

THE CORRELATION BETWEEN INTERNATIONAL TOURIST ARRIVALS AND TOURISM RECEIPTS - A KEY FACTOR OF TOURISM EFFICIENCY

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Abstract

The paper analyzed the relationship between international tourist arrivals and tourism receipts in the world, in the EU and in Romania in the period 2009-2015. Also, it was analyzed the situation in the CEECs in 2014. The relationship between these two indicators was studied in its dynamics and also as a ratio reflecting tourism efficiency in term of receipt per tourist. The Bravais-Pearson and Spearman correlation coefficients confirmed the existence of a strong link between these indicators: $r = 0.925$ at the world level, $r = 0.967$ in the EU, $r = 0.877$ in Romania and $r = 0.896$ in the CEECs. The average receipt/tourist in the whole analyzed period accounted for 1,040.3 USD at the world level, 916.95 USD in the EU and 900.04 USD in Romania. In the CEECs, the average receipt/tourist was 1,205.5 USD in 2014. The EU contributes by 40.4 % to the number of international tourist arrivals, and by 37.39 % to the world receipts from tourism, reflecting its power of attraction for the tourists coming from all over the world due to its cultural heritage and large variety of landscapes, historical places, museums, art galleries, traditions. The CEECs contributes by 10.40 % of the EU tourist inflow and by 11.86 % of the EU receipts. Romania contributes by 0.47 % to the EU international tourists and by 0.38 % to the EU receipts. The increased number of international tourists has a benefic effect on tourism receipts, and together represents the key factors of tourism development and the world trade and global economy.

Key words: international arrivals, receipts, correlation, regression, world tourism, the EU, the CEECs, Romania

INTRODUCTION

Tourism is one of the most efficient form of the international trade, among other services like financial, banking etc. It is considered an important engine of economic and social development as it creates investments, employment, income, and exports and also contributes to the development of the local communities, infrastructure, and to the preservation of the cultural values [3].

There is a positive relationship between tourism earnings and the economic growth of a country. [1, 2, 5, 6, 9].

Tourism plays an important role in the payment balance supplying foreign exchange receipts for the destination countries. Europe attracts million of international tourists every year, representing 51.3% of the world international flow. Europe will continue to be the most visited tourist destination in the

world, and also the CEECs will attract more tourists than the Western European countries [10].

The correlations existing between various tourism indicators are important for the further evolution of tourism and for the establishment of the strategies in tourism development. He found a positive and intense correlation (0.805) between tourist arrivals and tourism turnover in Romania [8].

Studying the relationship between tourism earnings, GDP and trade volume, it was proved that tourism development has an impact on economic growth and that earnings per tourist could be considered an indicator of quality in tourism services in each country [4].

Romania is a small "spot" on the world map in terms of the tourists arrivals and receipts. The problems regarding infrastructure, the service quality, and the weak promotion have

still a negative impact on inbound tourism [7]. However, in the last decade, Romania showed a better evolution of tourist arrivals and foreign exchange flow, but its market share is still lower compared to other European countries and even to the CEECs. The tourism receipts increased reflecting a good trend, but the less competitive offers and the lower quality-price ratio compared to other countries still have a negative influence on tourism efficiency. However, foreigners are interested to visit Romania for various purposes such as: business, participation to various events, attending courses, spending holidays, recreation, treatment in various resorts etc. [10].

In this context, the objective of the paper was to identify the relationship between two key indicators characterizing international tourism: the international tourist arrivals and the receipts coming from tourism. This relationship was studied both at the world level, in the EU, in Romania in the period 2009-2015, and in the CEECs in the year 2014.

The H_0 (null hypothesis) is that the two indicators have no links between them, they are independent and the compared values do not differ.

The H_1 hypothesis (the alternative hypothesis) was that the data are connected among them, they are dependent, and the compared data are different.

MATERIALS AND METHODS

In order to set up this paper, the following indicators have been considered: international tourist arrivals at the world level, the EU level and in Romania, tourism receipts at the world level, the EU level and in Romania. The period of reference was 2009-2015.

For the CEECs, the international tourist arrivals and tourism receipts were used only for the year 2014 for which we found the complete data.

The data were provided by UNWTO, Tourism Highlights, 2016.

For all this indicators, there were calculated: the descriptive statistics including: mean, standard error of mean, standard deviation,

kurtosis, skewness, minimum, maximum, coefficient of variation.

The tourism receipt per international tourist was determined by dividing the tourism receipts by the number of international tourist arrivals.

The Bravais - Pearson coefficient of correlation was calculated for the pair of indicators: international tourist arrivals and tourism receipts at the world level, at the EU level and in Romania.

The Bravais-Pearson coefficient of correlation was calculated using the formula:

$$r_{xy} = \frac{n \sum xy - \sum x \sum y}{\sqrt{(n \sum x^2 - (\sum x)^2)(n \sum y^2 - (\sum y)^2)}}$$

“T” Test for correlation coefficient was determined according to the formula:

$$t = r \frac{\sqrt{n-2}}{\sqrt{1-(r)^2}}$$

For the CEECs countries, it was determined the Spearman correlation using the formula:

$$p = 1 - \frac{6 \sum D^2}{N(N^2 - 1)}$$

The evolution of the indicators for the period 2009-2015 was commented using the fixed basis index.

The results were tabled and graphically illustrated accompanied by their interpretation.

RESULTS AND DISCUSSIONS

The international tourist arrivals at the world level followed an increasing trend in the analyzed period. From 883 million tourists in the 2009, the international tourist arrivals reached 1,184 million in the year 2015. Therefore, the number of international tourist arrivals increased by 34.08 % (Fig.1.)

Regarding the international tourist arrivals in the EU, it was noticed a similar ascending trend from 356.8 million international tourist arrivals in the year 2009 to 478.4 million in the year 2015. Therefore, in 2015, the tourist

inflow in the EU was by 34.08 % higher than in the year 2009, this growth rate being similar with the one at the world level (Fig.1.).

The evolution of the international tourist arrivals reflects that the EU attracts 40.4 % of the world international tourists.

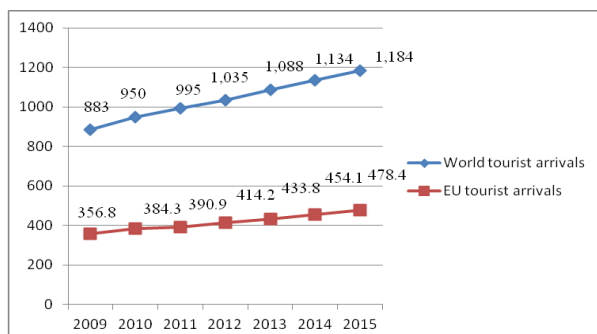


Fig.1. The dynamics of international tourist arrivals at the world level and in the EU, 2009-2015 (Million)
 Source: Own design based on UNWTO Tourism Highlights, 2016 [11]

The receipts coming from tourism at the world level increased from 851 USD Billion in the year 2008 to 1,186 USD Billion in the year 2015, that is by 39.36 %. However, in the analyzed period it was noticed a continuous increasing trend from a year to another between 2009 and 2014. In 2014, it was recorded the highest receipt, that is 1,309 USD Billion. However, in 2015, the receipts were by 9.4 % lower than in the year 2014 (Fig.2.)

The tourism receipts registered by the EU recorded a continuous increasing trend from 311 USD Billion in the year 2009 to 443,4 USD Billion in the year 2015.

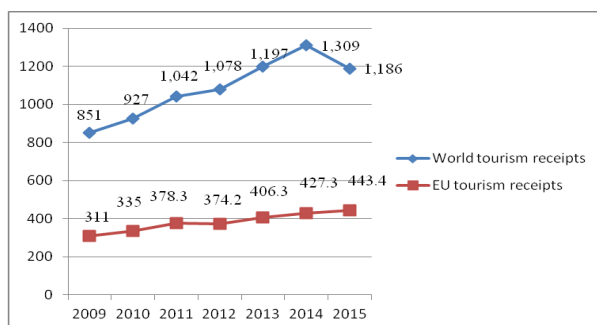


Fig.2. The dynamics of tourism receipts at the world level and in the EU, 2009-2015 (USD Billion)
 Source: Own design based on UNWTO Tourism Highlights, 2016

Therefore, in 2015, the EU had by 42.57 % more receipts from international tourism (Fig.2.).

The EU contribution to the world tourism receipts increased from 36.54 % in the year 2009 to 37.39 % in the year 2015.

The receipts per international tourist is the result of the time evolution of the two indicators presented above: international tourist arrivals and tourism receipts.

At the world level, the receipts per international tourist increased by 3.87 % from 963.7 USD in the year 2009 to 1,001 USD in the year 2015.

In the EU, the receipts per international tourist accounted for 926.8 USD in the year 2015, being by 6.33 % higher than in the year 2009.

Comparing the receipts per international tourist in the EU with the world level, it is easily to notice that the receipts per tourist in the EU are a little bit smaller that at the world level. More exactly, in 2009, the receipt per tourist was by about 9.6 % lower than at the world level, while in the year 2015, it was by only 7.5 % lower than at the world level (Fig.3.).

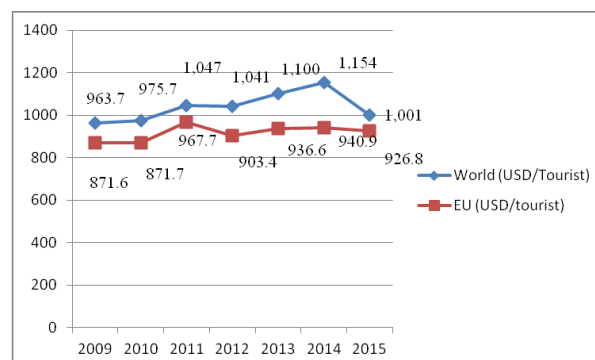


Fig.3. The dynamics of the tourism receipts/ tourist arrival at the world level and in the EU (USD/capita)
 Source: Own design based on UNWTO Tourism Highlights, 2016 [11]

The international tourist arrivals in Romania recorded a continuous ascending trend in the analyzed period. In 2015, this indicator accounted for 2.23 Million international tourists, by 75.59 % more than in the year 2009, when Romania received only 1.27 Million international foreign tourists (Fig.4).

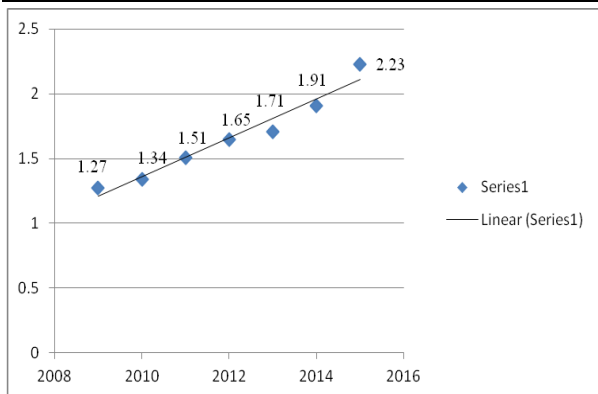


Fig.4. The dynamics of international tourist arrivals in Romania, 2009-2015 (Million)

Source: Own design based on UNWTO Tourism Highlights, 2016 [11]

The number of international tourists in Romania is very small compared to other EU countries. For this reason, its share in the EU international tourist arrivals is just 0.35 % in 2009 and 0.47 % in the year 2015.

The receipts from international tourists obtained by Romania accounted for 1.23 USD Billion in the year 2009 and for 1.7 USD Billion in the year 2015. Therefore, in the analyzed period, Romania registered by 38.21 % more receipts from foreign tourists. However, in 2014, it was recorded the highest receipt, accounting for 1.83 USD Billion, but in 2015, it was found a decline by about 7.2 % compared to the 2014 level (Fig.5.).

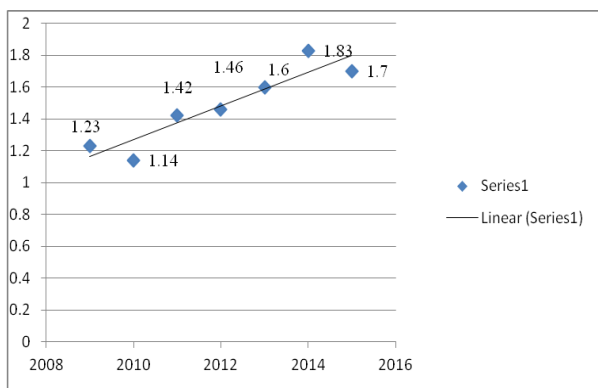


Fig.5. The dynamics of tourism receipts in Romania, 2009-2015 (USD Billion)

Source: Own design based on UNWTO Tourism Highlights, 2016 [11]

The share of tourism receipts recorded by Romania in the EU tourism receipts is very small, just 0.39 % in 2009 and 0.38 % in 2015.

The receipt per foreign tourist declined

from 968.5 USD in the year 2009 to 762.3 USD in the year 2015. The decrease rate accounting for 21.3 %. This was caused by the decline in tourism receipts in the year 2015 and the high growth of international tourists in the same year as mentioned in the graphs above (Fig. 6).

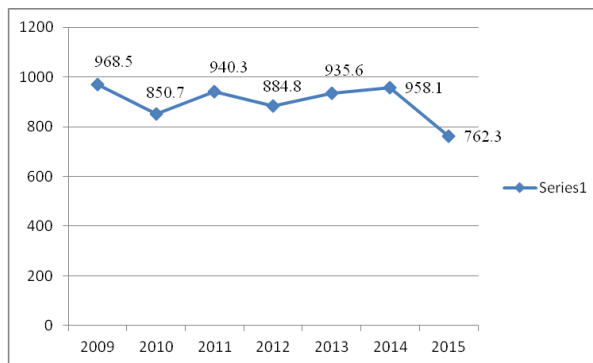


Fig.6. The dynamics of the tourism receipts per international tourist in Romania, 2009-2015 (USD/capita)

Source: Own design based on UNWTO Tourism Highlights, 2016 [11]

In 2015, the receipt per international tourist in Romania was better in the year 2009, being by 0.4 % higher than the world level and by 11.11 % higher than the EU level. In the year 2015, Romania recorded a receipt per international tourist by 24 % smaller compared to the world level and by about 17.25 % less than at the EU level.

The descriptive statistics for international tourist arrivals, tourism receipts, receipts/tourist in the world, EU and Romania in the period 2009-2015, regarding: mean, standard error of the mean, standard deviation, kurtosis, skewness, minimum and maximum values, and the variation coefficient are presented in Table 1.

The coefficient of variation varied between 3.96 %, the lowest value, in case of EU tourism receipts/ tourist and 19.87 %, the highest value, in case of Romania's international tourist arrivals.

This reflect in general a low variation around the mean, and that the average is a representative one for all the studied indicators.

Table 1. Descriptive statistics for international tourist arrivals, tourism receipts, receipts/tourist in the world, EU and Romania, 2009-2015

	Mean	St. Error	St. Dev.	Kurtosis	Skewness	Minimum	Maximum	Variation Coefficient (%)
World international tourist arrivals	1038.42	39.83	105.40	-0.912	-0.089	883	1184	10.15
World tourism receipts	1084.28	60.65	160.48	-0.901	-0.159	851	1309	14.80
World tourism receipts/ Tourist	1040.34	25.87	68.46	-0.431	0.654	963.7	1154	6.58
EU international tourist arrivals	415.07	16.03	42.43	-0.931	0.141	356.8	478.4	10.22
EU tourism receipts	382.21	18.08	47.84	-1.021	-0.281	311	443.4	12.51
EU tourism receipts/ tourist	916.95	13.73	36.33	-1.227	-0.173	871.6	967.7	3.96
Romania's international tourist arrivals	1.66	0.12	0.33	0.022	0.664	1.27	2.23	19.87
Romania's tourism receipts	1.48	0.09	0.24	-1.060	-0.046	1.14	1.83	16.21
Romania's tourism receipts/ tourist	900.04	27.85	73.69	0.985	-1.230	762.3	968.5	8.18

Source: Own calculation based on UNWTO Tourism Highlights, 2016

The Bravais-Pearson coefficient of correlation between the number of international tourist arrivals and tourism receipts accounted for $r = 0.925$ at the world level, with a "t" calculated value $t = 5.443 < t_{\text{tabled}} 5.893$ for $p=0.001$ (99.9% confidence), therefore the H_0 hypothesis is rejected, between the number of international tourist arrivals and tourism receipts at the world level being a high significant relationship.

Taking into account the value of the coefficient of determination, R Square = 0.8559, this means that 85.59 % of the variation of tourism receipts is determined by the variation of the international tourist arrivals.

In the EU, it was found a coefficient of correlation $r = 0.967$, a little higher than at the world level. In this case, also the H_0 hypothesis is not accepted, because the "t" calculated value $t = 8.486 < t_{\text{tabled}}$.

The value of the coefficient of determination accounted for R square = 0.9365, reflecting that 93.65 % of the variation of tourism receipts is determined by the variation of the international tourist arrivals.

In Romania, it was recorded a coefficient of correlation $r = 0.877$, with a "t" value $t = 4.081$ smaller than the tabled value 5.893 for $p= 0.001$ (99.9 % confidence), resulting the rejection of the H_0 hypothesis.

The value of the determination coefficient was $R \text{ square} = 0.7702$, meaning that 77.02 % of the variation of tourism receipts is determined by the variation of the international tourist arrivals (Table 2).

Table 2. The coefficients of correlation and the coefficients of determination between the number of international tourist arrivals and tourism receipts

	Coefficient of correlation, r	Coefficient of determination, R ²
World	0.925	0.8559
EU	0.967	0.9365
Romania	0.8525	0.7702

Source: Own calculation based on UNWTO Tourism Highlights, 2016 [11]

Regression of the tourism receipts depending on the international tourist arrivals at the world level is presented in Fig.7.

Regression of the tourism receipts depending on the international tourist arrivals in the EU is presented in Fig.8.

Regression of the tourism receipts depending on the international tourist arrivals in Romania is presented in Fig.9.

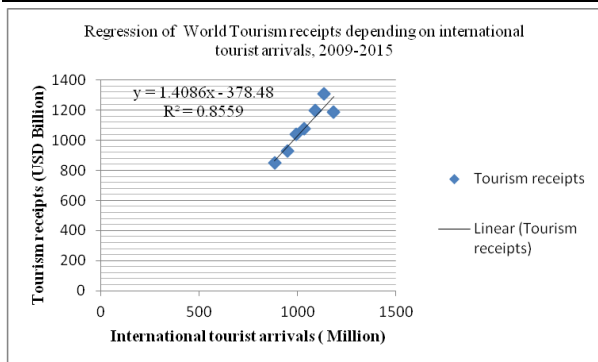


Fig. 7. Regression of World Tourism receipts depending on international tourist arrivals, 2009-2015
Source: Own design based on UNWTO Tourism Highlights, 2016 [11]

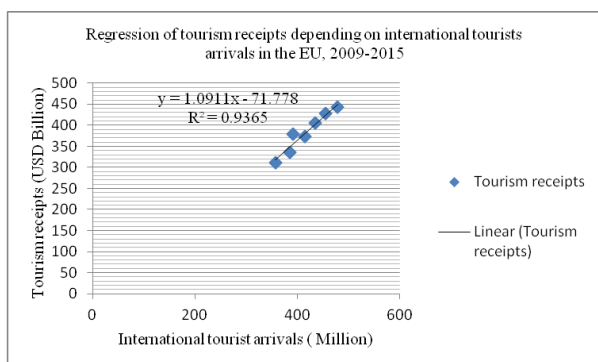


Fig. 8. Regression of Tourism receipts depending on international tourist arrivals in the EU, 2009-2015
Source: Own design based on UNWTO Tourism Highlights, 2016 [11]

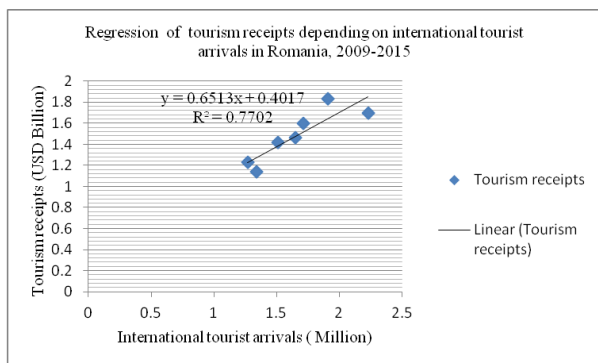


Fig. 9. Regression of Tourism receipts depending on international tourist arrivals in Romania, 2009-2015
Source: Own design based on UNWTO Tourism Highlights, 2016 [11]

The dynamics of international tourist arrivals in the 12 CEECs is shown in Fig. 10. In this group of countries, the number of international tourist arrivals varied in the year 2014 between 9,011 thousand tourists in Poland, the highest value, and 723 thousand tourists in Latvia, the lowest number of foreign tourists. The total number of the

CEECs' international tourist arrivals was 44,467 thousands, representing 10.40 % of the EU tourist inflow.

Romania comes on the 9th position among the CEECs countries regarding the number of foreign tourists, being followed by Estonia, Lithuania and Latvia (Fig.10).

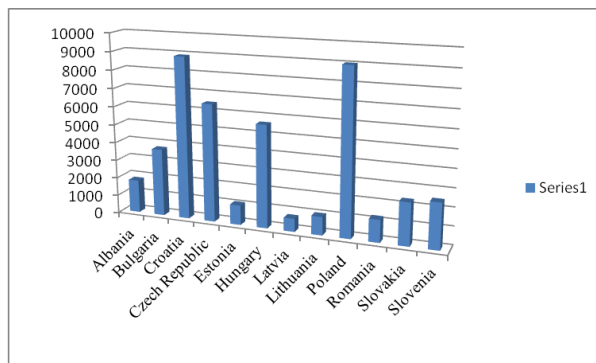


Fig. 10. The dynamics of international tourist arrivals in the CEECs in 2014 (Thousand)
Source: Own design based on UNWTO Tourism Highlights, 2016 [11]

The CEECs achieved various receipts from foreign tourists. The values ranged between 11,234 USD Million in case of Poland, and 956 USD Million in case of Latvia. This group of countries totalized 50,707 USD Million receipts from tourism, representing 11.86 % of the EU receipts.

Romania comes on the 8th position among the CEECs countries regarding the receipts from tourism, being followed by Estonia, Bulgaria, Lithuania and Latvia (Fig.11).

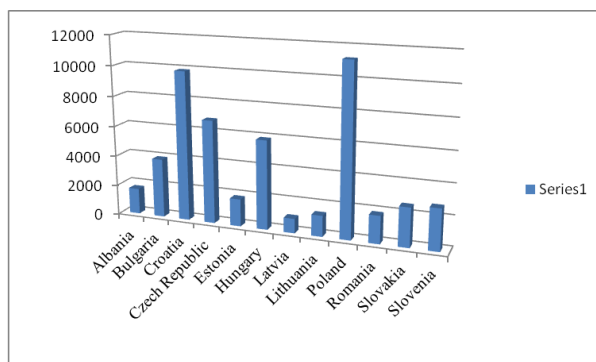


Fig. 11. The dynamics of tourism receipts in the CEECs in 2014 (USD Million)
Source: Own design based on UNWTO Tourism Highlights, 2016

The receipt/international tourist in the CEECs varied between 938 USD in Albania,

the lowest level, and 1,664 USD in Estonia, the highest level. The average per CEECs is 1,205.5 USD/tourist and compared to the world level 1,154 USD in the year 2014, it is by 4.46 % higher. Compared to the EU level in the year 2014, the CEECs average receipt/tourist is by 28.12 % higher.(Fig.12).

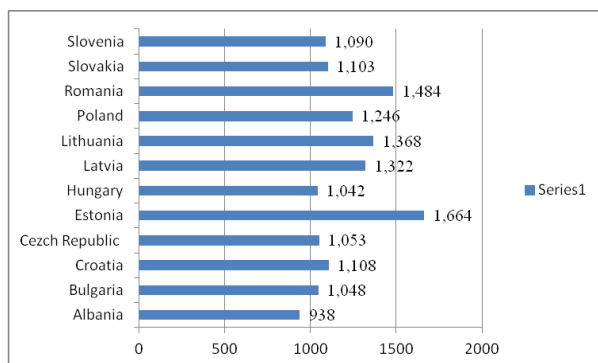


Fig.12. The receipts per international tourist in the CEECs in 2014 (USD/tourist)

Source: Own design based on UNWTO Tourism Highlights, 2016 [11]

The Spearman rank coefficient in the CEECs accounted for $r_s = 0.896$ in the year 2014 compared to 0.791 recorded in the year 2009.

Comparing the value $r_s = 0.896$ with the tabled Spearman coefficient for $df = 10$, it was found that the calculated value confirm a highly significant relationship between the international tourist arrivals and receipts from tourism in this group of countries.

Therefore, also in this case, the H_0 hypothesis was rejected and the H_1 hypothesis was accepted (Table 3).

Table 3. Spearman rank correlation between international tourist arrivals and tourism receipts in the CEECs in 2014

Country	International tourists arrivals (Thousand)	Tourism receipts (USD Million)	Rank 1 International tourists arrivals	Rank 2 Tourism receipts	D= R1-R2	D ²
Albania	1,816	1,705	7	8	-1	1
Bulgaria	3,728	3,908	4	5	-1	1
Croatia	8,898	9,865	2	2	0	0
Czech Republic	6,478	6,822	4	3	+1	1
Estonia	1,090	1,814	5	10	-5	25
Hungary	5,631	5,872	3	4	-1	1
Latvia	723	956	9	12	-3	9
Lithuania	1,011	1,384	8	11	-3	9
Poland	9,011	11,234	1	1	0	0
Romania	1,234	1,832	11	9	+2	4
Slovakia	2,336	2,578	10	7	+3	9
Slovenia	2,511	2,737	6	6	0	0
Total	44,467	50,707				
Spearman coefficient of correlation	$p = 0.896$					

Source: Own calculation based on UNWTO Tourism Highlights, 2016 [11]

CONCLUSIONS

In the analyzed period, the number of international tourist arrivals has continuously increased at the world level (+34.08%), in the EU (+34.08%), and in Romania (+75.59 %), reflecting that at the world level and in the EU the growth rate is similar while in Romania it was more than 2.5 times higher.

Compared to the year 2009, the receipts coming from tourism have continuously

raised, in 2015 being by 39.36 % higher at the world level, by 42.57 % higher in the EU and by 38.21 % higher in Romania.

The EU contributes by 40.4 % to the number of international tourist arrivals, and by 37.39 % to the world receipts from tourism, reflecting its power of attraction for the tourists coming from all over the world due to its cultural heritage and large variety of landscapes, historical places, museums, art galleries, traditions.

Romania contributes by 0.47 % to the EU international tourists and by 0.38 % to the EU receipts.

Regarding the receipt/foreign tourist, the EU average is by 11.86 % lower than the one at the world level. The receipt per foreign tourist in Romania is 900.04 USD per tourist, being by 13.49 % lower compared to the world average (1,040.3 USD/ tourist arrival) and by 1.85 % lower compared to the EU average (916.95 USD per foreign tourist).

The receipt per tourist could be considered an indicator of tourism efficiency and quality allowing the comparison among various countries. The higher the receipt per tourist, the higher tourism efficiency and services quality.

The values of the correlation coefficients between the international tourist arrivals and tourism receipts have been the following ones: $r = 0.925$ at the world level, $r = 0.967$ in the EU and $r = 0.877$, reflecting the very strong positive relationship, statistically significant.

The CEECs contributes by 10.40 % of the EU tourist inflow and by 11.86 % of the EU receipts.

Considering the year 2014, the average international tourist arrivals in the CEECs was 1,205.5 USD/tourist, by 4.46 % higher than the world average (1,154 USD/tourist), by 28.12 % higher than the EU average (940.9 USD/tourist) and by 25.83 % higher than the average in Romania (958.10 USD/tourist).

The Spearman rank correlation in the CEECs between the international tourist arrivals and receipts is 0.896, confirming again that the two indicators are closely related.

Therefore, the international tourist flows have a deep impact on tourism receipts, transforming it into the most dynamic and efficient branch of the international trade and world economy.

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