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Study on the evolution of tourism and perspectives

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Abstract. *Tourism is one of the important branches of the national economy in most countries, but first of all it is important for Romania. In the process of restructuring and reorganization of the national economy after 1990, unfortunately they did not seek to maintain areas in which Romania had sufficient expertise, experience gained to remain priority areas for us, but also for the European Union or more broadly and it has reached a situation where the industry has been practically destroyed, agriculture is left to chance and moreover, no support is given for the development of certain branches.*
Tourism is the one in which Romania, naturally having a proportional structure and a very important historical past, has possibilities to develop a large-scale tourism. Agrotourism, traditional resorts, privatization in the field of tourism and many more must give a definite perspective for the future evolution of this activity.
When we discuss the situation that happened until December 31, 2019, we have in mind the fact that certain measures have been taken, left-handed is true, but in which tourism continued to be one of the branches that was in full development and had the opportunity to contribute and in the future to a greater extent in the formation of the Gross Domestic Product. Unfortunately, at the time of writing this article, we are in the midst of a pandemic, caused by the coronavirus crisis (COVID 19), in which the perspective of tourism evolution is practically strangled.
We are considering the suspension of this activity altogether, as domestic tourism or external tourism. We are also considering moving to technical unemployment and perhaps from now on, unemployment and other forms of unemployment. Until January 2020, there were increases in most indicators and here we mention arrivals, overnight stays and the number of tourists per structure. The structural analysis of the number of tourists was done monthly or quarterly, as well as a broader analysis attempt. At the same time, the perspective of improving the structure of Romanian tourism, increasing accommodation capacity, quality of life and so on was taken into account.
This article is written at a turning point, between what was until December 31, 2019, if you want until February 29, 2020 in a way, in the evolution of tourism in our country and what is seen in conjunction with this pandemic, after which will follow without a doubt and perhaps a special economic and financial crisis.
The economic and financial crisis has already affected domestic tourism owners and will continue to affect them if they are not supported by government measures. We must also have a point of view regarding the role of the European Union in ensuring the takeover of the activity in this field, which suffers not only Romania, but also in all the member countries of the European Union or its non-members, as well as in terms of world.

Keywords: indicators, internal and external tourism, development, unemployment, jobs.

JEL Classification: H12, J60.

Introduction

In this article, on the study of the evolution of tourism and its prospects in the future, we started from the fact of the study on the evolution of tourism in 2019 and then in January 2020. The study was conducted on the basis of statistical indicators, arrivals, overnight stays, accommodation capacity, average length of stay, net use index of accommodation places, indicator of occupancy of existing places, occupancy of tourist capacities and so on.

The aspects regarding the evolution in 2019 are studied one by one, highlighting indicators that show that in this period there was even the possibility to increase more than it was achieved, but anyway the indicators submitted reveal that this activity could be continued.

The study continues on a structural analysis in connection with the locations from which tourists come to Romania. Also, in terms of Romanian tourism abroad, the locations they reach, there is the possibility to show that until December 2019, even January 2020, there was a positive growth capacity of Romanian tourism.

The article is accompanied by some tables and graphs that are suggestive and give essence and argumentation to the conclusions or points of view that the author said in this article.

The analysis is subject to the author's magnifying glass and in terms of the possibility to find out what are the prospects, only that, among the perspectives that emerge from the analysis until January 31, 2020 is one, and the analysis that is put further, in connection with the perspective of tourism Romania, after the current pandemic, the coronavirus crisis (COVID 19), is far from it.

In this regard, the article concludes with a spectral analysis of the evolution of the number of tourists arriving in accommodation units between November 2013 and March 2020.

It is not the purpose of the article to advance the evolution of tourism in Romania in 2020 and in the coming years, but a point of view must be expressed in the sense that, certainly, this activity will be greatly affected, given that in activities in this field are currently suspended, and it is difficult to assume that there are immediate prospects for this activity to be unblocked. It remains to be established, perhaps for a future analysis we will focus on determining the role of measures that can be taken by the Romanian government to support the resumption and development of tourism, but at the same time what is the role of the European Union that must get involved and allocates funds to resume this activity, which is not only for Romania, but for the entire European Union.

Literature review

Anghelache Constantin and Anghel Mădălina Gabriela (2019a) addresses issues related to the collection and systematization of statistical data for the analysis of economic phenomena. Anghelache Constantin and Anghel Mădălina Gabriela (2019b), addresses

and solves various theoretical and practical problems of economic modeling. Also, Anghelache Constantin and Anghel Mădălina Gabriela (2018a) addresses various models and methods for analyzing the quality of life in Romania. Anghelache Constantin and Anghel Mădălina Gabriela (2018b) analyzes in their paper the correlations between the employed population, unemployment and vacancies. Bran, F., Dinu, M. and Simon, T. (1998) are concerned in their work with environmental issues and their impact on tourism development. Cristureanu C. (1992) addresses theoretical issues related to international tourism. Farole T., Rodinguez-Pose, A. and Storper, M. (2011) addresses issues related to cohesion policy in the European Union in terms of economic growth. Iacob Ștefan Virgil (2018, 2019, 2020) addresses various models of statistical-econometric analysis of simple, multiple linear regression and spectral analysis in researching the evolution of various economic phenomena, both micro and macroeconomic. Leea, J.W. and Brahmasreneb, T. (2013) research in their work the influence of tourism on economic growth. Manacorda, M., Manning, A. and Wadsworth, J. (2012), studies the impact of immigration on the wage structure in the UK. Silva, J. and Toledo, M. (2009), address in their paper the issues related to the cyclical behavior of vacancies and unemployment.

Some methodological clarifications

The analysis refers to a series of indicators, context in which we selected from the methodology used by the National Institute of Statistics, a series of aspects, which will facilitate the understanding of the points of view expressed in this article. Thus, the arrival of a tourist is registered when a person is registered in the register of the tourist reception structure with tourist accommodation function, in order to be hosted one or more nights. Therefore, in each tourist reception structure with the function of tourist accommodation, only one arrival per tourist is considered, regardless of the number of overnight stays resulting from his uninterrupted stay.

Regarding the overnight stay, this represents the interval of 24 hours, starting with the hotel time, for which a person who is registered in the tourist accommodation and benefits from accommodation on account of the tariff related to the occupied space, even if the actual stay is shorter mentioned interval.

The index of net use of tourist accommodation places expresses the relationship between the tourist accommodation capacity in operation and its actual use by tourists, in a determined period. It is calculated by reporting the total number of overnight stays, to the tourist accommodation capacity in operation, from the respective period.

The source of the data is the monthly statistical survey on “Attendance of tourist reception structures with accommodation functions” (TOURISM 1 A) for arrivals and overnight stays in tourist reception structures with accommodation functions, in accordance with Regulation (EU) no. European Parliament and of the Council of 6 July 2011 on European statistics on tourism and repealing Council Directive 95/57/EC.

The data regarding the arrivals of foreign visitors in Romania and the departures of Romanian visitors abroad, registered at the border points, are obtained monthly from administrative sources – the General Inspectorate of the Border Police, within the Ministry of Internal Affairs.

Statistically, "international visitor" means any person who travels to a country other than that in which he or she habitually resides, for a period not exceeding 12 months, the main purpose of the visit being other than the exercise of a paid activities in the country visited.

"Arrivals" is the unit of measurement for foreign visitors registered upon entry into the country; "Departures" is the unit of measure for Romanian visitors traveling abroad registered when leaving the country.

The number of arrivals or departures of visitors is different from the number of people entering or leaving the country. The same person from abroad can make several trips to the country during that period, being registered each time as a new arrival. In the same way, Romanian visitors go abroad.

The country of origin of the international visitor is established according to the nationality registered in the visitor's passport.

Data, results and discussions

In Table 1 are structured the data regarding the arrivals and overnight stays of Romanian and foreign tourists in tourist reception structures with accommodation functions, in January 2019 and January 2020.

Table 1. *Arrivals and overnight stays in tourist reception structures with accommodation functions - January 2019 and 2020*

	Arrivals			Overnights		
	January 2019 Thousands	January 2019 Thousands	January 2020 compared to January 2019 (%)	January 2019 Thousands	January 2020 Thousands	January 2020 compared to January 2019 (%)
Total	**758,4**	**796,3**	**105,0**	**1472,8**	**1575,5**	**107,0**
Romanian tourists	618,6	668,7	108,1	1188,0	1299,2	109,4
Foreign tourists	139,8	127,6	91,3	284,8	276,3	97,0
- Europe	102,1	93,4	91,5	208,8	199,2	95,4
- European Union	81,2	72,7	89,5	157,1	150,2	95,6
- Asia	22,6	19,0	84,1	47,4	48,3	101,9
- North America	9,1	6,8	74,7	17,3	13,3	76,9
- South America	1,2	1,0	83,3	2,4	2,2	91,7
- Africa	1,1	1,2	109,1	1,8	2,4	133,3

Source: INS communicated 52/02.03.2020.

Interpreting the data structured in Table 1, we find that in January 2020 compared to January 2019 arrivals in tourist accommodation with accommodation functions increased by 5%, and in terms of overnight stays, they increased by 7%. Thus, the arrivals registered in the tourist reception structures in January 2020 amounted to 796.3 thousand, and out of the total number of arrivals, the arrivals of Romanian tourists in the tourist reception

structures with accommodation functions represented 84% in January 2020, while which foreign tourists accounted for 16.0%.

Regarding the arrivals of foreign tourists in the tourist reception structures, the largest share was held by those in Europe with 73.2% of the total foreign tourists and of these 77.8% were from the member countries of the European Union.

The overnight stays registered in the tourist reception structures in January 2020 amounted to 1575.5 thousand, of which the overnight stays of Romanian tourists in the tourist reception structures with accommodation functions represented 82.5% in January 2020, while the overnight stays of foreign tourists represented 17.5%. Regarding the overnight stays of foreign tourists in the tourist reception structures, the largest share was held by those in Europe with 72.1% of the total foreign tourists and of these 75.4% were from the member countries of the European Union.

Compared to January 2019, in January 2020 at the border points there was an increase in terms of arrivals of foreign visitors by 12.7% and also in terms of departures abroad of Romanian visitors had a positive evolution by 14.1%.

Regarding the average length of stay in January 2020, it was 1.9 days for Romanian tourists and 2.2 days for foreign tourists, respectively.

The index of net use of accommodation in January 2020 was 25% of total tourist accommodation structures, thus registering an increase of 1.6% compared to January 2019. Higher values of the indices regarding the use of accommodation in January 2020, were registered in hotels 31%, in tourist villas 22%, in bungalows 19.9%, in hostels 19.4%, in tourist pensions 18.6% and in tourist chalets 16.4%.

In Table 2 are structured the data regarding the distribution of Romanian tourists' arrivals in the tourist reception structures on various tourist areas in January 2019 and 2020.

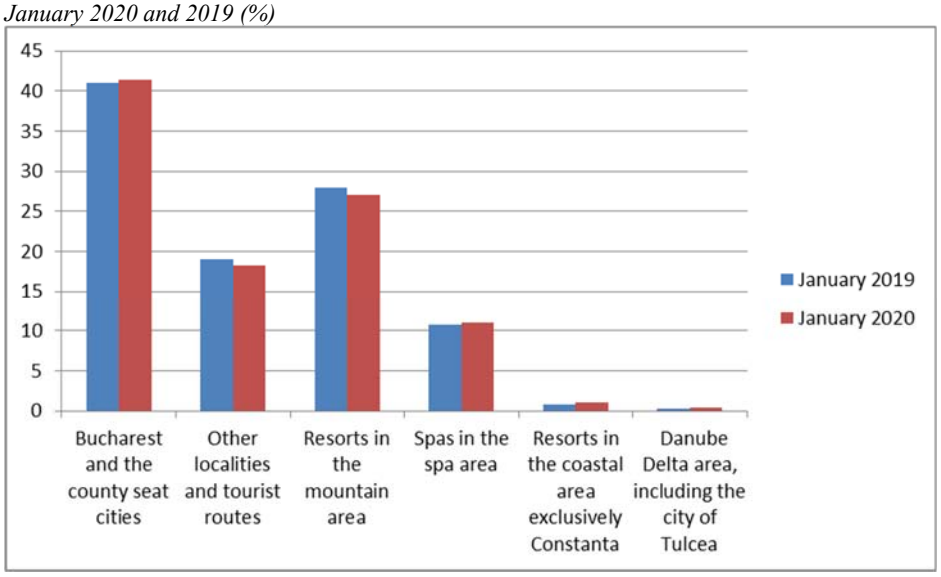
Table 2. *Distribution of Romanian tourists' arrivals in tourist reception structures, by tourist areas, in January 2020 and 2019 (%)*

	January 2019	**January 2020**
Bucharest and the county seat cities	41,0	41,4
Other localities and tourist routes	19,0	18,3
Resorts in the mountain area	28,1	27,0
Spas in the spa area	10,8	11,7
Resorts in the coastal area exclusively Constanta	0,8	1,2
Danube Delta area, including the city of Tulcea	0,3	0,4

Source: INS communicated 52/02.03.2020.

In order to more easily observe the differences between the arrivals of Romanian tourists in the structures of tourist reception, by tourist areas, in January 2020 and 2019, the Graph 1 was drawn up.

Graph 1. *Distribution of Romanian tourists' arrivals in tourist reception structures, by tourist areas, in January 2020 and 2019 (%)*



Interpreting the data presented in Table 2 and Graph 1 we find that Romanian tourists have accessed more Bucharest, county seat cities, seaside and coastal areas, to the detriment of the mountains, where the share of tourists was lower in January 2020 compared to January 2019.

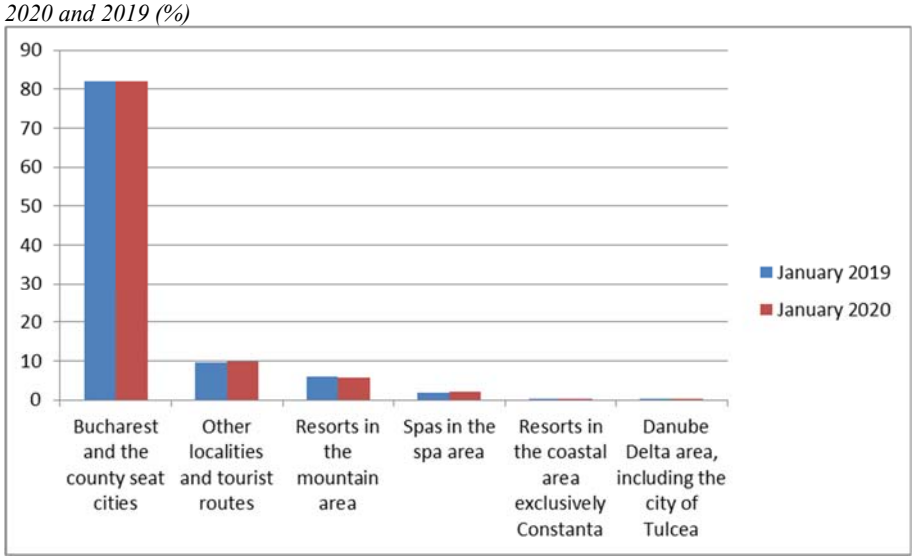
Regarding the distribution of foreign tourists' arrivals in the tourist reception structures, by tourist areas, in January 2020 and 2019, the data were structured in Table 3 and outlined in Graph 4.

Table 3. *Distribution of foreign tourist arrivals in tourist reception structures, by tourist areas, in January 2020 and 2019 (%)*

	January 2019	January 2020
Bucharest and the county seat cities	82,1	81,9
Other localities and tourist routes	9,6	9,8
Resorts in the mountain area	6,1	5,7
Spas in the spa area	1,9	2,1
Resorts in the coastal area exclusively Constanta	0,2	0,4
Danube Delta area, including the city of Tulcea	0,1	0,1

Source: INS communicated 52/02.03.2020.

Graph 2. *Distribution of foreign tourists' arrivals in tourist reception structures, by tourist areas, in January 2020 and 2019 (%)*



Interpreting the data structured in Table 3 and sketched in Graph 2, we find that in terms of the share of foreign tourists in Romania was more significant in January 2020 in seaside resorts, spas and tourist routes.

Table 4 structures the data for January 2020 regarding the arrival of foreign tourists according to the country of residence and the tourist areas where they stayed.

Table 4. *Most arrivals of foreign tourists, by country of residence and tourist areas, in January 2020*

	Total	Bucharest and the county seat cities, exclusively Tulcea	Other localities and tourist routes	Resorts in the mountain area	Spas	Seaside resorts, excluding the city of Constanta	Danube Delta area, including the city of Tulcea
Total foreign tourists	**127620**	**104542**	**12444**	**7339**	**2650**	**528**	**117**
Israel	**14210**	13247	184	723	50	6	0
Italy	**12979**	10993	1561	285	65	33	42
Germany	**12718**	10582	1509	471	122	26	8
Republic of Moldova	**7505**	2796	652	2329	1704	23	1
France	**7340**	6325	641	251	106	7	10
UK	**6957**	5982	401	503	16	53	2
US	**5969**	5223	521	122	19	83	1
Hungary	**5314**	3025	1789	356	142	2	0
Greece	**3506**	3138	223	116	8	17	4
Spain	**3264**	2730	387	102	29	13	3
Turkey	**3195**	2703	291	120	44	37	0
Poland	**3006**	2340	466	153	23	16	8
Ukraine	**3002**	2282	279	398	23	12	8
Netherlands	**2863**	2553	232	65	6	7	0
Bulgaria	**2750**	2277	344	49	36	41	3
Austria	**2563**	2147	261	129	25	1	0
Serbia	**2154**	1823	271	43	11	5	1
The Russian	**1799**	1354	169	229	37	10	0

	Total	Bucharest and the county seat cities, exclusively Tulcea	Other localities and tourist routes	Resorts in the mountain area	Spas	Seaside resorts, excluding the city of Constanta	Danube Delta area, including the city of Tulcea
Federation							
Belgium	**1758**	1428	246	46	35	3	0
Czech Republic	**1380**	1204	148	22	1	5	0
Switzerland	**971**	839	97	16	15	4	0
China	**947**	757	106	70	14	0	0
India	**944**	901	21	8	2	12	0
Ireland	**872**	642	50	173	3	4	0
Sweden	**808**	683	96	21	4	2	2
Canada	**792**	650	92	35	7	5	3
Slovakia	**761**	620	90	49	0	2	0
Japan	**697**	630	45	18	0	4	0
Denmark	**676**	543	106	18	8	1	0
Cyprus	**636**	564	32	39	1	0	0
Norway	**622**	441	87	68	0	9	17
Portugal	**622**	548	45	16	2	11	0
Australia	**525**	470	39	10	5	0	1
Other countries	**13515**	12102	963	286	87	74	3

Source: INS communicated 52/02.03.2020.

Interpreting the data from Table 4, we find that the arrivals of foreign visitors to Romania, which were registered at the border points, were 127,620 in January 2020, thus registering an increase of 12.7% compared to January 2019. The majority of foreign visitors come from European countries, respectively 94%.

Most arrivals of foreign tourists accommodated in tourist accommodation facilities came from Israel with a number of 14.2 thousand, Italy with a number of 13 thousand, Germany with a number of 12.7 thousand, Republic of Moldova with a number of 7.5 thousand and France with a number of 7.3 thousand.

Of the total arrivals of foreign visitors to Romania, 47.9% come from the member states of the European Union. Thus, the most arrivals were from Bulgaria with a share of 38.2%, Hungary with a share of 23.3%, Italy with a share of 8.3%, Germany with a share of 5.8%, Poland with a share of 4.4%, France with a share of 3.7% and the United Kingdom with a share of 3%.

The structure of tourist arrivals and overnight stays by counties in January 2020 is summarized in Table 5.

Table 5. *Arrivals/overnight stays of tourists by counties in January 2020*

Counties	Total	Arrivals		Total	Overnights	
		Romanian	Foreign		Romanian	Foreign
TOTAL	**796256**	**668636**	**127620**	**1575540**	**1299219**	**276321**
Alba	11000	10203	797	21270	19753	1517
Arad	16564	13386	3178	23204	18744	4460
Argeș	13578	11311	2267	22191	17648	4543
Bacău	10940	10253	687	23072	20984	2088
Bihor	36530	33534	2996	78242	72029	6213
Bistrița-Năsăud	5849	5330	519	9631	8876	755

Counties	Total	Arrivals		Total	Overnights	
		Romanian	Foreign		Romanian	Foreign
Botoşani	3205	3028	177	5379	4829	550
Braşov	121673	114181	7492	253700	235842	17858
Brăila	4880	4493	387	7788	6355	1433
Bucureşti	122768	59736	63032	222133	93182	128951
Buzău	5686	5440	246	10411	9832	579
Caraş-Severin	14123	13838	285	36901	35478	1423
Călăraşi	1142	945	197	2445	1849	596
Cluj	35671	30152	5519	64937	52996	11941
Constanţa	18199	16700	1499	39977	35734	4243
Covasna	9671	9132	539	26444	24852	1592
Dâmboviţa	7891	7472	419	15504	14127	1377
Dolj	8646	7545	1101	15718	13299	2419
Galaţi	7551	6771	780	12769	10410	2359
Giurgiu	1459	1399	60	2366	2243	123
Gorj	8491	8374	117	18815	17997	818
Harghita	14740	13104	1636	33988	29559	4429
Hunedoara	10916	10066	850	17179	15858	1321
Ialomiţa	2028	1878	150	7712	7300	412
Iaşi	19722	15902	3820	31672	23336	8336
Ilfov	10746	7238	3508	16075	11441	4634
Maramureş	17035	15595	1440	30702	28360	2342
Mehedinţi	3829	3449	380	5786	5216	570
Mureş	36554	33076	3478	73992	63839	10153
Neamţ	11899	11524	375	19519	18733	786
Olt	2285	2064	221	6675	5823	852
Prahova	48558	44697	3861	111989	101424	10565
Satu Mare	10793	10009	784	14360	12775	1585
Sălaj	2370	2106	264	4923	4090	833
Sibiu	34058	30019	4039	60699	52260	8439
Suceava	36880	35316	1564	77673	73787	3886
Teleorman	857	749	108	1819	1635	184
Timiş	26236	18324	7912	55972	37497	18475
Tulcea	2583	2448	135	5582	5021	561
Vaslui	2870	2688	182	4410	3990	420
Vâlcea	32707	32173	534	77896	76327	1569
Vrancea	3073	2988	85	4020	3889	131

Source: INS communicated 52/02.03.2020.

If we analyze the structure of tourist arrivals and overnight stays by counties in January 2020, we find that the number of tourist arrivals in tourist reception structures with tourist accommodation functions registered higher values in Bucharest with a number of 122.8 thousand, Brasov with a number of 121.7 thousand, Prahova with a number of 48.6 thousand, and regarding the overnight stays of tourists, they registered higher values in: Braşov with a number of 253.7 thousand, the Municipality of Bucharest with a number of 222.1 thousand, Prahova with a number of 112.0 thousand and with a number close to 70 thousand in Bihor, Vâlcea, Suceava, Mureș and Cluj.

Table 6 structures the data regarding the evolution of the arrivals of foreign visitors in Romania and the departures of Romanian visitors abroad in January 2019, compared to January 2020.

Table 6. *Evolution of arrivals of foreign visitors in Romania and departures of Romanian visitors abroad*

	January 2019	January 2020	January 2020/January 2019 (%)
Total arrivals	**730798**	**823665**	**112,7**
-road transport	551375	629653	114,2
-rail transport	7603	8202	107,9
-airline	164591	177785	108,0
-naval transport	7229	8025	111,0
Total departures	**1791552**	**2044547**	**114,1**
-road transport	1227020	1431205	116,6
-rail transport	8816	8870	100,6
-airline	554471	603086	108,8
-naval transport	1245	1386	111,3

Source: INS communicated 52/02.03.2020.

Interpreting the structured data in Table 6, we find that the departures of Romanian visitors abroad, which are registered at the border points, were in January 2020 of 2044.5 thousand, increasing by 14.1%, compared to January 2019. As for the means of road transport, they were the most used for departures abroad, representing 70% of the total number of departures.

Table 7 structures the data regarding arrivals and overnight stays in tourist reception structures with accommodation functions in March 2020.

Table 7. *Arrivals and overnight stays in tourist reception structures with accommodation functions - in March 2020*

	Arrivals			Overnights		
	March 2019 Thousands	March 2020 Thousands	March 2020 compared to March 2019 (%)	March 2019 Thousands	March 2020 Thousands	March 2020 compared to March 2019 (%)
Total	**800,4**	**242,1**	**30,2**	**1519,1**	**483,7**	**31,8**
Romanian tourists	631,3	207,9	32,9	1181,1	413,2	35,0
Foreign tourists of which:	169,1	34,2	20,2	338,0	70,5	20,9
- Europe	125,1	26,2	20,9	242,9	54,0	22,2
- European Union	94,5	18,1	19,2	183,3	37,5	20,5
- Asia	22,0	3,7	16,8	49,6	8,7	17,5
- North America	10,6	2,9	27,4	21,1	4,6	21,8
- South America	1,3	>0,5	-	2,9	>0,5	-
- Africa	1,8	>0,5	-	3,7	1,2	32,4

Source: INS communicated 116/04.04.2020.

According to the data structured and presented in Table 7, we find that in March 2020, compared to March 2019, arrivals, in total, in the structures of tourist reception with accommodation functions, represented only 30.2%, and in terms of only 31.8% concern overnight stays. The proportion is even higher in terms of arrivals and overnight stays of foreign tourists in the tourist reception structures with accommodation functions in Romania, thus registering a percentage of only 20.2% for arrivals and 20.9% for overnight stays, respectively.

We also find that in March 2020 we record minimum values compared to recent years regardless of the reporting month, both in terms of arrivals, departures and overnight stays of Romanian tourists, foreigners and in total, due to the coronavirus crisis (COVID 19), which caused a deadlock in this branch of the national economy.

Thus, as a consequence, we still considered it useful to know the evolution of tourist arrivals, in total, in tourist reception structures with accommodation functions between

November 2013 and March 2020, in order to later highlight the impact that in will have the financial-economic crisis that will precede the current coronavirus crisis (COVID 19).

Therefore, the data related to the series that includes the total number of tourist arrivals between November 2013 and March 2020 are structured in Table 8.

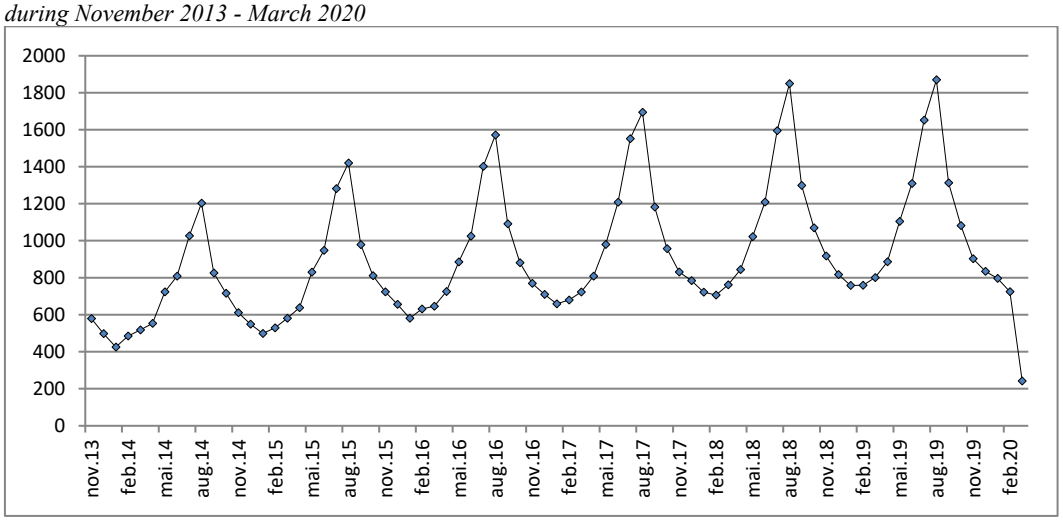
Table 8. *Tourist arrivals in tourist reception structures with accommodation functions during November 2013 - March 2020 (thousands of tourists)*

Month/Year	2013	2014	2015	2016	2017	2018	2019	2020
January		425,5	498,4	581,3	659	722,1	758,4	796,3
February		485,1	529,2	630,7	679,1	705,9	758,8	724,4
March		517,6	581,3	645,8	722,3	761,6	800,4	242,1
April		553,5	638,1	725,6	808,7	844,2	885,8	
May		723,9	829,9	885,5	979,7	1022,2	1103,9	
June		808,3	947,9	1025	1207,7	1208,6	1308,9	
July		1026,6	1281,3	1401,6	1551,5	1594,3	1651,3	
August		1202,8	1420,1	1571,3	1693,9	1849	1869,4	
September		825,7	978,8	1091,2	1182	1298,4	1312,5	
October		715,6	811,1	880,8	957,3	1069,2	1081,8	
November	579,5	611	723,9	769,7	830,9	917,7	902,8	
December	498,1	548,5	655,8	709,4	784,2	816,8	834,6	

Source: INS communicated from 2013-2020 (data processed by the author).

Regarding the evolution of the studied indicator, it was outlined and presented in Graph 3.

Graph 3. *Evolution of the number of arrivals in tourist reception structures with accommodation functions during November 2013 - March 2020*



Following the evolution of the number of tourist arrivals in Romania between November 2013 and March 2020, outlined in Graph 3, we find an oscillating evolution with a high frequency of this indicator. Thus, we identify a seasonal evolution of the data series with maximum peaks in July-August of each year subject to analysis, an aspect that also emerges from the data of the structured series in Table 8. As a consequence, the statistical-econometric method that can highlight the cyclicity, seasonality and trend of the data series is the spectral method. Thus, given that the series totals seventy-seven data for each month from November 2013 to March 2020, i.e. a sufficient number of data for such an analysis,

on the data series, structured in Table 8 and outlined in the Graph 3, the spectral analysis method was applied, using the STATSTICA econometric analysis program, this program allowing such an analysis by accessing the "Time Series Analysis" option. Thus, an oscillating evolution can be written in the form of a finite sum of sine and cosine functions, according to the relation:

$$y_t = \frac{a_0}{2} + \sum_{f=1}^{p} \left(a_f cos \frac{2\pi}{T} ft + b_f sin \frac{2\pi}{T} ft \right) + u_t \quad (1)$$

where: a_0, a_f, b_f – parameters;
T – number of time units;
f – initially set frequency;
t has values in the range [1,T].

What interests us are the parameter estimates $\hat{a}_f$, $\hat{b}_f$, because these are the ones that lead to the approximation of the function *f(t)* by the finite sum of sine and cosine functions. Applying the least squares method, we will follow the integral:

$$\frac{1}{2\pi} \int_0^{2\pi} \left[f_{(t)} - y_{n(t)} \right]^2 dt \quad (2)$$

Thus, the minimization of the function implies the equalization with zero of the partial derivatives of the first order, which will lead to the following calculation relations of the estimated parameters:

$$\hat{a}_f = \frac{2}{T} \sum_{t=1}^{T} y_t \, cos \frac{2\pi}{T} ft \quad (3)$$

$$\hat{b}_f = \frac{2}{T} \sum_{t=1}^{T} y_t \, sin \frac{2\pi}{T} ft \quad (4)$$

$$\hat{a}_0 = \frac{\sum y_t}{T} \quad (5)$$

These coefficients are necessary in the continuation of the analysis to determine the specific indicators of the spectral analysis such as the amplitude:

$$A_f = \sqrt{\hat{a}_f^2 + \hat{b}_f^2} \quad (6)$$

As for the density function, it is given by the relation:

$$d_{(f)} = \frac{\hat{p}_f}{\hat{\sigma}_f} = 2[1 + 2 \sum_{k=1}^{\infty} r_k cos 2\pi \cdot fk] \quad (7)$$

where: $0 \leq f \leq \frac{1}{2}$, and r_k represents the autocorrelation coefficient.

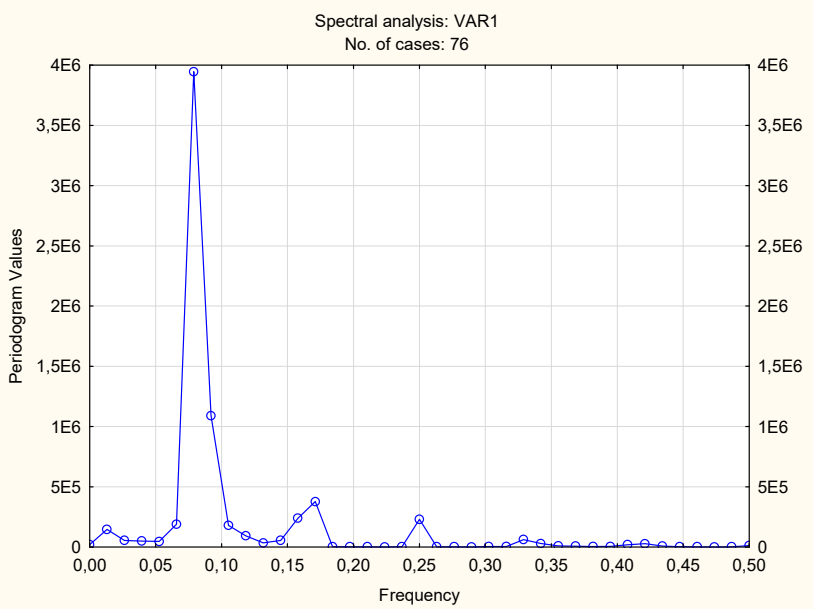
The results regarding the frequency of the oscillations, the Euler-Fourier coefficients, as well as the values of the periodogram and the density are structured in Table 9.

Table 9. *Results of the spectral analysis on the evolution of the total number of tourists arriving in tourist reception structures with accommodation functions during November 2013 - March 2020*

Spectral analysis: VAR1 No. of cases: 76 Largest Periodog. values						
	Frequency	Period	Cosine - Coeffs	Sine - Coeffs	Periodogram	Density
6	0,078947	12,66667	-317,802	-53,4579	3946522	2078030
7	0,092105	10,85714	142,713	91,0972	1089293	1490826
13	0,171053	5,84615	-73,725	-67,0126	377190	228938
12	0,157895	6,33333	74,917	26,5093	239980	212596
19	0,250000	4,00000	37,285	68,2850	230014	103738
5	0,065789	15,20000	-65,691	-25,6633	189008	1087559
8	0,105263	9,50000	57,616	37,1522	178596	507024
1	0,013158	76,00000	-56,205	-26,2578	146244	90297
9	0,118421	8,44444	44,664	21,5199	93403	133928
25	0,328947	3,04000	9,939	-38,8811	61200	35850

Below are the values of the periodogram related to the frequency of oscillations are shown in Graph 4.

Graph 4. *Representation of the periodogram by frequency*



In Graph 4 we identify on the horizontal axis the base frequency $\left(\frac{1}{76}\right) = 0{,}013$ with its harmonics up to $\left(\frac{1}{76}\right) \cdot 38 = 0.50$ and the periodogram values are recorded vertically.

Regarding the dependence of the amplitude on the priodogram, it can be determined according to the relationship:

$$A = \sqrt{\frac{2 \cdot V_p}{T}} \qquad (8)$$

where: A – amplitude;
V_p – the value of the periodogram;
T – number of time units of the series (in case of analyzed number of months).

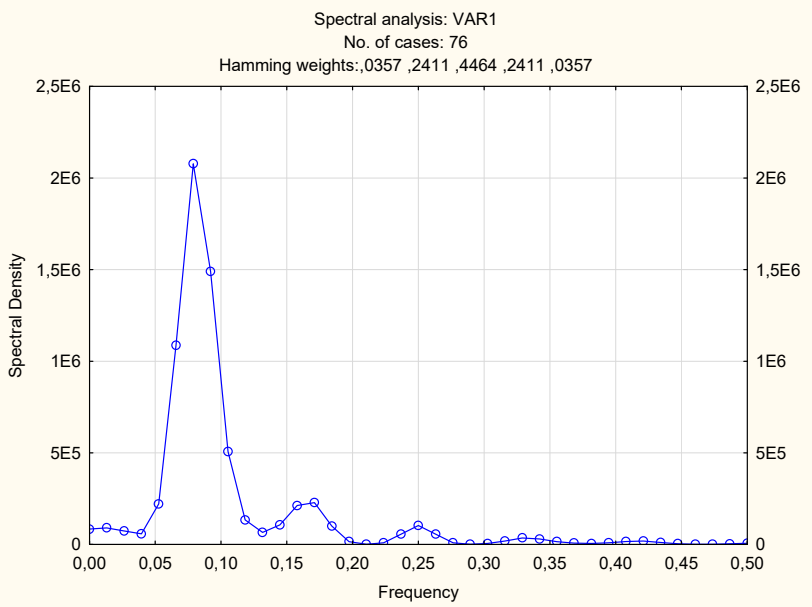
Interpreting the data from Graph 4 and Table 9, we find that the most important oscillations are from 3.946.522 at 12.6 months, from 1.089.293 at 10.8 months, from 377.190 at 5.8 months and from 239.980 at 6.3 months. Therefore, noting that we have the largest fluctuations for periods of one year and one year we can report a strong influence of seasonality in terms of the evolution of the total number of tourists arriving in tourist accommodation with accommodation functions between November 2013 and March 2020. In the same vein, interpreting the data structured in Table 8, we can identify extreme, maximum points in July-August, due to the period of leave enjoyed by employees correlated with an optimal period in terms of climate in Romania, which confirms the seasonality of the studied indicator evolution.

The existence of the trend is signaled by the high amplitude values (indicated by the periodogram in Table 9 column six) for frequencies lower than the unit value (Table 9, column two). Also, the upward trend of the data series is confirmed by the values recorded and sketched in Graph 3.

In other words, due to the large amplitudes recorded for periods of less than one year (10.8 months, 6.3 months and 5.8 months, respectively), I conclude that the presence of cyclicality is not confirmed.

Graph 5 shows the evolution of spectral density depending on the size of the frequency.

Graph 5. *Representation of spectral density as a function of frequency*



Observing the Graph 5 and interpreting the results of the structured spectral analysis in Table 9, we find that the maximum peaks recorded by the spectral density as a function of frequency are also at 12.6 months and 10.8 months, which is expected, because the values of spectral density are analogous to those of the periodogram by its very calculation formula, which represents the first derivative of the process spectrum function.

What is noteworthy is the fact that in March 2020 the upward trend of the evolution of the number of arrivals in tourist reception structures with accommodation functions in Romania experienced a sudden drop, an aspect that can be easily seen in Graph 3, due to coronavirus crisis (COVID 19) which severely affected this important branch of the national economy. From now on, the trend will be different and it is very important what support measures will be adopted in the next period, so that this area can return to some normality, and I say some in the context in which we expect a new crisis, for example this economic-financial date created by the economic blockage created by the coronavirus crisis.

Conclusions

The article published by the authors is based on a study in which data are presented, figures related to the evolution of tourism in our country, from which a series of theoretical and practical conclusions can be drawn. Theoretically, it is simple to assume that the tourist activity must become an important activity, a particular activity for Romania, which has a special tourist area from all points of view.

Another conclusion is that Romania has a tourist attraction throughout the year, in the sense that there are tourist attractions for the summer activity Black Sea, mountain resorts and others. Also, Romania has an attraction for winter sports in which we have enough companies specific to the tourism field and in which there can now be an important number of people who love winter sports. Last but not least, Romania has historical and cultural attractions, which are also important to attract tourists, green Maramures area, monasteries in Moldova, remains of the Olt Valley, Prahova Valley, Danube Delta and other areas that are particular and even specific unique for Romania.

Another conclusion is that tourism has been less supported in the previous period, but at this time when we are facing this pandemic caused by the coronavirus crisis (COVID 19), a significant participation is required, a government action plan to ensures for the moment the maintenance of the tourist structures in our country and then their support through some measures that facilitate the return to the potential they had.

Also, the workforce in the field of tourism should not be neglected and in a short time, through appropriate programs to reach their attraction in the activities in which they have been and others, so that this field of tourism becomes important again and even to be developed because it is one that can make a more important contribution to the formation of the Gross Domestic Product in Romania.

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