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# COMPARATIVE ANALYSIS OF TOURISTIC RECEPTION ESTABLISHMENTS WITH ACCOMMODATION FUNCTIONS AND ACCOMMODATION CAPACITY, IN BULGARIA, HUNGARY AND ROMANIA

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#### Abstract

The purpose of this work is to complete end enlarge a previous work regarding a comparison between the number of touristic reception units with accommodation and accommodation capacity of these units in Romania, Hungary and Bulgaria. The source of information is also Eurostat Database, but this time we processed data between 1990-2016 (27 years).

In the previous study, which includes the period 2003-2014, the three countries were different at the level of the accommodation units, which was reconfirmed in the extended period, instead at the beds level, the ratio between them has changed, Bulgaria being different both from Hungary and Romania.

Key words: statistical analysis, accommodation units, accommodation capacity, bed-places.

### INTRODUCTION

2016 was a momentous year for tourism. International tourist arrivals continued their upward trajectory in their seventh straight year of aboveaverage growth despite many challenges. A comparable sequence of uninterrupted solid growth has not been recorded since the 1960s (TalebRifai Secretary-General, World Tourism Organization (UNWTO)).

International tourist arrivals reached 1,235 million in 2016 sawing a growth in international arrivals of some 46 million, or 4%, over 2015. Tourism has grown above, at around 4% per year, for seven straight years. The strongest growth was recorded in the Africa and Asia and the Pacific regions. 300 million more people travelled internationally for tourism between 2008 and 2016 (World Tourism Organization (UNWTO)).

According to The Travel & Tourism Competitiveness Report 2015, Romanian tourism participated in the formation of GDP by 1.7%, Bulgaria's tourism by 3.7% and the tourism of Hungary by 4.1%, therefore the Romanian tourism has the lowest contribution to the GDP of the three analyzed countries. By Popescu (2016) despite its high potential for tourism, Romania is not yet able to develop an efficient tourism. Tourism competitiveness must grow in order to enhance the size of its services exports to various markets and support the growth of economic efficiency in this economic branch.

Across the EU-27 worked in 2011 a total of 472.225 units, an increase of 11,7% compared to 2007 and by 23% since 2000. Four states have a share of over 71% in total EU-27: Italy (32,6%), United Kingdom (18,1%), Germany (11,3%) and Spain (9,4%). Romania is ranked 12 in the EU-27, accounting for only 1,06% of the total union units, a decreasing share compared to the first year of EU entry when it was 1,11%. Although the total number of units in Romania increased in the five years with 6,6%, EU-27 growth was higher (+11,7%), which explains the decrease of our country (Harja E., Stângaciu O. A., 2013).

Hungary has on average fewer accommodation units but with high capacity (number of seats, beds), while in Romania the situation is reversed: more accommodation units, but low capacity. On average Bulgaria has the fewest beds and accommodation units (Dudas A, 2015).

With more than 1.2 billion international tourists today and 1.8 billion predicted by 2030, the sector keeps on providing opportunities for each traveller and everyone involved in tourism to contribute to a more responsible, sustainable and inclusive future for all (World Tourism Organization (UNWTO)).

## MATHERIAL AND METHODS

For the elaboration of this paper were collected statistical data from Eurostat's Database<sup>1</sup>, and for data processing has been used IBM SPSS Statistics V20 program.

To investigate various aspects of tourist activity differences between the three countries, we tried to answer the following questions:

Study 1) Is the number of accommodation units statistically different between of three countries?

For this study, were collected data from Table 1 regarding the number of accommodation units, defined as follows: "According to The Eurostat Database, "A tourist accommodation establishment is defined as any facility that regularly or occasionally provides short-term accommodation for tourists as a paid service (although the price might be partially or fully subsidised). Data is reported at the level of a local kind-ofactivity unit." [Eurostat].

<sup>&</sup>lt;sup>1</sup>Data source was: http://ec.europa.eu/eurostat

Table 1

Year	Bulgaria	Hungary	Romania
1990	1,218		3,246
1991	1,084		3,329
1992	997		3,204
1993	985	1,645	2,682
1994	867	2,027	2,840
1995	806	2,221	2,905
1996	766	2,524	2,965
1997	717	2,586	3,049
1998	726	2,711	3,127
1999	710	2,773	3,253
2000	836	2,965	3,121
2001	839	3,044	3,266
2002	914	3,387	3,338
2003	1,059	3,517	3,569
2004	1,306	3,001	3,900
2005	1,555	3,117	4,226
2006	1,844	3,056	4,710
2007	2,018	2,956	4,694
2008	2,128	2,924	4,884
2009	2,250	2,993	5,079
2010	2,272	2,954	5,222
2011	2,321	2,892	5,003
2012	2,758	4,071	5,113
2013	2,953	4,000	6,027
2014	3,163	4,176	6,191
2015	3,202	4,356	6,949
2016	3.331	4.436	7.028

Number of accommodation units (hotels; holiday and other short-stay accommodation; camping grounds, recreational vehicle parks and trailer parks) [Number]

Study 2) Is the number of places (bed-places) statistically different?

For this study, were collected data from Table 2 regarding the number of accommodations units (bed-places), defined as follows: The number of bed places in a tourist accommodation establishment is determined by the number of persons who can stay overnight in the beds set up in the establishment, ignoring any extra beds that may be set up upon customer request.

The term bed place applies to a single bed; a double bed is counted as two bed places." [Eurostat]

			Table 2			
Table 2 Number of	Table 2 Number of bed-paces (in: hotels; holiday and other short-stay accommodation;					
camping gr	ounds, recreational vehic	ele parks and trailer par	ks) [Number]			
1990	303,912	:	348,405			
1991	190,379	:	312,417			
1992	158,156	:	302,533			
1993	155,506	:	293,036			
1994	138,907	218,745	292,479			
1995	140,501	253,549	289,539			
1996	126,113	271,196	288,206			
1997	121,567	284,128	287,943			

1998	132,709	287,102	287,268
1999	117,740	300,782	282,806
2000	136,026	312,714	280,005
2001	132,988	317,629	277,047
2002	143,707	335,163	272,596
2003	158,865	347,277	273,614
2004	190,040	336,494	275,941
2005	221,144	329,290	283,194
2006	247,016	315,284	287,158
2007	266,613	314,742	283,701
2008	271,672	302,889	294,210
2009	281,353	301,873	302,755
2010	276,621	311,441	311,698
2011	274,733	304,087	278,503
2012	301,140	382,819	285,488
2013	302,433	422,039	303,236
2014	314,257	435,620	308,997
2015	322,465	440,449	325,841
2016	328,264	446,400	326,098

## **RESULTS AND DISCUTIONS**

Study 1) Is the number of accommodation units statistically different between of three countries?

Research hypothesis: There are statistically significant differences between the number of accommodations units in Bulgaria, Hungary and Romania (2 tailled).

Using The IBM SPSS Statistics V20 software [Levesque, 2007] we checked the normality of distribution with Kolmogorov-Smirnov Test(Drugas M., 2010; Gheorghiu D., 2011):

- Bulgaria Ok:  $sig^2 = 0.197 > 0.05$ , not significantly different from a normal distribution; average of 1615 accommodation units;

- Hungary Ok: sig = 0.308 > 0.05, not significantly different from a normal distribution; average of 3097 accommodation units;

- Romania Ok: sig = 0.134 > 0.05, not significantly different from a normal distribution; average of 4182 accommodation units; (Fig. 1)

Obs. As we extend the period of analysis at 27 years, we obtained a normal distribution for the Hungarian sample as well, that permits the application of ANOVA test for univariance.

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One-Sample Kolmogorov-Smirnov Test				
country			units	
В	Ν		27	
	Normal Parameters(a,b)	Mean Std. Deviation	1615.74 886.764	
	Most Extreme Differences	Absolute Positive	.207	

<sup>2</sup> Sig. stand for significance probability

		Negative	154
	Kolmogorov-Smirnov Z	-	1.076
	Asymp. Sig. (2-tailed)		.197
Η	Ν		24
	Normal Paramatars(a h)	Mean	3097.17
	Normal Farameters(a,0)	Std. Deviation	709.729
	Most Extreme Differences	Absolute	.197
		Positive	.197
		Negative	107
	Kolmogorov-Smirnov Z	-	.966
	Asymp. Sig. (2-tailed)		.308
R	N		27
	$\mathbf{N}_{2} = \mathbf{n}_{2} + 1 \mathbf{P}_{2} = \mathbf{n}_{2} + \mathbf{n}_{3} + \mathbf{n}_{4} + \mathbf{n}$	Mean	4182.22
	Normal Parameters(a,b)	Std. Deviation	1297.541
	Most Extreme Differences	Absolute	.224
		Positive	.224
		Negative	124
	Kolmogorov-Smirnov Z		1.163
	Asymp. Sig. (2-tailed)		.134

So, to determine the statistical differences between the three countries we applied the ANOVA test for univariance. This test will verify if the means of the three samples (the accommodation units means) differ statistically in function of categories of an independent variable with more than 2 categories, in this case the three countries(DwyerL 2012). We applied Bonferroni correction as well, to avoid a false positive result, considering the small size of the samples (24-27 measures) (Howitt D., 2006; Jaba E., 2004). In Table 3 can be seen the results:

					Table 4
	ANOV	VA for accom	modation units		
units	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	89574775.69 9	2	44787387.850	44.312	.000
Within Groups	75804481.18 5	75	1010726.416		
Total	165379256.8 85	77			

A strong statistical difference is found between all three countries, taken 2 by 2, in contrast to the previous study (Dudas, 2015), sig = 0.000 or sig = 0.001 < 0.05, as can be seen in table 3 and Table 4. We can say with a probability of at least 95% that the three countries differ statistically, 2 by 2, in terms of number of accommodation units.

# Results of univariance ANOVA test with Bonferroni correction for the Number of accommodations units

## Multiple Comparisons

Dependent Variable:	units
Bonferroni	

		Mean Difference			95% Confide	ence Interval
(I)	country (J) country	(I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
В	Н	-1481.426*	282.042	.000	-2172.11	-790.74
	R	-2566.481*	273.621	.000	-3236.54	-1896.42
н	В	1481.426*	282.042	.000	790.74	2172.11
	R	-1085.056*	282.042	.001	-1775.74	-394.37
R	В	2566.481*	273.621	.000	1896.42	3236.54
	Н	1085.056*	282.042	.001	394.37	1775.74

\* The mean difference is significant at the .05 level.

**Study 2) Is the number of places (bed-places) statistically different?** Research hypothesis: There are statistically significant differences between the number of bed-places in Bulgaria, Hungary and Romania.

We checked the normality of sample distribution of the 3 countries with Kolmogorov-Smirnov test:

- Bulgaria Ok: sig = 0.195 > 0.05, not significantly different from a normal distribution; average of 213142 accommodations seats;

- Hungary Ok: sig = 0.374 > 0.05, not significantly different from a normal distribution; average of 329205 accommodations seats;

- Romania OK: sig = 0.376 > 0.05, not significantly different from a normal distribution; average of 294619 accommodation seats.(Table 6)

			Table 6
	One-Sample Kol	mogorov-Smirnov Test	
country			beds
В	Ν		27
	Normal Parameters(a,b)	Mean Std. Deviation	213141.74 75755.500
	Most Extreme Differences	Absolute	.208
		Positive	.208
		Negative	167
	Kolmogorov-Smirnov Z	-	1.079
	Asymp. Sig. (2-tailed)		.195
Н	Ν		23
	Normal Parameters(a h)	Mean	329204.87
	(u,u)	Std. Deviation	59711.281
	Most Extreme Differences	Absolute	.191
		Positive	.191
		Negative	114
	Kolmogorov-Smirnov Z		.914
_	Asymp. Sig. (2-tailed)		.374
R	N		27
	Normal Parameters(a,b)	Mean Std. Deviation	294619.04 18224.260
	Most Extreme Differences	Absolute	.176
		Positive	.176
		Negative	113

Table 5

Kolmogorov-Smirnov Z	.913
Asymp. Sig. (2-tailed)	.376
a Test distribution is Normal.	
b Calculated from data.	

o Calculated from data

Regarding the bed-places we have statistical differences (sig = 0.0), as we can find in Table 7, which comes from the differences between Bulgaria and Hungary (sig = 0.0) and Bulgaria-Romania (sig = 0.0) instead between Romania and Hungary can't be highlighted such differences (sig. = 0.103 > 0.05), as can be seen from Table 8, Bulgaria having with a significantly lower number of beds.

ANOVA for bed-places									
beds	Sum of Squares	df	Mean Square	F	Sig.				
Between Groups	18113771489 1.607	2	90568857445.803	28.364	.000				
Within Groups	23628612044 4.757	74	3193055681.686						
Total	41742383533 6.364	76							

Table 8

Results of univariance ANOVA test with Bonferroni correction for the Number of bedplaces

#### **Multiple Comparisons**

Dependent Variable: beds

Bonferroni									
		Mean Difference			95% Confidence Interval				
(I) cou	intry (J) country	(I-J)	Std. Error	Sig.	Lower Bound	Upper Bound			
В	Н	116063.13*	6034.021	.000	-155340.37	-76785.89			
	R	81477.296*	5379.293	.000	-119150.70	-43803.89			
Н	В	16063.129*	6034.021	.000	76785.89	155340.37			
	R	34585.833	6034.021	.103	-4691.40	73863.07			
R	В	81477.296*	5379.293	.000	43803.89	119150.70			
	Н	34585.833	6034.021	.103	-73863.07	4691.40			

\* The mean difference is significant at the .05 level.

# CONCLUSIONS

Using samples with sufficient data, a part of the suppositionwere confirmed, which was to be expected. Regarding the number of accommodation units, we were able to confirm, using a parametric (stronger) test that the two countries differ 2 by 2.

Regarding the number of beds, Romania and Hungary have similarities (with a plus of beds in favor of Hungary), which Bulgaria doesn't have, however, having on average a smaller number of beds.

In order to better distinguish the differences between the three neighboring countries, it can be continued the study of the growth rate of units and beds.

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