

## **ROLE OF SUBSIDIES ALLOCATED BY THE SECOND PILLAR OF THE COMMON AGRICULTURAL POLICY AND DIVERSIFICATION IN ROMANIAN FARMS THROUGH AGRITOURISM**

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**ABSTRACT** – This paper discusses about the role and the economic impact of subsidies allocated by the Common Agricultural Policy between 2007 and 2012, predominantly through the second pillar, in order to stimulate farmers to stay in the countryside and diversify their activities by agritourism. The analysis has used a quantitative approach aimed at assessing the main correlations between the growth of agritourisms and the financial supports paid by the European Union in eight Romanian administrative regions using the Farm Accountancy Data Network. Findings have pointed out that in regions where the higher has been the development of agritourism, the more significant has been the positive socio-economic impact of the funds allocated by the European Union in favour of rural development. Rural areas characterized by a low level of farmer's income and by a high incidence of subsidies paid by the European Union in supporting rural development have brought about a considerable growth of farm diversification through agritourism. This has also corroborated the hypothesis according to which the diversification in the countryside is sensitive both to the funds allocated by the EU and to a low level of income in farms.

**Keywords:** multifunctionality, rural areas, Kohonen's map, Rural Development Plan, Farm Accountancy Data Network, rural tourism

### **INTRODUCTION**

Romania was one of the most recent newcomers in the European Union, characterized by several small farms, which are trying to resist against out-migration from the countryside and rural depopulation through agritourism.

The transition in the European system of ag commodities production from a productivist model to a post-productivist one has completely changed the role and function of farmers in the rural context (Ilbery, 1998). In order to tackle the challenges of income squeeze (Van der Ploeg *et al.*, 2002), farmers have addressed their activities in favour of a multifunctional approach, putting into action several proposals arisen first during the Cork Declaration in 1996, afterwards, in the new rural approach proposed in Agenda 2000 and during the Second European Conference on Rural Development in Salzburg in 2003 (Galluzzo, 2009; Galluzzo 2010; Mortan, 2006). Therefore, the farm is considered a structure able to produce many positive externalities able to protect environment.

Agritourism is one of the main opportunities for rural communities in increasing their farmers' income exploiting in a better way the local, natural and cultural resources in small Romanian villages within a specific context of cohesive rural development financially supported by the Rural Development Plan (Mortan, 2006), involving all stakeholders and public administrations. Hence, for a significant growth of rural territories, the European LEADER project could be a fundamental financial and social tool in order to create a shared socio-economic development in the countryside and employment opportunities in Romanian rural areas (Bogan, 2012). Romanian rural space is characterized by a significant socio-economic disparity compared to urban territories; financial measures allocated by the Common Agricultural Policy (CAP), in favour of rural development and

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farm diversification, such as rural tourism, are the first and foremost pillars in reducing these territorial imbalances becoming one of the most important concern and target for the public administration (Mursa and Paraschiv, 2009).

For Romanian farmers, agritourism is a new typology of rural tourism able to meet the rural development in the countryside, new job opportunities and tourist needs in order to rediscover rural traditions and cultural activities in a framework of growth of green tourism with a low level of investments (Pirnea *et al.*, 2012; Pîrvutoiu and Popescu, 2013; Arion, 2006; Ciornei, 2011; Ciurea *et al.*, 2011). These scholars have pointed out that the financial supports allocated by the Rural Development Plan, as undertaken over the seven-year period 2007-2013, through some strategies of rural development using financial supports disbursed by the CAP, have had positive impacts on the development in the Romanian countryside. These financed actions had the purpose to readapt and valorise old rural structures (Arion, 2006) supporting rural tourist activities in a perspective of an integrated growth of the countryside. The second phase of this development pattern has to stimulate a collaboration among public and non-governmental institutions aimed at generating an alternative specific tourist supply (Arion, 2006) in order to generate rural districts typically scattered as in the Italian rural areas characterized by a high level of social capital (Galluzzo, 2015).

Investigating Romanian tourism, findings have pointed out a significant seasonality of tourist flow in agritourism with an exception in the region of Bucharest, which unfortunately is characterized by a poor diffusion of farm holidays; hence, efforts of public administration should be focused in diversifying and intensifying many promotional measures (Matei, 2015) in order to intercept the main international tourist flows. In general, the development of rural tourism and agritourism is a peculiarity in the Romanian rural areas and in other European nations such as Italy (Galluzzo, 2009) because the concept of rurality, tightly linked to multifunctionality, implies an opportunity to live in a relaxing place, such as the countryside, which is characterized by a low level of pollution and by typical rural traditions (Bogan, 2012). Romanian farmers are interested in agritourism which is a good opportunity to protect the environment giving value to multifunctionality and it is also a pillar able to protect natural resources and to implement social-economic development in rural areas by using an integrated approach to the protection of water resources and other environmental features as well (Lanfranchi *et al.*, 2012; Zugravu *et al.*, 2012; Bogan, 2012).

### **AIM OF THE PAPER**

This paper discusses about the role and the economic impact of subsidies allocated by the Common Agricultural Policy between 2007 and 2012, particularly through the second pillar, in order to stimulate the growth of agritourism and reduce the out-migration of farmers from the countryside by encouraging them to diversify their activities. The main question of the analysis was to assess the growth of agritourisms in different Romanian regions depending on the productive specialization using the Farm Accountancy Data Network (FADN) dataset published by the European Union over the six-year period 2007-2012, as proposed in investigating the differentiation activities in Italian farms and other European countries (Aguglia *et al.*, 2009).

The FADN is a specific economic-political tool able to assess the farmer's income and the impact of the Common Agricultural Policy actions towards European farmers, launched in 1965 by the Council Regulation 79. As reported on the website of the European Union, the FADN is an annual survey carried out in a sample of 80,000 European farms aimed at creating a harmonized dataset able to represent 5 million farms and 90% of the total utilized agricultural surface.

In Italy, some findings using the FADN dataset have underlined that farms with agritourism were not able to obtain more efficient economic results than the traditional conventional ones (Mastronardi and Giaccio, 2011), with an important role in diversification and differentiation of the agrarian production, particularly in small farms with a usable agricultural surface lower than 2 hectares, which characterized the Italian and the Romanian agricultural context, where agritourism has pointed out a fundamental role in rural diversification in semi-subsistence farms (Salvioni *et al.*, 2013; Buchenrieder *et al.*, 2009). The impact, investigated using the FADN dataset, of the financial subsidies allocated by the Common Agricultural Policy on the growth of agritourism in Italian countryside is

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fundamental in reducing the out-migration from the countryside (Salvioni *et al.*, 2009; Salvioni and Fontanella, 2013). Other authors have assessed the role of subsidies allocated by the second and the first pillar of the CAP arguing a significant impact of financial supports paid by the first pillar of the CAP on the growth of agritourism and rural diversification than the payments of the second pillar (Finocchio and Esposti, 2008; Boháčková and Hrabánková, 2011).

The sources of data include the statistical data of the Romanian FADN, published by the European Union, and the data on tourism published by the Romanian Institute of Statistics every year.

### METHODOLOGY

In order to assess the main relationships between the dependent variable growth of agritourisms in Romania and the independent variables such as crop specialization and financial subsidies allocated by the Common Agricultural Policy, we used a quantitative approach through a multiple regression model, estimating parameters by the Ordinary Least Square (OLS) with the GRETL 1.8.6. open source software. In its algebraic form of matrix, the multiple regression model can be expressed as follows (Verbeek, 2006):

$$\mathbf{y} = \mathbf{X}\boldsymbol{\beta} + \boldsymbol{\varepsilon}$$

where,  $\mathbf{y}$  is a dependent variable,  $\boldsymbol{\beta}$  are parameters in the model and  $\boldsymbol{\varepsilon}$  is the error, but both are vectors with  $n$ -dimensions;  $\mathbf{X}$  is an independent variable which has dimension  $n \times k$ . In analytical terms, the model of multiple regression, in its general formulation, can be written in this way (Andrei and Bourbonnais, 2008; Asteriou and Hall, 2011; Baltagi, 2011):

$$y = \alpha_0 + \alpha x_1 + \beta x_2 + \gamma x_3 + \delta x_4 + \varepsilon_{jt}$$

where,  $y$  is the dependent variable number of Romanian agritourisms;  
 $\alpha_0$  constant term;

$x_1, x_2, x_3, x_4, x_5, x_6, x_7$  independent variables such as Usable Agricultural Surface (UAS), surface cultivated with cereals, surface cultivated with forage crops, Farm Net Income, financial subsidies allocated in favour of Less Favoured Areas, payments on the Single Area payment and financial supports allocated by the EU in favour of the rural development part of the second pillar of the CAP;

$\alpha, \beta, \gamma, \delta$  estimated parameters of the model;

$\varepsilon_{jt}$  is the statistic error.

In order to use a multiple regression model, the basic assumptions are (Asteriou and Hall, 2011; Baltagi, 2011):

- 1) statistic error  $ui$  has conditional average zero, that is  $E(ui|Xi) = 0$ ;
- 2)  $(Xi, Yi), i = 1...n$  are extracted as distributed independently and identically from their combined distribution;
- 3)  $Xi, ui$  have no fourth moment equal to zero.

There is no correlation among regressors and random noise if the value between expected  $\beta$  and estimated  $\hat{\beta}$  is the same; in order to analyze if there is heteroscedasticity on standard errors, the White's Test on the error terms was used (Verbeek, 2006).

In the second part of the analysis using the FADN time series, a multiple regression model on panel data was used over the time of investigation. A panel data is a set of two-dimensional data able to combine the characteristics of cross-sectional data with those of a time series, that each unit ( $n$ ) is analyzed for several years ( $t$ ), generating, as in our analysis, a balanced panel or rather a panel with all completed datasets (Verbeek, 2006). In our case, observation units are formed by the Romanian regions over a six-year period (2007 to 2012), generating a dataset of longitudinal panel data, which was analyzed with two methods of regression such as fixed effects (FE) and random effects (RE). The choice between fixed effects model and random effects model, in order to find the one that fits best to our survey, has implied the use of a statistical test such as the Hausman test, which measures the difference between the results of two estimators such as FE against RE (Hausman, 1978). If the null hypothesis of no correlation between the regressors identified in the model and the individual effects is

accepted, the two models tend to be very similar to each other; if results of the estimates tend to be significantly different, it is better to use the fixed effects model (Verbeek, 2006; Gujarati, 2003). The use of panel data allows evaluating the unobserved heterogeneity between units then, the different aspects that characterize them.

In the fixed effects model, the formula to estimate the parameters is (Greene, 2011):

$$Y_{it} = \alpha_i + X_{it} \beta_1 + u_{it}$$

where,  $\alpha_i$  ( $i = 1 \dots n$ ) is the intercept for each entity present in the model ( $n$  entity-specific intercepts);

$Y_{it}$  is the dependent variables considered in the time  $t$  per unit of investigation  $n$ ;

$X_{it}$  is an independent variable;

$\beta_1$  is the coefficient for the independent variable or parameter;

$u_{it}$  is the error term.

There are ample reasons to believe that the differences between regions might have had variable effects on the dependent variable; hence, the panel model with random effects should be the best adaptation towards our model, even if the Hausman test is the best statistical tool in order to discriminate between fixed or random effect regression model. The advantage of the random effects panel data model is intrinsic in its time invariant property, which allows including variables in it (Greene, 2011). The fixed effects model is able to absorb those aspects through the intercept and the formula becomes:

$$Y_{it} = \beta X_{it} + \alpha + u_{it} + \varepsilon_{it}$$

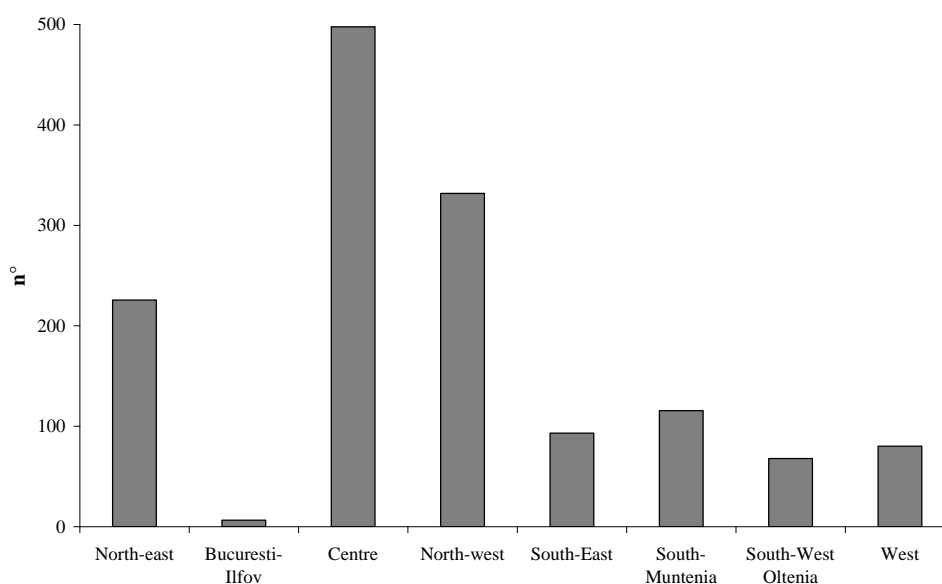
The further stage of the quantitative analysis has investigated in depth, in all Romanian regions, the first and foremost relationships between financial supports allocated by the European Union in the second pillar of the Common Agricultural Policy and the growth of agritourism through the Self-Organizing Maps (SOM) proposed by Kohonen (Kohonen, 2001). In order to estimate the parameters, we utilized both SPICE-SOM open source software and Orange Canvas software aimed at finding if there is a unique winner neuron during the time of study in all variables utilized in the model. In general, Self-Organizing Maps are particularly useful to estimate in time series the structure and the evolution of some variables obtaining a unique parameter summarizing different variables and visualizing different clusters (Kasky and Kohonen, 1996; Mehmood *et al.*, 2011). Generally speaking, the black and the greyish hexagons in the maps are zones where there is the highest level of clustering, close to the winner neuron, and the white ones are the opposite or rather white hexagons which are neurons far away from the winner neuron (Kohonen, 1995). Few scholars have proposed a GTM methodology (Generative Topographic Map) which is an alternative to the SOM maps (Bishop *et al.*, 1998) able to highlight the best winner neuron in a network of relations. The Self-Organizing Map (SOM) or Kohonen's maps are based on a method of unsupervised learning process in a limited sized space provided that the topological properties of an input space or stimulus come from the outside (Kohonen, 2001). The main advantage of the SOM is to obtain a unique pattern able to classify homogenous clusters preserving their dissimilarities (Kohonen, 1984). In the same time, the purpose of the SOM approach is similar to the Principal Component Analysis, which implies a reduction of complexity in a dataset, visualizing in a unique map the best neuron and the main relations among variables (Mehmood *et al.*, 2011).

The SOM is a neural network where each artificial output neuron is arranged in grids based on a lower dimension in connection to all neurons of input (Haykin, 1999). Each input or stimulus is connected to other neurons of the output by a weight vector assessed in order to define the position of a centroid in the space (Lucchini, 2007). The weights assigned to the neurons are initialized either as random numbers or as small values sampled uniformly from a subspace crossed by two wider eigenvectors main components hence, initial weights are a good approximation of the weights in the SOM (Kasky and Kohonen, 1996). In general, this network in the SOM is characterized by a pattern in two layers, one layer is made up by input and the other layer, commonly called Kohonen's layer, is constituted by output (Kohonen, 2001). The neurons of the two layers are completely connected to

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each other, while neurons of the output layer are in connection to a neighbourhood made up by different output neurons (Kohonen, 1984). In the layer of output neurons there is a unique winner neuron, or winner neuron that takes all; hence, as a consequence of a system of interactions of lateral inhibitions and excitations in function of the distance from the winner neuron, some neurons close to the winner are excited and other neurons, more distant from the winner neuron, are inhibited generating a function similar to a Mexican hat (Kohonen, 1984; 2001).

The lateral interactions close to the winner neuron in the output layer are functions of the distance: excited neurons are closer to the winner ones; instead, other neurons far away from the winner consequently are inhibited. In this simplified competitive network, winner neurons have a value equal to the value 1 if the input neurons are close enough to the BMU and 0 otherwise. The magnitude and the level of excitation or inhibition of different weights in neurons are a function of their geometrical distance between neurons on the lattice generating a typical function like a Mexican hat whose values are included in a range from 0 to 1 (Kohonen, 1984; Kasky and Kohonen, 1996).



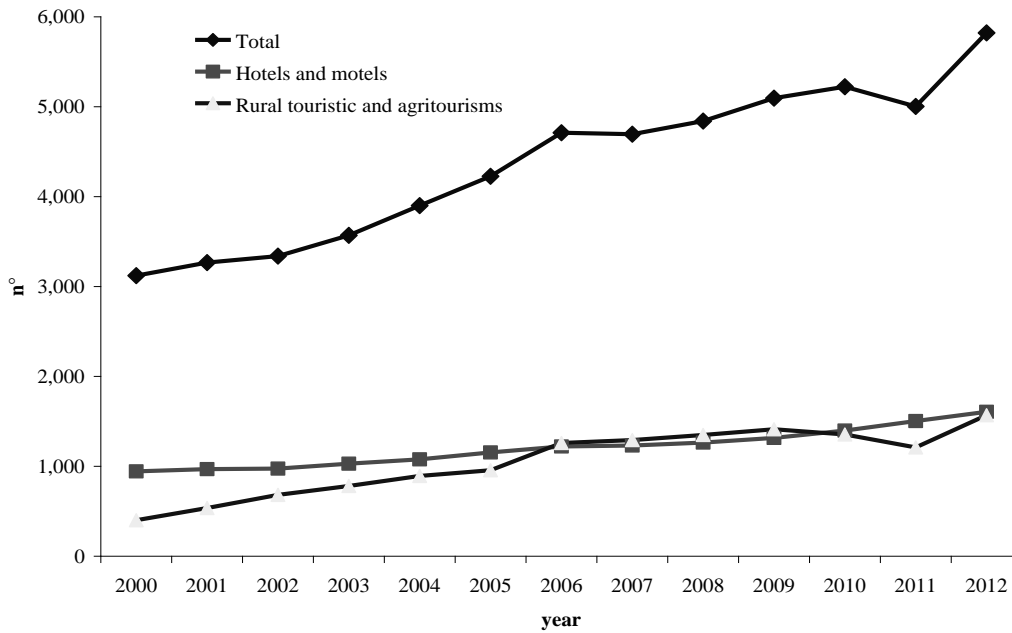
**Figure 1.** Average value of the diffusion of agritourism in Romanian regions over a six-year period (2007-2012)

Source: elaboration on data retrieved from <http://www.insse.ro/cms/en/content/statistical-yearbook-2013>

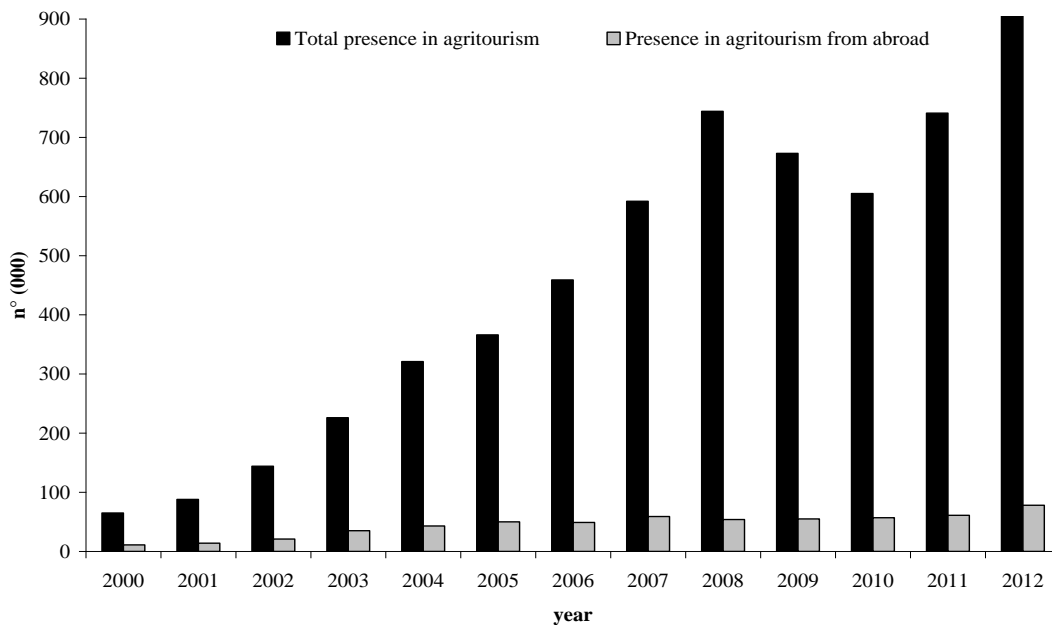
### RESULTS AND DISCUSSION

According to the National Institute of Statistics, in Romania, in 2012, there were more than 1,500 agritourisms and 5,800 hotels mainly concentrated in the Centre Region and in the North-East Region. The outcomes in average values have stressed that in the Bucharest-Ilfov Region there are only seven agritourisms and over a two-year period, 2009-2010, there was a significant reduction, which involved all Romanian regions as a consequence of the economic crisis (Figure 1). Descriptive statistics have underlined that, in Romania, there are significant deviations among regions; in fact, the minus value was pointed out in the Bucharest-Ilfov Region and the highest value was pointed out in the North-East region in 2007, where there were 783 agritourisms active (Table 1).

In twelve years, Romania has doubled its own accommodation facilities even if the growth of agritourism was less steady compared to the increase in the number of hotels, particularly after 2006, when Romania became a member of the European Union (Figure 2). The presence in Romanian agritourism was significantly sensitive to the economic crisis even if the agritourists from abroad did not seem to be influenced by exogenous effects such as the economic crisis (Figure 3).



**Figure 2.** Evolution of different typologies of accommodation facilities in Romanian agritourisms  
 Source: elaboration on data retrieved from <http://www.insse.ro/cms/en/content/statistical-yearbook>, different years



**Figure 3.** Presence in Romanian agritourisms since 2000  
 Source: elaboration on data retrieved from <http://www.insse.ro/cms/en/content/statistical-yearbook>, different years

**Table 1.** Main descriptive statistics during 2007-2012 in Romanian agritourisms

Average value	177.29	SQM	179.19
Median value	106.00	Variance coefficient	1.02
Min	2.00	Asymmetry	1.72
Max	783.00	Kurtosis	2.42

Source: elaboration on data retrieved from <http://www.insse.ro/cms/en/content/statistical-yearbook> 2013

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**Table 2.** Correlations among subsidies allocated by the rural development (Pillar II), Farm Net Income (FNI) and Usable Agricultural Surface (UAS) over the period 2007-2012

Romanian regions	Subsidies allocated by Pillar II of the CAP and FNI	Subsidies allocated by Pillar II of the CAP and UAS
North-East	0.9027	0.9174*
București-Ilfov	-0.6048	n.a.
Centre	0.0332	0.6719*
North-West	-0.6648	0.9486*
South-East	0.4412	0.8431*
South-Muntenia	0.4818	0.6055*
South-West-Oltenia	-0.0541	-0.2395*
West	-0.4412	0.9340

\* Significant at 5%

Source: our elaboration on data retrieved from <http://ec.europa.eu/agriculture/rica/>

**Table 3.** Multiple regression model in time series. Dependent variable number of agritourism in Romania

Variable	Coefficient	Std. error	T value	p-value	significant
Constant	137.194	42.735	3.2103	0.00258	***
UAS (ha)	30.0546	9.83274	3.0566	0.00393	***
Cereals (ha)	-66.6826	10.7621	-6.1961	<0.00001	***
Forage crops (ha)	41.5749	18.0303	2.3058	0.02625	**
LFA subsidies	-0.0789687	0.988712	-0.0799	0.93673	n.s.
Rural development support	-0.214562	0.0639915	-3.3530	0.00173	***
Single area payment	0.040351	0.0423438	0.9529	0.34621	n.s.

\*\*\* 1%; \*\* 5%; n.s. not significant

Source: our elaboration on data <http://ec.europa.eu/agriculture/rica/>

**Table 4.** Multiple regression model in time series with the introduction of a further variable tightly linked to the farmer's profitability such as Farm Net Income. Dependent variable number of agritourisms in Romania

Variable	Coefficient	Std. error	T value	p-value	significant
Constant	153.43	31.792	4.8261	0.00002	***
UAS (ha)	27.3139	9.54262	2.8623	0.00666	***
Cereals (ha)	-61.2474	13.7903	-4.4414	0.00007	***
Forage crops (ha)	43.1432	15.7048	2.7471	0.00897	***
LFA subsidies	-0.03649	0.98810	-0.0369	0.97072	n.s.
Single area payment	0.043965	0.04101	1.0720	0.29013	n.s.
Rural development support	-0.20098	0.06604	-3.0430	0.00413	***
Farm Net Income	-0.00523	0.003289	-1.5901	0.11968	n.s.

\*\*\* at 1%; n.s. not significant

Source: our elaboration on data <http://ec.europa.eu/agriculture/rica/>

**Table 5.** *Multiple regression model in panel data fixed effect. Dependent variable number of agritourisms in Romania*

Variable	Coefficient	Std. error	T value	p-value	significant
Constant	129.431	45.2216	2.8622	0.00725	***
UAS (ha)	22.6685	8.71318	2.6016	0.01378	**
Cereals (ha)	-61.2989	13.4337	-4.5631	0.00007	***
Forage crops (ha)	39.2766	18.9022	2.0779	0.04558	**
Farm Net Income	-0.00627	0.00276	-2.2686	0.02996	**
LFA subsidies	-0.00627	0.00276	-2.2686	0.02996	**
Single area payment	0.13590	0.06803	1.9976	0.05406	*
Rural development support	-0.176606	0.102136	-1.7291	0.09313	*

\*\*\* at 1%; \*\* at 5%; \* at 5-10%

Source: our elaboration on data <http://ec.europa.eu/agriculture/rica/>

The correlation between subsidies, allocated by the Common Agricultural Policy, and the farm size in terms of usable agricultural surface (UAS) has pointed out that there is no correlation between the subsidies allocated by the second pillar of the CAP and the variable farm net income (Table 2). Subsidies exclusively allocated by the second pillar of the Common Agricultural Policy in order to implement the rural development and the Usable Agricultural Surface have stressed a direct correlation, with the only exception of the Bucharest-Ilfov Region. In the South-West Oltenia Region, the findings have pointed out an indirect correlation whereas in all the other six Romanian regions out of eight there has been a positive correlation between these two above-mentioned variables. This implies that subsidies allocated by the second pillar of the CAP are sensitive to the dimension of farm and specifically in favour of large-sized farms.

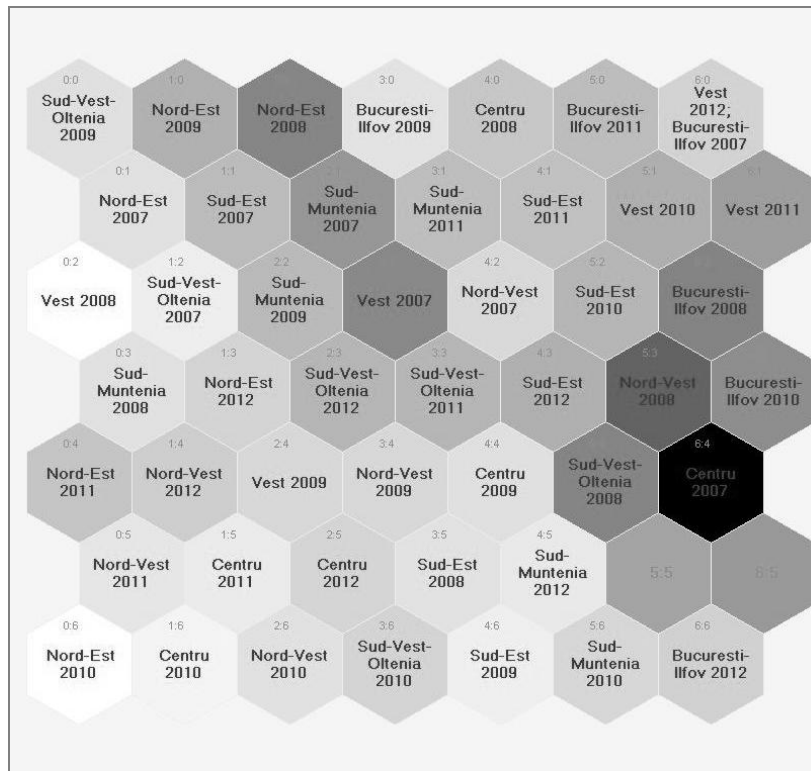
The multiple regression model has pointed out that the dependent variable, agritourism in Romania, is directly correlated to the independent variables Usable Agricultural Surface, surface with forage crops. This has demonstrated that agrotourisms are located and concentrated in specific rural territories situated in areas with wide agricultural surface cultivated with extensive crops, which needed to improve the levels of farmer's profitability and the production differentiation by means of agritourism (Table 3). The financial subsidies allocated by the second pillar of the CAP through the Rural Development Plan have stressed an indirect and statistically significant impact on the development of farm holidays in Romania.

If in the multiple regression model one inserts the independent variable such as Farm Net Income, findings have not pointed out significant effects on the increasing in the number of agritourisms (Table 4). Summing up, in both multiple regression models it has been possible to observe as errors are normally distributed with the existence of a structural break due to the economic crisis over two-year period 2009-2010. The multiple regression models have had value of  $R^2$  and adjusted  $R^2$  equal to 0.56 and 0.50 in the first simulation and 0.57 and 0.49 in the second simulation, or rather by introducing the variable farm net income, with an absence of heteroscedasticity and good linear relationships between all analyzed variables. The multiple regression model, using a Fixed Effect panel data, which according to the Hausman test results has fitted well to our data, more than the Random Effect, has underlined that the financial subsidies allocated in favour to stayed beyond rural areas did not produce any effects on the growth of the Romanian agritourisms, confirming findings estimated in the previous multiple regression model (Table 5).

The SOM analyzing all the variables in the model has pointed out that in 2007, in the Centre Region of Romania, there was the most significant concentration of agritourisms (Figure 4), with a significant diffusion of farm holidays in 2008 and in 2010 (black hexagon and greyish ones). Considering only a unique variable such as the number of agritourisms or financial subsidies allocated by the European Union in order to promote rural development, findings in SOMs have stressed a significant diffusion of agritourism in Romanian rural areas in 2011 and in 2012, where higher there was the allocation of subsidies disbursed by the EU in favour of rural development (Figure 5).

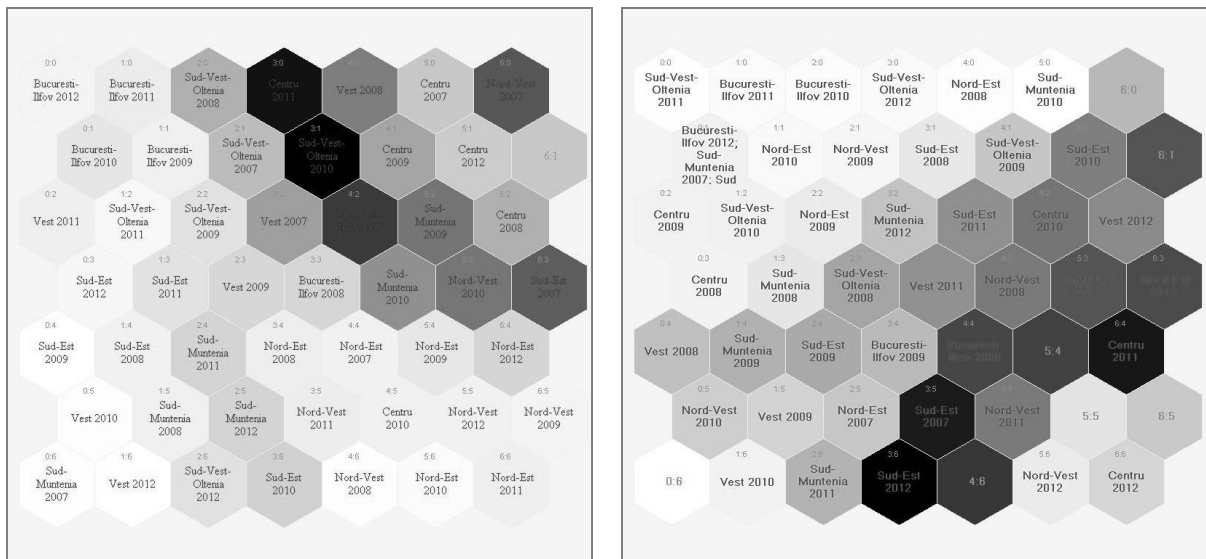


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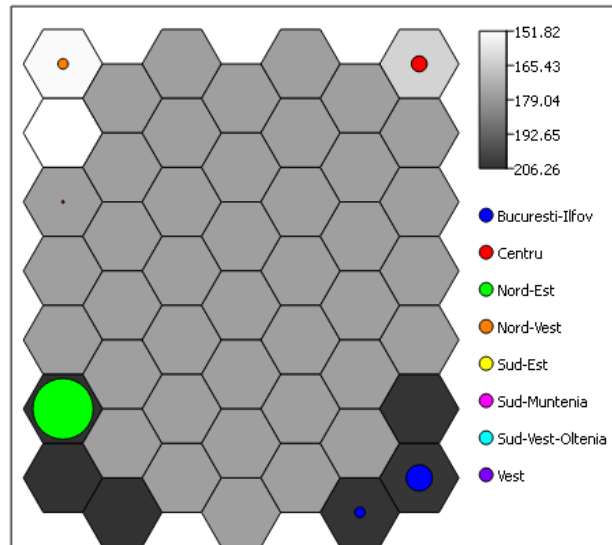
**Figure 4.** Kohonen's maps considering all variable in the model

Source: our elaboration on data <http://ec.europa.eu/agriculture/rica/> and data retrieved from <http://www.insse.ro/cms/en/content/statistical-yearbook>, different years



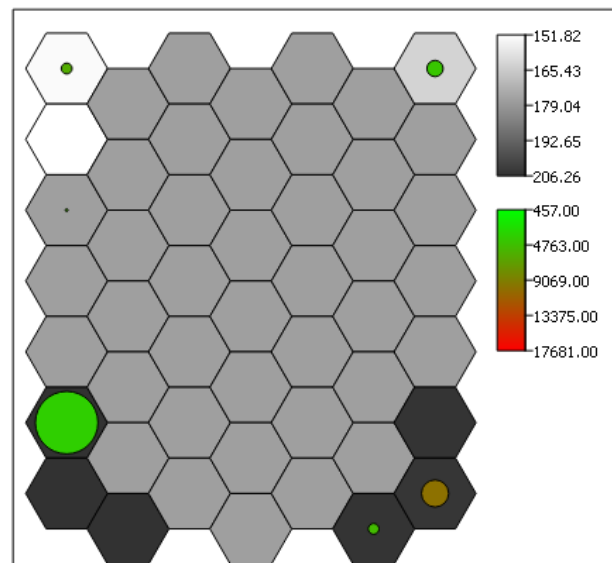
**Figure 5.** Evolution of agritourisms in all Romanian regions (on the left) and impact of the subsidies allocated by the Rural Development Plan (on the right) over the six-year period 2007-2012

Source: our elaboration on data <http://ec.europa.eu/agriculture/rica/> and data retrieved from <http://www.insse.ro/cms/en/content/statistical-yearbook>, different years



**Figure 6.** SOM about the concentration of agritourism in Romanian regions. The scale of grey implies a different growth of agritourisms

Source: elaboration on data retrieved from <http://www.insse.ro/cms/en/content/statistical-yearbook>, different years



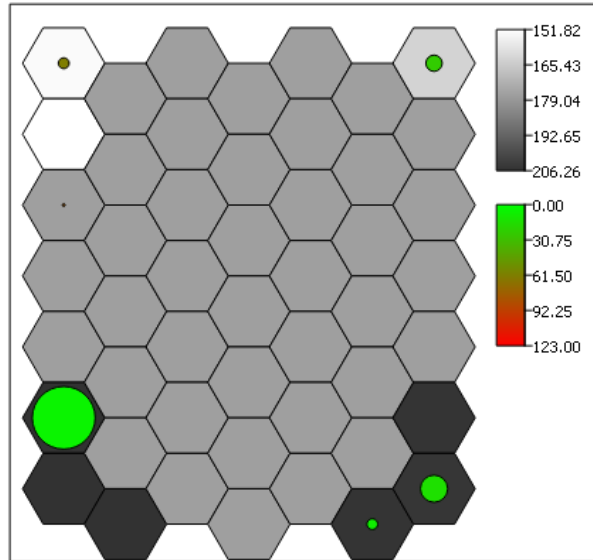
**Figure 7.** Comparing the growth of agritourisms in SOM (grey scale top right) and farm net income in coloured scale

Source: our elaboration on data <http://ec.europa.eu/agriculture/rica/> and data reported in <http://www.insse.ro/cms/en/content/statistical-yearbook>, different years

The Kohonen's maps have shown that in the North-East Region there was the greatest increase and concentration of farms (black hexagons), whereas in the North-West Region there was the lowest diffusion of agritourism or white hexagons (Figure 6). SOM maps have pointed out that in areas where there is the greatest concentration and distribution of agritourisms, there were the lowest levels of farmer's net income, which implies that the pluriactivity in differentiated agricultural activities, such as rural tourism, are typical of farms with low levels of profitability; hence, agritourism is a good change to increase levels of income in farms through a diversification in their activities (Figure 7). The Kohonen's maps showed that agritourism is concentrated in rural areas with a low

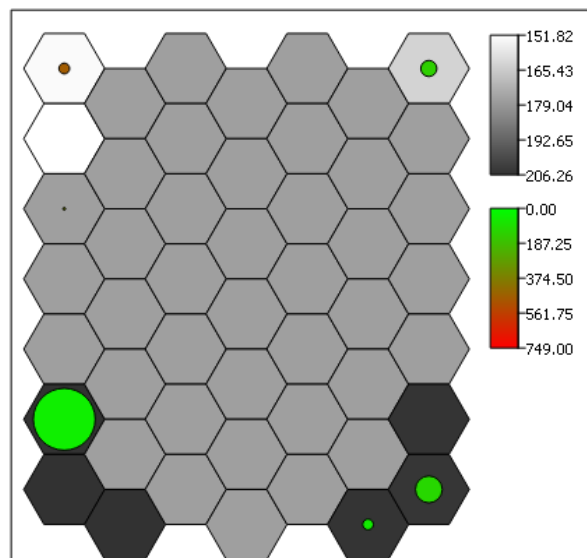
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value of financial support paid to less favoured areas (Figure 8), as well as a lower level of subsidies paid by the second pillar of the CAP to support rural development (Figure 9).



**Figure 8.** Main results on SOM comparing growth of agritourisms (grey scale top right) and subsidies allocated to less favoured areas (LFA) in coloured scale

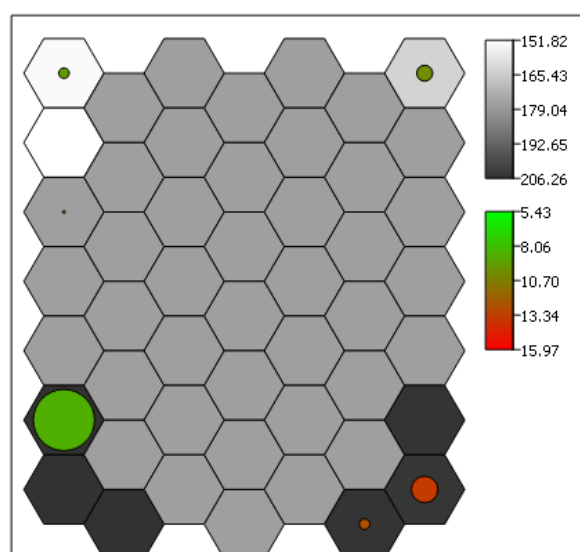
Source: our elaboration on data <http://ec.europa.eu/agriculture/rica/> and data retrieved from <http://www.insse.ro/cms/en/content/statistical-yearbook> different year



**Figure 9.** Main results on SOMs comparing growth of agritourisms (grey scale top right) and subsidies allocated by Pillar II of the CAP in coloured scale

Source: our elaboration on data <http://ec.europa.eu/agriculture/rica/> and data retrieved from <http://www.insse.ro/cms/en/content/statistical-yearbook> different year

The Kohonen's map, able to investigate the main relationships between the growth of agritourisms in Romania and the usable agricultural surface, has pointed out that the greatest diffusion of farm holidays is located in areas characterized by wide usable agricultural surface (UAS), where it is possible to find out the most significant diffusion of farms (Figure 10); hence, the highest endowment of UAS, the greatest the spread of agritourisms.



**Figure 10.** *Main results on SOMs comparing growth of agritourisms (grey scale top right) and Usable Agricultural Surface in coloured scale*

Source: our elaboration on data <http://ec.europa.eu/agriculture/rica/> and data retrieved from <http://www.insse.ro/cms/en/content/statistical-yearbook> different year

## CONCLUSION

The analysis has stressed the pivotal, but not unique role of financial supports allocated by the Common Agricultural Policy in the growth of agritourism; in fact, in the Romanian regions, where the rise of agritourism has been significant, the positive socio-economic impact of funds allocated by the EU in favour of rural development has been higher. The role and function of subsidies in favour of disadvantaged rural areas (LFA payments), one of the most important tool aimed at reducing socio-economic marginalization in the countryside, lessening processes of out-migration from the rural space, should be boosted by EU. In fact, in a mosaic of an integrated and harmonized rural development in less favoured rural areas, LFAs financial supports are one of the most important patches generating rural districts as it was the case in Italy.

Outcomes have highlighted a substantial incidence of subsidies paid by the European Union in supporting rural development in rural areas characterized by a low level of farmer's income, which has brought about a considerable growth of farm diversification through agritourism. This has also corroborated the hypothesis according to which the diversification in the countryside is sensitive both to the funds allocated by the EU and to a low level of farm net income. Despite the economic crises, Romanian agritourisms have overcome this negative phase; hence, holidays in farms seem to be the most common typology of vacations for foreign tourists. Summing up, initiatives financed by the EU, such as LEADER and some measures in the next Rural Development Plan, are useful to implement the agritouristic Romanian supply. The most efforts should be focused on the marketing strategies towards other European countries and international markets emphasizing the sense of remoteness and amenity in rural areas linking it to specific food, typical of Romanian rurality. The generation turnover and the increase of rural surface, which is lower than 4 hectares, should be two actions, which the Romanian Rural Development Plan has to implement in order to avoid the social exclusion and marginalization in rural areas. In these areas, elderly is a bottleneck towards a developing rural tourism and towards the diversification of farmers' activities. Two billion euros allocated in specific actions provided by the measures 6 and 7 of the Romanian Rural Development Plan 2014-2020, in favour of diversification in rural areas and generational turnover, are the best opportunity to radically change and renovate rural areas in depth.

As a final remark, it is important for the Romanian agritourisms to generate and develop a recreational tourism directly in farms, giving value to local specificities, improving a fair growth of

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tourism infrastructures aimed at preserving rural villages, that are a clear example of a scattered multifunctional agriculture, and creating a network of socio-economic protection in different Romanian rural territories.

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