



Convergence of Romanian and Europe Union agriculture – evolution and prospective assessment



Andrea Feher^{a,*}, Vasile Goşa^b, Miroslav Raicov^b, Daniela Haranguş^c, Bogdan Virgil Condea^c

^a Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania", From Timisoara, Faculty of Agricultural Management Romanian Academy-Branch of Timisoara, Research Center for Sustainable Rural Development of Romania, Timisoara, Romania

^b Romanian Academy—Branch of Timisoara, Research Center for Sustainable Rural Development, 24 Bv. Mihai Viteazu, 300223, Timisoara, Romania

^c "Aurel Vlaicu" University of Arad, Faculty of Economic Sciences, 77 Bv. Revolutiei, 310130, Arad, Romania

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ABSTRACT

This paper presents forecasts related to the evolution of agricultural production in Romania, relative to the European Union average and to other countries (France, Germany, and Hungary) while taking into consideration the production potential of Romanian agriculture and opportunities to mobilize certain additional financial sources intended for the growth of intermediate consumption and implicitly of the value of agricultural production. This undertaking is designed to identify the degree to which over the next 20 years, Romania can come closer to agricultural performance, standard of living and food quality levels of developed European countries. Current disparities are significant, and there is no promise that they will be eliminated or at least not for all indicators, as structural problems related to Romanian agriculture at this time can be addressed only over the long term. We use historical data drawn from national and international statistical databases and forecast of their evolution using power regression functions. For French, German, Hungarian and European Union-27 average values, the historical growth rate has been preserved, and we develop three scenarios (pessimistic, realistic and optimistic) for Romania based on annual growth rates of 3%, 3.5% and 4%. On the basis of these work assumptions, we forecast agricultural production value, gross added value and intermediate consumption per hectare of agricultural area utilized. From these indicators we find that by maintaining the same historical development rate for all countries, Romania cannot reach the average European Union-27 level or levels for the other countries studied (France, Germany and Hungary) until 2038. A realistic scenario that takes into account an annual growth rate of 3.5% would allow for the elimination of disparities while taking into account a new evolutionary perspective on agricultural production with new production structures based on the following factors: amalgamation of land, expansion of irrigated surfaces, growth of animal production shares, development of agricultural research, expansion of financing opportunities.

1. Introduction

Agriculture is the main land user in the European Union, accounting for more than 47% of the region's total area (Giannakis and Bruggeman, 2015). Romania is the country with the most divided agricultural structure within EU-28, having in 2013 33.49% of the agricultural holdings in the European Union and 7.47% of its agricultural area (Eurostat, 2017a). The current status of Romanian agriculture and of its rural area in general is mostly determined by Romania's agricultural structure, a most important and current economic and social issue facing this country (Otiman, 2012; Luca and Ghinea, 2008; Ciutacu et al., 2015). Effects of the enforcement of land-related laws and of laws on

the privatization of (State-owned) commercial agricultural companies have led to the current structure of agricultural holdings (Table 1).

Based on the data shown in Table 1, Romania's current agricultural structure is based on four types of large agricultural holdings (farms, companies), i.e.: i) agricultural households of under 1 ha, i.e., households that are not eligible for financing from the European agricultural budget; ii) subsistence and semi-subsistence farms (farms of between 1 and 10 ha); iii) commercial family farms (family-owned holdings of between 10 and 100 ha) and iv) commercial farms (of trading companies). Romania is characterized by an extremely polarized agricultural structure in which small holdings of under 1 ha represent more than half (55.3%) of all farms, representing 5% (65,2800 ha) of the country's

* Corresponding author.

E-mail addresses: feherandrea.usab@gmail.com (A. Feher), gosavasil@gmail.com (V. Goşa), mikiraicov@gmail.com (M. Raicov), d_haranguş@yahoo.com (D. Haranguş), bogdan.condea@yahoo.com (B.V. Condea).

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Table 1
Romania's agricultural structure, 2013.
Source: Authors' calculation based on Ministry of Agriculture and Rural Development (2017) and Eurostat (2017a,g).

Facility type	Size (hectares)	Number	%	Area (hectares)	%
Agricultural households	< 1	2009290	55.3	652800	5.0
Subsistence and semi-subsistence farms	1–10	1531650	42.2	5269900	40.4
Commercial family farms	10–100	75640	2.1	832690	6.4
Commercial farms (companies)	> 100	13080	0.4	6300460	48.2
Total	X	3629660	100.0	13055850	100.0

utilized agricultural area (MARD, 2017). At the same time, farms of under 10 ha (subsistence and semi-subsistence farms) represent 97.5% of farms and 45.4% of the utilized agricultural area. At the other end of the spectrum there are large farms of over 100 ha that despite only 0.4% representing of farms use 48.2% of the agricultural area. Medium-sized farms of between 10 and 100 ha, which represent the backbone of European agriculture, are poorly represented in our country. These farms represent 2.1% of the total number of farms and 6.4% of the total area.

Agricultural households of under 1 ha, representing 2,009,290 holdings, are mostly composed of gardens, pastures, and natural grasslands, and 65,890 holdings (Eurostat, 2017a) do not include any agricultural land. These households, according to provisions of the Common Agricultural Policy (European Parliament Regulation, 2013), are not eligible for assistance through direct payment schemes (Bartolini and Viaggi, 2013). The area of households of this category represents 5% of the country's utilized agricultural area and is located on less productive land largely located in hilly and mountainous regions.

Subsistence and semi-subsistence farms, which cover an area of between 1 and 10 ha and of which there are 1,531,650 (42.2%), cover 5269,900 ha of agricultural land (40.4%) and mostly deliver primary agricultural products for their own food consumption and use. Regarding their contributions to the general balance of food consumption (Popescu et al., 2017), the importance of these farms is unquestioned. For that matter, the current European agricultural policy generated through the European financial mechanism of 2014–2020 still supports the financing of these holdings (Gosa et al., 2014; Bojnec and Latruffe, 2013).

Commercial family farms are characteristic of established private family holdings and are supported and strengthened across European Union member states as an effect of over 50 years of Common Agricultural Policy enforcement. In most EU-15 countries, such farms cover between 10 and 50 ha or between 10 and 100 ha in Great Britain and France, accounting for an important share of the agricultural area of the UE-15. Farms of over 1,000 ha are found in Germany and within the former DRG, and some extremely large farms are found in Portugal and Spain (Otiman, 2012; Basek and Kraus, 2011; Arnalte-Alegre and Ortiz-Miranda, 2013; Bakucs et al., 2013; Brady et al., 2009). Commercial family farms, representing most across the European Union

Table 2
Economic size of Romanian farms, 2013.
Source: Authors' calculation based on and Eurostat (2017a,d,h).

	Farms on size classes per standard output (SO)						
	< € 3999	€ 4000–14999	€ 15000–49999	€ 50000–99999	€ 100000–249999	€ 250000–499999	> € 500000
% farms	84.61	13.49	1.45	0.22	0.14	0.06	0.04
% SO	27.66	27.26	10.70	4.52	6.21	6.13	17.52

(Hartvigsen, 2014), account for the smallest share of area (832,690 ha, 64%) and are lowest in number (75,640 farms, 2.1%) (Eurostat, 2017a) in Romania. In other words, the private commercial family farm, which is promoted, sustained and developed across the European Union, is found in the lowest numbers in Romania (Otiman, 2012).

Commercial farms (capitalist companies) with agricultural areas of between 1000 and 55,000 ha (the largest holding in Romania) and representing 13,080 trading companies, agricultural companies and associations cover an agricultural area of over 6.3 million hectares (Eurostat, 2017a), with most found across arable lands located in the most favourable agricultural areas of the country. These farms are generating gross added value in agriculture. Therefore, the excessive disintegration of agriculture in Romania is only partially occurring as according to the data shown in Table 1, over one half (54.6%) of the agricultural area utilized in the country meets the organizational requirements of territories for adequate exploitation (Feher, 2009). We must remember that very large farms do not meet social needs (Mahmood, 2001), a statement also supported by the unhappy correlation between the size of farms and the persistence of rural poverty (Feher et al., 2014). In areas where many larger agricultural holdings are found, the largest pockets of severe rural poverty include the Vaslui, Brăila, Ialomița, Călărași, Olt, and Teleorman Counties, which are located in eastern and southe-eastern regions of Romania (Otiman, 2012).

Data on the economic size of agricultural holdings (Eurostat, 2017g) confirms our findings regarding divisions and main subsistence characteristics of most Romanian farms. Data published by Eurostat show that 84.61% of Romanian farms, i.e., 3.07 million farms, generated an annual production value of EUR 4000 in 2013, thus rendering such farms subsistence farms (Table 2). Even if they represent the majority, these farms contribute only 27.66% to the standard output. Large farms, in contributing over EUR 100,000 of standard output, are at the opposite end of the scale, representing under 0.5% of all farms but contributing 30% of agricultural production. These farms are generating gross value added in Romanian agriculture. This structure of agricultural holdings shows that Romania is the country with the most atomized agricultural structure in the European Union.

From these facets of Romanian agriculture, we wish to analyse (in) compatibilities or (non)convergences of Romania's rural agriculture and economy in relation to those of the European Union through scenarios related to the reduction of performance disparities.

2. Materials and method

The research illustrated in this paper arises from a need to determine the agricultural production of production facilities (Serences et al., 2016) to approximate the performance of European Union member (Hera and Otiman, 2015). We execute this to ensure food-related security and safety in Romania within a reasonable time frame. Regarding methods used and the foreseen production levels, we used regression functions with different growth versions and applied three scenarios (pessimistic, realistic and optimistic) on the evolution of Romanian agriculture over the next two decades.

Most data used for this study were drawn from Eurostat and national statistics based on which we made calculations and drew our own interpretations as presented in a number of tables and diagrams.

The following indicators were assessed at the level of four countries

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