

## STATISTICAL ANALYSIS OF EVOLUTIONS OF DEMAND AND SUPPLY OF AGRO-TOURISTIC BOARDING HOUSES IN 2000 - 2012 PERIOD

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### **Abstract:**

*In the communist period in Romania international tourism was very strictly controlled. The domestic tourism, however, was developed to some extent in the years 70, but will have a decline in the 80s as a result of state control over the quota of fuel that can access an individual. The overwhelming majority of places to accommodate were offered by hotels, motels and campgrounds. After the fall of communism and the transition to the free movement of persons and gradually to a market economy began to emerge and develop tourist pensions. At the same time, reducing the working week, increased leisure time of individuals, has accelerated the development of tourism and increasing demand for overnight places. On the other hand, the concentration of population in urban centers has developed, in individuals, the need to escape in nature, in the countryside, on weekends or holidays, which have led to the development of rural tourism and agro-tourism. Based on these considerations, this paper captures the development of rural tourism demand and supply of accommodation places in agro-touristic boarding houses, in the period 2000-2012.*

**Key words:** agro-touristic boarding houses, accommodation capacity, tourist arrivals, overnight stays, development regions

**JEL classification:** C25, L83, O18, R20

### **INTRODUCTION**

Tourism is undoubtedly one of the most important factors of economic growth, job creation and improved quality of life. If before 1990 in Romania, as in other former communist countries, international tourism has been kept under very strict control, the changes faced by Romania with the transition to a market economy, implicitly influenced the tourism. "The presence of private property was felt especially by small accommodation units, such as the touristic boarding house and agro-touristic households. The growth in number of these types of units was due to a very attractive legislative initiative" (Hapenciuc C.V., 2006, pp.211-212).

The relatively low level of capital required to develop a tourism business and the great potential of Romania are factors that begin to lead the development of mass tourism. „While in Romania effects of mass tourism development are not yet as strong as in the Mediterranean or Latin American countries, we can already think of possible future implications of increased flow of foreign tourists" ( Babucea A.G. et.al., 2012)

The strong development of communication and free circulation of individuals in the EU are important factors of development of tourism and thus of significant rhythms of development of the rural tourism (Bălăcescu A., Răbonțu C.I., 2010) Generalization of Internet, both by developing infrastructure and facilitating individuals' access to the Internet, and fosters distribution of tourist services in Europe (Condratov I., 2006) and implicitly in Romania, although in this point of view we are, with Bulgaria, on the last place in UE28 (Enăchescu D. and Zaharia M., 2013).

At the same time, at least where young people, has had a process of skills development on Internet use in the acquisition of touristic services. Take place thus, a process of phasing out the intermediate links, a process that favors both the supply and demand for tourist services. Definitely, the tourism and the agro-tourism must be visible on the internet. Additional costs caused by this,

can be recovered by increasing the number of arrivals and overnight stays, and thus revenue of boarding houses.

Another important factor in the development of rural tourism is the changes in consumer behavior, driven indirectly by strong urbanization and concentration of population in urban centers increasingly higher. As a direct consequence, the behavior of the population of these urban centers there is a need to escape from everyday life in order to change the holiday destination for those active, mainly conducted in nature, which has significant implications for rural tourism activities. In these conditions "the most popular accommodation and food - hotels, respectively restaurants gradually loses its importance in favor of new forms of accommodation and food - boarding houses, much better integrated into the natural environment of these areas"( Stanciu P., 2006, p.447)

On the other hand, the tourism development may have a large involved on the environment, particularly in protected areas. The development of rural tourism and agro-tourism should take account a series of factors (Nastase C., 2006) among which conservation, diversification, working with rural, tourism as a tool and empowerment and local control.

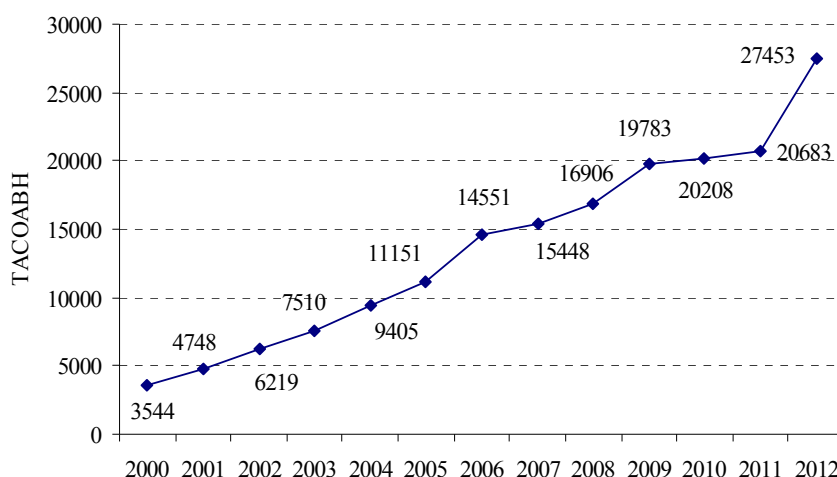
Last but not least, the tourism sector has proven to be a sector less affected by the economic crisis started in 2009, so "Romanian tourism managed to have indicators with positive evolution, it can be an activity for which the exit from the crisis does not represent an objective difficult to be achieved, and it can quickly restore other sectors, covered by the multiplier effect of tourism"(Răbonțu C.I., Vasilescu M., 2012).

Given the economic and social changes faced by Romania during the transition years, in time, there have been changes in the classification of tourist units which performing activities rural tourism. This is one of the reasons restricting the analyzed period to 2000 - 2012, the period for which data are provided by National Institute of Statistics from Romania

Statistical Office of the European Union (EUROSTAT) has developed and included in the REGIO database, Nomenclature of Territorial Units for Statistics (NUTS) in order to homogenize regional territorial units for statistics in EU. Territorial units NUTS are now structured hierarchically in three levels: NUTS 1 (97 regions), NUTS 2 (271 regions) and NUTS 3 (1303 regions). In Romania as a result their accessions to the EU, the three NUTS levels have the following structure (EC No.176/2008): NUTS 1, 4 macro, NUTS 2, 8 regions, and NUTS 3, the counties in each region. The following chapters analyze the evolution of agro-tourism activity based on this structure..

## **EVOLUTION AND DISTRIBUTION OF THE TOURISTIC ACCOMMODATION CAPACITY IN OPERATION OF AGRO-TOURISTIC BOARDING HOUSES IN THE PERIOD 2000-2012**

The touristic accommodation capacity in operation is defined by the Yearbook, published by National Institute of Statistics of Romania (ASR 2012, p.579), as "the number of available accommodation places for tourists in establishments of touristic reception with functions of touristic accommodation, multiplied with the number of days when the establishments are opened during the respective period. The places in rooms or establishments temporarily closed because of lack of tourists, for repairs or other reasons, are excluded."



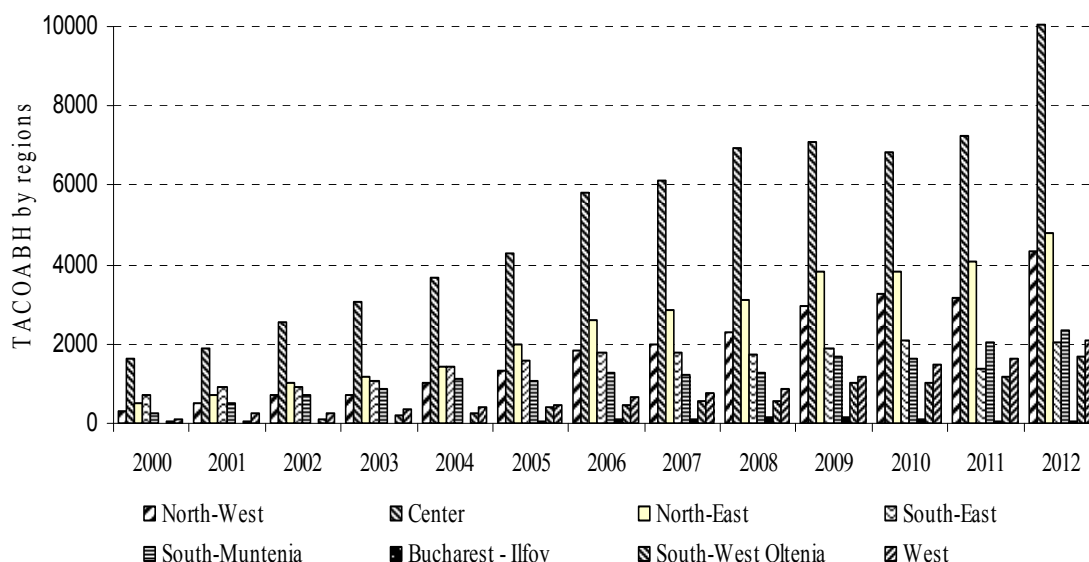
**Figure 1 – The evolution of the touristic accommodation capacity in operation of the agro-touristic boarding houses in Romania in the period 2000-2012**

The evolution of the Touristic Accommodation Capacity in Operation of the Agro-touristic Boarding Houses (TACOABH) in Romania in the period 2000-2012 is shown in Figure 1. The increasing trend of places offered by agro hostels in Romania is highlighted by the fact that the average absolute increase is approximately 1992 places annually, and the relative increase is 18.60% per annum.

As can be seen, in 2000-2005, the increase was almost linear, with annual values between 1204, in 2001, and 1895 accommodation places in 2004. In the period of economic growth, in 2006, TACOABH recorded the highest value from before the economic crisis (3400 accommodation place), double the previous year, followed by slow growth (897 accommodation places in 2007). The process creation of new accommodation places, feel the economic crisis in 2010 and 2011, years in which, in Romania, TACOABH grows only 425 accommodation places annually. Finally, the year 2012 brings a strong revival, TACOABH increasing by 6770 accommodation places, more than double the highest value recorded in the analyzed period.

At development regions level, the evolutions of TACOABH differ significantly. TACOABH evolutions in the 8 development regions in Romania are shown in Figure 2.

The most significant increase of TACOABH was registered in the Center region, which evolved from the 1619 existing places in 2000 to 10073 seats in 2012, representing in the whole, an average increase of approximately 705 seats per year, which, in relative value is evidenced by the average rate of 16.46% per annum. The region has a significant tourism heritage for the practice of agro-tourism including Sovata, Praid, Borsec, Vâlcele, Bran, Moeciu, Fundata, Predeal, Poiana Braşov precum şi Sibiel, Sălişte, Gura Râului, Tâlmăciu, the corridor Rucăr–Bran, alpine roads Tranfăgărăşan and Transalpina.



**Figure 2 – The evolution of the touristic accommodation capacity in operation of the agro-touristic boarding houses by development regions in the period 2000-2012**

In second place there is the North-East development region. In this region, the values of TACOABH increased from 526 seats in 2000, to 4817 seats in 2012, which represents a relative mean increase of 20.27% on the year 2000. This trend was due to enhancement of the valuable tourism potential of this development regions, among which the monasteries, Putna Sucevița, Moldova, Humor, Voroneț, Agapia, the health resorts Vatra Dornei and Durău, mountain ranges Giumalău and Rarău, as well Bicăz Canyon.

In third place, in terms of the increase in the values of TACOABH, there is the North-West development region, in which, in 2000 there were registered 308 places in agro-touristic boarding houses, and where in 2012 recorded 4326 places, which representing an average increase relative to 2000 by 24.63% per year, the average increase equivalent to an increase of approximately 335 accommodations places per annum. The increases of TACOABH value have been driven by the development of health tourism (Baile Felix, Baile 1 Mai, Stana de Vale), of the mountain tourism, the caves Vadu Crisului and Fortress of Ponor, the natural parks from Apuseni and Rodna Mountains, of the rural tourism in Oas and Maramures countries and not only.

Less spectacular increases of TACOABH values were recorded in the development regions South-East, South-Muntenia, South-West Oltenia and West. In the South East region, TACOABH evolved from 697 seats in 2000, to 2047 seats in 2012, the relative average increase of 9.39% per annum being equivalent to about 113 seats per annum. Fairly low level of existing accommodation capacity recorded in this region over the analyzed period, is because it include Constanta county, where rural tourism is very low. On the other hand, the Danube Delta is an attractive tourist area in the region that lends itself well to the practice of rural tourism, and which in recent years has begun to develop.

A somewhat similar situation was recorded in the South development region, where, the tourist accommodation capacity in operation of agro-touristic boarding houses increased by about 174 seats per annum, an average rate of increase to 19.75% per annum, in the period 2000-2012. These increases are mainly driven by development of rural tourism in Prahova, Dâmbovița and Arges.

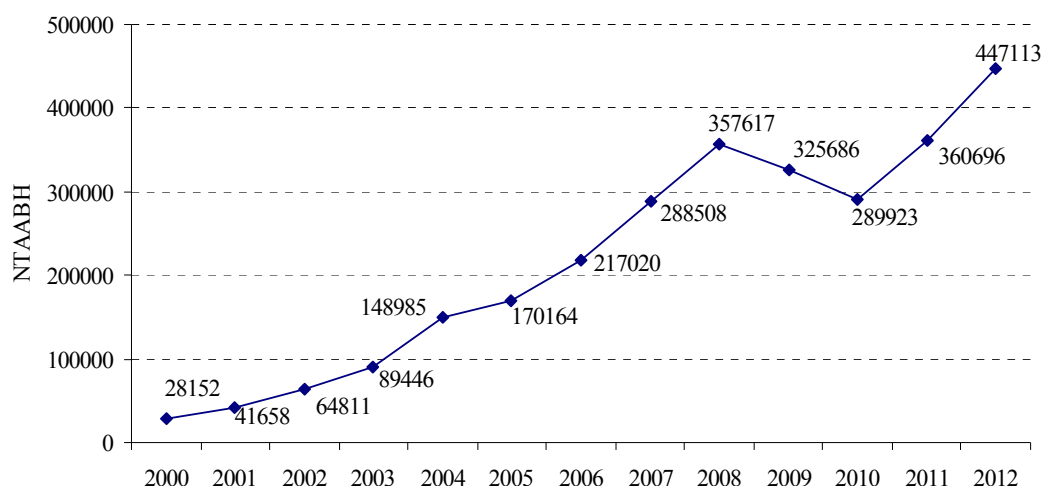
In the South-West Oltenia development region the values of TACOABH increased from 38 places in 2000, to 1695 places in 2012, representing an average rate of increase of 37.23% annually and an absolute average increase about 138 seats per annum. The increase was driven by the tourism potential of Gorj (the caves Cloșani, Ponoare, the monasteries Tismana Polovraci, Lainici), of Mehedinți (National Park Domogled-Cerna Valley) and of Valcea (the health resorts Olanesti, Călimănești, Căciulata and Govora, the monasteries Curtea de Arges, Horezu and Cizia).

In the West development region in 2000, TACOABH record 77 places and 2073 places in 2012, which represents a average rate of increase of 31.58% annually about 166 places per annum. Here we can mention the health resorts Herculane, Crivaia, Buziaş Moneasa, Lipova and Călăcea, national parks Nera - Beuşniţa, Semenic – Caraş Canyon, Domogled - Cerna Valley, Iron Gates Natural Park, and the mountains Retezat and Parang. Also, for this region, its potential is favorable for the development of rural tourism.

Very small increases of TACOABH values were recorded in the Bucharest-Ilfov development region. Here TACOABH appears in the statistics since 2003 with a value of 23 places and will reach 65 places in 2012. The average increase is about 5 places per year. Now, this region is not a area for the rural tourism.

### EVOLUTION OF THE TOURIST ARRIVALS IN AGRO-TURISTIC GUESTHOUSES IN THE PERIOD 2000-2012

The second analyzed indicator is the Number of Tourists Arrivals in Agro-touristic Boarding Houses (NTAABH). It refers to persons who travel outside the localities in which they reside for a period of less than 12 months and spend at least one night in a tourist accommodation in areas visited in the country, for other reasons than that of gainfully employed in places visited. The evolution of NTAABH values in total agro-touristic boarding houses in Romania in the period 2000-2012 is shown in Figure 3.

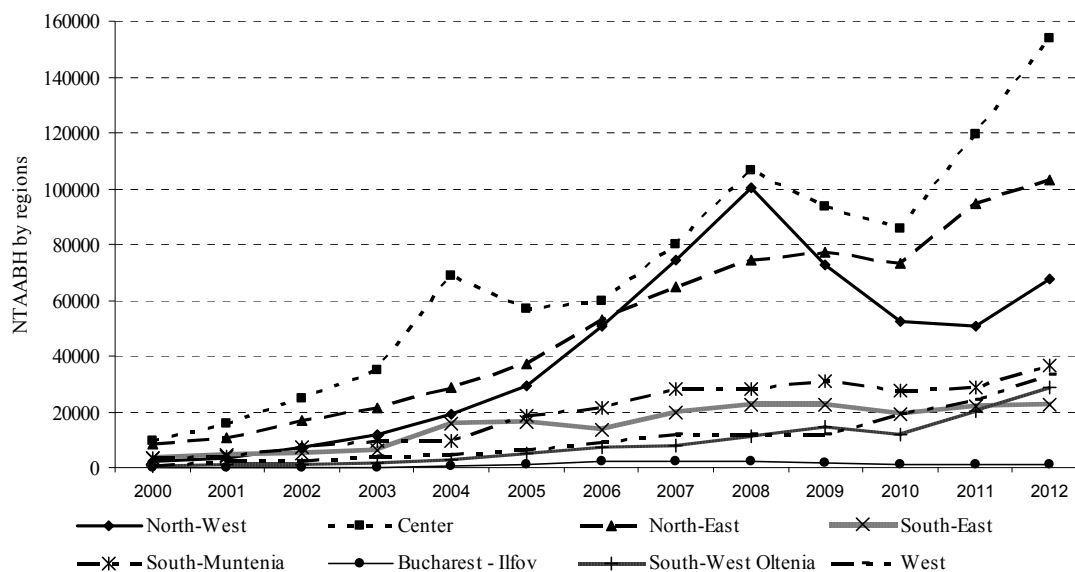


**Figure 3 – The evolution of the touristic arrivals in agro-touristic boarding houses in Romania in the period 2000-2012**

The chronogram show the evolution of NTAABH values in Romania, in the period in which, except for the period 2008-2010, as if of TACOABH values, record increases, only that the average growth rate (25.92% annually) is bigger than for TACOABH. The absolute average increase is about 34,913 tourists annually. In the period 2000-2008 the value of NTAABH increased continuously with an average annual rate of 37.40%. During this period, the lowest growth rate of NTAABH was recorded in 2005 (14.22% compared to 2004), and the highest in 2004 (66.56% compared to 2003).

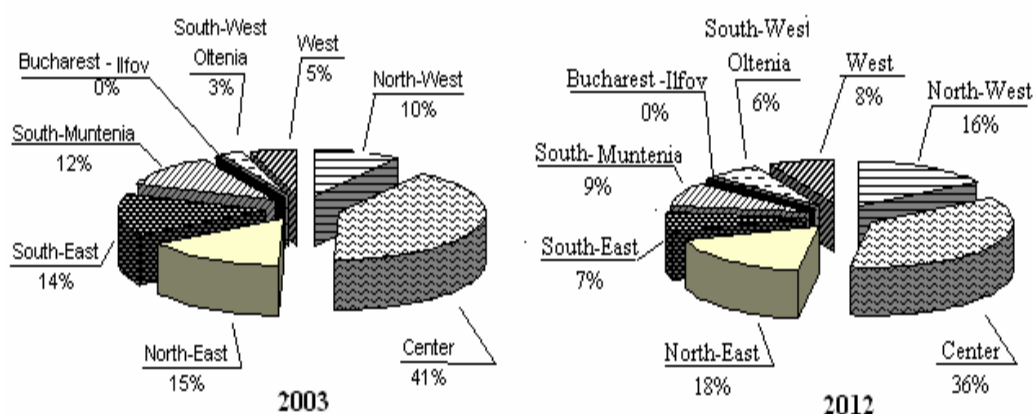
The economic crisis that started in 2009 had a significant impact on tourist traffic. The number of tourist arrivals fell by 31,931 in 2009 and 35,673 still tourists in 2010, so that in two years the reduction was 18.93%. Starting with 2010 there has been a revival of tourist traffic, NTAABH registered in Romania in 2010, slightly above (3079 people) value recorded by NTAABH in 2008. In 2012, this process increases in intensity (the absolute increase of 86,417 tourists compared to 70,773 tourists, increase recorded in 2011). Compared to 2000, in 2012 the number of tourists

arriving in agro-touristic boarding houses in Romania was 15.88 times higher. It is a significant increase.



**Figure 4 – Evolution of the number of touristic arrivals in agro-touristic boarding houses by development region in the period 2000-2012**

Regarding the developments of NTAABH values on development regions in Romania (Figure 4) also they recorded different rates. As can be seen, the values of NTAABH developments registered in the regions Central, North-East and North-West since 2003 and 2004 are moving away from the evolution of the NTAABH values recorded in other regions. Between the three development regions, the least affected by the crisis was North-East region and the hardest hit was the North-West region. Although affected by the crisis in 2009 and 2010, the Center region, from 2011, NTAABH registers the highest growth rates



**Figure 5 – Distribution of the number of touristic arrivals in agro-touristic boarding houses by development region from Romania in the years 2003 and 2012**

To highlight the evolution of preferences tourists visiting the touristic potential and accommodation in different development regions in Romania, Figure 5 shows the distribution of the number of touristic arrivals in agro-touristic boarding houses by development region from Romania in the years 2003 and 2012. Looking at the graphs it is observed that the share of the total number of touristic arrivals by region is close to the value of percentages of the existing accommodation capacity of agro-touristic boarding houses in Romania.

In 2003, in the top of tourists preferences, are the Centre region, in which were accommodated nearly half (41%) of the number of tourists arrived in agro-touristic boarding houses in Romania. In the second place, but at a value of 2.7 times less is the North-East region. In 2003, in these two development regions, were accommodated, 56% of tourists. On the following places were the development regions South-East (14%), South-Muntenia (12%) and North-West (10%), which attracted 36% of all tourists accommodated in agro-touristic boarding houses. Compared to this, in the development regions West and South-West Oltenia were accommodated 5% and 7% respectively of the total. In the Bucharest-Ilfov the percentage of tourists accommodated in agro-touristic boarding houses, in 2003, was below 1%.

Comparison with the values recorded in 2003, in 2012 shall be recorded changes in both the hierarchy and percentage values. Although Central and North-East regions remain, and in 2012, the first places with over 50% of all tourists accommodated in the agro-touristic boarding houses, the Center region lost 5 percentage points in value registered in 2003, tourists preferring other areas. In the North-East region the percentage of tourists accommodated in agro-touristic boarding houses, increase from 15% in 2003, to 18% in 2012.

Significant increases are also recorded in three development regions: the North-West region (6 percentage points) that reaches from 5th place, to 3rd place, the West region (3 percentage points) and the South West Oltenia region where the percentage of those accommodated in the agro-touristic boarding houses doubles. This highlights the a better promotion of the tourist potential of their regions, and of agro-touristic boarding houses supply also

On the other hand shall be recorded significant decreases in percentages of tourists accommodated in agro-touristic boarding houses in South-East region (from 14% in 2003 to 7% in 2012) and South-Muntenia (from 12% in 2003 to 9 % in 2012). Regarding the Bucharest-Ilfov development region, the percentage of tourists accommodated in the agro-touristic boarding houses remains still below 1%.

### **ANALISYS OF THE CORRELATION BETWEEN ACCOMMODATION CAPACITY IN OPERATION AND THE NUMBER OF TOURISTIC ARRIVALS**

In general, relations between phenomena are based on the fact that every phenomenon occurs under the influence of several factors, some essential and others with less influence and less significant. Research on these links is based either on the use of simple methods and ways of interpreting the links, or the applicable analytical methods by using mathematical functions and procedures.

In this chapter we stop on the correlation analysis of existing accommodation capacity in agro-touristic boarding houses (EACABH) and the number of arrivals in agro-touristic boarding houses (NTAABH) from Romania.

For this we chose EACABH as the dependent variable (the result) and NTAABH as an independent variable (factor). Graphical representation of the function:

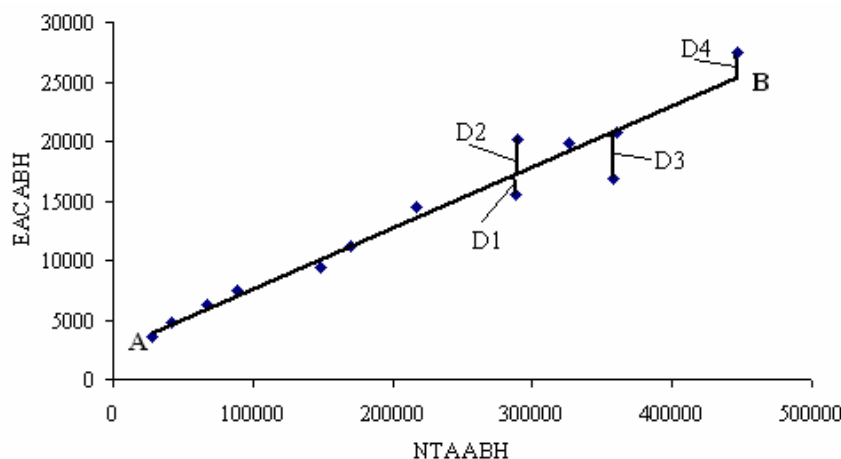
$$EACABH = f(NTAABH) + \varepsilon \quad (1)$$

is presented in figure 6. On first examination, taking into account the distribution of empirical values, we believe that the dependence of EACABH and NTAABH is linear,  $f(NTAABH)$  being shaped  $f(x) = \hat{a} + \hat{b}x$ . We note, however, that there are fore significant deviations from the regression line AB, denoted D1, D2, D3 and D4. To check the linearity assumption on the dependence between the two variables, a significance level, we test the hypothesis:

$H_0$  : There is no linear dependence between EACABH and NTAABH

$H_1$  : Between EACABH and NTAABH is significant linear dependence

The results are shown in Table 1. Value of *Multiple R* = 0.9734 confirms the existence of strong direct link between the two indicators analyzed. Also, the value of *R Square* = 0.9474 indicates that the decision of investors who wish to develop rural tourism is influenced significantly (90%) of the evolution of the number of tourists who prefer this kind of tourism. We note, however, that the small number of observations (13 observations) indicates a certain reserve in generalizing of this assertion.



**Figure 6 – Correllogram of dependence between EACABH and NTAABH**

The econometric model is:

$$f(\text{NTAABH}) = 2474.9 + 0.0514 \cdot \text{NTAABH} \quad (2)$$

Given that for model (2), *Significance F* =  $2.2128 \cdot 10^{-8} < 0.05$  follows that it is statistically valid and therefore, regression coefficient  $\hat{b} = 0.0514$  we show that an increase of one unit of NTAABH, will result an average increase of EACABH of 0, 0514 accommodation places  $\hat{b} \in [0.0433, 0.0594]$ . In other words, to sensitize investors to create extra accommodation is necessary to increase the tourist arrivals in agro-touristic boarding houses by about 20 (between 16.8 and 23.1 tourist arrivals). Of course this is a general conclusion. In practice must take into account the particular circumstances in each development region, every county and tourist area. A development and a deepening of this analysis will be carried out in a forthcoming paper.

**Tabel 1- Testing dependence between EACABH and NTAABH**

| SUMMARY OUTPUT        |           |                |                |                   |                |
|-----------------------|-----------|----------------|----------------|-------------------|----------------|
| Regression Statistics |           |                |                |                   |                |
| Multiple R            | 0,9734    | R Square       | 0,9474         | Adjusted R Square | 0,9427         |
| Standard Error        | 1740,2770 | Observations   | 13             |                   |                |
| Observations          | 13        |                |                |                   |                |
| ANOVA                 |           |                |                |                   |                |
| ANOVA                 | df        | SS             | MS             | F                 | Significance F |
| Regression            | 1,0000    | 600498170,7281 | 600498170,7281 | 198,2782          | 2,21285E-08    |
| Residual              | 11,0000   | 33314203,5796  | 3028563,9618   |                   |                |
| Total                 | 12        | 633812374,3    |                |                   |                |



|           | <i>Coefficients</i> | <i>Standard Error</i> | <i>t Stat</i> | <i>P-value</i> | <i>Lower 95%</i> | <i>Upper 95%</i> |
|-----------|---------------------|-----------------------|---------------|----------------|------------------|------------------|
| Intercept | 2474,9303           | 929,6123              | 2,6623        | 0,0221         | 428,8674         | 4520,9932        |
| NTAABH    | 0,0514              | 0,0036                | 14,0811       | 2,21E-08       | 0,0433           | 0,0594           |

Regarding the parameter  $\hat{a}$ , given that  $P - value = 0.0221 < 0.05$ , follows that and this is valid, although in the particular case considered, it has no economic significance.

Given the value of  $Significance F = 2.2128 \cdot 10^{-8} < 0.05$ , the final conclusion is that the hypothesis  $H_0$  is rejected and is accepted the hypothesis  $H_1$ . Therefore between the existing accommodation capacity in agro-touristic boarding houses and the number of tourist arrivals in agro-touristic boarding houses in Romania there is a intense direct correlation.

## CONCLUSION

Under the spectrum of political and of socio-economic changes, the evaluation of rural tourism, highlights recovery efforts in this field. These efforts have led to the emergence of new tourist accommodation which attempts to present themselves the high quality standards to meet ever more tourists requirements, reflected the increase registered in the number of tourist arrivals in agro-touristic boarding houses in most regions. Are significant in this respect, the growth rates recorded by the development regions Centre, North-East and even North-West where the economic crisis had a greater impact on the development of rural tourism in 2009-2010.

Another issue that resulted from the analysis, it is the changes in the preferences of tourists visiting and staying overnight in the agro-touristic boarding houses in developing regions from Romania. Thus, while in regions like South West, West, North-West and the North-East the percentage of the tourist arrivals grew, in the others are registered decreases. A special situation is registered in Bucharest-Ilfov region where rural tourism is virtually nonexistent.

Although not resulting from this analysis, for rural tourism development, road infrastructure development continues to be a priority item. Also, the adoption of the national level of certain measures for protected and conservation of the tourism heritage and of the traditional Romanian villages are absolutely necessary.

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