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Structural Changes in Romanian Farm Management and their Impact on Economic Performances

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Abstract

The main socio-economic tendencies of farm management in the Romanian agriculture in recent years reveal some important structural changes: acceleration of the transfer of land resource operation to younger managers; diminution of the consumption of labour force in the Romanian agriculture; increased productivity of labour involved in agricultural activities. The farming performance differs greatly between individual farms due to the complexity of Romanian farming system and farm structures. Generally speaking, the young farmers perform better than the older ones, and the farm economic performance, evaluated in terms of labour productivity and land resources, is greater as far as the farm managers’ agricultural training level increases.

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1. Introduction

Farmers are resource managers who manipulate labour, land, capital and other resources to achieve their goals in life. Decision making is based on value judgements. Providing materially for the farm family is a key goal for the farmers that are on the base of Maslow’s hierarchy of needs. Increasing the value of their assets may be important to some farmers that are oriented to wealth creation. As well, returning a profit from their farming ventures, are the

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goals of the managers that exceeded the stage to cover basic needs for their family members.

Over the history of farm management research there have been a number of reviews of the discipline. In the first instance, the focus was primarily related with the economic aspect of production and mathematical programming (Jensen, 1977; Malcolm, 1990), and just a little work was undertaken in relation to the critical success factors for exceptional farm performance (Howard and MacMillan, 1991). The economics provides a necessary, but not sufficient framework for the study of management in farming because the discipline's focus on mathematical modelling has tended to ignore the effect of the farmer in farm management. In this respect some authors discussed the need for farm management researchers to identify the factors that make managers successful, and the separation of these into those that can and cannot be taught (Martin et al., 1990; Andison, 1989; Harling and Quail, 1990).

Empirical research into farm management has tended to use survey-based cross-sectional studies that have focused on the statistical analysis of measured socio-economic variables to define the characteristics of successful farmers (Gray et. al., 2009). This will be the approach used in the following study regarding the farm management characteristics in Romania.

The paper purpose is to provide a comprehensive image of the managerial body from the Romanian agriculture, correlating of the socio-demographic characteristics of farmers with the economic performance of the farm. At the same time, the study attempts to highlight the positive tendencies in the agricultural management structure, which should be encouraged and supported, as well as those negative structural changes in farm management with a negative impact upon the overall performance of the Romanian agricultural system, which should be corrected.

If the majority of researchers concentrate their investigation on the effects of size and production structure upon the farm performance, there has been comparatively little research on the linkages between the human and social capital of CEEC farmers and technical efficiency. The literature on transitional economies has witnessed a wide debate about the relationship between farm size and efficiency as land reform and farm restructuring have brought about comprehensive, politically induced changes in the distribution of farm sizes (Gordon, Davidova, 2004). Mathijs and Vranken (2000) did find a significant relationship between years of education and farm efficiency. European Commission recognises the importance of the age structures of farm managers for the farm performances. In the Rural Development Report, 2012 the authors conclude that the young farmers perform better than older ones (EU – RD Report, 2012).

2. Overview

A brief overview of the transition process from the socialist to capitalist organization of production in Romanian agriculture revealed that the current stage of farm management and agricultural performances are the result of the process and phenomena that occurred in all Romanian economy and society in the past 25 years. If, in the communist period, almost 86% of Romanian agricultural land was operated in large socialist farms (OECD, 2000: 91), after '89, through the process of reconstitution of private ownership, Romania returned to the pre-communist farm structure, which was characterized through small-scale peasant units and a high level of fragmentation. Thus, in 2003, in Romania there were 4.5 million holdings with an average of 3.1 ha utilised agricultural area/ holding. The new farms did not have any technical endowment and had to join production associations in order to facilitate their access to the services of firms that owned agricultural equipment and implements. In time, the new land owners capitalized (most often with a rudimentary technique) the agricultural holdings and a great part of them withdrew from the agricultural associations. Although a concentration tendency is being manifested in agricultural land operation, mainly after Romania's joining the EU, the small-scale agricultural holdings (that obtain a value of agricultural output under 8000 euro per year) continue to represent about 97% of the total number of agricultural holdings. These account for over 40% of UAA. The small rural household farm continues to be perceived as an economic and social safety net in the face of the quasi-absence of non-agricultural occupational opportunities both in the rural and urban areas, which is characteristic to the entire post-communist period.

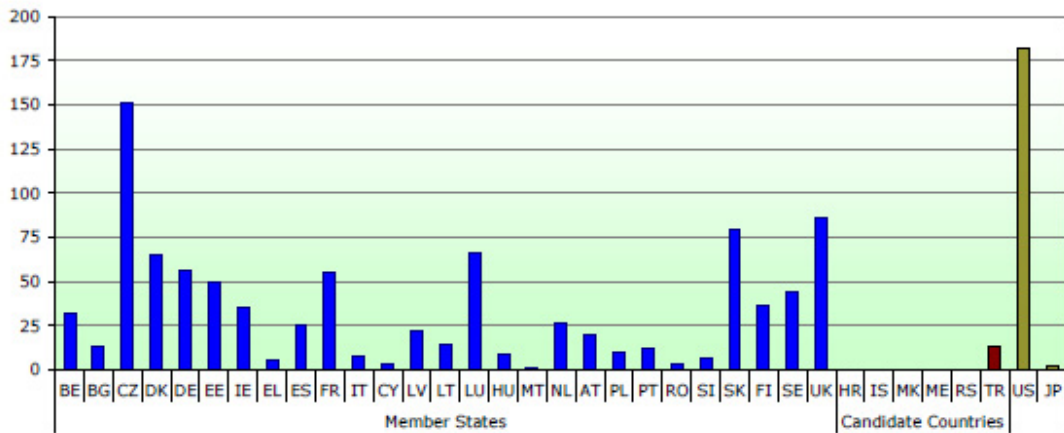


Fig. 1. Average utilised agricultural area per holding in the European and candidate countries, 2010.

Source: EC – Directorate General for Agriculture and Rural Development, 2012. Agriculture in the European Union – statistical and economic information, http://ec.europa.eu/agriculture/statistics/agricultural/2012/index_en.htm, p. 49.

Today, Romania recorded the *highest number of farms* of all 27 EU countries (3.7 mil. holdings that represents 32% of total EU-27 holdings) and in term of the average size of farm, our country registered one of the smallest utilized agricultural area per holding (3.6 ha), four times smaller than the European average (14.6 ha).

3. Methodology and data used

To provide a comprehensive image of the managerial body from the Romanian agriculture, our paper correlates the socio-demographic characteristics of farmers (as human capital aspects of farm management) with the economic performance of the farm. The main demo-social dimensions of Romanian farm managers according to which the farm performance was analysed in the present paper are:

- *The structure by age of farm managers* provides significant signals with regard to the *potential innovating capacity* of the representatives of primary sector. A younger age structure is associated with greater willingness to accept innovation, to internalise new ideas of business management, new technical and technological procedures and to generate innovative ideas due to greater openness towards risk assumption. The openness to innovation also stems from the fact that young people usually have higher educational capital compared to older people and their social independence permits them a much higher mobility.

- *Structure of farm managers by their agricultural training level* reflects their ability to access and use innovations with a high-tech level, new farm management tools, etc.

The conclusions of this article are based on the analysis of secondary statistical information (national and Eurostat database statistics) on the quantitative and qualitative demo-educational characteristics of the farm managerial body, in order to capture their influences on the farm economic performances.

4. Results

Since the 80s, research on the determinants of economic performance in agriculture began to turn its attention to human capital, ie, the characteristics of the farm managers. They demonstrated through case studies that higher levels of formal education increase farmers's efficiency and the education has a higher payoff for farmers in a changing, modernizing environment than in a static traditional one (Lockheed et. al., 1980). Most studies are able to relate levels of inefficiency to farmers' information and skills (Ali, Byerlee, 1991: 1). Due to these arguments, we will give an special focus on managerial body of the primary sector (agriculture) of the Romanian economy because the economic performance of agriculture depends mainly on their abilities and capacities to efficiently use their resources.

4.1. The age structure of managers in the Romanian agriculture

The age structure of managers in the Romanian agriculture corresponds to a “reversed pyramid” (in conformity with the demographic language) in which the most weakly represented is the age group under 35 years old, while the elderly managers (aged 65 years and over) represent the group with the highest frequency (37.9%).

While the greatest part of farms is administered by managers who exceeded the retirement age, the largest part of the utilized agricultural areas (50.3%) is managed almost equally by the two groups of managers who reached their active life maturity (aged from 45 to 54 and 55 to 65 years).

In Romania, in the period 2005 - 2010, was manifested the tendency of rejuvenation of the managerial body in agriculture. It is worth mentioning the increase in the number of farms managed by young people under 35 years of age (by 54220 in absolute figures, which represents a 24% increase compared to 2005), as well as of those managed by persons in the age category 35 – 44 years old (by 95900 farms, equivalent of a 19% increase in the investigated period), accompanied by a transfer of the land areas from older managers to young managers (Fig. 2). It seems that after Romania’s accession to the EU, there is an increased interest of the young people in agriculture, which began to be perceived as an attractive business with a significant growth potential.

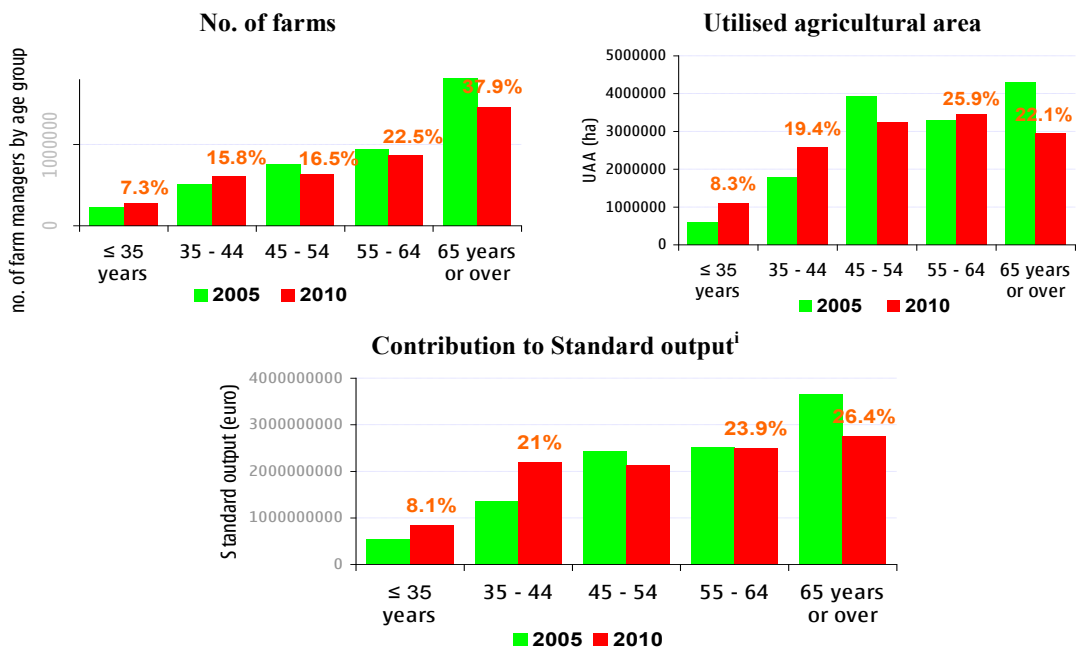


Fig. 2. Main parameters of agricultural farms by managers’ age (2005-2010).
Source: own calculations based on Eurostat data

This is also proved by the successful implementation of Rural Development Measure 112 (in the previous programming period - 1997-2013) for setting up young farmers, for which over 22000 funding applications were submitted, and the European funds dedicated to it were fully contracted before the first half of the year 2013. With younger farm managers, we can hope for an improvement of the farm practices and a bigger opening towards technological innovation which together will bring about an increase in the competitiveness of the Romanian agricultural sector.

At the other extreme, of elderly managers (over 65 years old), in the period 2005 / 2010 we could notice a diminution in their number and importance in the operation of agricultural areas, which was largely due to the life annuity scheme application to the land owners over 62 years old who gave up working their land areas by themselves and transferred land use or ownership to other farmers. The application of this scheme was possible in the period 2005 - 2009 (after this year, as it was considered state aid, it was no longer allowed by the EU

legislation); this resulted in the transfer of 329620 ha UAA (Ghib, Luca, 2011) from the old farmers (that is 7.7% of the area owned by them in 2005) to other farms, leading to the adjustment of the farm structure both by ages and by the size of utilized agricultural area.

The contribution to the total value of the standard outputⁱ (SO) of farms grouped by managers' age directly depends on the production structure adopted at farm level, on the manager's experience or attitude in relation to change. Thus, the higher integration of crop production with animal husbandry generates higher incomes on the farm level than the sale of crop production. Based on the higher value-added obtained by using the crop products in animal feeding, the farms run by managers aged 35 – 44 years have a bigger contribution to the creation of the national standard output for agricultural sector (21%) than the percent of lands which they manage (19.4%). A weaker development of the livestock sector in the case of farms managed by persons aged 45 – 65 years results in a lower contribution to the creation of standard output than the UAA share of these farms.

4.2. Main aspects of agricultural training level of Romanian farm managers

According to the last Agricultural Census, in 2010 most managers in Romania's agriculture have only practical experienceⁱⁱ. Only 2.5% graduated an agricultural school (generally *basic agricultural training*). The new young managers (under 35 years and between 35 and 44 years), who got involved in agricultural business in the period 2005-2010, unfortunately are not among those who attended an agricultural training.

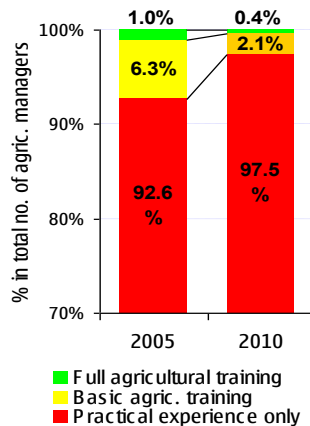
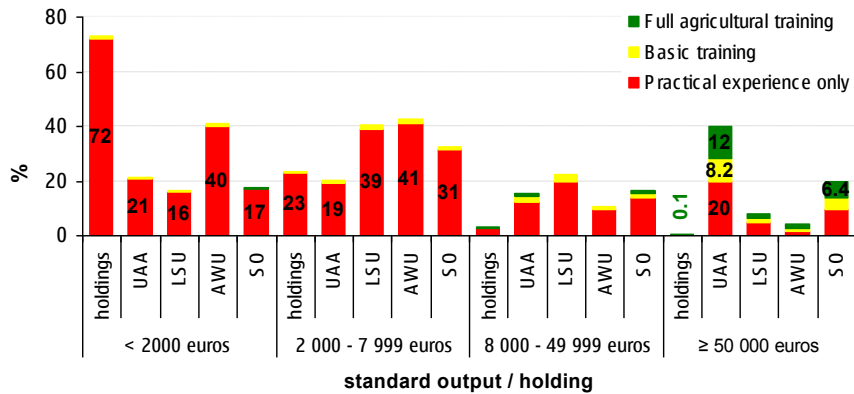


Fig. 3. Romanian farm managers' agricultural training level by age.
Source: own calculations based on Eurostat data

Furthermore, out of the managers aged over 45 years, who exited from the farming activity in the period 2005 – 2010, more than one-fourth had agricultural education. These two processes resulted in the decrease of the educational level of the body of managers from Romanian agriculture. In 2010 the share of managers who have only practical experience reached 97.5%, compared to 86 % in the year 2005.

On the farms managed by persons without specialized agricultural training, 72.4% of Romania's UAA is farmed, these utilizing 93% of the agricultural labour force and contributing by 78% to the standard output. Almost in their entirety (95%), these farms can be classified as being subsistence or semi-subsistence farms because the standard output value per holding obtained from their agricultural activity amounts to under 8000 euros (Fig. 4).

At the other extreme, the managers with *full agricultural training* represent only 0.4% of the number of farms, but they farm 15.9% from UAA, utilize only 3.1% of the labour force and contribute by 13.4% to the national standard output. Out of them, one in five administers farms for which the annual value of the standard output exceeds 50000 euros.



UAA – Utilised Agricultural Area; LSU – Livestock Unitⁱⁱⁱ; AWU – Annual Work Unit^{iv}; SO – standard output^v
 Fig. 4. Structure of agricultural farms by economic size and manager’s training level.
 Source: own calculations based on Eurostat data

Generally, the managers with vocational specialized training manage farms with larger land areas (about 20% of Romania’s UAA), with production structures specialized in crops, an intensive utilization of the labour force and strong commercial orientation.

4.3. Performance of young and elderly managers in Romanian agriculture

Generally speaking, the young farmers perform better than older ones. The holdings managed by young farmers are different in many ways from the holdings managed by elderly farmers. Younger farmers (under 45 years old) show higher levels than the Romanian average for the following characteristics: their production structure is more oriented to the livestock production and their labour productivity in terms of economic output per full-time equivalent worker is higher than the average, as is the number of hectares managed per AWU.

Farmers older than 55 years perform below the average for all indicators. These raise by 17% less LSU per holding and produce less economic output and manage fewer hectares per full-time equivalent worker than the national average and the young farmers (Figure 5).

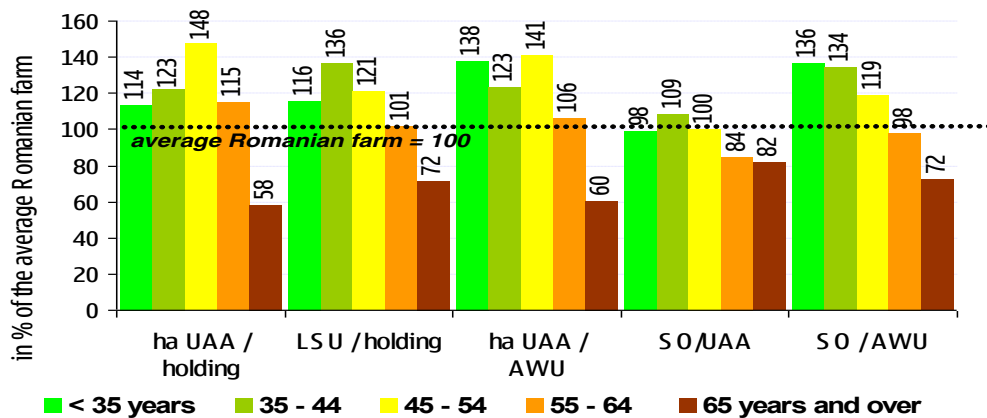


Fig. 5. Performance of farm managers according to their age, 2010.
 Source: own calculations based on Eurostat data

Farm economic performance is closely linked to managers’ training level in agriculture; putting into practice the

technical and technological knowledge and skills acquired by attending agricultural training courses increase managers' capacity to optimize labour consumption in the farm production activity. Thus, as the economic size of farms increases, the level of labour productivity in terms of economic output per full-time equivalent worker at farm level also increases and it is positively correlated with the share of managers who graduated an agricultural education form (0.942) (Table 1).

Table 1. Main characteristics of Romanian farms according to their economic dimension (2010)

Standard output group	% in total no. of holdings	% in total UAA	SO/ holding	SO/ AWU	UAA/ Holding	AWU/ holding	UAA/ AWU	LSU/ UAA	% in no. of managers. of each group
									agricultural training (full+basic)
< 2 000 €	72.98	21.5	666	2772	0.9	0.2	3.8	0.4	1.7
2000 - 3999 €	15.61	10.6	2845	4469	2.3	0.6	3.7	0.8	3.0
4000 - 7999 €	8.11	9.7	5387	5532	4.1	1.0	4.2	0.9	4.4
8000 -14999 €	2.03	5.2	10426	7532	8.8	1.4	6.4	0.9	8.7
15000- 24999 €	0.58	3.8	18960	10916	22.9	1.7	13.2	0.6	16.0
25000- 49999 €	0.35	6.4	34359	16192	63.3	2.1	29.8	0.3	24.2
50000- 99999 €	0.17	8.3	69429	24012	171.8	2.9	59.4	0.1	37.8
100000- 249999 €	0.11	13.1	153885	30988	423.6	5.0	85.3	0.1	49.3
250000- 499999 €	0.04	9.3	345317	32920	855.1	10.5	81.5	0.1	60.0
500000 € or over	0.03	12.1	1909287	58613	1588.4	32.6	48.8	0.5	63.4

Source: own calculations based on Eurostat data

The managers with agricultural training manage farms with larger land areas, and, following the putting into practice of their technical abilities, they succeed in intensively using the agricultural labour force (the correlation coefficient between UAA/AWU and the share of specialized managers reaching 0.905).

Conclusions

The socio-economic characteristics describing farm management in Romania proved to have significant incidences upon the economic performance of each agricultural holding in part, and upon the entire agricultural sector. Generally speaking, the young farmers perform better than the older ones, and the farm economic performance, evaluated in terms of labour productivity and land resources, is greater as far as the farm managers' agricultural training level increases.

The managerial body at farm level in Romania is older compared to that in the agriculture of EU-27. While in Romania the young managers, under 35 years old, account for 7.3% (compared to the EU-27 average of 7.5%), the share of those over 55 years old reached 60.4% (by 7.3% higher than the EU average in the year 2010). In these conditions, we totally agree on EU initiative to implement, within the future programming period 2014 - 2020, of certain measures to encourage the setting up young farmers. But, in the same time, due to the social character of small farms in Romania (especially for elderly farmers and their families), for encourage the exit from agriculture of older farmers and the land transfer to the younger farmers, would be useful to find a solution to finance a similar extent to the *Agricultural life annuity scheme* (that was applied in Romania between 2005 and 2009 with good results in adjustment of farm structure(Ghib, Luca, 2011)).

Also, because the youthfulness of Romanian' managers body was accompanied by a decrease in agricultural training of young farmers (which induce negative effects on the farms performance due to the lack of knowledge necessary for the proper application of agricultural techniques and technologies), in Romania are absolutely necessary two directions of action: i) training programs in agriculture that to be accessible even for the managers with less financial resources and ii) implementation and put in to action of an agricultural advisory system, that to

provide specialized technical assistance to farmers, especially for those that do not have expert knowledge or experience in agriculture.

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ⁱ The standard output of an agricultural product (crop or livestock), abbreviated as SO, is the average monetary value of the agricultural output at farm-gate price, in euro per hectare or per head of livestock. There is a regional SO coefficient for each product, as an average value over a reference period (5 years). The sum of all the SO per hectare of crop and per head of livestock on a farm is a measure of its overall economic size, expressed in euro.

ⁱⁱ Agricultural training level:

- *only practical experience only*: experience acquired through practical work on an agricultural holding

- *basic agricultural training*: any training courses completed at a general agricultural college and/or an institution specialized in certain subjects (including horticulture, viticulture, silviculture, pisciculture, veterinary science, agricultural technology and associated subjects); a completed agricultural apprenticeship is regarded as basic training

- *full agricultural training*: any training course continuing for the equivalent of at least two years full-time training after the end of compulsory education and completed at an agricultural college, university or other institute of higher education in agriculture, horticulture, viticulture, silviculture, pisciculture, veterinary science, agricultural technology and associated subjects

ⁱⁱⁱThe livestock unit, abbreviated as LSU, is a reference unit which facilitates the aggregation of livestock from various species and age as per convention, via the use of specific coefficients established initially on the basis of the nutritional or feed requirement of each type of animal.

^{iv} One annual work unit, abbreviated as AWU, corresponds to the work performed by one person who is occupied on an agricultural holding on a full-time basis. Full-time means the minimum hours required by the relevant national provisions governing contracts of employment. If the national provisions do not indicate the number of hours, then 1 800 hours are taken to be the minimum annual working hours: equivalent to 225 working days of eight hours each.