RESEARCH ON THE DYNAMICS AND TERITORIAL DISPERSION OF THE OCCUPIED POPULATION IN ROMANIA'S TOURISM IN THE PERIOD 2007-2015

Agatha POPESCU

University of Agricultural Sciences and Veterinary Medicine Bucharest, 59 Marasti Boulevard, District 1, Postal code 011464, Bucharest, Romania, Phone: +40213182564, Fax: +40213182888,
Email: agatha_popescu@yahoo.com

Corresponding author: agatha_popescu@yahoo.com

Abstract

The paper aimed to analyze the evolution of the population occupied in tourism compared to the population occupied in the national economy in the period 2007-2015 using the empirical data provided by National Institute of Statistics. Index method, comparison method, descriptive statistics, Pearson correlation coefficient, linear regression function, and Herfindhal-Hirschman and Gini-Struck indices were used as methodological framework. The population occupied in tourism activities increased by 12.02 % from 155.5 thousand persons in 2007 to 174.2 thousand persons in 2015. Tourism contributes by 2.07 % to the population occupied in the economy. The Bucharest-Ilfov, Centre and SE micro-regions have the highest number of population working in tourism: 21.19%, 16.07%, and respectively 12.45%. The South West Oltenia and West micro-regions have the lowest shares of population employed in tourism. The persons working in tourism are relatively uniform distributed in the territory as confirmed by Herfindhal-Hirschman and Gini-Struck indices. The tourism structure by professional status is: 90.8 % employees, 3.8 % employers and 5.4 % self employed people, higher figures than in the national economy. Tourism absorbed more younger persons than in the national economy. About 13.5 % of the employed persons in tourism belong to the 15-24 years category and 34.5 % belong to the 25-34 years category. The correlation coefficient r=0.588 between the number of people employed in tourism and the number of units for tourists' accommodation reflects that a higher number of tourists will require a larger accommodation capacity and more employment in tourism activities. The correlation coefficient r=0.355 between the number of places (beds) and the number of persons occupied in tourism is a weak. As a final conclusion, tourism is a dynamic branch of Romania's economy with a high potential to create jobs, employ young people and also women.

Key words: *analysis, dynamics, labor force, Romania, tourism, territorial dispersion*

INTRODUCTION

Tourism is the most dynamic sector of the world economy. In 2015, tourism represented 7 % of the world exports in goods and services. For this reason, it is situated on the 3rd position after fuels and chemicals and ahead of food and automotive products [15].

Tourism has an important contribution to the economic and social development of any country in terms of creating GDP, jobs and employment and also it contributes to the balance of payments [4,10,11].

Tourism industry includes a large variety of subsectors such as: accommodation, food service, transportation, retail, attractions, entertainment events (cultural, sport, scientific etc) and facilities. The most important component of tourism industry is "hospitality" consisting of accommodation and food services.

The engine of tourism development is tourism workforce and employment [3].

The status of work and human resource management in tourism is characterized and must be focused on the following key aspects: work and careers, ICT's impact on work and employment, training level and skills [2, 8].

Despite that tourism is criticized many times as it creates part-time, seasonal, low quality and informal jobs where migrants and women are employed, tourism it is unanimously considered the world largest employer [1, 12].

It requires a large variety of job skills and assures the fast absorption of young people, women and migrants into the workforce.

The hotel, catering and tourism industry (HCT) accounts for more than 30 % of the global services trade and also, it generates more than 1.5 million additional jobs in the related economic branches [6].

One job in tourism generates 1.5 jobs elsewhere [14].

"Employment in the tourism industry refers to all the jobs (or persons engaged) in both tourism-characteristic activities and non-tourism-characteristic activities in all establishments in tourism industry" as defined by IRTS, 2008 [7].

In 2014, the global employed workforce accounted for 3.25 billion people. In tourism there are employed 204 million people (6.27 %), and it is expected as in 2019 to reach 296 million people.

All the relationships determined by the diversity, complexity and inter-linkage in tourism employment have a deep impact on the HRD sector by means of the types of workplace contracts referring to fulltime, part-time, temporary, casual and seasonal employment [6].

In the EU-28, over 12 million people is employed in the economic activities related to tourism. Of this, 7 million people (58.3%) work in the food and beverage industry, 2 million people is in transport (16.6 %), 2.4 million persons work in accommodation sector (20 %), 0.5 million people (4.2 %) work in travel agencies/tour operators. About 3.3 million people work in tourism accommodation, travel agencies/tour operators and air transport.

The EU tourism contributes by 22 % to the employment in the services sectors. When economic crisis started in 2008, the EU tourism sector has not been affected, on the contrary, the average annual growth rate in accommodation was 0.9 % in the following years

In the EU tourism there are employed 58% women, of which 60 % work in accommodation and 64 % in travel agencies/tour operators. About 40 % women are full time employed.

In the EU, about 13 % of workers employed in tourism belong to the 15-24 years age category, and in the accommodation sector the young people employed represent 15 % of the tourism employment.

In the EU, about 20 % of the employees in tourism have a low education level and in the accommodation sector it is a higher weight, 25 %.

In the EU, jobs are less stable than in the other branches of the economy, but the seasonality in tourists' flows only partially is reflected in tourism employment, and the regions with the high tourist activity have a lower unemployment rate compared to the national average rate [13].

The efficiency of work in a tourism company depends mainly of human resources' features in terms of quality, education and competence, motivation, wage, work management, and work cost [5].

The quality of tourism services depends not only by the technical endowment in accommodation, transportation etc, the amount and quality of food, and the number of employed people in HRD, but also of the specific qualities, capabilities, skills and talent of the employees: kindness, receptivity, correct attitude, communication skills, thoughtfulness etc in the contact with clients. For this reason, the strategy in tourism employment must be focused on personnel recruitment, training, motivation, wage, and work conditions [12].

For the development of tourism, good quality jobs are crucial as affirmed by International Labour Organization, ILO, 2010 [6].

Tourism is an economic activity which could contribute to the reduction of unemployment in the world, as it has done so far, but the quality of its employees is the driver of its development.

In this context, the paper aimed to analyze the status of workforce in Romania's tourism pointing out the dynamics of the occupied population in tourism industry, its share in the occupied population in the national economy, its regional dispersion in the territory, its structure by professional status, age group and education level, its relationship with the number of units and places for tourists' accommodation in the period 2007-2015.

MATERIALS AND METHODS

The research claimed the collection of the empirical data from the National Institute of Statistics Data base for the period 2007-2015.
The main indicators taken into consideration have been the following ones: the dynamics of the occupied population in the national economy, the dynamics of the occupied population in tourism industry (Hotels and Restaurants), the share of the occupied population in tourism in the total occupied population in the national economy, the distribution of the occupied population in the national economy by micro-region, the distribution of the occupied population in tourism by micro-region, the structure of the occupied population in the national economy by professional status, the structure of the occupied population in tourism by professional status, the structure of the occupied population in the national economy by age group, the structure of the occupied population in tourism by age group, the number of units for tourists' accommodation, the correlation between the occupied population in tourism and the number of units with touristic accommodation function, the regression between the occupied persons in tourism depending on the number of the units for tourists' accommodation, the number of places (beds) in units for tourists' accommodation, the correlation between the occupied population in tourism and the number of places in units with touristic accommodation function, the regression between the occupied persons in tourism depending on the number of places in units for tourists' accommodation.
The methods used in this research have been the following ones:
-**Index method,** using the index with fixed basis $I_{FB}(\%)$, according to the formula: $I_{FB}= X_n/X_0*100$;
-**Descriptive statistics** regarding: mean, standard error, median, sample variance, kurtosis, skewness, minimum and maximum value;
-**Variation Coefficient**, $V_\%$, using the

formula: $V_\% = \dfrac{S}{\overline{X}} * 100$

-**Contribution of tourism to the occupied population in the economy,** according to the formula: $OP_{Ti}(\%) = OP_{Ti}/OP_{NEi}*100$, where $OP_{Ti}=$ occupied population in tourism in the year i, OP_{NEi} = occupied population in the national economy, and i= 2007, 2008, and ...2015;
-**The share of the occupied population in tourism in the occupied population in the national economy by micro-region**, according to the formula: $OP_{Tj}(\%) = OP_{Tj}/OP_{NEj}*100$, where $OP_{Tj}=$ occupied population in tourism in the micro-region i, OP_{NEi} = occupied population in the national economy, and i=1,2...8 micro-regions.
-**The Pearson correlation coefficient** based on the formula:

$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[\,n\Sigma x^2 - (\Sigma x)^2\,][\,n\Sigma y^2 - (\Sigma y)^2\,]}}$$

The regression function based on the formula: y = ax+b where y = the dependent variable and x= the independent variable, a and b = the regression parameters;
ANOVA, including df, SS, MS, F and significance F, for regression, and also the values for X variable 1 and intercept and their standard error, T stat, P-value, for lower and upper 95%.
The Herfindhal-Hirschman Index was calculated according to the formula: H-H= $\sum_{i=1}^{n} g_i^2$ where n is the number of micro-regions of development, in Romania i=1,...8, and g_i^2 is the square of the share of each micro region in the total value of the analyzed indicator
The Gini-Struck coefficient was determined using the formula: GS= $\sqrt{\dfrac{n\sum_{i=1}^{n} g_i^2 - 1}{n-1}}$

RESULTS AND DISCUSSIONS

The occupied population in the national economy accounted for 8,725.9 thousand persons in 2007 and registered a slight increase of 0.24 % in 2008. The beginning of

economic crisis in 2008 has deeply affected employment, so that the occupied population in the national economy declined year by year reaching the lowest level in 2011, 8,365.5 thousand persons, by 4.14 % less than in 2007.

Since 2012, the situation has changed so that the number of persons involved in economic activities started to recover, but the peak was recorded only in 2012, accounting for 8,569.6 thousand persons, but then, in the next years, the number of persons occupied in the economy declined reaching the lowest level more exactly 8,340.6 thousand persons in the analyzed period, 2007-2015.(Fig.1)

The descending trend in the occupied population in the national economy was the result of many causes. Among them, the most important ones were: the economic crisis with a negative impact on employment, the lack of jobs in the economy, mainly for young people, the decline of the number of young people graduating high schools and universities.
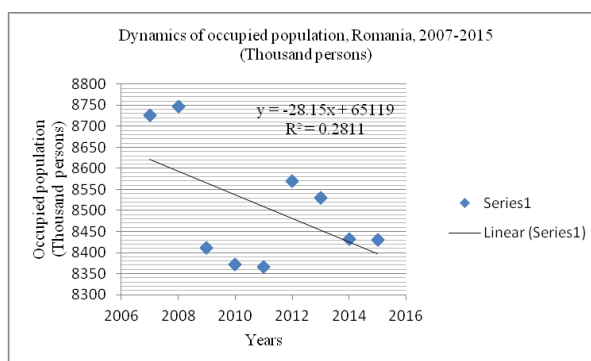

Fig.1.Dynamics of occupied population, Romania, 2007-2015 (Thousand persons)
Source: Own design based on NIS Data base, 2016 [9].

This structure was confirmed by the growth/decline indices presented in Table 1, the 2007 level being equal to 100.

Table 1. Fixed basis indices for the occupied population in the national economy, Romania, 2007-2015 (%)

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Fixed basis indices	100	100.2	96.3	95.9	95.8	98.2	97.7	96.9	95.6

Source: Own calculation based on NIS Data base, 2016 [9].

Descriptive statistics for the occupied population in the national economy is presented in Table 2.

Table 2. Descriptive statistics for occupied population at national level, Romania, 2007-2015

Descriptive statistics	Values
Mean	8509,11111
Standard error	48.47198631
Median	8431.7
Standard deviation	145.4159589
Sample variance	21145.80111
Kurtosis	-0.754287485
Skewness	0.854617641
Minimum	8365.5
Maximum	8747
Confidence level (95%)	111.7766008
Coefficient of variation (%)	1.70

Source: Own calculations based on NIS Database, 2016 [9]

The coefficient of variation of 1.70 % shows a low variation of this indicator in the analyzed period.

The territorial dispersion of the occupied population in the economy. Analyzing the situation among the 8 micro-regions of development, it is easily to notice that in the studied period some changes as mentioned below.

In 2007, the highest number of the population was occupied in the NE micro-region representing 14.4 %. On the 2nd position came Bucharest-Ilfov micro-region with 13.9 %, being followed by South Muntenia micro-region with 13.8 % and NW region with 13.5 %.

In 2015, Bucharest-Ilfov region concentrated 15.2 5 of the population occupied in the economy, being followed by NW micro-region with 14.1 %, NE micro-region with 13.8 % and S Muntenia with 13.4 %. SW Oltenia and West micro-regions are on the last positions with the lowest shares in the occupied population in the economic activities.
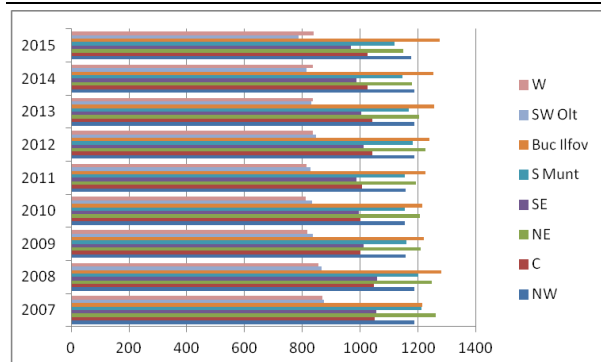
Fig. 2. Occupied population by micro-regions of development in Romania, 2007-2015
Source: Own design based on NIS Data base, 2016 [9].

The HHI and GS indices for the population occupied in the national economy. HHI was equal to 0.1262 in 2007 and 0.1275 in 2015, reflecting a slight increase of 1.03 %. However, the HHI has a low value varying between 0.10 and 0.15 reflecting a lack of concentration or, in other words, a relatively uniform distribution of the occupied population among micro-regions.

The GS also registered low values, 0.037 in 2007 and 0.053 in 2015, reflecting an relatively uniform dispersion in the territory regarding the population occupied in the national economy (Table 3).

Table 3. HHI and GS indices for the population employed in the national economy, Romania, 2007 and 2015

Micro-region	2007		2015	
	G_I	G_I^2	G_I	G_I^2
NW	0.135	0.0182	0.141	0.0198
C	0.120	0.0144	0.123	0.0151
NE	0.144	0.1207	0.138	0.0190
SE	0.121	0.0146	0.116	0.0134
S Muntenia	0.138	0.0190	0.134	0.0179
Bucharest-Ilfov	0.139	0.0193	0.152	0.0231
SW Oltenia	0.103	0.0100	0.094	0.0088
W	0.100	0.0100	0.102	0.0104
HHI		**=0.1262**		**=0.1275**
GS		**= 0.037**		**=0.053**

Source: Own calculations based on NIS Database, 2016, [9].

The occupied population in tourism increased from 155.5 thousand persons in 2007 to 174.2 thousand persons in 2015, reflecting a +12.02 % growth rate. The economic crisis affected the work force working in tourism so that in 2009, it was

registered a decline of 22.6 % compared to 2008 and by 19.5 % less compared to 2007. But starting from 2010, the tourism started to recover and it was noticed a growth of 6.22 % in 2010 compared to 2009, and in the coming years, the occupied population in this sector has continuously grown till 2015, a positive aspect reflecting an increased demand in tourism labor grace to the growth in the tourists' number.(Fig.3).
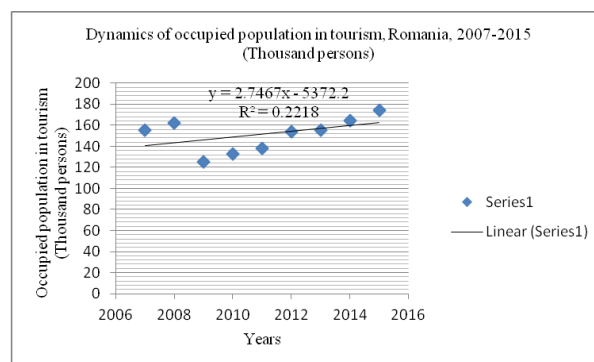

Fig. 3. Evolution of occupied population in Tourism, Romania, 2007-2015 [9].
Source: Own design based on NIS data base, 2016

The descriptive statistics for the occupied population in tourism is presented in Table 4. The coefficient of variation of 10.55 % shows a low variation of this indicator in the analyzed period.

Table 4. Descriptive statistics for occupied population in tourism, Romania, 2007-2015

Descriptive statistics	**Values**
Mean	151.3555556
Standard error	5.324318191
Median	155.5
Standard deviation	15.97295457
Sample variance	255.1352778
Kurtosis	-0.787526082
Skewness	-0.421994981
Minimum	125.3
Maximum	174.2
Confidence level (95%)	12.27789976
Coefficient of variation (%)	10.55

Source: Own calculations based on NIS Database, 2016 [9]

This structure was confirmed by the growth/decline indices presented in Table 5, the 2007 level being equal to 100. It showed the recover starting from 2010 till the end of the analyzed period.

Table 5. Fixed basis indices for the occupied population in the national economy, Romania, 2007-2015 (%)

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Fixed basis indices	100	104.1	80.5	85.5	88.6	99.1	100.1	105.7	112.0

Source: Own calculation based on NIS Data base, 2016 [9].

The contribution of tourism to the occupied population in the national economy is small but with an ascending trend in the analyzed period, after a few inflexions in 2009, after the beginning of the economic crisis and then in 2011. Since 2012, a continuous growth characterized this indicator. (Table 6.)

Table 6. The contribution of tourism to the occupied population in the national economy, Romania, 2007-2015 (%)

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Tourism contribution to the occupied population in the national economy (%)	1.78	1.84	1.49	2.09	1.65	1.80	1.83	1.95	2.09

Source: Own calculation based on NIS Data base, 2016

The dispersion of the occupied population by micro-region reflects that the highest number of persons are concentrated in Bucharest-Ilfov micro-region 18.65 % in 2007 and 21.19 % in 2015. On the 2nd position is the Central region with 16.07 % of the occupied population both in 2007 and in 2015, reflecting a constant situation. On the 3rd position it is placed SE micro region with 12.74 % in 2007 and, respectively 12.45 % in 2015.

The lowest shares were recorded in SW Oltenia and West micro-regions. Also, the share of S Muntenia region declined from 11.71 % in 2007 to 8.84 % in 2015, while the share of NV micro-region increased from 11.89 % in 2007 to 13.60 % in 2015 (Fig.4).
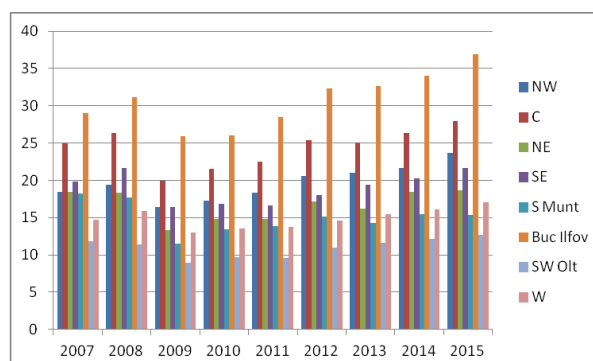

Fig.4.Occupied population in tourism by micro-region of development, Romania, 2007-2015 [9].
Source: Own design based on NIS Database, 2016

The share of the population occupied in tourism in the occupied population in the national economy in presented in Table 7.

Table 7. The share of the population occupied in tourism in the occupied population in the national economy by micro-region, Romania, 2007-2015 (%)

	2007	2008	2009	2010	2011	2012	2013	2014	2015
NW	1.5	1.6	1.4	1.5	1.6	1.7	1.8	1.8	2.0
C	2.5	2.5	2.0	2.1	2.2	2.4	2.4	2.6	2.7
NE	1.4	1.5	1.1	1.2	1.2	1.4	1.4	1.6	1.6
SE	1.9	2.0	1.6	1.7	1.7	1.8	1.9	2.0	2.2
S Muntenia	1.5	1.5	1.0	1.2	1.2	1.3	1.2	1.3	1.4
Bucharest-Ilfov	2.4	2.4	2.1	2.1	2.3	2.6	2.6	2.7	2.9
SW Oltenia	1.3	1.3	1.0	1.2	1.2	1.3	1.4	1.5	1.6
W	1.7	1.9	1.6	1.7	1.7	1.7	1.9	1.9	2.0

Source: Own calculations based on NIS Data base, 2016 [9].

The data reflect that in 2009 it was recorded a decline of the share of population occupied in tourism in the total population occupied in the national economy in all the micro-regions of Romania. Since 2010, it was noticed a slight recover in 7 micro-regions, except Bucharest Ilfov, where the share remained at 2.1 % like in 2009. In 2011, It was recorded an increase

of the share of population occupied in tourism only in NW, Central region, and Bucharest Ilfov, and in the other micro-regions, this share remained constant at the level of 2010. Since 2012, a number of 7 the micro-regions registered a higher share, except the West micro-region, but the last recorded a slight recover in the coming years.

However, the highest shares were noticed in the year 2008 for almost all the micro-regions.

The HHI and GS indices for the population occupied in tourism. HHI has a low value 0.1322 in 2007 and a little bit higher 0.1388 in 2015 (+4.99%), reflecting that we may affirm that there is a relatively uniform distribution of the occupied population in tourism activities in the territory of Romania by micro-region.

The GS index also recorded low values, accounting for 0.0968 in 2007 and 0.1255 in 2015, confirming the uniform dispersion of the population dealing with tourism in micro-region (Table 8).

Table 8. HHI and GS indices for the population employed in tourism, Romania, 2007 and 2015

Micro-region	2007		2015	
	G_I	G_I^2	G_I	G_I^2
NW	0.1189	0.0141	0.1360	0.0184
C	0.1607	0.0258	0.1607	0.0258
NE	0.1189	0.0141	0.1073	0.0115
SE	0.1274	0.0162	0.1245	0.0155
S Muntenia	0.1171	0.0137	0.0884	0.0078
Bucharest-Ilfov	0.1875	0.0347	0.2119	0.0449
SW Oltenia	0.0759	0.0057	0.0730	0.0053
W	0.0946	0.0089	0.0982	0.0096
HHI		=0.1332		=0.1388
GS		=0.0968		=0.1255

Source: Own calculations based on NIS Database, 2016, [9].

The occupied population at national level and in tourism by professional status. In 2015, in tourism it was found a higher share of employees, 90.8 %, compared to 60.4 % in the national economy, a higher share of the employers, 3.8 % compared to 1.7 % in the economy, a lower share for self employed persons 5.4 % compared to 9 % in the national economy, and there were no contributing family workers. This reflects that tourism absorb much better employed

population and has a more balanced structure regarding the professional status than in the national economy (Table 9).

Table 9. Occupied population at national level and in tourism by professional status, Romania, 2007-2015

Professional status	Occupied population at national level	Occupied in tourism	Share of tourism (%)
Year 2007			
Total (Thousand persons)	9,353	156	1.66
Employees (%)	66.2	82.7	1.97
Employers (%)	1.5	5.8	8.10
Self employed (%)	19.7	9.0	1.39
Contributing family workers (%)	12.6	2.5	0.23
YEAR 2015			
Total (Thousand persons)	8,340.6	174.2	2.08
Employees (%)	60.4	90.8	3.14
Employers (%)	1.7	3.8	4.55
Self employed (%)	25.3	5.4	0.43
Contributing family workers (%)	12.4	-	-

Source: Own calculations based on NIS Data base, 2016 [9].

Taking into consideration the results found by Snak et al. (2003) [12], who found in 1999, that the share of the occupied population in tourism (hotels and restaurants) was 1.09 5 and by professional status: 93.2 5 employees, 2.6 employers, 4.2 % self employed, we may say that the population occupied in tourism declined by 43.9 % from 186 thousand persons in 1990 to 123.2 thousand persons in 1999.

In 2015, the occupied population in tourism was 174.1 thousand persons by 41.46 % higher than in 1999, but still lower by 6.5 % compared to 1990.

The population occupied in the national economy and in tourism by age group. Tourism has a good absorption of young

people, offering jobs in hotels and restaurants and in the connected areas than in the national economy.

In 2015, of 174.2 thousand persons employed in tourism, 13.5 % were young people of 15-24 years old compared to 17.9 % in the national economy. Also, 34.5 % of the employed people in tourism were of 25-34 age group, more than 32.5 % in the national economy.

Also, in tourism, the occupied population older than 35 years has lower shares compared to the national economy, more exactly: 27.1 % for the 35-44 age group, 17.8 % for the 45-54 age group, and 7.1 % for the 55-64 age group and zero % for over 65 years (Table 10).

Table 10. Occupied population at national level and in tourism by age group, Romania, 2007-2015

Specification	2007		2015	
	OP_{NE}	OP_T	OP_{NE}	OP_T
Total (Thousand persons)	9,353	137	8,340.6	174.2
Of which by age group (%)				
15-24	8.3	17.9	7.0	13.5
25-34	27.1	32.1	26.2	34.5
35-44	26.4	25.2	30.6	27.1
45-54	22.4	20.0	19.9	17.8
55-64	10.3	4.5	12.2	7.1
OVER 65	5.5	0.3	4.1	-

Source: Own calculations based on NIS Data base, 2016 [9].

Snak et al., (2003) [12] found that in 1997, in tourism, 20 % of the occupied population belonged to the 15-24 age group and 31.6 % belonged to the 25-34 age group. In 2015, As mentioned above, in tourism, only 13 % represents the youngest category, 15-24 years old, but 34.5 % the category 25-34 years old.

The correlation between occupied population in tourism and number of units for tourists' accommodation was r= 0.588, reflecting a positive and good relationship between this two indicators. It is normal as increasing the number of units with tourist accommodation function to correspondingly increase the number of occupied population in

tourism. However, the R squared value, $R^2 = 0.346$ reflects that only 34.60 % of the Y variation (labour force) depends on X variation (number of units for tourists accommodation), the difference in variation being determined by other factors.

The regression statistics of the occupied population in tourism depending on the number of units for tourists' accommodation is presented in Table 11.

Table 11. Regression statistics of the occupied population in tourism depending on the number of units for tourists' accommodation

Regression statistics	Values
Multiple R	0.588380471
R square	0.346191579
Adjusted R square	0.252790376
Standard error	13807.22764
Observations	9

Source: Own calculations based on NIS Data base, 2016 [9].

The regression function of the occupied persons in tourism depending on the number of units for tourists' accommodation has the following aspect: Y = 13.167 X +78738, as presented in Fig.5.
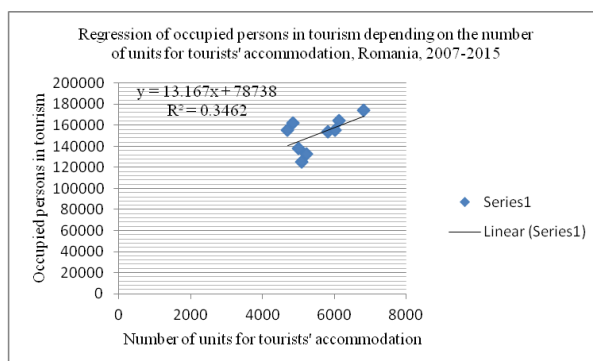

Fig.5. Regression of occupied persons in tourism depending on the number of units for tourists' accommodation, Romania , 2007-2015
Source: Own design based on NIS Data base, 2016 [9].

The ANOVA regarding the relationship between the occupied population in tourism and the number of units for tourists' accommodation is presented in Table 12.

Table 12. ANOVA reflecting the relationship between the occupied population in tourism and the number of units for tourists' accommodation

Specification	DF	SS	MS	F	Significance F	
Regression	1	706605476.9	7.07E+08	3.706500211	0.095591525	
Residual	7	1334476745	1.91E+08			
Total	8	2041082222				
Regression parameters	Coefficients	Standard error	T Stat	P-Value	Lower 95%	Upper 95%
Intercept	78738.49489	37998.44833	2.07215	0.07697202	-11113.55754	168590.5473
X Variable 1	13.16719142	6.839291818	1.925227	0.095591525	-3.005163875	29.33954671

Source: Own calculations based on NIS Database, 2016 [9].

The correlation between occupied population in tourism and number of places (beds) for tourists' accommodation registered the value r = 0.355, reflecting that between these two indicators it is a weak and positive relationship. This affirmation is supported by the value of R squared, R^2 = 0.1233 reflecting that only 12.33 % of the Y variation (labour force) depends on X variation (number of places in units for tourists accommodation).(Table 13).
The regression statistics of the occupied population in tourism depending on the number of places (beds) units for tourists' accommodation is presented in Table 13.

Table 13. Regression statistics of the occupied population in tourism depending on the number of places (beds) units for tourists' accommodation

Regression statistics	Values
Multiple R	0.3551140316
R square	0.123305842
Adjusted R square	-0.001936181
Standard error	15988.41036
Observations	9

Source: Own calculations based on NIS Data base, 2016 [9].

The regression function for the occupied persons in tourism depending on the number of places (beds) in units for tourists' accommodation has the following aspect: Y = 0.3701 X +39575, as presented in Fig.6.
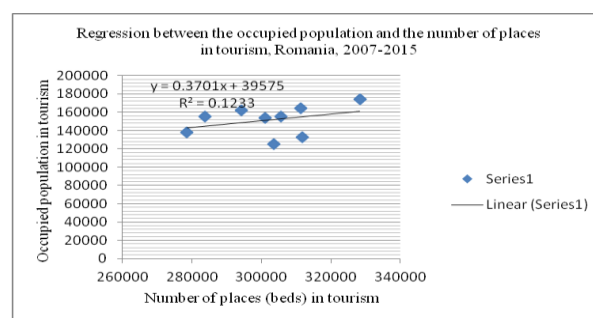

Fig. 6. Regression between the occupied population and the number of places in tourism, Romania, 2007-2015
Source: Own design based on NIS Data base, 2016 [9].

The ANOVA reflecting the relationship between the occupied population in tourism and the number of places for tourists' accommodation is presented in Table 14.

Table 14. ANOVA reflecting the relationship between the occupied population in tourism and the number of places for tourists' accommodation

Specification	DF	SS	MS	F	Significance F	
Regression	1	251677361.7	251677361.7	0.984540487	0.354132674	
Residual	7	1789404861	255629265.8			
Total	8	2041082222				
Regression parameters	Coefficients	Standard error	T Stat	P-Value	Lower 95%	Upper 95%
Intercept	39574.78922	112780.9461	0.350899603	0.735987017	-227109.771	306259.3494
X Variable 1	0.370132945	0.373027589	0.992240136	0.354132674	-0.51193714	1.252203028

Source: Own calculations based on NIS Database, 2016 [9].

CONCLUSIONS

The population occupied in tourism increased by 12.02 % from 155.5 thousand persons in 2007 to 174.2 thousand persons in 2015.
The contribution of tourism to the population occupied in the national economy increased from 1.78 % to 2.07 % in the analyzed period.

The micro-regions where the share of population occupied with tourism activities are Bucharest-Ilfov (21.19%), Central micro-region (16.07%), SE micro-region (12.45%). The micro regions with the lowest employment in tourism are S West Oltenia and West.

HHI and GS indices proved a relatively uniform dispersion of the occupied population in tourism in the territory.

By professional status, the people employed in tourism have higher shares than in the national economy: 90.8 % employees, 3.8 % employers and 5.4 % self employed people.

By age group, tourism employs more younger persons than in the national economy. About 13.5 % of the employed persons in tourism belong to the 15-24 years category and 34.5 % belong to the 25-34 years category.

The correlation between the number of people employed in tourism and the number of units for tourists' accommodation is r=0.588, reflecting that if the number of units will grow, more people will be employed in tourism activities.

The correlation between the number of persons occupied in tourism and the number of places in units with touristic accommodation function is a weak and positive one, r =0.355.

As a final conclusion, this research proved that in the period 2007-2015 tourism is a dynamic branch of Romania's economy with a high potential to create jobs, employ young people and also women.

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