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ROMANIAN AGRICULTURE – ANALYSIS OF VEGETAL SECTOR

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Summary

The paper analyzes the main changes and trends in Romanian agriculture: land use, areas under cultivation, livestock, agricultural output, yields, trade and policy instruments. The research is a documentary study; data have been gathered from national and European databases and refer to the period 2007-2012. The main results show that agriculture has high shares in GDP and employment, compared to other European Union countries, 5.9% respectively 28.6%. Agriculture in Romania has a dual character: numerous small farms holding one third of the land and very large farms holding half of the land, which lead to low productivity and small yields. Agriculture is oriented to cereals, since large areas are cultivated with these crops (64% of arable land). Lack of capital needed for developing agricultural services, weather conditions, small dimension of farms are the main factors that pull down the average production per hectare for most of the crops. Romania has a positive balance sheet for cereals and live animals and negative for the rest of agricultural and food products. Romania benefited of 2379.8 million Euros from European funds in 2012, which account of 4% of EU countries.

Keywords: *agriculture, land use, yields, Common Agricultural Policy, agricultural trade*

JEL: A10, E60, Q13, Q15, Q17, Q18

Introduction

Romania lies in the Southern-Eastern part of Europe, upon the crossroads of the main communication axes North-South and East –West. Statistical data (National Institute of Statistic, 2013) show that the total area of the country is 238,391 km² of which 93.6% (223,055km²) rural areas. Expressed in hectares, the total country's territory is 23.5 million ha, the total agricultural area in Romania is 14.7 million ha and the total arable land is 9.4 million hectares. The Romanian population is of 21,733,556 inhabitants, of which 48% represents rural population.

Because agriculture has high shares in GDP and employment, compared to other European Union countries (see data in Table 1), this paper tries to answer the question: what are the main changes and trends in Romanian agriculture? Land use, areas under cultivation, livestock, agricultural output, yields, trade and policy instruments which financial sustain this sector are analyzed. The research is a documentary study; data have been gathered from national and European databases and refer to the period 2007-2012.

Previous studies (OECD, 2005) show the main features of the rural area: it consists of 12,000 villages that house around 46.6% of the entire Romania's population; 67% of the rural population is involved in agriculture, 17% work in food industry and the other 16% practice non-agricultural activities; 30% of rural inhabitants work on subsistence and semi-subsistence exploitations of 1.17 ha and respectively of 3.3 ha, representing about

97% out of the total of 4 million agricultural exploitations. One of the major problems of the rural areas is that its population grows older.

Agriculture has traditionally been the backbone of the Romanian economy; more than one-third of the land is devoted to cultivation. Findings of short histories of Romanian agriculture (Encyclopedia Britannica, 2014) show that a radical land reform, begun in 1921 and completed in 1948, redistributed farmland from large owners to peasant farmers, but the restructuring of the economy after the communist takeover included the compulsory collectivization of agriculture, carried out between 1949 and 1962. Since 1989, state farms have been retained as large units of up to about 50 hectares with shareholders, but collective farms have been broken up into individual holdings. These small individual plots became devoted to the subsistence crops traditionally cultivated by peasants.

Material and methods

The research is a documentary study about Romanian agriculture. Data have been gathered from national and European databases and refer to the period 2007-2012.

Agriculture in GDP and total employment

Romania is fundamentally an agricultural country with a very high proportion of the economy engaged in this sector. Agriculture's importance within the economy remains disproportionately higher than its importance for Western Europe as a percentage of GDP and as share in total employment.

Romania has the highest shares of agriculture in the GDP and total employment, 5.9%, respectively 28.6%, compared to all other EU member states. This shows an agricultural orientation of Romanian economy and low labor productivity of the sector (one third of employees produce only 5.9% of the output). Bulgaria, Greece and Poland account for higher levels of agriculture in the GDP and employment. On the opposite side, the share of agriculture in GDP is insignificant, less than 1%, in Luxembourg, Belgium, Sweden, Slovakia, Finland, Czech Republic, U.K. and Germany.

Land use and farm size

Romania has a wide range of soil types with high theoretical potential, about 60% of arable land having a good and medium fertility. The Romanian total agricultural area stands for 61.7 % of the country's territory, and the arable land represents 63.9 % of the total agricultural land. The surface of arable land per inhabitant is about 0.42 ha. Most of the agricultural land belongs to the private sector: 96 %.

As seen in Table 1, agriculture was responsible for employing approximately 30% of the country's workforce in 2011. The rural economy generally lacks diversification and is dependent upon natural resources consequently it is largely dependent upon agriculture. As illustrated in Table 2, restitution and distribution of land processes, started in 1991, established almost four million farm holdings, of which 3.5 million are less than 5 hectares (92%), 182,000 are less than 10 ha but more than 5 hectares, 44,000 are in the range of 10-20 ha, 18,000 are in the range of 20-50 ha and 21,000 are more than 50 ha

(0.5%). The latter are cultivating 53% of the utilized agricultural area, and holdings of the first category are cultivating 30% of the utilized agricultural area.

1. table: Shares of agriculture in the GDP and total employment, 2011 (%)

| Country | Share of agriculture in the GDP | Share of agriculture in total employment |
|-------------------|---------------------------------|--|
| EU (27 countries) | 1.2 | 5 |
| Belgium | 0.5 | 1.3 |
| Bulgaria | 4.2 | 6.8 |
| Czech R. | 0.9 | 3.0 |
| Denmark | 1.2 | 2.4 |
| Germany | 0.6 | 1.6 |
| Estonia | 1.9 | 4.4 |
| Ireland | 1.1 | 4.5 |
| Greece | 2.5 | 12.4 |
| Spain | 2.0 | 4.2 |
| France | 1.4 | 2.9 |
| Italy | 1.6 | 3.7 |
| Cyprus | 1.8 | 3.8 |
| Latvia | 1.3 | 8.9 |
| Lithuania | 2.9 | 8.5 |
| Luxembourg | 0.2 | 1.2 |
| Hungary | 2.9 | 4.8 |
| Malta | 0.9 | 1.1 |
| Netherlands | 1.3 | 2.5 |
| Austria | 1.0 | 5.3 |
| Poland | 2.4 | 12.7 |
| Portugal | 1.3 | 9.9 |
| Romania | 5.9 | 28.6 |
| Slovenia | 1.3 | 8.6 |
| Slovakia | 0.8 | 3.0 |
| Finland | 0.8 | 4.2 |
| Sweden | 0.4 | 2.0 |
| United Kingdom | 0.6 | 1.2 |

Source: EU agriculture - Statistical and economic information - 2012

We may conclude that agriculture in Romania has a dual character: numerous small farms holding one third of the land and very large farms holding half of the land. The dual character is a result of Land Law passed in 1991 (Law 18/1991) which restored ownership rights to former owners, their heirs or successors whose land had been expropriated by the state after 1945 and it returned usage rights to individuals whose land had been managed for years by co-operatives and state-owned farms.

The EU27 holds 12 million farms, 70% are less than 5 ha and cultivate 6.8% of the total agricultural area. The 716 large farms hold 66% of the agricultural area. The average area of a farm is 14 ha, compared to Romania and Hungary, where it is 3.44 ha and, respectively, 8.12 ha. Hungary holds 577,000 farms, which cultivate 4.6 million hectares of agricultural land. The ownership structure shows that 87% of all holdings representing 6% of the utilized agricultural area are in family holdings (0-5 ha) with an average size of 0.5 ha.

2. table: Number and area of holdings, in EU27, Romania and Hungary, 2010

| Farm size class | EU 27 | | Romania | | Hungary | |
|-----------------|----------------------------|---------------------------------------|----------------------------|---------------------------------------|----------------------------|---------------------------------------|
| | Number of holdings (x1000) | Utilized agricultural area (x1000 ha) | Number of holdings (x1000) | Utilized agricultural area (x1000 ha) | Number of holdings (x1000) | Utilized agricultural area (x1000 ha) |
| 0-5 | 8314 | 11834 | 3594 | 3948 | 502 | 281 |
| 5-10 | 1307 | 9160 | 182 | 1211 | 26 | 184 |
| 10-20 | 903 | 12663 | 44 | 571 | 19 | 269 |
| 20-50 | 774 | 24518 | 18 | 549 | 15 | 473 |
| >50 | 716 | 113430 | 21 | 7027 | 14 | 3480 |
| Total | 12014 | 171604 | 3859 | 13306 | 577 | 4686 |

Source: EU agriculture - Statistical and economic information - 2012

Agriculture by sector

The structure of land fund in Romania shows a dominant orientation to agricultural area (61%) and less to forests (28%) and other uses (Table 3). Among agricultural uses, arable land has the highest share: 64%, followed by pastures: 22%, hayfields: 10%, vineyards: 1.4% and orchards: 1.3%.

3. table: Total land fund, by use, in Romania, 2007-2011 (thou. ha)

| Specification | 2007 | 2008 | 2009 | 2010 | 2011 |
|--|----------------|----------------|----------------|----------------|----------------|
| Total area of the land fund | 23839.1 | 23839.1 | 23839.1 | 23839.1 | 23839.1 |
| <i>Agricultural area</i> | 14709.3 | 14702.3 | 14684.9 | 14634.5 | 14590.9 |
| arable | 9423.3 | 9415.1 | 9422.5 | 9404.0 | 9352.3 |
| pastures | 3330.0 | 3333.0 | 3313.8 | 3288.7 | 3277.7 |
| hayfields | 1531.4 | 1532.4 | 1528.0 | 1529.6 | 1553.5 |
| vineyards and vine nurseries | 218.0 | 214.5 | 215.4 | 213.6 | 211.3 |
| orchards and tree nurseries | 206.6 | 207.3 | 205.2 | 198.6 | 196.1 |
| <i>Forests and other forest vegetation lands</i> | 6740.9 | 6728.6 | 6752.9 | 6758.1 | 6800.9 |

Source: National Institute of Statistics of Romania

Crop production

The main crops cultivated in Romania are cereals (corn, wheat, barley, and oatmeal), oilseeds (sunflower, rape, and soy beans), root crops (potatoes, sugar beet), and vegetables (tomatoes, dry onion, dry garlic, white cabbage, green peppers, water melons and melons). The cereal sector has a high share in arable land, about 64%, because of the national demand for these agricultural products. The areas and the production of technical plants, sugar beet and oil crops are in line with the national tradition of crop cultivation.

4. table: Cultivated area, by main crops, in Romania, 2007-2012 (thousand hectares)

| Crop | 2007 | 2008 | 2009 | 2010 | 2011 | 2012* |
|------------------------|--------|--------|--------|--------|--------|--------|
| Cultivated area, total | 7777.2 | 7798.1 | 7884.1 | 7807.4 | 8081.6 | |
| Cereals, of which: | 5129.2 | 5210.7 | 5282.4 | 5040.6 | 5224.7 | |
| Wheat | 1975.0 | 2110.3 | 2148.8 | 2162.4 | 1947.0 | 1992.2 |
| Barley | 363.8 | 394.0 | 517.5 | 515.8 | 419.5 | 423.4 |
| Oatmeal | 208.7 | 200.4 | 202.7 | 181.4 | 185.3 | |
| Maize | 2524.7 | 2441.5 | 2338.8 | 2098.4 | 2589.7 | 2721.2 |
| Oilseeds, of which: | 1340.4 | 1239.4 | 1253.8 | 1409.7 | 1472.5 | |
| Sunflower | 835.9 | 813.9 | 766.1 | 790.8 | 995.0 | 1064.8 |
| Rape | 364.9 | 365 | 419.9 | 537.3 | 392.7 | 97.1 |
| Soybean | 133.2 | 49.9 | 48.8 | 63.9 | 72.1 | 77.9 |
| Root crops, of which: | 320.1 | 298.4 | 297 | 282.3 | 279.4 | |
| Potatoes | 233 | 222.0 | 222.3 | 211.0 | 212.8 | |
| Sugar beet | 28.7 | 20.4 | 21.3 | 22.0 | 18.8 | 29.4 |
| Vegetables | 253.4 | 268.6 | 267.1 | 262.7 | 263.4 | 258.9 |

*Source: National Institute of Statistics of Romania, *Ministry of Agriculture and Rural Development*

In dynamics, total area cultivated grew up from 7.7 million hectares in 2007 to 8 million hectares in 2011. The surfaces with cereals, oilseeds and vegetables increased, and surfaces with root crops decreased. Area cultivated with sunflower grew up in 2012 and area under rape sharply increased in 2010, and decreased afterwards. Areas under cereals: wheat, barley, oatmeal and maize remained around the same values in the period analysed. The land structure highlights the dominance of cereals and, among them, of maize and wheat. More than one third of the arable area is cultivated with maize. At least two reasons can be mentioned for its spreading: its production sustains the livestock sector and the costs are moderate regarding crop technology, and, as a result, the maize represents an easy plant to cultivate and with a low degree of mechanization on small parcels. In Table 5, the yields are presented.

5. table: Average yield, for main crops, in Romania, 2007-2011, and comparative analysis with EU27 and Hungary for 2011 (kg/ha)

| Specification | 2007 | 2008 | 2009 | 2010 | 2011 | EU27, 2011** | Hungary, 2011** |
|---------------|-------|-------|-------|-------|-------|--------------|-----------------|
| Wheat | 1541 | 3403 | 2421 | 2688 | 3663 | 5600 | 4210 |
| Barley | 1461 | 3069 | 2284 | 2542 | 3170 | 4320 | 3840 |
| Oats | 1206 | 1906 | 1459 | 1679 | 2028 | 2910 | 2450 |
| Maize grains | 1526 | 3215 | 3409 | 4309 | 4525 | 7650 | 6590 |
| Potatoes | 13663 | 14108 | 15498 | 13354 | 16554 | 31100 | 28600 |
| Sugar beet | 26065 | 34564 | 38296 | 38036 | 35103 | 11600* | 9100* |
| Sunflower | 654 | 1437 | 1433 | 1597 | 1798 | 2040 | 2380 |
| Rape | 991 | 1844 | 1357 | 1755 | 1882 | 2860 | 2260 |
| Soy beans | 1021 | 1817 | 1726 | 2345 | 1980 | 2840 | 2380 |
| Tomatoes | 13916 | 15814 | 15395 | 15443 | 17602 | 59600 | 90600 |

* In terms of white-sugar value, for Romania 7800 kg/ha

Source: National Institute of Statistics of Romania, ** EU agriculture - Statistical and economic information - 2012

It seems that 2007 was a bad agricultural year, when average productions have low levels. Even if 2007 is not taken into account, yields' levels are much below the average yields in EU27 and Hungary for all crops.

Conclusions

Taking into account all the considerations above, a final answer to the research question is that the main features of Romanian agriculture are:

- high shares in GDP and employment, compared to other European Union countries, 5.9% respectively 28.6%;
- dual character: numerous small farms holding one third of the land and very large farms holding half of the land, which lead to low productivity and small yields;
- cereal oriented, since large areas are cultivated with these crops (64% of arable land);
- low yields due to the lack of capital needed for developing agricultural services, weather conditions, small dimension of farms.

Considering the agriculture's importance within the economy, this sector is significantly supported by state. Romania, as Member State of the European Union, benefits from European Unions' EAFRD financial contributions. The funds should be oriented towards developing businesses of middle size exploitation, viable and open to market, and less towards small ones, towards sectors where demand is increasing: energy crops such as rape and sunflower and towards encouraging the phenomenon of associations and, as such, increasing the size of farms to an area large enough to develop agricultural services and to obtain higher performance.

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