GREAT EXPECTATIONS FOR TOURISM AND REGIONAL DEVELOPMENT IN ROMANIA: WHY ARE NOT THEY MET?

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Abstract

Despite the high potential of the Romanian tourism competitiveness and reducing interregional disparities, the results obtained in the last fifteen-twenty years are far below expectations. This paper aims to identify national and regional characteristics of tourism in Romania during the period 1990 to 2010 and to evaluate the most important factors that influenced foreign tourists' arrivals in Romania and the departures of Romanian tourists abroad. As infrastructure is one of the main obstacles to tourism development we have used data from development regions in order to explore the changes in the concentration of accommodation capacities. We have developed econometric models estimated on panel data to assess the implications of road infrastructure development and accommodation capacity utilization on economic results of tourism. The results indicate the important relationship between the territorial distribution of road infrastructure and the concentration of accommodation capacity.

Keywords: tourism infrastructure, regional analysis, panel data, regression models, Herfindall concentration degree

JEL classification:

1. Introduction

Considering its largely acknowledged economic and social effects, tourism represents a sector of great interest to many countries' development strategies (Zanina, 2011), (Egan 2003). The positive impact of tourism development is usually addressed in connection with the balance of payments, regional development, diversification of the economy, income levels, state revenue, employment opportunities (Pearce, 1991). The tourist life cycle, the local tourist strategies and policies, the use of information and communication technologies in promotion campaigns, etc. have an important influence in this context (Quian, 2010), (Hu, 1996).

As far as regional development is concerned, tourism is seen as a driver able to turn to good account the less developed regions' potential and, thus, to contribute to a more balanced distribution of economic activities over time and space as well as to the co-ordination of

various policies in an inter-sectorial perspective (Nijkamp, 1999), (Constantin and Mitrut, 2008). It can also bring about encouraging responses to the question of regional competitiveness, based on the positive influence on regional employment and income. As a result of the indirect and induced effects, tourism generates jobs not only in its own sector, but also in connected sectors such as financial services, retailing, telecommunications, etc. However, the regional multipliers record significant variations, depending on the characteristics of each region, locality, project, etc. (Armstrong and Taylor, 2000) so that careful analyses are recommended in order to promote those projects able to generate the most important benefits to the region.

Highly beneficial are the coastal, mountainous, urban and historic regions as well as those with exquisite natural resources. On the other hand, regions with different profile such as rural regions promoting green tourism, leisure and nature activities, the remote ones or undergoing industrial restructuring can also benefit from tourism growth (OECD, 1999)

A focus on the factors that influence tourism development is also required in this respect, considering that, depending on the regional profile in terms of tourist attractions and economic situation, they might have a different significance within the corresponding strategies (Aghdaie and Momeni, 2011, Fletcher and Cooper, 1996).

Thus, Ritchie and Croutch (2003) quoted by Koufodontis et al. (2007) place a special emphasis on the physical, economic and social factors embedded in the so-called "region's image". Among them, the supporting factors and resources such as infrastructure, accessibility, facilitating resources (human, knowledge and financial capital), hospitality, and factors political will seem to play a special role.

Only infrastructure alone, to mention one of them, is a multifaceted factor, with manifold implications. It is considered a component of the regional touristic product, comprising basic devices, buildings and service institutions of a major importance for economy and society. The main defining elements relating to a certain destination refer to accommodation facilities, gastronomy facilities, transport to destination, services for active leisure (e.g. ski resorts, sailing schools, golf clubs, etc.), retail network, other services (e.g. information, equipment rental companies, etc.) (Panasiuk, 2007).

From a broader perspective, the Travel and Tourism Competitiveness Report prepared by the World Economic Forum (2011) has developed a complex, overall competitiveness index made of three main sub-indexes, namely regulatory framework, business environment and infrastructure and human, cultural and natural resources. Again, if reference is made to the business environment and infrastructure component, the corresponding sub-index takes into consideration the following pillars: air transport infrastructure, ground transport infrastructure, tourism infrastructure, information and communication technical infrastructure, price competitiveness in travel and tourism industry.

Consequently, the regional policy measures meant to improve the frame conditions for tourism development at regional and local level play a key role: they should constitute a coherent 'package', including economic, legal, institutional, infrastructure, cultural and social elements. The aim of the package must be the definition of a regional profile, stressing and taking advantage of specific feature of each local area (Funck and Kowalski, 1997).

Based on these overall considerations our paper aims to discuss the tourism development factors proposing Romania as a relevant case study from two complementary perspectives: on the one hand, it displays an uneven regional development, which requires appropriate solutions in terms of regional strategies and policies; on the other hand the less developed regions have an important touristic potential, which might and should be turned to good account in order to reduce the gap separating them from the developed ones. Though, despite this potential the results are far behind the expectations, so that the study of the factors that still need a special consideration is highly required.

In line with the results provided by the World Tourism Organization via the country ranking in terms of Travel and Tourism Competitiveness Index (Blanke and Chiesa, 2011), which indicate the weak infrastructure as one of the major obstacles for the development of the tourism in Romania, we have proposed and tested a model able to quantify and shed light on the regional disparities in this respect.

Accordingly, the paper is organized as follows. First, a review on the tourism development in Romania is provided, emphasizing the disparities between its eight NUTS 2 regions.

Second, a couple of econometric models are elaborated and tested in order to analyze the number of arrivals of foreign tourists in Romania and the departures of Romanian tourists and to evaluate the impact of infrastructure on tourism activity, revealing the specific bottlenecks at regional level. Third, various solutions for tourism support, focusing on those able to surmount the infrastructure hurdle are discussed.

2. General discussion on tourism development in Romania

The evaluation of Romania's tourist patrimony relies on a comprehensive activity of tourist zoning that was first developed in 1975-1977 and then periodically updated. Considering tourism as a system at national scale it has aimed at establishing a model for evaluating, constructing a hierarchy and proposing the most suitable ways of turning the tourist patrimony to good account. Multiple criteria have been used in order to delimit the tourist zones and to propose the priority actions in each specific case. As a result, a wide range of tourist zones have been identified, some of them of a particular importance to the European and world's natural and cultural heritage.

Thus, the natural patrimony includes the Delta of Danube as biosphere reservation, the Romanian shore of the Black Sea, the Romanian Carpathians, North Oltenia, Banat area, the Danube Valley, and so on. The most representative areas for the cultural heritage are North Moldova (with monasteries and churches declared world's heritage by UNESCO), the medieval core of Brasov and Sibiu cities in Transylvania, the medieval fortress of Sighisoara – also in Transylvania (the only one still inhabited in Europe), Bucharest and its surroundings, the Greek, Dacian and Roman archaeological sites in Dobrogea and Transylvania, the Neolithic archaeological sites in Moldova – most of them located in extremely attractive areas from natural beauty viewpoint as well.

More recently, the Spatial Planning of the National Territory has structured the zones of a major touristic potential into two categories, namely: (1) zones of a highly valuable and complex touristic potential (24% of the national territory) which includes national parks and biosphere reservations, protected national areas, cultural patrimony of national and international interest, museums and memorial houses, spa resources[1]; (2) zones of a high touristic potential (34% of the national territory) with natural and cultural patrimony resources of especially national interest.

An important characteristic of Romania's natural and cultural-historic patrimony is its relatively well-balanced territorial distribution that has a particular significance especially for the lagging regions, with other economic activities less developed.

Based on its potential contribution to the general economic recovery, competitiveness and reduction of interregional disparities tourism is approached by all significant actors – population included – as one of the priority sectors of the Romanian economy. All governments after 1990 have included tourism development in their strategies, this interest being reflected by its privatization prior to other sectors[2]. Though, the results recorded in the last fifteen years are far below the expectations: the rate of tourism growth is under the economic growth rate and the contribution of tourism to GDP is pretty low (2.3% in 2005 and approx. 2.0% in 2009 according to the methodology of the National Institute of Statistics[3].).

According to the Travel and Tourism Competitiveness Index launched by the World Economic Forum in March 2007 Romania was ranked the 76th among 124 countries in 2006, with a score of 3.91 on a scale from 1 to 7. In 2011 the overall rank of Romania is 63, with a score of 4.17. With its three pillars referring to travel and tourism regulatory framework, business environment and infrastructure and human, cultural and natural resources, the index reveals relatively good results in terms of policy rules and regulations, price competitiveness in travel and tourism industry, human resources (education and training, workforce wellness),

[1] One third of Europe's mineral and thermal waters are located in Romania.

[2] Romania was severely criticized (especially during the '90s) by EU, IMF and other international organizations for the delays in privatization process and institutional reforms.

[3] Based on the data provided by the WTO, the contribution of Tourism to Romania's GDP was 4.7% in 2005.

natural and cultural resources and quite poor results in terms of environmental regulation, air transport infrastructure, ICT infrastructure, availability of qualified labor. As a result, about Travel and Tourism Competitiveness Index Romania is behind almost all former or current EU candidate countries such as Estonia (score 4.88 and rank 28), Czech Republic (4.77 and 35) , Slovakia (4.68 and 37), Hungary (4.54 and 40), Slovenia (4.64 and 44), Bulgaria (4.39 and 54), Poland 4.38 and 63), etc. and, respectively, Croatia (4.61 and 38), Turkey (4.37 and 52) (**Source:** The Travel & Tourism Competitiveness Report 2011, World Economic Forum, Geneva, 2011).

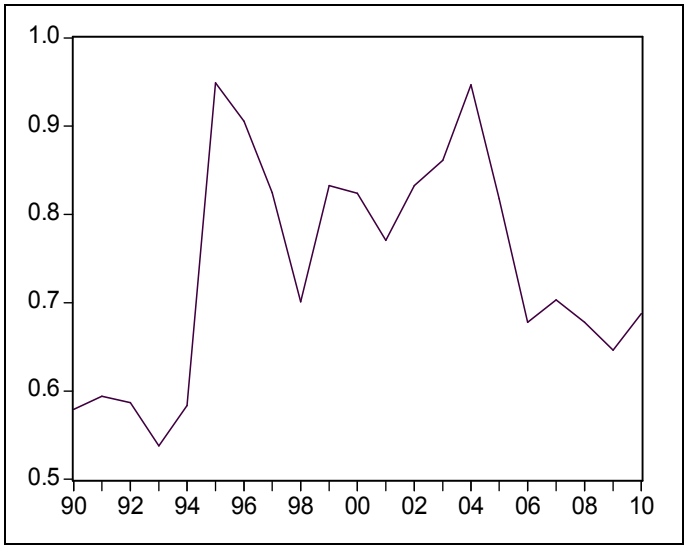
3. Some comments on the number of departures and arrivals of international tourists in Romania

Romanian tourism has seen important changes during the transition from planned economy to market economy. Table 1 presents a series of indicators calculated in order to characterize arrivals and departures of tourists in Romania during the period 1990 to 2010, and also during the political cycles in this period. Statistical indicators are computed on the total number of tourists and transport categories.

Table 1. The dynamic of the arrivals and departures of tourists for Romania (%)

Indicator	Index/rhythm	Time period for indicator					
		1990-2010	1990-1992	1993-1996	1997-2000	2001-2004	2005-2010
Arrivals of tourists in Romania							
Total	Index change	114.8	98.0	90.0	102.2	133.7	128.4
	The average annual rate of change	0.7	-1.0	-3.5	0.7	10.2	5.1
Road transport	Index change	161.0	131.5	94.5	98.9	149.1	133.4
	The average annual rate of change	2.4	14.7	-1.9	-0.4	14.2	5.9
Railway transport	Index change	9.5	48.0	49.0	110.6	64.7	72.8
	The average annual rate of change	-11.1	-30.7	-21.2	3.4	-13.5	-6.2
Air transport	Index change	448.0	113.7	147.2	122.9	100.0	132.1
	The average annual rate of change	7.8	6.6	13.8	7.1	0.0	5.7
Ship transport	Index change	63.6	57.4	110.3	82.5	137.8	82.4
	The average annual rate of change	-2.2	-24.2	3.3	-6.2	11.3	-3.8
Tourists departures from Romania							
Total	Index change	96.7	96.7	53.4	102.3	108.8	152.7
	The average annual rate of change	-0.2	-1.7	-18.9	0.8	2.9	8.8
Road transport	Index change	98.6	114.4	46.5	107.6	118.2	137.9
	The average annual rate of change	-0.1	6.9	-22.5	2.5	5.7	6.6
Railway transport	Index change	7.8	44.1	74.3	69.0	34.6	87.8
	The average annual rate of change	-12.0	-33.6	-9.4	-11.6	-29.8	-2.6
Air transport	Index change	911.3	57.4	184.1	132.1	127.0	274.1
	The average annual rate of change	11.7	-24.3	22.6	9.7	8.3	22.3
Ship transport	Index change	16.8	24.8	144.0	82.7	38.3	51.4
	The average annual rate of change	-8.5	-50.2	12.9	-6.1	-27.3	-12.5

Figure 1. The ratio between the number of arrivals and departures of tourists in Romania during 1990 - 2010



During the period 1990 - 2010 the two indicators, departures and arrivals of tourists have evolved quite different. Over the period 1990 - 2010 the number of arrivals of tourists in Romania recorded an increase of 14.8% with an average annual rate of 0.7%. For the same period, departures of tourists fell by 3.3% with an average annual rate of -0.2%. Figure 1 shows the evolution of ration between the annual number of arrivals and departures of tourists for Romania in the period 1990 to 2010. The values of this ratio for the entire period are subunit which shows that throughout the analyzed period, the annual number of tourists' arrivals in Romania was lower than the number of tourists' departures from Romania.

During the analyzed period, the data series of the number of departures and arrivals of foreign tourists in Romania are non-stationary, and they are integrated of order 1. Table 2 presents the results of applying the ADF (Dickey and Fuller, 1979) and Philips-Peron (Philips and Peron, 1988) tests used to determine the properties of stationarity and to determine the order of integration of the two data sets.

Table 2. Unit root tests

Variables	**Dickey-Fuller**			**Philips-Perron**	
		L	trend		trend
N_DEP_T	−1.6445 (0.74)	1	Yes	−1.7015 (0.71)	Yes
$\Delta(N\_DEP\_T)$	−3.9785 (0.00)	0	No	−3.9784 (0.00)	No
N_ARRIV_T	1.0243 (0.99)	3	Yes	−2.1632 (0.48)	Yes
$\Delta(N\_ARRIV\_T)$	−5.8229 (0.00)	2	Yes	−8.7793 (0.00)	Yes

The null hypothesis H0 is non-stationarity of the variable. For each case the statistics value is specified and statistical probability of a type I error in given between brackets.

Here, N_DEP_T means the number of departures during a time period and N_ARRIV_T designates the number of tourist arrivals during the same period.

The two tests indicate non-stationarity of the data series of the number of departures and arrivals of foreign tourists in Romania. These series are non-stationary in levels but are stationary in first difference which shows that the two series are I(1). Furthermore, arrivals are stationary around a deterministic trend, while departures don't have this property. These properties are confirmed by applying two statistical tests: ADF and PP.

In the following we mention some of the most plausible explanation of these evolutions. Firstly, political changes in 1989 caused an increase in the number of Romanian tourists who went abroad in the first years that followed. Secondly, the accession to the European Union caused a considerable increase in the number of Romanian tourists who went abroad, this

being an immediate consequence of the free movement within the European Union. The largest growth of Romanian tourists who went abroad occurred in the 2005-2010 period of time. During this period the average annual growth rate was 8.8%, this growth being the immediate result of the accession to EU starting on January 1, 2007. The number of Romanian tourists who went abroad in the first three years of accession was 23.8%, 46.78% and 31.6% higher compared with 2006.

Thirdly, the evolution of the number of Romanian tourists went abroad was caused by an increase in the average wage in the economy. During the period 1990 - 2010 the average annual growth rate of the average wage in the economy was 0.82%. The most significant increase occurred in the periods 2001 - 2004 and 2005 - 2010 for which the annual average increases were 7.85% and 11.37%. Table 3 presents the results of the Granger test applied to determine if there is a Granger causal relationship between the number of departures and the evolution of the average wage in the economy (N_NAW). The results confirm that the evolution of the average wage in the economy Granger causally determined the number of Romanian tourists who went abroad. By applying this statistical test we also established that there is no Granger causality between the number of tourists' departures and arrivals.

Table 3. Granger causality analysis between the number of departures, number of arrivals, and average net wage in the economy.

Hypothesis	F statistics	Decision
N_DEP_T does not Granger Cause N_NAW	0.09994	$N\_NAW \rightarrow N\_DEP\_T$
N_NAW does not Granger Cause N_DEP_T	5.68426	
N_DEP_T does not Granger Cause N_ARRIV_T	0.32140	There is no causal relationship between variables
N_ARRIV_T does not Granger Cause N_DEP_T	0.57462	

4. Features of regional tourism development

One of the main reasons of the unsatisfactory overall image of the Romanian tourism is the insufficiency and bad state of both general and tourism-specific infrastructure, unable to meet the requirements of a modern, internationally competitive tourism. Other disfavoring factors in the last fifteen years have envisaged the rigidity of tourism administrative structures, the social instability, the poverty which the majority of population is confronted with, the deficient supply of food, fuel and other goods absolutely necessary to a proper tourism, the low managerial competence and tourism personnel's behavior, the image of Romania abroad, various environmental damages.

Some of these drawbacks have been partially alleviated as a result of including tourism development as one of the priorities of the National Development Plan since 1999 (when the first plan was launched) and, consequently, of supporting it via national budget as well as EU pre-accession instruments (e.g. Phare).

The investment and management efforts in tourism made it possible to stop the decrease in the total activity volume of this sector recorded between 1990 and 2000 and an upward trend has been recorded starting from 2001. Table 4 shows the average annual rates of three important economic indicators used to characterize the tourism activity at national level and each of the eight development regions: accommodation capacity (AC), staying over night (SON) and arrivals (A). The annual average rates are calculated for 1990 – 2010 period of time, and the electoral cycles of this period: 1990-1996, 1997 - 2000, 2001 - 2004 and 2005 to 2010.

Table 4. The evolution of the main indicators of tourism between 1990 and 2010

Region	Accommodation Capacity (AC) (number of beds) 2010	Staying over night (SON) 2009	Arrivals (A) 2009	Indicator	Average annual growth rate				
					1990-2010	1990-1996	1997-2000	2001-2004	2005-2010
North-East	21279	1509550	1509550	AC	-0.80	-4.62	-2.42	0.41	2.60
				SON	-4.45	-10.88	-6.43	4.96	1.38
				A	-4.77	-11.05	-3.15	1.94	1.26
South-East	13687	4423728	4423728	AC	-0.86	-3.13	0.20	-0.30	0.58
				SON	-3.65	-9.43	-4.59	4.45	1.09
				A	-5.92	-10.79	-3.66	-1.23	-3.68
South	22625	1674366	1674366	AC	-0.86	-2.13	-1.88	1.80	0.30
				SON	-4.32	-9.95	-6.08	1.79	0.76
				A	-4.73	-10.19	-6.59	0.44	-1.89
South-West	16410	1441604	1441604	AC	-2.34	-7.05	-3.68	-3.12	2.26
				SON	-5.27	-11.09	-8.98	2.24	2.31
				A	-5.29	-12.69	-1.84	-1.90	-2.60
West	23257	1676496	1676496	AC	-0.56	-2.73	-0.85	-1.88	1.78
				SON	-4.48	-12.46	3.32	-0.33	1.82
				A	-4.58	-12.05	3.13	0.10	-2.24
North-West	26103	2098589	2098589	AC	-0.54	-1.55	-1.18	-0.83	0.06
				SON	-3.72	-10.36	-3.32	5.40	-0.03
				A	-4.38	-12.56	0.16	1.61	-2.16
Centre	42029	2665298	2665298	AC	-0.26	-3.15	-1.61	-0.27	3.45
				SON	-3.23	-7.74	-3.97	5.64	0.11
				A	-4.46	-10.14	-5.36	0.94	-1.07
Bucharest-Ilfov	23120	1835779	1835779	AC	2.99	-5.35	-3.84	7.49	15.55
				SON	-0.65	-8.67	-10.23	14.37	4.46
				A	-2.59	-11.97	-10.67	12.00	5.51
Romania	188510	17325410	17325410	AC	-0.61	-3.20	-0.83	-0.30	1.92
				SON	-3.59	-9.86	-4.94	4.97	1.42
				A	-4.85	-11.20	-3.46	0.69	-1.46

Data source: NIS TEMPO 2011 and the authors processing of data; for SON and A the rates are calculated for the period 1990 to 2009.

We highlighted the following aspects of the evolution of the considered indicators on national level and for the eight development regions for the 1990-2001 period:

- the average annual growth rate of the accommodation capacity of 2.99%, was recorded only in the Bucharest-Ilfov region. In all other regions it has declined: the minimum decrease of -0.26% annual average rate was recorded in the Central region and -2.34% in the South - West region; at national level the decline was -0.61% on average each year;
- in all development regions there have been an annual average decrease in the number of overnight stays over the whole period 1990 - 2009. The annual average decrease of this value among regions ranged between -5.27% in South-West and -0.65% in the Bucharest–Ilfov region. At national level there was a decrease in the annual average number of overnight stays of -3.59%;
- the number of arrivals over the 1990-2010 period decreased every year with an average of -4.85%. The annual average rate for the eight regions ranged from -5.92% in the South - East region to 2.59% in the Bucharest – Ilfov region;
- the most significant decrease for the three indicators in most regions were recorded during the first two election cycles between 1990 to 2000. Since the period 2001 - 2004 there is a noticeable stabilization and a relative increase of values for the three indicators both at national and regional level.

This tendency is correlated with the overall evolution of the Romanian economy, which has recorded an important economic growth during 2000-2008 period (annual growth rates were above 5%). During the 2001 - 2004 period the annual average GDP growth rate was 6.0% and for the next period, 2005 to 2010, it was 3.9%. The economic growth rate during

2005 - 2010 has been reduced significantly due to the economic crisis that affected the Romanian economy in 2009 and 2010. In the period following the political changes of 1989 a reduction of the values of the above mentioned indicators has been recorded at both national and regional levels because of the following reasons:

- the number of employees in the economy has significantly decreased and thus the number of employees who requested a ticket for rest and treatment through the unions decreased. In the planned economy era unions distributed a considerable number of tickets for rest and treatment to its members. Many times the employee's right to such a ticket turns into an obligation to accept it. Under these conditions a large number of spa resorts have completely closed their accommodation capacities;
- a significant number of Romanians have preferred spending the holiday in other countries, mostly in Greece and Turkey;
- public road infrastructure and railways has not been developed to the level required by Romanian and foreign tourists. The average annual increase in the length of public roads during 1990 - 2010 was only 0.62%, and the length of railways was reduced on average by -0.25% annually.

The accommodation capacity in use increased by 8.39% at national level as a result of the major increase in Bucharest-Ilfov region. Most of the other regions recorded smaller or bigger increases and only in the South region the accommodation capacity in use decreased. This is a result of the restructuring and modernization of the tourism capacity inherited from the communist period. The progress is visible in term of increase in the share of higher quality standard capacities (3-5 star capacities), especially after 2000 (Baleanu et. al., 2008) (Olteanu, 2011).

As far as the distribution of the accommodation capacity by region is concerned, an important disequilibrium can be easily noticed between the South-East region and the rest of the country, which is explained by the high concentration in the Black Sea area (Secara, 2010). However, the use of the accommodation capacity in this area is characterized by a big seasonality.

The number of arrivals and staying over night has recorded different evolutions: the number of arrivals increased whereas the number of staying over night decreased, especially in the seashore area. These figures not only reflect the increase of the weekend tourism but also the increase in the number of tourists who chose as seashore destinations other countries such as Bulgaria, Turkey, and Greece (Olteanu, 2011).

The index of using the accommodation capacity has a slightly overall increasing trend, as a result of combining important decreases (especially in the Black Sea area and Bucharest), but it has a relatively low overall level: only approximately one third of the accommodation capacity is used (Table 5).

Table 5. The index of utilization of the accommodation capacity in function in 2008 compared with 2000 (percentage)

Region	2000	2008
North-East	31.7	29.3
South-East	44.8	42.5
South	28.9	32.8
South-West	42.6	41.2
West	36.3	35.1
North-West	29.9	32.7
Centre	28.0	30.0
Bucharest-Ilfov	36.3	24.6
Romania	35.2	36.0

Source: Territorial Statistical Yearbook of Romania, 2009

Romanian tourism in general is still confronted with the outdated and insufficient infrastructure, unable to offer proper access to architecture monuments, archaeological sites, to meet the demand of parking lots, information points for cultural sites, belvedere points for

defense walls, medieval fortresses, churches, monasteries, camping lots for pilgrims, etc. Also the connected facilities – hotels, motels, restaurants, gas stations, car rental firms – are still behind the demand. The transportation infrastructure is particularly weak in all its forms – road, rail, naval and air, with an emphasis on road infrastructure: the highways are almost inexistent while the modernized roads are insufficient and concentrated especially around the Capital city (Table 6).

Table 6. The density of public roads and modernized public roads (Km/100sq Km) in 2008

Region	PR/100kmp	MPR /100kmp
North-East	36.6	9.34
South-East	30.7	6.64
South	36.5	11.79
South-West	36.5	12.56
West	32.1	9.17
North-West	35.4	8.39
Centre	31.4	8.17
Bucharest-Ilfov	48.9	36.37

Source: Territorial Statistical Yearbook of Romania, 2010

In almost all regions the public roads have a low density, whereas the modernized public roads represent less than one third out of total. The exception is the Bucharest-Ilfov region, where the density is higher than in the rest of Romania and the modernized public roads represent approximately 60% of the total length at country level. For comparison, in 2009, the density of public roads was 170 in Denmark, 180 in Germany, 129 in Sweden (World Bank).

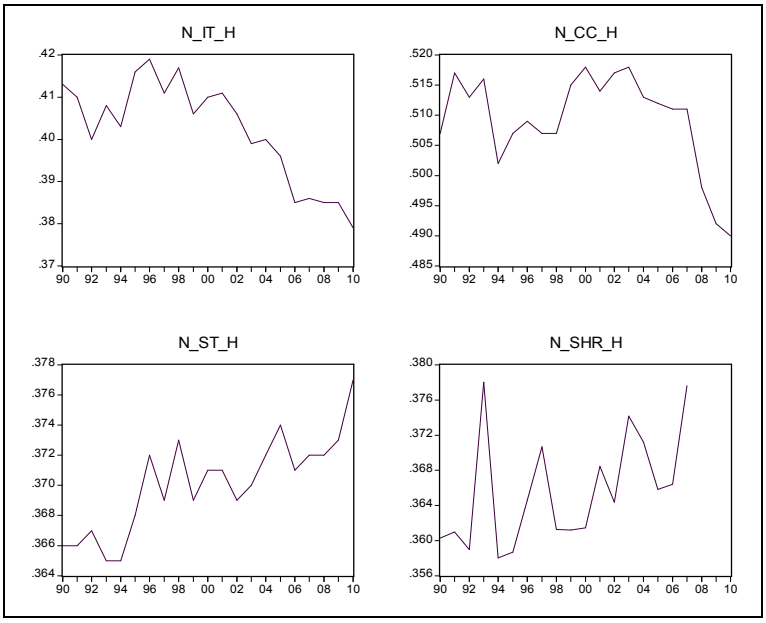
The importance of public roads is explained by the fact that a big share of tourist activity in Romania is supported by road transportation. Thus, according to NIS data, 74.46% of the total number of tourists leaving Romania in 1990 used the road transportation and this share rose up to 79.68% in 2000.

During the 1990 - 2010 period it has been recorded a significant decrease in the concentration of accommodation capacity in Romania on the eight development regions. We used the Herfindall (Herfindall, 1955) index to measure the concentration of accommodation capacities by regions. The graph in Figure 2 shows the index values calculated for the accommodation capacities (N_CC_H), number of over night stays (N_IT_H), the number of arrivals (N_ST_H) and number of employees in hotels and restaurants (N_SHR_H).

The analysis of four the data sets shows the decrease tendency of the concentration of accommodation capacity and number of nights spent on the eight development regions, an increase in the concentration degree of the number of tourists' arrivals and number of employees in hotels and restaurants for the eight development regions.

An analysis of the concentration degree must consider the above mentioned trends that took place while the following indicators' values at national level during the period 1990-2010 has decreased: accommodation capacity was reduced by an average annual rate of -0.61%, the number arrivals to -3.47%, the number of over night stays to -4.98, the number of employees in the hotels and restaurants to -2.8%. During 1993 - 2009 the GDP of Romania increased by an average annual rate of 3.24%.

Figure 2. Herfindall concentration indices for the four indicators used to characterize the statistics of tourism activity.



5. Econometric models used to analyze the number of arrivals of foreign tourists in Romania and the departures of Romanian tourists

We used two regression models to analyze the evolution of the number of Romanian tourists that went abroad and foreign tourists arrived in Romania. According to the results presented in table 3, the average net wages in the economy (N_NAW) determine the number of departures (N_DEP_T) in the sense of Granger causality (Granger, 1969). Under these conditions, taking into account the results presented in Table 2, we define a regression model to analyze N_DEP_T. The parameter estimations are presented in Table 7.

Table 7. Regression models of the number of foreign tourists' arrivals and departures of Romanian tourists abroad

Explanatory variables	Dependent variables	
	N_DEP_T	N_ARRIV_T
Constant	2370.36 (2.43)	44629.15 (4.51)
Trend	–377.96 (4.88)	48.10.96 (1.77)
N_NAW	4.03 (9.57)	
Δ(N_DEP_T)	0.40 (2.01)	
Δ(N_DEP_T(-1))	0.57 (2.39)	
Δ(N_ARRIV_T)		0.60 (2.55)
N_CC_H		–76883.00 (3.98)
R^2	0.85	0.68
Adjusted R^2	0.81	0.62
F statistics for restriction (1)	91.63 (<0.01)	
F statistics for restriction (2)		15.84 (<0.01)

For each variable the table indicates the estimated coefficient and the absolute value of Student statistics in parentheses. (1) H0: Net Average Wages don't cause the number of departures of foreign tourists in Granger sense; (2) H0: N_CC_H don't cause the number of foreign tourists' arrivals in the country in Granger sense.

In the first model that analysis the departures of Romanian tourists abroad, the net average wage in the economy significantly determine the number of Romanian tourists who went abroad. The F statistics value for testing the restriction (1) shows that there is causality relationship in Granger sense between the net average wages in the economy and the number of Romanian tourists who went abroad.

The second regression model highlights that reducing the concentration degree of the accommodation capacity negatively caused in Granger sense the number of foreign tourists arrived in Romania. In the second equation that explains the number of foreign tourists who arrived in Romania, if we omit the variable that measures the concentration of regional accommodation capacity this will significantly reduce the power of explanation of the model (F test restriction (2)).

6. Econometric models for evaluating the impact of infrastructure on tourism development. Regional variations

The econometric models developed here attempt to evaluate the effects of the infrastructure on the activity in tourism. In the econometric models considered the tourism activity is estimated by gross domestic product in tourism and the factors that are put in question refers to the use of tourism accommodation capacity (GRADCAP), tourism accommodation capacity (CAPT), public road density (DENS_DP) and density of the modernized public roads (DENS_DM). The model is defined by the relation:

$$PIB\_T_{it} = c + c_1 GRADCAP_{it} + c_2 CAPT_{it} + c_3 DENS\_DM_{it} + c_4 DENS\_DP_{it} + \varepsilon_{it} \quad [1]$$

This model is estimated using data from development regions recorded from 1998 to 2009. The parameters were estimated by means of the Pooled Least Squares method by three different methods: the common constant method, the fixed effects method and the random effects method (Baltagi, 2008). Table 8 summarizes the results.

Table 8. Classical model parameter estimation

	common constant method		fixed effects method		random effects method
Dependent Variable: GDP in tourism (PIB_T)					
C	-577.113^{*} (66.9108)	751.358^{*} (129.74210)	-747.2360 (387.6045)	-2929.659^{*} (774.6328)	-2020.356^{*} (453.253)
GRADCAP	-5.658^{*} (1.8656)	-8.861^{*} (1.4123)	-4.3273^{*} (3.7598)		
CAPT	0.003^{*} (0.0002)	0.002^{*} (0.0001)	0.0179^{**} (0.0104)	0.0117^{**} (0.0062)	0.006^{*} (0.0002)
DENS_DM		18.211^{*} (5.0758)	26.9770^{*} (6.9517)	12.3641^{**} (6.5721)	18.662^{*} (5.7550)
DENS_DP	28.687^{*} (3.0083)	40.631^{*} (4.7826)		77.0844^{*} (19.7282)	54.6090^{*} (13.2170)
R^2	0.53 (0.00)***	0.75 (0.00)***	0.86 (0.00)***	0.90 (0.00)***	0.61 (0.00)***

* - $\alpha = 0.00$, ** - $\alpha \leq 0.05$, *** - Prob(F-statistic)

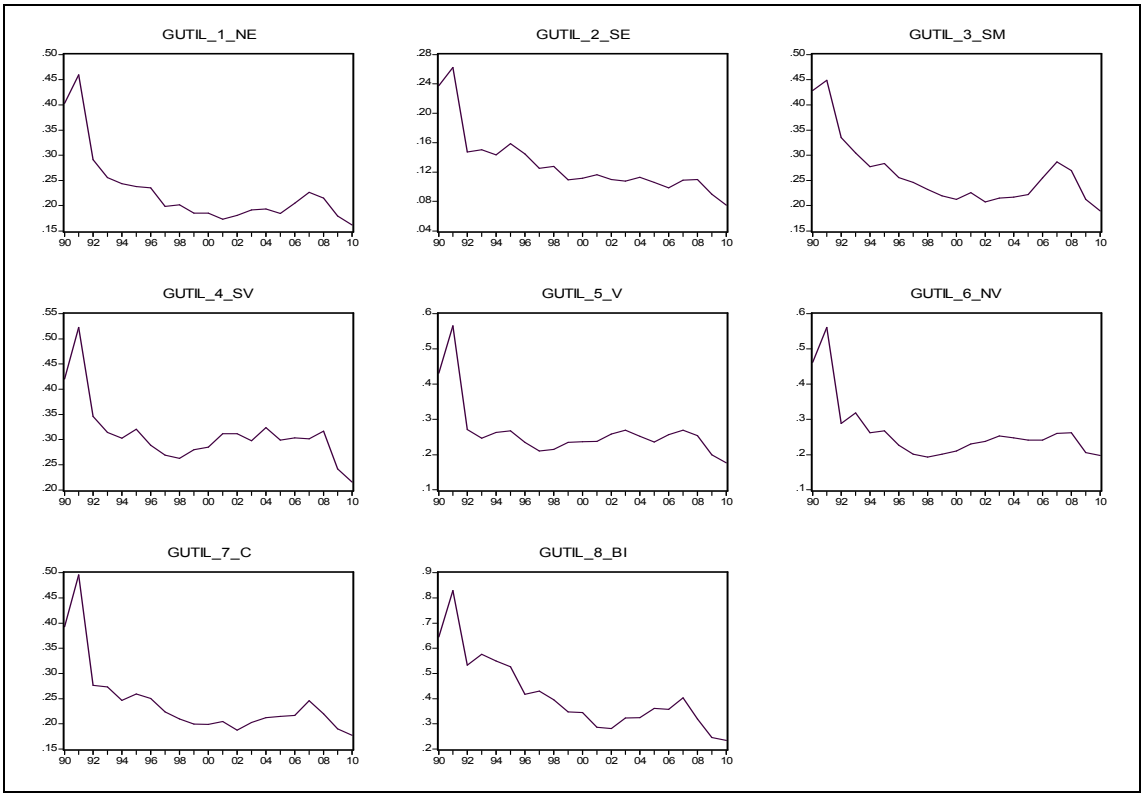
We applied Hausman test (Hausman, 1978) to choose between the fixed effects method and random effects method. The test statistic equal to 7.2 is greater than the chi-square statistic determined for the significance level of 5%. Under these conditions we reject the null hypothesis according to which the random effects model is consistent and we consider the fixed effects model. Table 9 presents the specific effects in the development regions estimated from the econometric model considered.

Table 9. Specific effects in the regions

The historical region	Development region	Specific effect of the development region	Specific effect of historical region
Muntenia	South-West	13.28140	86.22
	South	-36.26749	
	Bucharest-Ilfov	109.2080	
Moldova	North- East	-24.72293	-243.38
	South-East	-218.6521	
Transilvania	West	67.78855	157.15
	North-West	-25.93825	
	Centre	115.3028	

As results from the graphical representations in Figure 3 show, during the period 1990 to 2010 the utilization of touristic capacities has dropped. In 1990 the highest value of the utilization of hotel accommodation capacities was in the Bucharest – Ilfov (64.5%) and the lowest (23.8%) was in the South-West region. In 2010 the indicator was reduced considerably compared to 1990 both nationally and in each of the eight development regions. The largest decrease occurred in the South – East region – 68.5%, reductions in other development regions being equally significant (NE - 59.9%, SM - 55.8%, SW - 48.7%, W - 58.9%, NW-57.2% and C - 54.9%). This situation is due to various causes. The transition from planned economy to market economy resulted in a considerable reduction of the employed population nationwide and in seven of the eight development regions. During 1992 - 2008 the employed population in seven development regions decreased by 12.25% to 25.05% (S - 25.05%, SW - 23.04%, NE - 22.25%, SE - 20.43%, C - 15.58% , NW - 13.72% and W - 12.25%). The only region which saw an increase of the employed population with 6.72% was Bucharest - Ilfov. Under these conditions the number of employees who went on vacation in a resort or spa has decreased. Another important factor leading to lower capacity utilization was the inappropriate development of the privatization in tourism. The privatization process was conducted by the Ministry of Privatization and not by the Ministry of Tourism. Many touristic capacities, especially in spa tourism, have not been upgraded to improve the services offered to tourists.

Figure 3. Developments in the utilization of accommodation capacity in the eight development regions during 1990 - 2010



An important factor for tourism development is to increase the density of public roads and modernized public roads. The parameter values corresponding to the two variables that measure the quality of infrastructure are all positive.

There is heterogeneity between historical regions. Thus, the sign of the specific effects is positive for Transylvania and Muntenia and negative for Moldova. It should be noted that for Muntenia we obtain a positive value due to the contribution of Bucharest. There is heterogeneity for historical regions Muntenia and Transylvania. Only for Moldova both regions (North- East and South-East) have the same negative sign for the specific effects.

These findings are reflected by the Regional Operational Programme of Romania, which includes the sustainable development of regional and local tourism among its priorities, with important financial allocations for the North-East region.

7. Concluding remarks

As resulted from the above analysis, one of the major problems the Romanian tourism is confronted with is the outdated and insufficient infrastructure, unable to offer proper access to tourist attractions, to meet the demand of parking lots, information points for cultural sites, etc. Also the connected facilities – hotels, motels, restaurants, gas stations, car rental firms – are still behind the demand. Therefore many efforts should concentrate in the forthcoming years on infrastructure modernization, marketing development, service quality improvement, sustainability so as to make the tourism sector able to have the expected contribution to reducing intra and interregional disparities and increasing the overall economic development, in accordance with its major potential in Romania (Mitrut and Constantin, 2009).

During the transition in Romania there has been a significant reduction in tourism activity. Amid economic and social difficulties the domestic demand for tourism services in the country has reduced. During the period 1990 - 2010 the accommodation capacity in hotels has decreased with 11.45% and overnight stays in hotels with nearly 64%. During this period the concentration of accommodation capacities in the eight development regions also decreased with almost 3.5%. This situation is explained by the development of new smaller accommodation capacities in regions with high potential for tourism and abandonment of

accommodation capacities in spas as a result of the defective privatization process or problems of property restitution.

Table 10 shows the Pearson correlation coefficient calculated from data series values (values below the diagonal) and concentration indexes by regions (values above the main diagonal). These data show a significant linear dependence between the concentration of accommodation capacities by regions and the concentration of tourist arrivals by regions, overnight stays, GDP, railway utilization, hotel and restaurant employees and employees in economy. Instead, accommodation capacity development depends on tourist arrivals, overnight stays, number of employees in hotels and restaurants and the number of employees in the economy. Increasing the concentration of GDP in the development regions determined the increase of the concentration of the accommodation capacities. Development of road infrastructure (public roads and modernized public roads) was an important factor for concentration of the accommodation capacities. In future, the potential of the Romanian tourism will be significantly influenced by the development and modernization of public roads.

Table 10. Pearson correlation coefficient calculated from the data series values (values below the diagonal) and concentration indexes by regions (values above the main diagonal)

	1	2	3	4	5	6	7	8
Tourist accommodation capacity (1)	1.00	-0.44*	0.50*	-0.50*	0.13	-0.67*	-0.68*	-0.62*
Tourist arrivals (2)	0.87*	1.00	-0.51*	0.71*	-0.65*	0.11	0.51*	0.64*
Overnight stays (3)	0.73*	0.92*	1.00	-0.84*	0.74*	-0.46*	-0.65*	-0.93*
GDP (4)	-0.08	-0.20	-0.41*	1.00	-0.85*	0.26	0.62*	0.94*
Public roads length(5)	-0.25	-0.42*	-0.53*	0.84*	1.00	0.09	-0.53*	-0.76*
Railways length (6)	0.26	0.46*	0.56*	-0.77*	-0.88*	1.00	0.27	0.51*
Employees-Hotels and restaurants (7)	0.85*	0.91*	0.86*	-0.13	-0.41*	0.45*	1.00	0.68*
Employees - total in economy (8)	0.75*	0.89*	0.89*	-0.51*	-0.72*	0.76*	0.87*	1.00

* - values significantly different from zero for

Previous studies have revealed that the achievement of a good performance and position on tourism market “depends on the capacity of a destination area to manage and organize its resources according to an economic logic driven by competitiveness strategies” (Cracolici and Nijkamp, 2008, p. 338). A major challenge in this respect is to set up viable mechanisms able to improve the competitiveness and quality of tourism at national, regional and local level so as to ensure a balanced development and make touristic areas more competitive at national and international level (OECD, 1999).

Throughout the transition period Romania has "exported" more tourists than the number of "imported" tourists. During the period 1990 - 2010 the ratio of foreign tourists who visited Romania and the number of Romanian tourists who went abroad was below one. Romania's EU accession led on a short-term to a significant increase of foreign tourists who visited Romania. Econometric tests have shown that during the period 1990 - 2010 the number of Romanian tourists who went abroad was directly determined by the average net wage increase in the economy.

The current framework set up in Romania for tourism development gravitates around the strategy developed by the Ministry of Regional Development and Tourism, whose turning into practice is largely based on the EU-funded Regional Operational Programme 2007-2013. It contains as one of the basic priorities the sustainable development of regional and local tourism, with a share of 15% of total public expenditure (from European Regional Development Fund and state budget, Ministry of Development, Public Works and Housing, 2007 - Currently Ministry of Regional Development and Tourism). This priority is based on

measures focusing on: the restoration and sustainable use of cultural patrimony as well as the creation/development of related infrastructure; the creation/development/modernization of specific infrastructure for sustainable use of natural resources and the increase in the quality of tourist services; promotion of tourism potential and creating the infrastructure needed to raise Romania's attractiveness as tourist destination.

Other priority axes of the Regional Operational Programme can also provide supporting measures for tourism development, such as those regarding the improvement of the regional and local transportation infrastructure, the strengthening of the regional and local business environment or the sustainable development of cities as urban growth poles. In the implementation phase an important role belongs to the regional/local public administration, which is able to ensure the necessary operational convergence between the national level and local communities, between various public and private stakeholders involved in defining and creating the tourist supply (Galdini, 2005).

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