

Mituko Vlad, Ionela; Tudor, Valentina; Stoian, Elena; Micu, Marius Mihai

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## FARMS REGIONAL ECONOMIC DEVELOPMENTS IDENTIFIED IN THE FADN PANEL

IONELA MITUKO VLAD<sup>1</sup>, VALENTINA TUDOR<sup>2</sup>, ELENA STOIAN<sup>3</sup>, MARIUS MIHAI MICU<sup>4</sup>

**Abstract:** *The paper addresses an approach on indicators from the public database FADN (Farm Accountancy Data Network), at farm level selected from Romania. The study focused on analyzing the data series in 2012 (the latest year reported in the FADN) and the second part of the study was supported by the report on the last six years (2007-2012) and four of the eight regions. The data comes from public database FADN and the methodology consisted of a descriptive analysis of the data and presenting them as graphic and tabular form. The results recorded consisted of highlighting the differences between regions and survey findings have highlighted a decrease in interest and rental costs and also in investment levels, compared to 2012; in the same conditions, the total production and cash flow increased.*

**Keywords:** *farms, Romania, FADN, regional, productions, indicators.*

### INTRODUCTION

Romanian agriculture is one of the most important sectors, both in areas for cultivation and by the diversity of crops and direction of production. However, agriculture has had to face many challenges, particularly in the last 20-25 years, and its assertion as the basic sector in the economy was influenced by measures related to European harmonization. In these circumstances, the need for a study based on actual data collected from a representative sample of farms in all regions and to bring results related to agricultural economic indicators, found their place in research field. FADN was introduced as the data collection system 50 years ago, in 1965. Currently it uses data from about 5,000,000 farms in the 27 European member countries, representing more than 90% of total EU agricultural production. This is designed to collect accountancy data on agricultural holdings in order to determine the revenue and analyse the agricultural business. An existing database query could get to the link <http://ec.europa.eu/agriculture/rica/database>. FADN was helpful from the start in configuring and adapting the common agricultural policy, in a real database. In Romania, the establishment of the Farm Accountancy Data Network was done by O.G. 67/2004, approved by law no. 465/2004. Liaison Agency for Romania is the RICA department from the Ministry of Agriculture and Rural Development. This agency carries out an annual survey and then, the questionnaires are transmitted to European Commission for validation and payment. Research based on FADN information are essential trace from the reform process and evaluation of CAP measures, but also in achieving long-term agricultural policies. ([www.madr.ro](http://www.madr.ro)). For the accounting year 2012 were collected accounting information from 6,000 farms, from which were validated by the European Commission (EC), a number of 5717 farms. Data confidentiality is an important issue for the farmer who provides the data; this is ensured by Article 16 of Regulation 1217/2009 EEC, consolidated version of Regulation No. 79/65 / EEC. FADN database provides the data as standard results that can be consulted through a series of reports, organized in datasets. The European Commission has defined each variable in standard results in order to ensure a correspondence between the definitions of its own variables and those of other institutions producing agricultural statistics. The results calculated for each year is average and are given in € (EUR / ECU), which will allow data to be aggregated in any country and compared. Research based on the same database were also made by other authors. In this respect, we mention Kusz, Gedek, Ruda and Zajac (2014), authors who were interested especially regarding data on farm investments. Also based on data

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<sup>1</sup> Lecturer PhD Ionela Mituko VLAD, U.A.S.V.M. Bucharest, [bmitsouko@yahoo.fr](mailto:bmitsouko@yahoo.fr)

<sup>2</sup> Professor PhD Valentina TUDOR, U.A.S.V.M. Bucharest, [valentina\\_tudor@yahoo.com](mailto:valentina_tudor@yahoo.com)

<sup>3</sup> Professor PhD Elena STOIAN, U.A.S.V.M. Bucharest, [stoian\\_ie@yahoo.com](mailto:stoian_ie@yahoo.com)

<sup>4</sup> Lecturer PhD Marius Mihai MICU, U.A.S.V.M. Bucharest, [micumariusmihai@yahoo.com](mailto:micumariusmihai@yahoo.com)

provided by FADN, researchers Skarżyńska, Grzymek and Abramczuk, (2014) analyzed data on the global economic situation of Eastern European countries. Likewise, the authors Veveris, Krievina and Leimane (2007) underlined the positive and negative aspects of agriculture in Latvia, cost structure issues through the analysis of economic information farms, using FADN data. Farm efficiency issues, using FADN data, were elaborated by Toma (2010) who considered that "FADN is an instrument based on annual survey of incomes and results evaluation ...". Approaching the same source of information, Simtion (2014), focused on analyzing the data standardization in agriculture. On his turn, Dona (2013), made an analysis on the evolution of specialized horticultural or mixed farms, also based on information obtained from FADN. In the same respect and based on the same source of information, details on some productions have been presented by Kuta and Golab (2014) focusing on the production costs and the profitability of different varieties of potatoes. Finally, we mention the study of Chavas (2011) who appreciate the fact that it will need more studies to increase the understanding on the environment and how it has to be transformed "into supporting and feeding the human race, including estimating the economic value of multifunctionality in agriculture ...".

## MATERIAL AND METHODS

As we mentioned, the data used in the study were collected by FADN in the Romania' sample in 2012 and data from the regional level during the 2007-2012 period. For the analysis at the regional level, we chose from the 8 regions, only 4- North-East, West, North West and Centre. The other 4 regions (South East, South Muntenia, South-West Oltenia and Bucharest-Ilfov), will not be addressed in this study, and it will be the subject of subsequent works. Groups of variables chosen for this regional analysis were as follows. Structure variables (labor paid and utilized agricultural area), then, variables ranging from production (output crop production, output livestock production and farmhouse consumption); category of chosen data from costs and taxes were related to rent and interest paid and taxes; balance indicators focused on the following variables: buildings, machinery and short-term loans, medium and long term loans. The last category of indicators (financial indicators), referred to the investment and cash flow. The data used in this study and their description comes from public database FADN (EUFADN Database, Eurostat), accessed in April-May 2015). The methodology consisted of descriptive data analysis and comparative analysis results are presented in tabular and graphical form.

## RESULTS AND DISCUSSIONS

In this part of the paper, we present the categories of indicators, the results of comparative analysis between the 8 regions (North East, South East, South Muntenia, South West Oltenia, West, North West, Centre, Bucharest-Ilfov) in the year 2012. In this regard, Fig. 1 illustrates paid labor and the utilized agricultural area on the 8 regions. Thus, we can see a proportional evolution of the two indicators. The following figure (Fig.2) captures comparative graphical form, the crop and animal production and farmhouse consumption in all 8 regions in 2012. We identified an important level of crop production in the South East, West and Bucharest Ilfov, a level of animal production in the South East, West and Central. Farmhouse consumption is a relatively important in all regions.

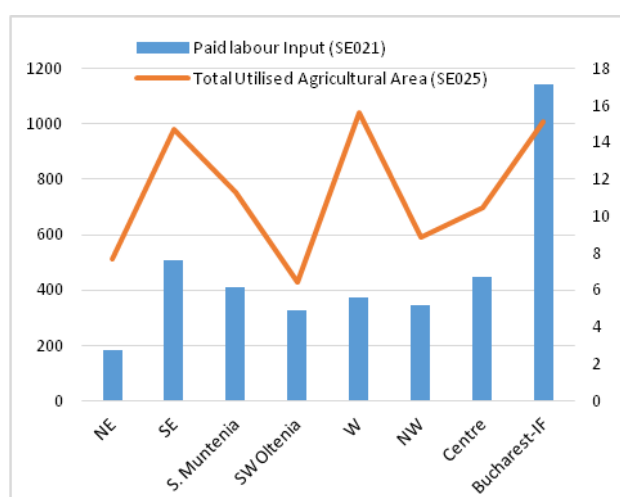


Fig. 1: Production structure, 2012

Source: EUFADN Database Eurostat, Extracted 04/05/15

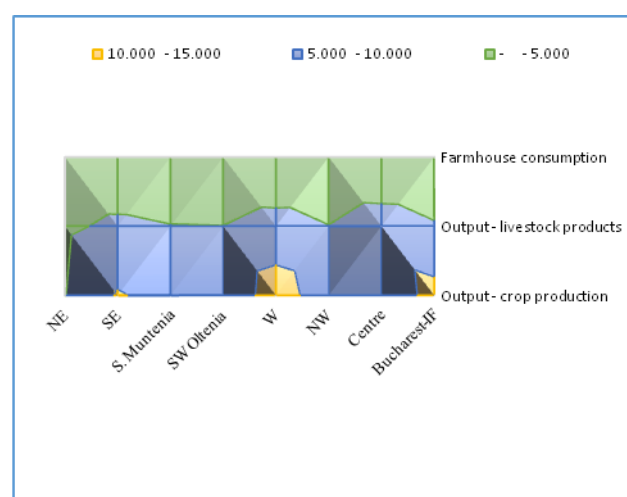


Fig. 2: Crop and livestock production, 2012

Source: EUFADN Database Eurostat, Extracted 04/05/15

The charts that follow refer to two categories of costs and revenue indicators both for 2012. The categories of costs considered are interest and rent paid. We note in this regard that the greatest interest paid is registered in Bucharest-Ilfov region, and the lowest is recorded in region North East. Regarding the rent paid, the areas with the highest levels are in order South East, South Muntenia and West, and the lowest rent paid was recorded in the South-West Oltenia.

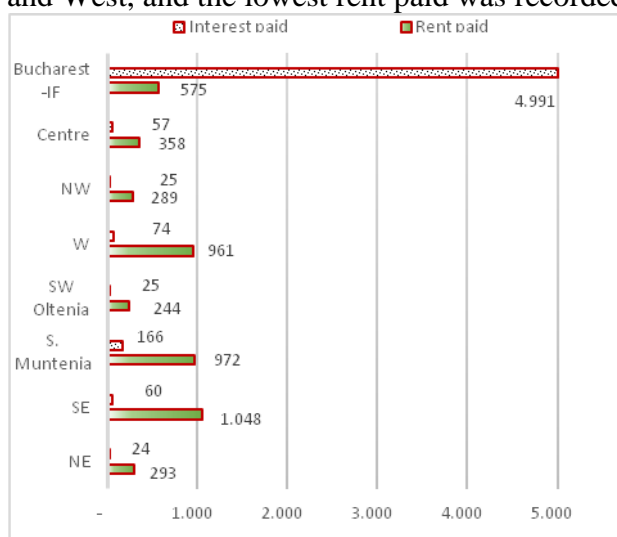


Fig. 3: Costs categories, 2012

Source: EUFADN Database Eurostat, Extracted 04/05/15

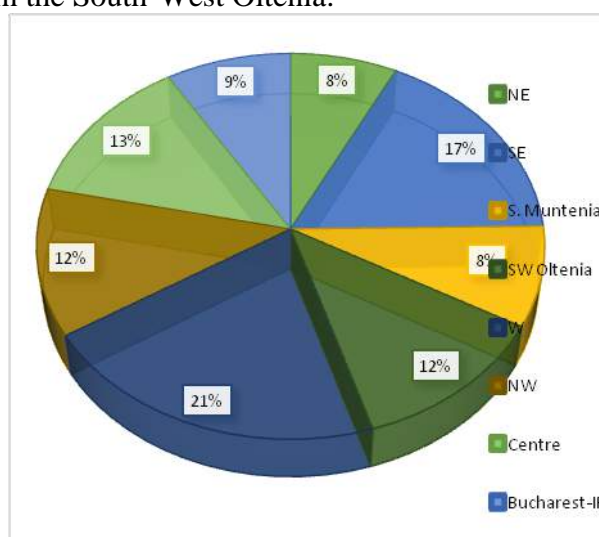


Fig. 4: Net income/farm, 2012

Source: EUFADN Database Eurostat, Extracted 04/05/15

The indicator Net income / farm is represented in Fig. 4 as a percentage of the total per year. We will noted so that the highest income is recorded in the West region (21%), followed by the South East (17%) and the lowest rent is recorded in the North East (8%).

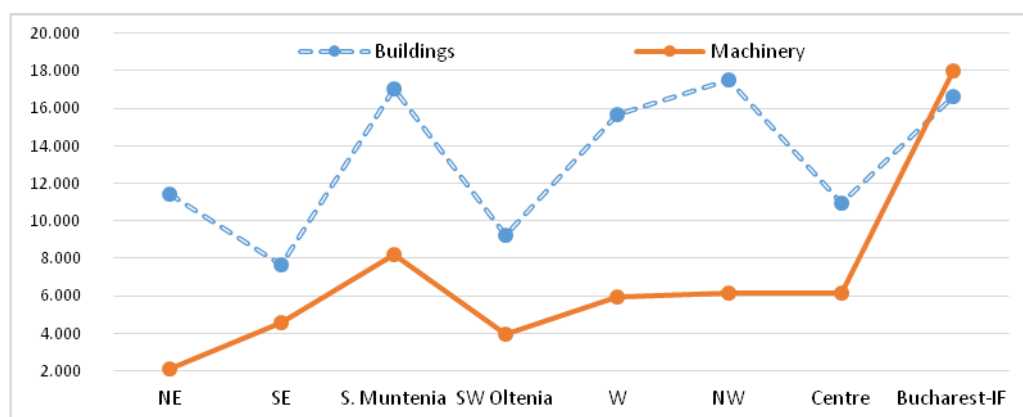


Fig. 5: Indicators Balance, 2012, Source: EUFADN Database Eurostat, Extracted 04/05/15

A representation of the indicators "buildings" and "machinery" is made in Fig. 5. We can see that the North East region has the lowest level in machinery and in the Southeast it was found the lowest buildings level. Bucharest Ilfov region has recorded the highest level for the two categories and this may be the reason for the highest level volume level of interest paid in the region. Next, we present in tabular form the six years dynamics of the previous indicators, only four development regions (Northeast, West, North West and Centre), during the 2007-2012 period. Thus, Table 1 presents the evolution in the groups of indicators on the structure and outputs.

Table no. 1: Structure and productions. Data is expressed in percentage (%) based on the year 2012, 2012=100%

Year	Region	Paid labour Input	Utilised Agricultural Area	Output - crop production	Output - livestock products	Farmhouse consumption
2011	NE	114,6	102,9	109,3	117,2	115,8
	W	104,7	97,6	98,2	106,4	108,3
	NW	137,5	109,3	103,1	111,5	98,4
	Centre	128,3	95,7	99,7	110,4	95,1
2010	NE	105,8	107,1	113,1	121,5	114,2
	W	109,1	102,2	95,6	94,6	104,4
	NW	171,4	107,1	101,3	117,9	97,2
	Centre	127,2	92,5	92,1	107,5	138,2
2009	NE	162,6	100,3	89,9	78,4	158,5
	W	114,4	79,6	54,7	82,0	232,9
	NW	179,5	95,0	98,7	82,0	133,1
	Centre	196,6	108,4	94,0	100,1	212,9
2008	NE	153,5	75,5	94,2	59,3	171,7
	W	205,5	67,5	44,9	68,0	158,8
	NW	241,0	86,9	95,4	83,6	66,8
	Centre	283,2	87,4	102,5	122,6	189,9
2007	NE	268,3	70,5	69,9	69,2	170,5
	W	194,6	62,6	52,1	76,0	198,9
	NW	417,5	79,0	83,5	203,2	79,3
	Centre	524,2	88,0	81,9	322,9	185,9

Source: EUFADN Database Eurostat, 2015

From the table we can see that in terms of paid labor, this is an increase compared to 2012. The next three indicators (area used, crop and animal production), have recorded a constant growth, and we can even say that these indicators have had, with some exceptions, lower values in the years prior to 2012. The last indicator in Table 1, farmhouse consumption had a positive dynamics in the years prior to 2012, except the North West region where consumption was lower from the reference years before 2012, the other areas were with higher percentages of 100%. The following table presents the dynamics of costs and loans, compared to 2012. We can say that rent paid until 2012 were lower than in 2007-2011 in all regions, except the North East, in 2010 and 2011. Interest payments are higher than the reference year, indicating possibly a relaxation of or a decrease in credit interest. Medium and long-term loans had a lower dynamic from the reference year, except

in the North East and North West areas. Short-term loans were higher by 150% in 2007-2011, compared to reference year 2012.

Table no. 2: Costs and balance indicators. Data is expressed in percentage (%) baded on the year 2012, 2012=100%

<i>Year</i>	<i>Region</i>	<i>Rent paid</i>	<i>Interest paid</i>	<i>Long &amp; medium-term loans</i>	<i>Short-term loans</i>
2011	NE	101,0	204,2	145,9	251,4
	W	70,8	148,6	81,4	280,8
	NW	78,5	160,0	181,3	23,5
	Centre	76,8	157,9	50,7	187,6
2010	NE	106,1	245,8	206,1	323,9
	W	82,7	91,9	74,0	120,5
	NW	71,3	196,0	208,6	86,8
	Centre	83,2	133,3	44,1	166,8
2009	NE	76,1	137,5	65,7	165,1
	W	49,9	144,6	74,1	368,6
	NW	58,8	236,0	261,0	373,5
	Centre	70,7	396,5	126,9	278,3
2008	NE	33,1	183,3	171,3	185,3
	W	43,4	154,1	104,4	464,7
	NW	39,8	252,0	56,1	154,4
	Centre	70,4	386,0	149,8	337,8
2007	NE	36,2	191,7	106,1	181,7
	W	54,0	106,8	193,5	123,7
	NW	54,3	1380,0	524,1	1441,2
	Centre	70,1	1414,0	763,4	1167,3

Source: EUFADN Database Eurostat, 2015

In the Table. 3, are presented in dynamics flows the financial indicators compared to 2012 and this indicates a significant fluctuation for gross investments and Cash Flow indicator is 2007-2011 to a lower level of the 2012 year. This could lead us to the idea that in 2012 it was made more investments, combine with a cash flow that also had a larger volume compared to the previous period.

Table no. 3: Financial indicators. Data is expressed in percentage (%) baded on the year 2012, 2012=100%

<i>Year</i>	<i>Region</i>	<i>Gross Investment</i>	<i>Cash Flow</i>
2011	NE	-175,0	110,1
	W	214,0	84,3
	NW	-178,9	92,0
	Centre	92,0	91,1
2010	NE	150,8	87,0
	W	89,3	76,5
	NW	163,9	89,9
	Centre	47,8	76,2
2009	NE	57,8	65,4
	W	196,6	35,7
	NW	187,9	80,2
	Centre	142,7	52,4
2008	NE	66,4	56,2
	W	238,8	29,5
	NW	25,5	86,6
	Centre	108,0	72,6
2007	NE	92,2	39,5
	W	87,4	32,5
	NW	77,6	86,6
	Centre	422,6	62,7

Source: EUFADN Database Eurostat, 2015

## CONCLUSIONS

As findings of this study will include the following. In 2012, analyzed for all eight regions, workforce and total area were noted related data and production volume was proportionally. Comparative cost analysis showed us a huge amount of interest paid Bucharest-Ilfov region, where we find also the highest volume of machinery and buildings, meanwhile, in North East region this index is the lowest. At the same time, rent payments may reach from 244 euros (South West Oltenia) to 1048 (South East). Net income / farm appears to be correlated closely with those costs. We are talking about a maximum of 21% of the total in 2012 to the West, while the minimum (8%) is reached in the North East and South Muntenia. Compared with 2012, the analyzed indicators in 2007-2011, in four selected regions, recording a decrease overall costs, an increased in production level, but at the same time, investments are affected and the cash flow indicator increased.

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