

STRUCTURAL CHANGES AND ECONOMIC RESILIENCE IN ROMANIAN AGRICULTURAL MANAGEMENT

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Abstract

The main socio-economic tendencies of farm management in the Romanian agriculture in recent years reveal structural changes: rejuvenation of managerial body, 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. Agricultural systems operate in a dynamic and complex environment, in a continuous change and subject to constant pressure generated by external shocks as economic and financial crisis, BSE crises, Foot and Mouth Disease and Bluetongue etc. 'Resilience' is a developing concept, which has been empowered to examine economic performance and responsiveness to exogenous shocks. In this context, the aim of this study is to examine the relationship between economic resilience and the changes in Romanian farm management under the impact of recent economic crises. The article concludes that the rejuvenation of farm management body is the adaptive answer of Romanian farm system to the current economic challenges.

Key words: farm management, structural changes, economic resilience, Romania

INTRODUCTION

Even since the '80s the research on the determining factors of the economic performance in the primary sector of the economy (agriculture) focused on the socio-professional characteristics specific to farm managers. The multiple case studies conducted on the human capital in agriculture proved that a high formal educational level leads to the increase of farmers' activity efficiency. Furthermore, it was found out that education entails higher performance gains for the farmers who are acting in environments subject to change and modernization compared to those coming from a static traditional context [6]. Most studies conducted so far relate the different inefficiency levels of farm managers to their access to information and to their managerial skills [1]. Taking these arguments into consideration, we shall focus our study on the body of managers from the Romanian agriculture, as the economic performance of this sector decisively depends on their skills and capacity to efficiently use the resources they manage.

In the modern era, characterized by greater economic dynamism, the private entrepreneurship is an important engine of economic growth and competitiveness [5], [7]. Rural enterprises, as well the farms, are currently experiencing times of change, exacerbated by the global interdependency and integrated economies [4]. As a result of the challenges, difficulties and rapid changes within the economy and society, the identification and strengthening of those skills required for solving, and overcoming those challenges turned increasingly important [10]. If economic resilience means identifying the ways and manners of solving the issues related to increasing the capacity of averting or recovering the negative effects of external shocks [2], it follows that entrepreneurship will in turn serve as basis of economic resilience [11].

The questions to which this study attempts to answer is whether this rejuvenation process has positive effects upon the economic performance of the farm system in Romania and under what conditions it should be encouraged? The second question is if rejuvenation of farm management represents a

resilient answer to the economic changes of Romanian agriculture?

MATERIALS AND METHODS

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 [9]. 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 as reflection of their resilient capacity.

RESULTS AND DISCUSSIONS

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 (UAA) per holding (3.6 ha), four times smaller than the European average (14.6 ha) [12].

In recent years we have noticed a rejuvenation process in the managerial body from Romania's farming sector, which is a similar process to that experienced in other EU New Member States (Poland, Czech Republic, Slovakia and Bulgaria). Thus, according to Eurostat data, in the period 2005-2010, in Romania, the share of farm managers aged less than 45 years increased from 17.4% to 23.1%, while in Poland, the EU country with the youngest agricultural managers, the increase was from 34.7% to 39.2% and in the Czech Republic from 27.2% to 32.4% (Figure 1)

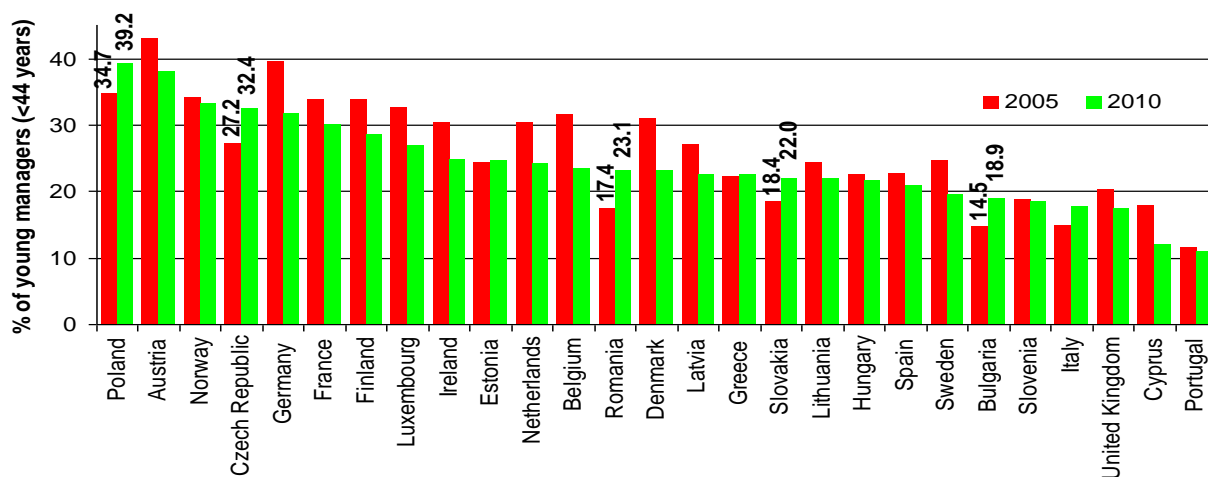


Fig. 1. Dynamics of agricultural managerial body by age in the EU countries
 Source: Own calculations based on EUROSTAT data.

In the EU Old Member States, no rejuvenation process of the managerial body has taken place, and by comparison this can represent an asset for the EU New Member States as regards the openness to technological innovation in agriculture and to the economic performance increase in the primary sector.

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 equally by the two groups of managers who reached their active life maturity (aged from 45 to 54 and 55 to 65 years). Although the old managers (65 years or over) farm only 22.1% of UAA, in the year 2010 they had the largest number of livestock herds on their farms (27.3% of total LSU⁹ at national level). High consumption of labour demanded by livestock animal raising activities, together with the conservatism in agricultural production practices¹⁰, that are specific to managers over 65 years old, make these use the greatest part of the annual work units (36.6%) in the entire Romanian agriculture.

The younger managers, under 55 years old, seem to have a larger opening to innovation in the management techniques of the farm

⁹ The *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 (see table below for an overview of the most commonly used coefficients). The reference unit used for the calculation of livestock units (=1 *LSU*) is the grazing equivalent of one adult dairy cow producing 3000 kg of milk annually, without additional concentrated feed

¹⁰ Conservatism – use of old agricultural techniques and technologies, which imply a higher labour input; weak opening towards technical and technological innovation

activity. A proof in this respect is the fact that these have an increased interest in the maximization of the economic effects of the agricultural work, the contribution of farms with managers under 55 years to the consumption of annual work units¹¹ being smaller than their percentage share in the agricultural land area or livestock herds.

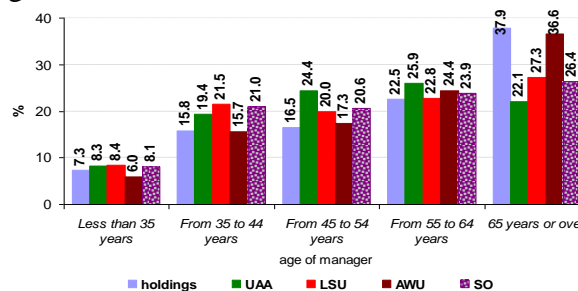


Fig. 2. Structure of the Romanian farms by managers' age in the year 2010 – main economic characteristics
Source: Own calculation.

The contribution to the total value of the standard output¹² (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

¹¹ 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 1800 hours are taken to be the minimum annual working hours: equivalent to 225 working days of eight hours each

¹² 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 the entire SO per hectare of crop and per head of livestock on a farm is a measure of its overall economic size, expressed in euro

manage (15.8%). 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.

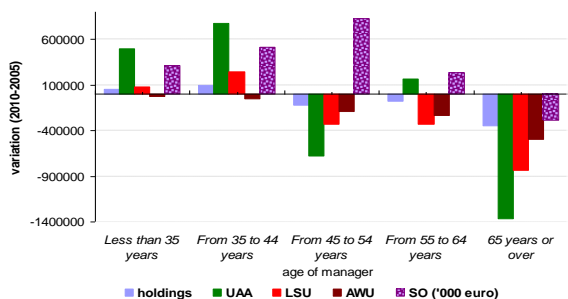


Fig. 3. Variation of the main socio-economic characteristics depending on the managers' age (2010 compared to 2005)

Source: Own determination.

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. 3). 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. This is also proved by the successful implementation of Rural Development Measure 112 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 [3] 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.

In the same period (2005-2010) we can notice an increased tendency of decoupling the animal production from crop production in the managers over 45 years old, who owned the greatest part of the livestock herds. The causes of the decrease in importance of the livestock sector in Romania's agriculture are multiple, on one hand stemming from the absence or diminution of the financial support to livestock production through Common Agricultural Policy or national support schemes, the severe sanitary-veterinary restrictions (i.e. those applied in the case of products of animal origin, milk, etc.), the restrictions to the exports to EU imposed, for instance, by the swine fever. However, the domestic livestock production is far from covering the national consumption needs and the self-sufficiency level from domestic resources decreases with the diminution of livestock herds. As a result, the domestic supply of animal products is deficient (in the year 2010, for instance, Romania's imports of live animals and products of animal origin totalled 984 million euro, the trade balance at this chapter being negative: -551 million euro [8]). This uncovered market niche could represent a strong incentive for the medium-sized farms to get oriented towards livestock production. However, the younger managers do not increase the number of animals at the same rate at which the farms run by old farmers give up animal raising. In Romania this contradictory trend would probably continue, with negative effects upon the total value of agricultural production.



Fig 4. Romanian farm managers' agricultural training level (a) by age categories and (b) on total, 2005-2010
Source: Own calculations based on EUROSTAT data.

According to the last Agricultural Census, in 2010 most managers in Romania's agriculture have only practical experience¹³.

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.

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 92.6% in the year 2005.

¹³ Agricultural training level:

- *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, sylviculture, 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, sylviculture, pisciculture, veterinary science, agricultural technology and associated subjects

On the farms managed by persons without specialized agricultural training (97.5% of total farms in 2010), 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 euro (Fig. 5).

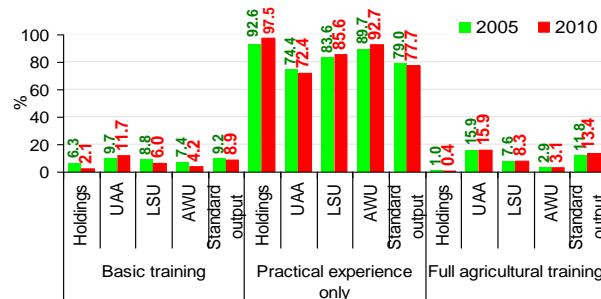


Fig. 5. Structure of agricultural farms by economic size and manager's training level
Source: Own calculation.

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 creation. Out of them, one in five administers farms for which the annual value of the standard output exceeds 50000 euro. 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.

Younger farmers (under 45 years old) show higher levels than the Romanian average for the following characteristics: 26% more in terms of standard output per holding, 20% more hectares of UAA and 30% more LSU/holding. Likewise, 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.

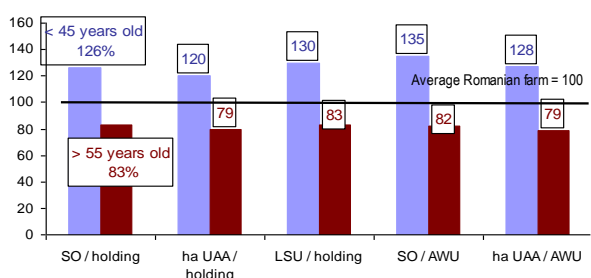


Fig. 6. Performance of young and elderly managers in Romania, 2010

Source: Own calculation.

Farmers older than 55 years perform below the average for all indicators: 17% fewer in standard output value, 21% fewer hectares of UAA and 17% less in LSU per holding. They produce less economic output and manage fewer hectares per full-time equivalent worker than the average, with values significantly below those of young farmers.

CONCLUSIONS

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. It seems that, *in Romania, younger farmers show a greater ability to adapt to change and to cope with the economic crisis*. This could be interpreted through the fact that the farm system's adaptive response to current economic environment challenges is represented by the management body rejuvenation. To increase the economic resilience of Romanian agriculture, it is necessary to encourage the managers' rejuvenation tendency supported by active

measures to improve their specialized training and access to finance.

ACKNOWLEDGEMENTS

This work was supported by the project "Excellence academic routes in the doctoral and postdoctoral research – READ" co-funded from the European Social Fund through the Development of Human Resources Operational Programme 2007-2013, contract no. POSDRU/159/1.5/S/137926.

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