PATTERNS OF THE AGRICULTURAL INCOME AND IMPACT OF STRUCTURAL CHANGES POST-ENLARGEMENT AMONG EU STATES

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Abstract: *The article presents the results of analysis on the pattern of agricultural income structure and changes in EU Member States related to the enlargement impact, highlighting gaps and major contributions. While marked differences appear between the EU-15 and post 2004 acceded countries, the major contribution of the Romanian agriculture to the EU economy and the proportion of employment in agriculture, are indicators of a divergent sector development. With a substantial contribution to the UAA, i.e. the 7.9% share in arable land places Romania among the first 6 countries, while the 8.3% share in the area of permanent pasture reveal a potential advantage for livestock grazing. Nevertheless agriculture remaining the foremost source of income for rural households in Romania, its importance has been evidenced a decreasing trend in the post-accession period of time 2007-2013, by comparing to the previous period of time 2001-2006.*

Keywords: agricultural income; structural changes; post-enlargement; Romania
JEL Classification: Q17; Q12; F15

Introduction

Agricultural income is an important indicator on the agricultural sector‘s viability of each state and grounds the debates on perspectives regarding the economic and social policies.

There is a wide range of driven factors affecting the trends of income produced by the agricultural sectors across the EU region, depending on each agricultural production systems that make the impact very much regional specific. The potential impact of the uncertainties is related mainly to price developments of input costs on commodity balances.

Production systems highly dependent of inputs use are the most exposed to price changes. This is because crop production systems need higher input use than livestock systems, therefore are affected more from a negative impact as a result of the fact that greater costs are only in part transferred to higher producer price (EC, 2012).

As well, in addition to potential impact, at regional level on farmers' income, of the uncertainties related to variability of input costs, might be noted those related to climate changes variables on the agricultural sector and different EU bio-fuel policies on feedstock markets (EC, 2012).

The article presents the results of analysis on the pattern of agricultural income structure and changes in EU Member States, highlighting gaps and major contributions across the region related to the enlargement impact.

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1. Methods of assessing agricultural income

Agricultural income comprises the income generated by agricultural activities, including non-agricultural, secondary activities, over a certain period. Moreover, it is a different indicator than the total income of farming households as it does not comprise income from other sources e.g. non-agricultural activities, salaries, social benefits, income from property.

The estimates provided by Eurostat, i.e. calculated aggregate figures, have been compiled by the EU Member States according to the methodology of the Economic Accounts for Agriculture, as indicated by the Regulation (EC) No. 138/2004, closed to the methodology of the national accounts but incorporates a number of changes to take account of the special features of the agricultural economy (EC, 2014).

The real income of factors in agriculture, per annual work unit, corresponds to the real net value added at factor cost of agriculture, per total annual work unit. At the same time, the net value added at factor cost is calculated by subtracting from the value of agricultural output at basic prices the value of intermediate consumption, the consumption of fixed capital and production taxes, and adding the value of production subsidies.

In order to take account of part-time and seasonal work, agricultural labour or their changes, are measured in annual work units (AWU), defined as work-time equivalent of a full-time worker. The agricultural income per worker is calculated as factor income per AWU, in real terms. It corresponds to the net value added at factor cost of agriculture, per annual work unit and deflated by the implicit GDP price index. This measure is commonly expressed as an index of the real income of factors in agricultural per annual work unit.

2. Analysis on the pattern of agricultural income in EU and background factors

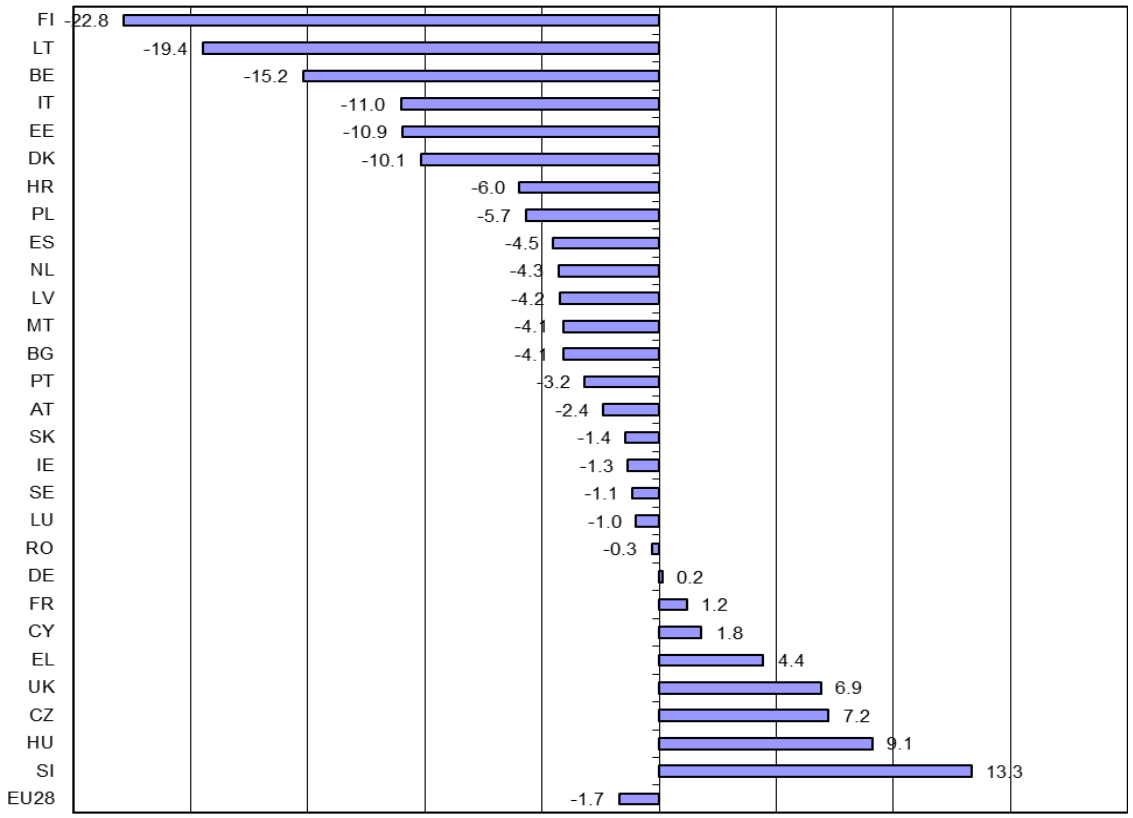
Against the background of real agricultural income per worker, marked differences appear between the EU-15 and the newly accessed countries aggregates post 2004.

Agricultural income per worker in real terms decreased on average by 1.7% in 2014 in the whole region comparing to the previous year, although about 33% higher than in the crisis year 2009. The reduction in average income is stronger in the EU-15 (-2.4%) than in the countries that accessed the EU since 2004 (-0.4%) (EC, 2014).

The income development per worker in 2014 reflects a 4% decrease in factor income in the EU-28, which is similar in the EU-15 (-3.9%) and the EU-N12 (-4.3%), combined with an average reduction in labor input by 2.3% which is more marked in the EU-N13 (-3.4%, including Croatia) than in the EU-15 (-1.3%). Similarly, the agricultural labour force keeps declining more strongly in the enlarged EU area than in the EU-15.Results by Member State differ substantially, both in terms of changes from 2013 to 2014 and in terms of the absolute index value.

Agricultural income per worker declined in over 70% of the EU-28 in 2014 (20 countries). As indicated in fig. 1, the highest decrease (-22.8%), was in Finland, mostly because significant decrease of animal output value (-17.7%), and less to the decline in the value of milk production (-2.7%) when real milk prices drop by 5.5%.

Figure 1- Change in agricultural income per worker in the EU-28 (2013-2014) (%)



Source: EC, 2014

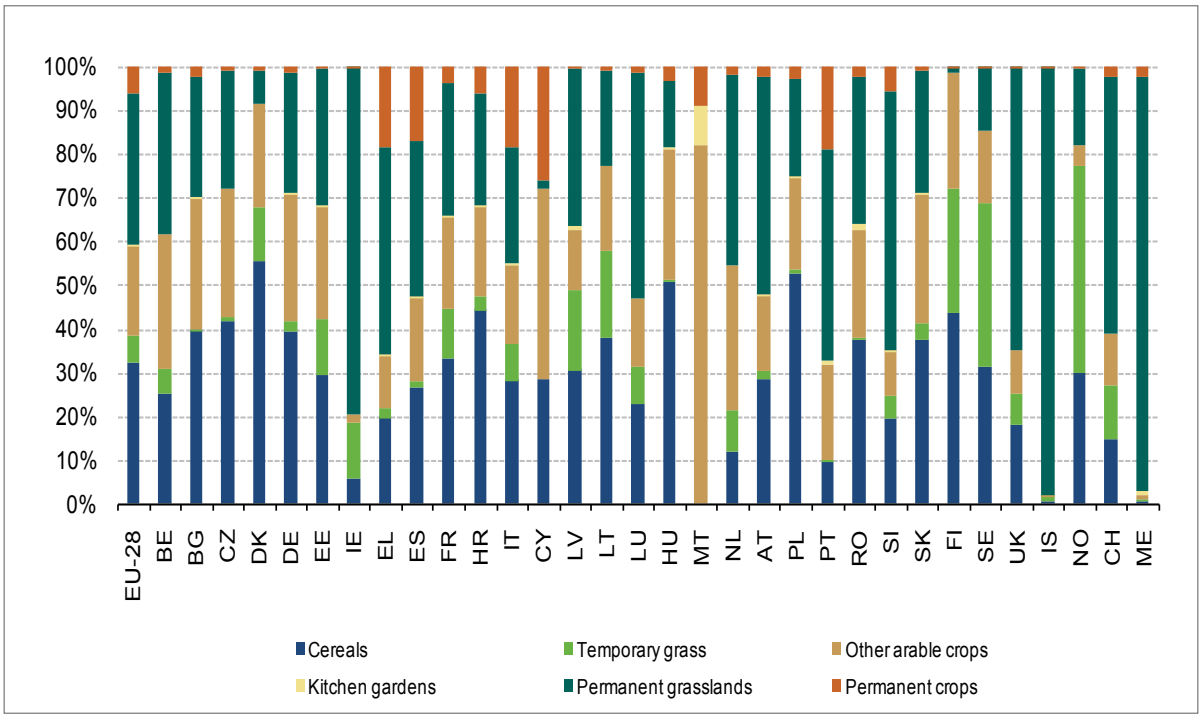
Lithuania (-19.4%) and Belgium (-15.2%) also experienced important diminish in agricultural income per worker, for different reasons: in Lithuania declined the value of both crop (-9.4%) and animal output (-7.2%), combined with a 10.5% decrease in subsidies and a 5% growth of fixed capital consumption, while in Belgium the most affected was the value of crop output (-13.8%).

The highest income increase was estimated in Slovenia (13.3%), due to a substantial increase in the output value of animal products (11.8%) and a drop in production costs of 5.8%. As well, Hungary (9.1%), the Czech Republic (7.2%) and the United Kingdom (6.9%) performed strong increases. Only 8 countries shown, however, an increase compared to 2013 values, while Romania experienced the leased decrease (-0.3%).

The output value and production costs are the most variable elements in estimating the agricultural income. The overall agricultural output value in the EU-28 fell by 3.5% between 2013 and 2014, mostly due to a reduction in crop output value. Cumulatively, Romania's contribution to the total value of agricultural production in EU-27, obtained in 2013 was of 3% in crop production, respectively, of 1% in animal production.

Income sources provided by the agricultural structural indicators related to the land utilization are shown by the cropping pattern across the EU countries. The fig. 2 indicates the diverse structure of the utilized agriculture area (UAA) in EU.

Figure 2 – Cropping pattern in EU-28, by share of main land types in UAA

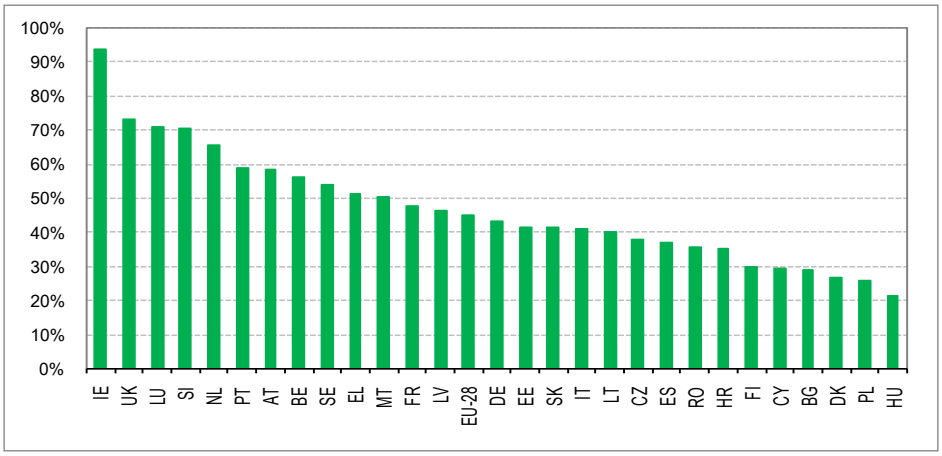


Source: Eurostat (FSS 2010)

Of the 175.8 million hectares in EU-28, the arable land covers over half (58%), represented by cereals (32%), temporary grass (6%) and a quite important share of other crops (20%), while permanent grassland is the most spread (35%), followed by a less share of permanent crops in the UAA (6%) and the kitchen gardens (0.2%). The cereals areas are wider spread in France (33%) and

Spain (26%); temporary grass areas in Sweden (37%) and Finland (28%); permanent grasslands in Ireland (65%) and UK (59%); and permanent crops are mostly in Cyprus (26%), Portugal and Italy (19% each). The EU-28 covers 79.4 million hectares of fodder areas, that is 45% in UAA. The cropping pattern depicted by the shares of fodder area in the UAA (fig. 3) reveal that the greatest shares are in Ireland (94%) and UK (73%), and the least are in Denmark (27%) and Bulgaria (29%), while although below the EU average is Romania (36%) with 4.7 million hectares.

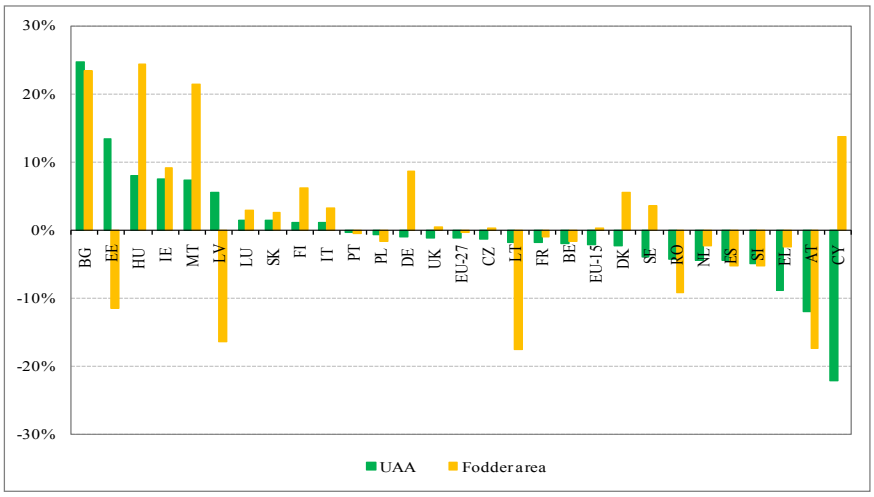
Figure 3 – Cropping pattern in EU-28, by share of fodder area in UAA



Source: Eurostat (FSS 2010)

The fig. 4 presents the changes in the UAA in EU in average and by Member States, in period 2005-2010, compared to the changes of the fodder areas.

Figure 4 – Change in UAA and fodder area in EU-27 (2005-2010)



Source: EC, 2013

Despite the decreasing trends, Romania numbers among the EU countries with a substantial contribution to the UAA. Following the structure of the agricultural land, with 8.3% share they

occupy in the area of permanent pasture, EU gives to Romania a potential advantage for livestock grazing. Also, as of 2013, the 7.9% share in arable land places Romania among the first 6 countries, after France, Spain, Italy, Germany and Poland.

While the 8 billion of Gross Value Added (GVA) places Romania among the first 10 states, after France, Italy, Spain, Germany, Poland, UK and the Netherlands (Table 1), the labour productivity in the sector stands at a modest value of 5 thousand Euro per annual work unit (MADR, 2013).

Table 1 – GVA in primary sector* in EU-27 and shares in Member States economy (2013)

	GVA in Primary sector (Million Euro)	GVA in Primary sector share of country's total (%)
European Union	194664	1.7
France	33198	1.8
Italy	30045	2.1
Spain	24109	2.6
Germany	19060	0.8
Poland	13115	3.8
United Kingdom	10813	0.6
Netherlands	8892	1.6
Romania	7964	6.4
Greece	5931	3.7
Sweden	5588	1.5
Finland	4696	2.8
Austria	4366	1.5
Hungary	3944	4.8
Portugal	3502	2.4
Czech Republic	3181	2.4
Denmark	2815	1.3
Ireland	2733	1.9
Belgium	2691	0.8
Slovakia	1939	3.0
Bulgaria	1696	4.9
Lithuania	1199	3.8
Latvia	1021	4.9
Slovenia	885	2.9
Estonia	629	3.9
Cyprus	403	2.7
Luxembourg	139	0.3
Malta	99	1.6

*) agriculture, forestry and fishery

Source: Author's processing using Eurostat data

The results of evaluations based on Eurostat statistics show a 4% share of the Romanian agriculture in GVA achieved in average during 2001-2013, amounting to 7 billion Euro, in the EU-27 agricultural sector. This performance resulted based on increasing the share of crop production

value, from 3.9% in 2001 to 5.7% in the value of crop production in the EU-27 produced in 2013. At the same time, the share of animal production in GVA decreased from 2.7% to 2.3%.

However, the major contribution of the Romanian agriculture in the EU economy and the proportion of employment in agriculture, are indicators of a divergent range of Romania toward the development of the sector in most Member States.

From the data provided by the Romanian Statistical Yearbook (table 2), Romanian average farmers' income represented 60% of employees' income in the period 2001-2013.

Table 2 – Structure and changes of farm households' income in Romania (2001-2013)

	2001-2006	2007-2013
Total income of farmers (lei, monthly per household)	433	2098
Money income (%), of which:	42.3	53.1
Gross salaries and other salary rights	6.5	8.4
Income from agriculture	23.4	26.1
Income from non-agricultural independent activities	2.1	3.7
Income from social provisions	7.6	9.0
Equivalent value of consumption of agricultural products from own resources (%)	57.5	46.0

Source: NIS, 2014.

The estimations of the average subsistence equivalent income from the consumption of own agricultural products accounted for 47%. The main source of money income came from agriculture, accounting for 24%, while 11.6% from social provisions, 7.8% from salaries and only 2.9% from non-agricultural independent activities, though a slight increasing trend has been observed since the year 2007.

Summary remarks

Against the background of real agricultural income per worker, marked differences appear between the EU-15 and the newly accessed countries aggregates post 2004.

Income sources provided by the agricultural structural indicators related to the land utilization are shown by the cropping pattern across the EU countries. The arable land and the fodder areas cover the major part of EU's UAA, while the crop output evolution had the greatest influence on the value of agricultural income.

However, the major contribution of the Romanian agriculture in the EU economy and the proportion of employment in agriculture, are indicators of a divergent range of Romania toward the development of the sector in most Member States.

The importance of agriculture, as a foremost source of income for agricultural households in Romania, was estimated at 80.9%, in average, in the period of time 2001-2006, while, with a decreasing trend, at 72.1% in the post-accession period of time 2007-2013.

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