed land of a Member State (Fig. 3). It is evident that agricultural holdings over 100 ha are predominant in terms of agricultural

land in England, Denmark, Spain, Portugal, France, Germany and Sweden. The Netherlands, which can certainly be considered an example of one of the most successful agricultural producers even in the global markets, in terms of the size structure of manufacturers rather falls among states where the majority of land farm smaller farms (on the right side of the Fig. 3). It is a question to what extent (isolated) information on the form of the size structure of enterprises in the country may be used for evaluating the success and competitiveness of the agricultural sector.

The decline in the number of farms in the EU-15 is typical especially for the smallest category of agricultural holdings despite the fact that the strong support for the sector could have created conditions for survival of the less competitive producers in the sector. On the contrary, the number of enterprises of the larger size categories is growing and the area of agricultural land, which they cultivate, is increasing (Fig. 4).

Overview in Tab. I is focused on assessment of concentration tendencies in the individual EU-15. For this purpose the share of agricultural land farmed by farm size categories from 50 to 100 ha and over 100 ha of the total agricultural land is defined. It is thus possible to assess the current trends in the concentration of farming enterprises. In the reference period 1993–2007 (due to incompleteness of data, for Austria, Finland, Sweden and France a shorter period was chosen, see note the Tab. I), in all countries, the share of enterprises of size greater than 100 ha in total agricultural land was increasing, except Austria, where the share remains the same.

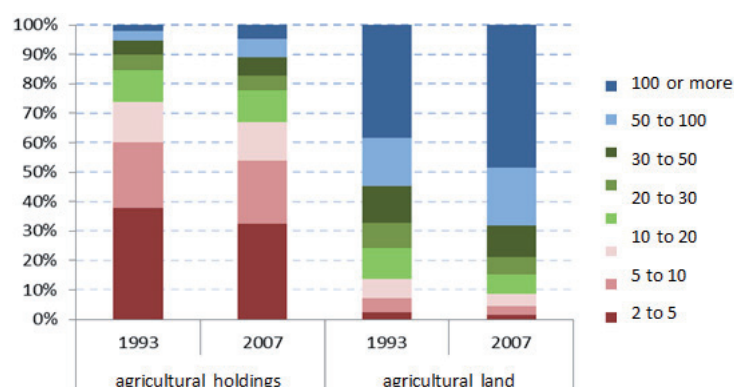
For the vast majority of countries, there is also an increase in share of agricultural holdings in the category from 50 to 100 hectares. This tendency is especially strong in Denmark where the share of companies over 100 ha grew by 34.9 percentage points and enterprises in this size category in 2007 cultivated already 61.1% of agricultural land.



3: The business structure of the EU-15 in terms of farmed land of the member state (2007)

Source: EUROSTAT, DG AGRI compiled by the author

Note: Size category in ha



4: Development of the business structure of the EU-15 in terms of number of agricultural holdings and farmed land of the Member State in individual size categories (1993–2007)

Source: EUROSTAT, DG AGRI, compiled by the author, note: Size category in ha, France is not included; data for Austria, Finland, Sweden of 1995

I: Proportion of large agricultural holdings in agricultural land in the EU-15 (in hectares)

country	share of agricultural holdings from 50 to 100 hectares in agricultural land (%)		change (percentage points)	share of agricultural holdings over 100 hectares in agricultural land (%)		change (percentage points)
	1993	2007		1993	2007	
Belgium	22.2	33.9	+11.7	9.2	21.1	+11.9
Denmark	30.1	19.1	-11.0	26.2	61.1	+34.9
Germany	19.5	22.1	+2.6	38.0	52.3	+14.3
Ireland	24.0	29.4	+5.4	13.6	16.5	+2.9
France	30.4	28.0	-2.4	48.8	54.8	+6
Italy	12.4	14.4	+2	21.7	24.9	+3.2
Netherlands	19.0	31.9	+12.9	7.2	15.7	+8.5
UK	17.8	15.5	-2.3	65.2	70.0	+4.8
Greece	4.8	9.4	+4.6	2.9	4.7	+1.8
Spain	13.9	14.1	+0.2	50.7	56.1	+5.4
Portugal	7.3	8.8	+1.5	45.5	55.9	+10.4
Austria	9.8	16.7	+6.9	24.0	24.0	0
Finland	17.8	32.6	+14.8	5.1	20.1	+15
Sweden	29.3	22.9	-6.4	31.3	49.3	+18

Source: EUROSTAT, DG AGRI

Note: In the case of Austria, Finland and Sweden, data for 1995 and 2007 are used, for France: 2003 and 2007

Growth in the share of agricultural land in this category is probably mainly due to the growth of enterprises above 100 ha because the share of lower size categories from 50 to 100 ha in this period decreased by 11.7 percentage points.

Similar trend can be seen also in Sweden, and to some extent, in France or the UK. In Belgium, Germany, the Netherlands and Finland, the share of both observed size categories grows, at a lower rate they grow in Ireland, Italy and Greece. In Austria, enterprises with more than 100 ha farm the same portion of roughly a quarter of the agricultural land, but here too raises the concentration – only represented by size category from 50 to 100 hectares. Another view of the size segment of agricultural holdings with an area of over 100 hectares, describes

the progress of their average size, and thus at least partially allows assessing the nature and evolution of this group of enterprises, as data on very large farms are not available.

The highest average size of farms over 100 ha is achieved by enterprises in the UK, Germany and Austria (around 250 ha). It is possible to explain it by the historical development of the agrarian systems of these countries, a large concentration of farms in the 19th century UK was associated with the liberal approach to the agrarian sector at that time exposed to strong pressure from overseas exporters of agricultural commodities. In Germany there could be influenced by the Prussian path of development (similar to the development of agriculture in the Czech Republic) which was typical by the capitalist

way of doing business in agriculture with a strong position of the large farms, and also by the size structure of enterprises of former East Germany. Somewhat surprisingly a high average size of 100 hectares achieve also the agricultural holdings in the states of southern Europe – Portugal (350 ha), Spain (300 ha) and Italy (250 ha), which are otherwise typical of a large number of small agricultural producers. Although there will be internal variability in this size segment, other studied states, the average size of firms reaches roughly 150 to 200 hectares.

Upon closer assessment of the context of growth of agricultural holdings in the category of over 100 ha in total agricultural land we could see the following trends and facts:

- in the case of Denmark, Sweden and Finland after 2000 there is rapid increase in agricultural land in this category, compared to increase in number of enterprises. The share grows also thanks to significant increase in existing businesses over 100 ha
- the Netherlands went through the same evolution, since 2003, however, size of agricultural land in this category has been stagnating. With the continuing growth in the number of holdings over 100 ha the average farm size of 100 ha is thus declining,
- in Belgium there is a dynamic proportional growth in number of holdings and land. The increase in the share of this category in agricultural land is especially so influenced by the increasing number of holdings in the category,
- in the case of Germany, the number of agricultural holdings in the category over 100 ha grows faster than land farmed by these holdings. In absolute terms thus the area, and consequently the share of total agricultural land, is increasing, however the mean size of a holding in this category is declining,
- in Austria the area of agricultural land in this category is slightly decreasing, but the number of

enterprises is growing and their average size and is also decreasing.

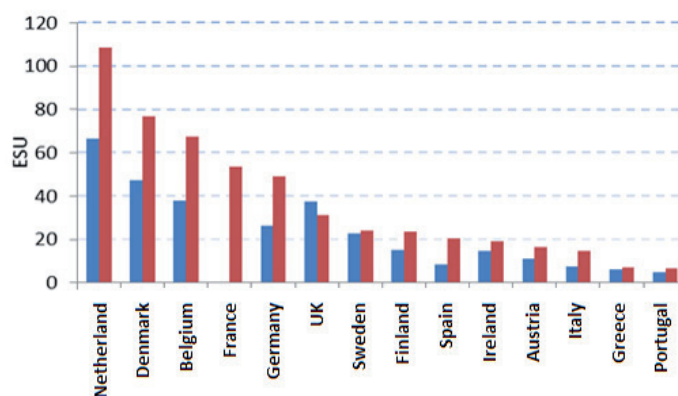
- in Portugal, the number and area of land in the same category remains unchanged. The increase in share of this size category in the total agricultural land is therefore caused by the dynamics of development in other size groups.

Performed analysis thus pointed out the differences between the concentration of holdings farming in the old EU Member States and confirmed the ongoing concentration trend in the size structure of enterprises in general, however these can manifest in different countries in different ways.

Development of size structure in terms of economic size of the holding

For evaluation of the size structure of agricultural holdings it is useful to apply the criterion of economic size as well, which allows taking into account also the link of the enterprise to market and so, to some extent, it is related to the ability of the agricultural holding to stand the test of the market. Unlike the direct link to company size and farmed land, this view shows the ability of the enterprise to use the given factors of production effectively. The following review clearly points to “cardinal” key core countries of the common agricultural market, led by the Netherlands, Denmark and Belgium and, of course – crucial in terms of size and performance – France and Germany. Fig. 5 compares the average economic size and its changes in agricultural holdings in the EU-15.

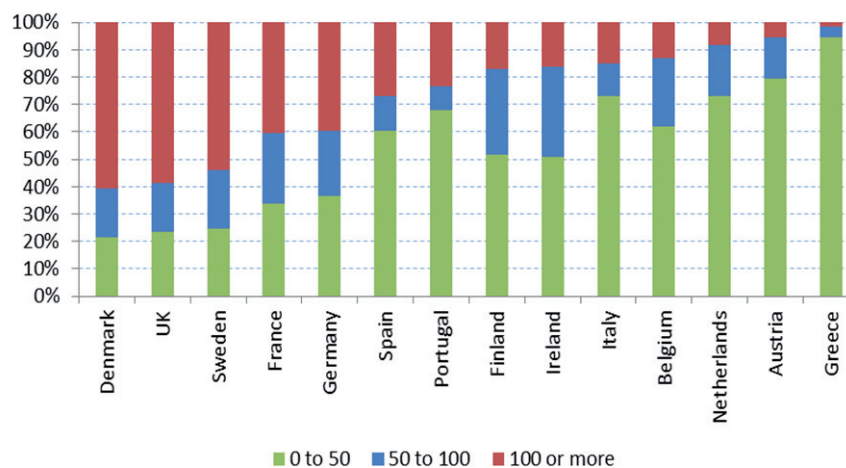
In 2007, average economic farm size in the EU-15 was 23.8 ESU (European Size Units). Among the surveyed countries, there are, however, significant differences. In the Netherlands, which has to some extent different conditions of agricultural production and specific production structure, achieves this indicator 111.2 ESU. On the contrary, in the countries of southern Europe, whose agrarian structures still feature numerous smaller businesses



5: Development of average economic size of agricultural holding in the EU-15 (1993 and 2007)

Source: EUROSTAT and DG AGRI, compiled by the author

Note: There are no data for France in 1993, data for Austria, Finland and Sweden from 1995



6: The size structures of agricultural holdings in the EU-15 according to their economic size (2007)
Source: EUROSTAT, DG AGRI, compiled by the author

(paradoxically they are also typical for the Netherlands, however the production parameters of such enterprises are vastly different), the average economic size of agricultural holdings is about 10 ESU (Portugal – 6.6 ESU). Spain is an exception here. The main European producers are characterized by high average economic size compared to the EU-15 average, including most other Member States. Intensive livestock production in the Netherlands and Denmark is apparent here.

Common feature in the change of average economic size of agricultural holdings in terms of changes in both absolute and relative terms in 1993–2007 was a growth of average economic size of agricultural holding in all EU-15 member states except the UK. A high increase in this indicator is recorded in Spain. In this case, it may be the result of an improving competitive position in the European and world markets in livestock production.

Indicators of economic size of the agricultural holding can be somewhat loosely interpreted also as the significance of individual size segments in terms of their contribution to the final output sector (Fig. 6).

The similarity in size and structure even when (and especially when) this criterion is used in the Netherlands and Greece reaffirms the problem of capturing the relationship between the size structure of the country and the success and competitiveness of its agriculture.

Development of the size structure of agricultural holdings in the EU 12

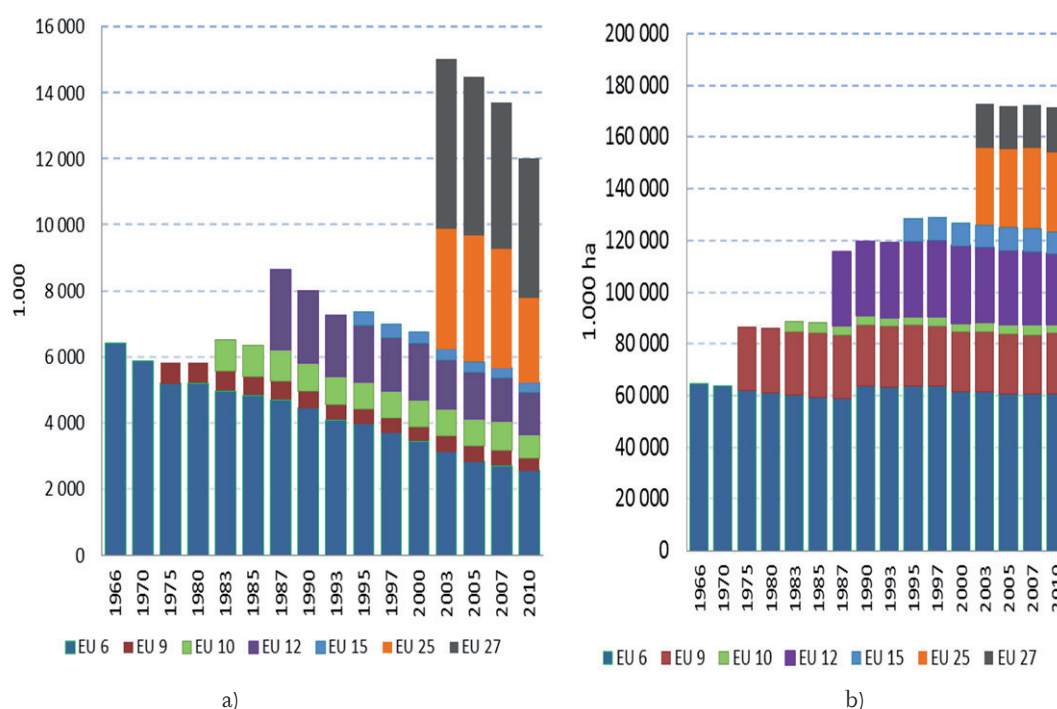
Enlargement of the European Union to include new countries took place in two waves, the first in 2004 included Estonia, Latvia, Lithuania, Hungary, Poland, Slovenia, Slovakia, Cyprus, Malta and the Czech Republic. In 2007 the Union has been further enlarged to include Bulgaria and Romania. Especially the accession of Central and Eastern European countries meant for further strategy of the Common Agricultural Policy considerable

challenge. As shown in Figs. 7a) and 7b) enlargement of twelve states meant not only an increase in acreage of the agricultural land, but first and foremost a significant increase in the number of agricultural producers, the number more than doubled.

The issue of accession of the countries of Central and Eastern Europe was further complicated by the diversity of their internal transformation processes associated with, among others, the formation of a new business structure in agriculture. The transition from a centrally planned to a market economy principles initiated in the late 1980's represented a complex and multidimensional process. Creating conditions for the development of functional markets with factors of production as well as products and services was associated with a number of other measures, directly or indirectly related to the formation of essentially new structure of agricultural holdings in different countries.

The aim of the ongoing reforms was the overall transformation of the agricultural sector from a centrally planned systems, applying principles of collective production, to the market system, where the manner, scope and other production parameters are decided by manufacturers in response to market signals. This meant strengthening the independence and responsibility of the manufacturer in its decision-making concerning the structure and mode of production and its evaluation (individual agriculture). The transition from collectivized economy towards individual businesses and its legal and economic support generally led to a reduction in the size of existing farms, corresponding to typical types of organizational structures and size of agricultural holdings in market economies (Lerman, 2000). In this context, an important role was also played by a simplified interpretation of the principles and context of changes in relatively highly subsidized agricultural structures in the older EU member states.

Even with regard to the fact that the agricultural sectors of the studied countries of Central and



7a: Changes in the number of agricultural holdings in the EU after the accession of new countries

7b: Comparison of farmed agricultural land in the EU-12 and EU-15

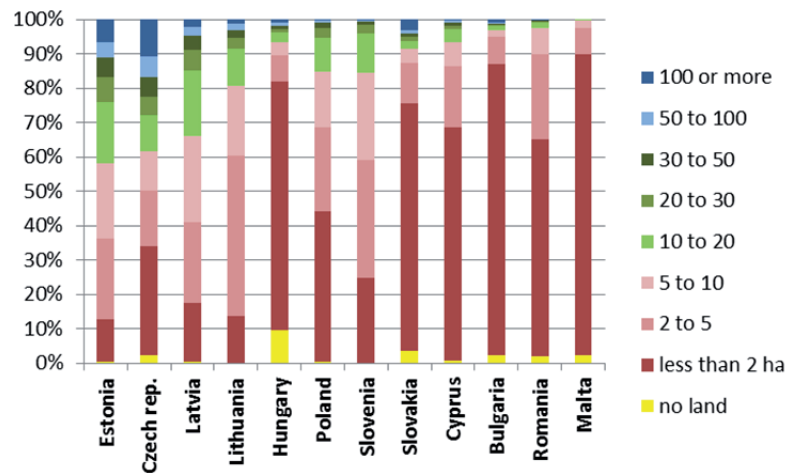
Source: EUROSTAT, DG AGRI, compiled by the author

Eastern Europe had their own specificities, that they entered the transition at different levels of performance, and their structure and organization of manufacturers have carried many of the problems mentioned above, the question remains to what extent the argument and following directing of goals of transformation of the sector towards disorganization and fragmentation of the efficient producers were appropriate. It was in this period when the lack of knowledge of the principles and conditions of the functioning of typical organizational structures related to the effective functioning of the sector as well as with the formation of typical size groups of agricultural producers in Europe proved to be a handicap. It was not only the current knowledge of their form, but also the knowledge of how these structures function in the context of the specificities of the regions, in their ability to capture trends of changes in the business environment and commodity verticals, in, at that time still strongly supported, European agriculture.

That decade of changes brought about a significant individualization of production base in all countries (mainly due to the restitution of property rights to land, privatization of state property and the reorganization of cooperatives to private companies), especially in Slovenia, Poland and Latvia. In other countries, the share of these subjects was between 50% and 60% of state agricultural land in 1997, with the exception of the Czech Republic with 40% and Slovakia with 10%. In 1998, some of the former cooperatives and

state enterprises still remained part of the agrarian structures, although farming a smaller share of state agricultural land and with a lower average size of farmed land. In addition to that a number of profit-oriented private companies of corporate nature were newly created or arose due to internal reorganization. The average size of individual entities increased. In this newly created segment, there were two different groups of producers. On the one hand, very small units of subsistence and part-time nature, cultivating their own land from the pre-reform period or obtained during the reform, and, on the other hand, greater, full-time market-oriented entities. The latter were primarily responsible for the increase in the average size of land farmed by individual manufacturers. It follows that the characteristic structure of the business base of the new member states, which is associated with the period of accession of these countries to the EU, is not able to capture a significant qualitative and quantitative changes in this area, which (again in differentiated manner) were carried out in various countries in Central and Eastern Europe during late 1980's and early 1990's in the context of economic reforms. It was Czechoslovakia and subsequently the Czech Republic where a significant change in the size and business structure in agriculture took place. This fact is confirmed by the following data on the size of agricultural holdings in the period after the accession of these countries to the EU.

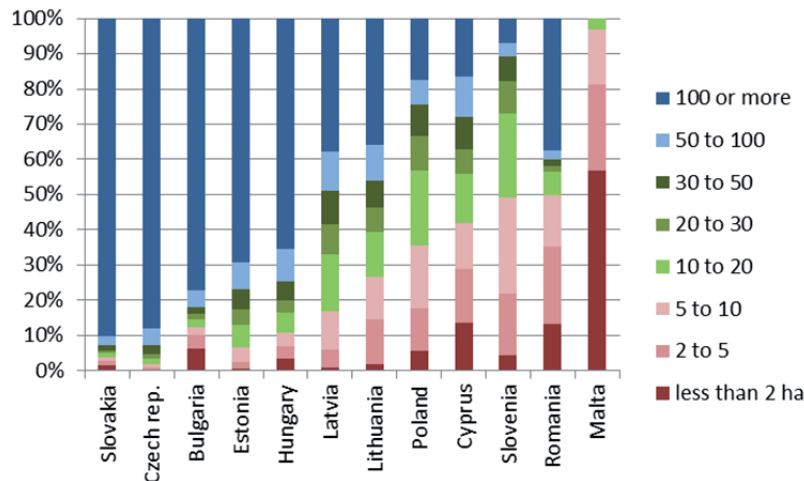
In the current period, the business structure of the new member states (EU-12) can be characterized



8: Number of enterprises by the size of agricultural land in hectares in the EU-12 (2007)

Source: EUROSTAT and DG AGRI, compiled by the author

Note: Size category in ha



9: The business structure of the EU-12 in terms of farmed land in a member state (2007)

Source: EUROSTAT and DG AGRI, compiled by the author

Note: Size category in ha

by the following proportions of representation of the size groups (Fig. 8).

A high share of smaller small enterprises in the total number of enterprises that have arisen as a result of the above mentioned processes is clearly apparent. This chart also includes two other countries Cyprus and Malta that joined the EU in 2004. Their size structure of enterprises is, as expected, similar to the southern countries of Europe with a high share of smaller producers. In terms of the share of each size group in the agricultural land it is the structure – see Fig. 9.

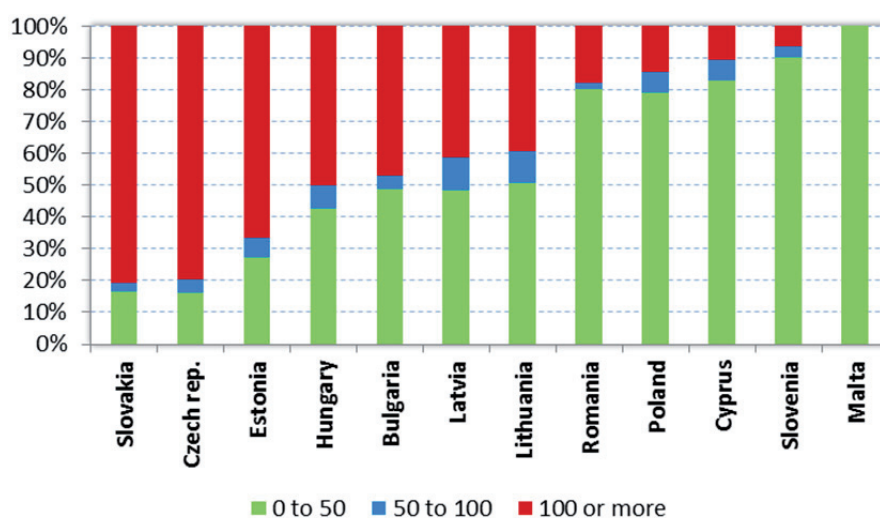
Enterprises of 100 ha farm the vast majority of agricultural land in Slovakia, the Czech Republic, Bulgaria, Estonia and Hungary.

Average size of the size segment of agricultural holdings with an area of over 100 hectares is commonly higher than in EU 15 countries, 800 ha in the Czech republic and Slovakia, 600 ha in Romania

and Bulgaria and around 350–400 ha in other countries.

Their significant proportion, however, can be identified in Poland and Romania, i.e. in countries where the business structure of manufacturers is generally referred to as the model with small family producers. Interesting development in changes of the size of agricultural holdings takes place in Latvia and Lithuania where, following the fragmentation of the manufacturers after transformation – the share of 10% of the largest agricultural holdings in 1997 was in Latvia 20% of agricultural land and in Lithuania 30% of agricultural land (Lehrman, 2000) – leads to re-concentration and the share of this group in 2007 was around 60%.

The above mentioned structural characteristics are reflected in the following shares of basic size categories in agricultural output in the new member states as follows – see Fig. 10.



10: Share of each size group of agricultural holdings in the EU-12 at the output of the industry (economic size criterion) in 2007

Source: EUROSTAT, DG AGRI compiled by the author

Note: Size category in ha

Although the restructuring process in the newly acceded countries are still ongoing, it is already clear that even here large farms managed to maintain its market position and represent size segment, which is fundamental in terms of the final output.

More detailed analyzes of trends in the numbers of agricultural holdings in the EU 15 and the new accession countries with more detailed picture of the importance of individual size segments of farms and their dynamics and also giving the results of these analyzes into the context of the overall changes in the business environment of European agriculture can be found in the publication of authors (Zdráhal and Bečvářová, 2012).

CONCLUSIONS

The analysis and comparison of changes in the size structure of agricultural holdings (in terms of farmland or economic size indicators) in the old and new Member States, confirm the general trend, though it is not the unification of business structure. *The concentration process is typical of the development of the business structure in agriculture in all EU member states, leading to their harmonization.*

The analyzes confirm that the concentration of business structure of agriculture in the EU is generally taking place as the agrarian sectors in the old Member States go through the long-term restructuring. The numbers of agricultural holdings, in particular in the category of the smallest holdings, are declining, but the number of businesses in the higher size categories is increasing. The area of agricultural land farmed by these enterprises is also growing, as well as the importance of these categories in terms of the final output. The lack of availability and information capability of data in the structure and existing evidence by EUROSTAT

is hampering more detailed evaluation of the development in this segment of large companies.

The above processes however have undeniably different pace in different size segments of agricultural holdings based on historical differences in their structures and level of their initial state in individual states and on the conditions of the current environment, as the site-specific factors influence the choice of size of the agricultural holding and overall development of the size structure of producers in the region.

It is therefore likely that the heterogeneity in size and size structures of agricultural holdings in the EU member states and even within those countries will persist over time. The often used arguments of evaluation based on the average size of enterprise are thus too simplistic. The question is whether it is possible to determine the typical size of the agricultural holding or typical size structure of agricultural holdings in the EU, in particular when taking into account the problem of the objective existence of strong links between farm size and its success.

Understanding the causal relationships of shaping the size structures of agricultural holdings and factors of their development as well as understanding the aspects of their effective functioning in the final outcome of the sector and its contribution to economic development is undoubtedly one of the preconditions of objective assessment of current development. In this context, wide range of issues related to the size and/or size structure of enterprises effectively functioning in modern agriculture arises.

Although it is clear that the basic concept of the system of support for the European agriculture based on two pillars of the CAP remains essentially preserved, the possibilities of fulfilling, in the given framework, the MS own vision for further

development of agriculture using the knowledge of specific conditions and environment are enhanced. Decentralization, in this context, undoubtedly increases the MS authority but also their responsibility for the choice of appropriate strategies as well as specific concept of promoting active contribution of agriculture and agrarian sector to the development of a specific area under significantly tougher global competition. In this situation, the risk of negative impact of asymmetric information as well as bias in decision-making with a preference for short-term and often particular interests increases, with much broader social effect and consequences

Taking into account the knowledge and generalization of development in organization and efficiency of business relationships in today's business environment it should be beneficial also

for *objectification of criteria derived from the size of the company and its performance.*

Recognition of tendencies in the size structure of the current production agriculture should therefore be indeed beneficial in a situation when the overall strategy of the CAP undergoes certain shift, when the level and targeting of tools applied on the principle of redistribution changes to some extent and when, on account of reduced funds in the budgets, it is increasingly difficult to justify certain decisions.

From this perspective it should contribute to the identification and generalization of the crucial causation of growth in heterogeneity and dynamics of changes in business structure and thus to evaluation of the effects of state interference. In all these aspects it is associated with possibility, availability and information capability of the data on size of the agricultural holding and of business structure in agriculture.

SUMMARY

The paper discusses the changes in the farm structure in the context of changes in the business environment and the causal link and speeches concentration the processes in today's agriculture. It presents the findings and conclusions of the research and evaluates the results of analyzes in this field. In the specified context it deals with issues of size, boundaries and its definition. Assesses the economic and methodological methodological approaches to express the size, characterizes the possibilities and limits of these approaches, the explanatory power and potential applicability in the specific context of the agrarian economy and politics. In this context, analyzes and evaluates the basic trends in the size structure of agricultural holdings in the EU countries. Based on the comparison of the development of business structures in old and new EU member states then concludes that. The concentration process is typical of the development of the business structure in agriculture in all EU member states, leading to their harmonization.

The analyzes confirm that the concentration of business structure of agriculture in the EU is generally taking place as the agrarian sectors in the old EU member states go through the long-term restructuring. The numbers of agricultural holdings, in particular in the category of the smallest holdings, are declining, but the number of businesses in the higher size categories is increasing. The area of agricultural land farmed by these enterprises is also growing, as well as the importance of these categories in terms of the final output. The above processes however have undeniably different pace in different size segments of agricultural holdings based on historical differences in their structures and level of their initial state in individual states and on the conditions of the current environment, as the site-specific factors influence the choice of size of the agricultural holding and overall development of the size structure of producers in the region.

It is therefore likely that the heterogeneity in size and size structures of agricultural holdings in the EU member states and even within those countries will persist over time. The often used arguments of evaluation based on the average size of enterprise are thus too simplistic. Similarly effort to determine the typical size of the agricultural holding or typical size structure of agricultural holdings in the EU, in particular when taking into account the problem of the objective existence of strong links between farm size and its success appears in the current conditions of agribusiness, is not a key precondition or prerequisite for success and competitiveness of today's agriculture.

Acknowledgement

The paper was developed within the Research Project of MENDEL in Brno, MSM 6215648904, as a part of the solution to thematic direction No. 4 "The development tendency of agribusiness, forming of segmented markets within commodity chains and food networks in the process of integration, globalization and changes of agrarian policy".

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