

HAS THE INFORMATION SOCIETY SUCCEEDED TO IMPROVE THE COMPETITIVENESS OF EUROPEAN SUSTAINABLE TOURISM ECONOMY?

GHITA Simona

University professor, Ph.D, The Faculty of Economic Cybernetics, Statistics and Informatics, The
Bucharest University of Economic Studies, Bucharest, Romania

simo_ghita@yahoo.com

Abstract

Europe represents one of the most significant tourism destinations in the world, but, nowadays, it is more and more important the issue of adapting the tourism demand and supply to the need of sustainability. Information Technologies can help to increase the competitiveness of the tourism industry, creating a bridge between tourism supply and demand.

According to the figures presented by the UNWTO, the growth rate of international tourist arrivals in 2013 compared to 2012 was of 5% (meaning 52 million international tourists arrivals), reaching 1,09 billion arrivals in 2013. The highest absolute growth was experienced by Europe (29 million arrivals in 2013), while the highest relative growth was registered in Asia and the Pacific (6%). The average international tourist receipt exceeded US\$700 per person, while total tourists' expenditures leveled more than \$1,4 trillion. Tourism sector, including the related industries, contributed in 2013 by 9,5% to the total global Gross Domestic Product (GDP) and created approximately 10% of the jobs worldwide.

In Romania the ascending trend of tourists' arrivals in accommodation establishments was interrupted by decreases in 2009 and 2010, due to the global economic-financial crisis. The indicator "Nights spent at tourist accommodation establishments by residents" experienced a similar evolution. Revenues from tourism and its contribution to GDP can be improved through the usage of information technology services.

*The present paper gives a possible answer to the following questions: can Information Society improve the competitiveness of European Sustainable Tourism Economy? Are there evidences of the impact of modern informational technologies on trends in sustainable tourism economy? In the analysis, the author used EUROSTAT data for European countries, 2000-2013 time-series. Statistical indicators used in the analysis are grouped by three areas of interest: **Tourism Area** (Arrivals of residents/non-residents at tourist accommodation establishments, Participation in tourism for personal purposes), **Environment Area** (emissions of greenhouse gases, air pollution, environment protection expenditure) and **Information Technology Area** (individuals using the internet for ordering goods or services, households with Internet access).*

The applied statistical methodology includes: Descriptive Statistics, non-parametric statistical tests.

Keywords: Sustainable tourism, eco-tourism, information society, non-parametric statistical test

JEL Classification: C38, L83, O13, Q56

1. Introduction. Trends in tourism development in the context of information society.

Recently, the United National World Tourism Organization (UNWTO) reported that the international tourist arrivals grew in 2013 by 5% compared to 2012 (corresponding to an absolute growth of 52 million international tourists arrivals), reaching 1,09 billion arrivals in 2013 [1]. The experts predict that this ascending evolution will continue in 2014 as well (estimated growth: 4,5%) and that in 2020 there will be 1,5 billion arrivals. In 2013 the highest absolute growth was registered in Europe (29 million arrivals), while the highest relative growth was registered in Asia and the Pacific (6%). The average international tourist receipt exceeded US\$700 per person, and the tourists' total expenditures reached out over \$1,4 trillion. [2].

The tourism sector, including the related activities contributed by 9,5% of total global Gross Domestic Product (GDP) and created – directly and indirectly - approximately 10% of jobs worldwide. In this context, tourists' arrivals in Romania experienced an ascending trend, which was interrupted in 2009-2010 by the effect of economic financial global crisis (Figure 1).

Figure 1. Arrivals at tourist accommodation establishments - Romania (thousand)

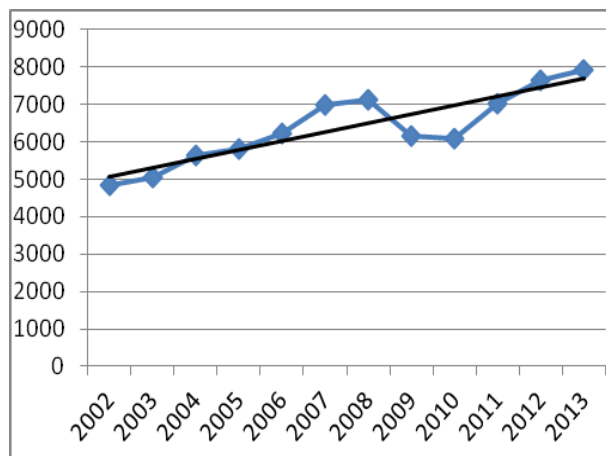
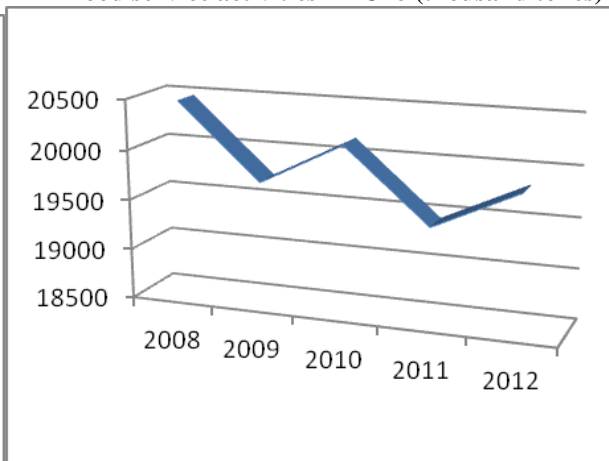


Figure 2. CO emissions from accommodation and food service activities – EU28 (thousand tones)



Source: made by the author, based on EUROSTAT data. [3] [4]

At European Union level, between 2008 and 2012, the CO emissions level from accommodation and food service activities registered a decrease from 20470,5 thousand tones (2008) to 19832 thousand tones (2012), meaning an absolute decrease of 160 thousand tones, on average, per year, revealing the existence of a sustainable component in the indicator-evolution (Figure 2). Another favorable aspect consists of a growth in the EU28 environmental protection expenditure, from 133,11 EUR per capita in 2004 to 172,23 EUR per capita in 2013 (Figure 3).

Figure 3. Environmental protection expenditure in Europe - EUR per capita

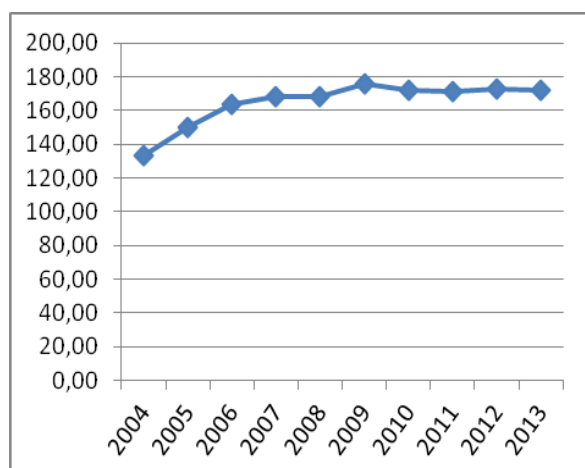
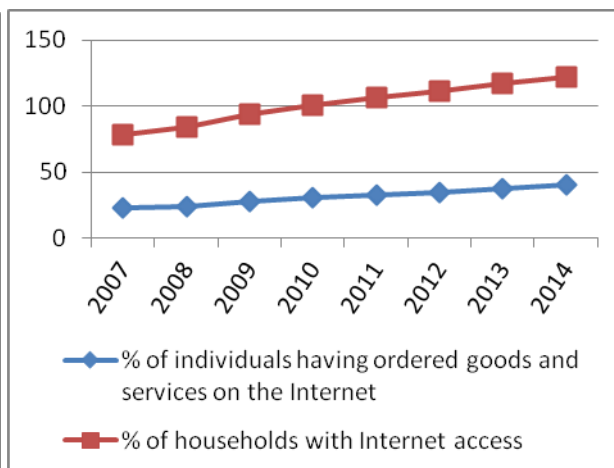


Figure 4. Individuals having ordered/bought goods or services for private use over the internet in the last three months (% of individuals) and % of households with Internet access – EU28



Source: made by the author, based on EUROSTAT data. [4] [5]

On the background of 1,5 times growth of the percent of households with Internet access, the share of individuals having ordered/bought goods or services for private use over the Internet, in UE28 has almost doubled between 2007 and 2014 (Figure 4).

But all these numbers can hide a strong negative impact of tourism activities on the environment, resumed in a high water consumption, a high energy consumption, an increased consumption of natural resources, a high pollution level, a growth of GHG emissions, a reducing in biodiversity, an intensification of global warming, an acceleration of intensity and frequency of extreme phenomena.

In this context, the sustainable development represents a solution for reducing the negative effects of tourism activities on the environment, a way of doing tourism in a responsible manner. It can be an answer to the challenge of assuring a balance between the economic activity growth and the environment protection.

Adopting the sustainable tourism principles will positively contribute to achieving significant progress upon all three sustainable development pillars: the economic pillar, the social pillar and the environmental pillar, helping to achieve an equilibrium between them [6]. This is why the trend in tourism might be focusing on Community Based Tourism, which can fix a lot of local communities’ problems and which can demonstrate its viability and efficiency at local level. This type of tourism – first appeared in the mid 90’s – overlaps, in many world areas, with rural tourism or eco-tourism. Fuchs & Höpken (2005) [7] observed the reduced level of ICT usage in decision-making process, as well as the great and unexploited potential of modern technology usage in optimizing the decisional process in tourism sector. An UNWTO study [8] reveals that the modern ICT should have as a final result the client’s satisfaction, through a key element: an accurate and complete tourist information.

Tourist’s sensitization, informing them of the role that each one can have on stopping environmental degradation, represents an objective that might be achieved by ICT usage. Also, through the ICT utilization in tourism activity the local communities will be better acknowledged and implicated in sustainable tourism development at local level and in decision-making process concerning the local tourism activity [9].

Reducing the energy consumption is one of the important motives of sustainable tourism development, having as a key element the transport sustainability. Gössling, 2002 [10] and Ceron& Dubois, 2003 [11] revealed that the transportation is responsible for 75%-90% of greenhouse gas emissions, caused by tourism activity.

2. Data and methodology

We perform our analysis by applying a rank-based nonparametric test (The Kruskal-Wallis H test), in order to test the existence of statistically significant differences between the participation in tourism for European countries with various Internet access levels of households.

There were considered the following statistical variables:

- Participation in tourism for personal purposes, 1 night or over (% of total population) - the independent variable
- Percent of households with Internet access (of the total number of households) - the dependent variable.

The data referred to 26 European countries (2013), and were provided by the EUROSTAT database (Tourism database and Information Society database). The countries were grouped by the Internet access level of households, into three classes: countries with low Internet access level of the households (between 50% and 65%), countries with medium Internet access level (between 65% and 80%) and countries with high Internet access level of the households (between 80% and 95%). Countries as Romania, Bulgaria and Portugal belong to the first class; Italy, Spain, Hungary, Poland, Czech Republic, Cyprus, Lithuania, Latvia, Slovenia, Slovakia, Estonia, Croatia and Malta are placed in the middle class, while Belgium, Austria, France, Germany, United Kingdom, Finland, Denmark, Sweden, Luxembourg and Netherlands belong to the third class.

The four assumptions/conditions that should be met for running the Kruskal-Wallis H test were checked:

1. The dependent variable is measured on an ordinal or continuous scale (in our case, the participation in tourism is a continuous variable, measured on a ratio scale);
2. The independent variable is a nominal variable, with two or more categorical levels (in our case, the percent of households with Internet access is an ordinal variable, with three levels: “low”, “medium” and “high”. According to this variable, the European countries were grouped into three independent classes.
3. Each observation is independent from the others.
4. The similarity or non-similarity between the distribution shapes of the dependent variable in each group. Our distributions have different shapes for the three groups, so the test should be used to compare mean ranks (Table 1).

Table 1. Hypothesis test summary.

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The medians of Participation_tourism are the same across categories of Internet_access.	Independent-Samples Median Test	,003	Reject the null hypothesis.
2	The distribution of Participation_tourism is the same across categories of Internet_access.	Independent-Samples Kruskal-Wallis Test	,000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Source: author’s processing, using SPSS program.

The descriptive statistics analysis, performed for the Participation in tourism variable reveal that on average 59,5% of the population in an European country participated in 2013 in tourism activities, for personal purposes; the median percent of the population participating in tourism activities was 56,1%, with 18,74% standard deviation. The distribution is negatively skewed, with a slight predominance of high levels of the variable of interest. Bulgaria had the lowest share of population with participation in tourism (22,2%), while Finland registered the highest share (88,5%) (Table 2).

Table 2. Descriptive Statistics results, for *Participation in tourism* variable. The Box-Plot Diagram.

<i>Participation in tourism (%)</i>	
Mean	59,49615
Standard Error	3,676116
Median	56,1
Mode	#N/A
Standard Deviation	18,74459
Sample Variance	351,3596
Kurtosis	-0,70746
Skewness	-0,1453
Range	66,3
Minimum	22,2
Maximum	88,5
Sum	1546,9
Count	26

Source: performed by the author, using SPSS program.

For comparing the three groups of countries, the following mean ranks of the *Participation in tourism* variable were obtained (Table 3) and the Box-Plot diagram as well:

Table 3. Kruskal-Wallis H Test results

Ranks			
	Internet_access	N	Mean Rank
Participation_tourism	0	3	2,33
	1	13	10,85
	2	10	20,30
	Total	26	

Source: performed by the author, using SPSS program.

The Kruskal-Wallis H test revealed that there was a statistically significant difference in participation in tourism between countries with different Internet access levels, with a mean rank of *Participation in tourism* of 2,33 for countries with low Internet access level, 10,85 for countries with medium Internet access level and 20,30 for countries with high Internet access level (Table 4). So we may assume, for a high probability level (over 95%) that the participation in tourism differs significantly based on the percent of the households with Internet access.

Table 4. Kruskal-Wallis H test results.

Test Statistics^{a,b}	
	Participation_tourism
Chi-Square	15,864
df	2
Asymp. Sig.	,000

a. Kruskal Wallis Test

b. Grouping Variable: Internet_access

Source: performed by the author, using SPSS program.

3. Conclusions and future work.

The results of the analysis presented above show that the Information Society may contribute to the competitiveness improvement of sustainable tourism development. Tourism industry experienced a significant growth within the last period, the international tourist arrivals have grown by 5% in 2013 compared to 2012, reaching 1,09 billion arrivals in 2013. Also, the highest absolute growth was registered in Europe (29 billion arrivals), while Asia and the Pacific experienced the highest relative growth (of about 6%). The average international tourist receipt exceeded US\$700 per person, the tourists' total expenditures reached over \$1,4 trillion. For these evolutions in tourism sector not to put too much pressure on the environment, which could lead to environmental degradation, it has been developed a sustainable tourism component, in the form of Community Based Tourism, rural tourism or eco-tourism. Thus, these developments in tourism sector were accompanied by some favorable trends in environment protection (a reduction in CO emissions level from accommodation and food service activities, a growth in environmental protection expenditure), and by a significant growth of ICT incidence in peoples' lives (it has been observed an intensification of *Participation in tourism*, along with an increase in percent of households with Internet access). ICT may contribute to a better tourists' informing on various options of sustainable tourism.

It has been performed an analysis by applying a rank-based nonparametric test (The Kruskal-Wallis H test), in order to test the existence of statistically significant differences between the participation in tourism for European countries with various Internet access levels of households.

The Kruskal-Wallis H test revealed that there was a statistically significant difference in participation in tourism between the countries with different Internet access levels, with a mean rank of *Participation in tourism* of 2,33 for countries with low Internet access level, 10,85 for countries with medium Internet access level and 20,30 for countries with high Internet access level. So we may assume, for a high probability level (over 95%) that the participation in tourism differ significantly based on the percent of the households with Internet access.

4. References:

1. <http://www2.unwto.org/>
2. <http://www.sustainabletourism.net/>
3. <http://ec.europa.eu/eurostat/web/tourism/data/database>
4. <http://ec.europa.eu/eurostat/web/environment>
5. <http://ec.europa.eu/eurostat/web/information-society/data/database>
6. Asker S., Boronyak L., Carrard N., Paddon M. (2010) - Effective Community Based Tourism – A best practice manual, June 2010, APEC Tourism Working Group, published by Sustainable Tourism Cooperative Research Centre 2010, Gold Coast Campus, Griffith University, Australia.
7. Fuchs, M., Höpken, W. (2005). Towards @Destination: a DEA-based decision support framework. In: A.J.Frew (Ed.), *Information and Communication Technologies in Tourism 2005* (pp. 57-66). New York: Springer.
8. Buhalis, D., O'Connor, P. (2006). Information communication technology - revolutionizing tourism, in: *Tourism management dynamics: trends, management, tools* (pp. 196-209). Oxford: Elsevier Ltd.
9. Ali A., Frew A.J. (2010), - ICT and its Role in Sustainable Tourism Development, *Information and Communication Technologies in Tourism 2010*, pp 479-491.
10. Gössling, S. (2002). Global environmental consequences of tourism. *Global Environmental Change*,12(4), 283– 302
11. Ceron, J.P., & Dubois, G. (2003). Tourism and sustainable development indicators: The gap between theoretical demands and practical achievements. *Current Issues in Tourism*, 6(1), 54-75.