Mariana C. JUGANARU,
Kamer Ainur M. AIVAZ,
Ion Danut I. JUGANARU
Ovidius University of Constanta

ASPECTS OF SEASONALITY TOURISTIC ACTIVITY SPECIFIC TO MAMAIA STATION

Case Study

Keywords
Tourism at Mamaia,
Seasonality,
Indicators of seasonality,
Mobile average

JEL Classification
C10, C21, C53, M21, J63, Z33

Abstract

The study of phenomena and social-economic processes under the aspect of their evolution in time, mainly on a short term or intra-annual represents a preoccupation at a micro and macroeconomic level. For the tourism operators, this process includes knowing the touristic market and the anticipations of its evolution, as an important condition for taking decisions in their activity.

The aim of this work is to analyze the touristic activity according to seasonality in Mamaia station, using qualitative and quantitative research methods. The study is important through the aspects that emphasize the specific evolution of the touristic activity from this station. For this aim, a database was formed by the monthly values of three indicators of the touristic activity (number of arrivals, number of overnights and the average duration of the stay) from the period 2010-2016, using a series of statistic and econometric instruments.

The results of the research can be proved by the units that maintain or are connected to the touristic activity, but also to the local administration, in making up the attenuation strategy of the touristic activity concerning the seasonality of Mamaia. Also, the work is a case study for the work with the students (especially, for tourism economy, applied statistics in tourism and marketing).

INTRODUCTION

In economic theory, the concept of seasonality defines an evolution made of the activity characterized by annual or intra-annual repetition and it is manifested through an important variation or even the emergence of discontinuity in the manifestation of the activity from a domain and/or area. This observation draws the attention upon the fact that, not any oscillating movement can be considered seasonality. If we refer to the touristic activity/market, it is known that touristic offer and demand deal permanently with oscillations. In the situation where these oscillations are not random or of conjuncture and repeat themselves on a calendar period, we can talk about seasonality. Also, in order to establish correctly if we are talking about seasonality, it is better to consider the fact that the repetitive trait should accompany concentrations of the activity, in certain periods, as well as of obvious gaps between the minimum and maximum values. (Grigorescu, 2003). In this context, we can assert that, in the analysis of the importance of seasonality in tourism, we mainly consider two aspects, thought of as very important: intensity and the dynamics of the concentration of seasonality (Bigovic, 2012).

In the practice activity, seasonality is perceived as a negative phenomenon, manifested under different aspects: from the misuse of natural and antropic resources, preocupation on long term of invested capital, difficulties in providing the well qualified work force , until the creation of crowded touristic destinations, which may generate complaints from the tourists and the inhabitants, but also difficulties in manifesting the activity of some economic operators, social and cultural institutions, local administrations. (Koenig-Lewis, Bischoff, 2005; Minciu,2004)

In our study, the aspects related to the theoretic approach of the seasonality are part of the quantitative research, while the elements through which the seasonality is manifested in the practical activity are presented in the qualitative research.

QUALITATIVE APPROACHES OF SEASONALITY IN THE TOURISTIC ACTIVITY OF MAMAIA STATION

One of the most appreciated touristic stations on the Romanian seaside is Mamaia. A lot of tourists associate Mamaia with the sun, the beach, the water of the sea and the fun during the summer vacation. The beach strip, situated at 7 kilometers North of the city of Constanta, represented an attraction for several segments of tourists ("protipendad" of Bucharest, the ones that were part of the upper social classes and had high incomes) since the end of the 19th century. (Păuleanu, 2006) Improvement works of a new beach for the balneary station Constanta began in 1905 and on 28th of August 1906 the beach of Mamaia was inaugurated, about which, in the newspaper "La Roumanie", was written "Constanta has today a beach that will situate it between the big stations in the Orient" *(*http://constanta-imagini-vechi.blogspot.ro/2012/07/). Statistics of that period show that, every year, the number of tourists that came to the beach of Mamaia was growing, even if the investments in hosting, alimentation and recreation units were, at the beginning, pretty low (in the period 1906 - WW 1, then between the 2WW). Also even from the beginning of the touristic activity at Mamaia, in the press, it was written that the tourists chose to spend here their vacations during summer, because they were attracted by the special natural environment, they preferred the sun baths, the water of the sea but also the fun activities. These aspects show, on one side, that the natural factors had from the beginning, the biggest importance over the touristic offer and demand for the station of Mamaia and, on the other side, that the tourists enjoyed these factors only during summer.

Through the qualitative research we made we can say that the touristic activity during the seasonality of Mamaia station represents a preoccupation topic that has been manifesting for a long time. In the meeting of Communal Council (of Constanta) from 26th of March 1887, it is mentioned that "the station of the baths started on 15th of June" (DJAN Constanta, dosar nr4/1887; Păuleanu, 2006).Then, in the regulation of the balneary station Constanta, from 1892, it was established that:"the station of the sea baths began at 15th of June and is extended until 15th of September (DJAN Constanta, dosar nr.19/1892; Păuleanu, 2006). After a few years, in the central publication "La Roumanie" from 3rd of July 1899, it was mentioned: "It is brought to the general public the fact that on the 1st of June, the current year, the sea bath seasonality has began in Constanta """ (DJAN Constanta, dosar nr41/1899; Păuleanu, 2006). We think that these aspects of the seasonality are specific for Mamaia also (it being considered, in that period, a beach of Constanta).

The seasonality, as a way of evolution of the activity, is the result of the combined activity of the action of several factors. In the specialty literature, there are several perspectives, regarding the classifications of these factors. For our study, that aims to analyze the touristic activity of the Mamaia station according to seasonality, we focus on the classification of factors after their actions over the components of the touristic market in: factors of demand and factors of touristic offer. There is the tendency of some specialists, when they define seasonality, to refer only to the tourists offer. For instance, Biedermann thinks that seasonality has as a permanent trait the brusque variation of the demand according to a certain period of the year, and Allcock emphasizes the fact that the fluxes of

tourists (representing the touristic demand) have the tendency to focus on a shorter period of the year (Biedermann, 2008; Allcock,1989). The touristic demand (analyzed in the present study through the indicators: number of arrivals, number of overnights and the medium duration of the stay) is determined, obviously by: economic factors (among which we mention: the general level of economic development, the degree of occupation of work force, the level of income, the level and the structure of consumption, the power of buying of the national currency and the amount of leisure time) and the sociologic factors (that refer to people, life style, belonging to social groups, habits, traditions, culture, influencing the buying and consumption behavious) (Grigorescu.2003; Juganru, 1998). Regarding the touristic offer, we think that the natural factors (represented by the climate, temperature, relief, position, natural resources) are the most important. Also, for the analysis of the seasonality, it is important to consider other specific aspects as: the rigidity offer and the un-stock of the touristic services. (Minciu, 2004; Jugănaru, 2007). Practically, we have to consider that these three big groups of factors do not act separately, but interact and can influence at the same time the demand as well as the touristic offer.

During the 110 years of existence of Mamaia station, we can say that touristic offer, under the aspect of the natural factors, has remained unchanged (even if the consequences of the global warming are being felt, as well as air and water pollution, and the beaches were extended and improved), but has also met big changes regarding the anthropogenic element, in the sense that the number, capacity and comfort degree of the units where the touristic activity is manifested have grown. The development and diversification of the material base of the station of Mamaia, recorded in the periods after WWII and until the 80s, correlated with the modifications emerged regarding the economic and sociologic factors, have contributed to the modification of the seasonality, in the sense of the growth of the period of touristic activity in Mamaia. Also, to the growth of the duration of the touristic seasonality (from May until September), a special contribution also had the marketing strategy applied until the beginning of the 90s. Mainly, this strategy wanted to assure the correlation between the level of the income, leisure time, and position on the work market (hired or retired), tourists' preferences and the degree of comfort of touristic units, the level of prices/tariffs and the practiced tourism forms. (Jugănaru, 2000)

After the 90s, as a consequence of the modifications from the economic life (changing the form of property over the material base, of the legal framework of manifestation of the activity, the growth of inflation and unemployment, the decrease of income etc), from the social life (changing social structures, life style etc.) and the political life in our country, but also from other countries of Europe, the touristic activity of Mamaia station knew important changes under several aspects. The impact of these modifications was manifested also through the decrease of the period of the touristic seasonality.

THE METHODOLOGY OF THE QUANTITATIVE RESEARCH OF SEASONALITY

The gnoseological approach of the analysis of the series of time according to seasonality implies the next steps: identification of the components of the series of the aggregation scheme of the components; measuring the variations according to seasonality especially as seasonality co-efficient; verifications of the hypothesis formulated over the components of the series; prevision of the level of the seasonality phenomena for a certain horizon of time (Baltagi, B.H., 2002)

The decomposition methods of the series of time are based on a series of hypotheses, more or less restrictive, and these are:

a. The components of a series of time are the result of a group of factors, which act differently: either with a certain intra-annual regularity, constantly, on a long term, either randomly. It is considered that separating the components of the series is possible, because the factors that make up the components are isolated. But practically, most of the times, the factors are not isolated, but interdependent and act simultaneously over the components of the series. Therefore, the separation of the components of a series of time requires the identification of the determinant factors and the separation of their action on short term (intra-annual), where the variations according to seasonality are shaped and, on long term, the tendency of the evolution of the phenomena is shaped. (Gujati, D., 2001)

b. Another hypothesis is concerned with the number of the terms of the series of time, supposing that the series of time has a sufficient number of terms that should allow the observation of the general tendency of evolution. The most restrictive hypotheses are formulated over the variations according to seasonality. It is considered that, for seasonality, the variations according to them are compensated. If the variations according to seasonality are monthly or quarterly, it is considered that the influence of the variations according to seasonality is neuter, at the level of the year, which is the period of these seasonality components. If the seasonality variations are scheduled they are compensated at the level of 24 hours day. The analysis of the seasonality component has as a main aim the elimination of the variations according to seasonality and obtaining the tendency of evolution

of the phenomena. The aim is achieved if the annual level of the studied phenomena is preserved, which is the annual average of the brute series equals the annual average of the corrected series of the variations according to seasonality. This condition defines the hypothesis of conservation of areas. The variations according to seasonality are estimated, according to the aggregation scheme of the components of the series of time. In the case of additive scheme, they are estimated under the form of seasonality deviations, and in the case of the multiplicative scheme, as seasonality indicators. The seasonality deviations, respectively, the seasonality indicators, incorporate the random variations of the series of time and represent waste. Hypothetically, the random variations are in average 0, therefore their presence does not affect the observation of the hypothesis of the conservation of areas. (Bourbonnais, R.; Terraza, M., 2004).

c. Another hypothesis, used in some methods of seasonality adjustment refers to the periodicity of seasonality variations. According to it, the seasonality variations are repeated identically from one seasonality sub-period to another. This hypothesis is very restrictive, considering that the variations according to seasonality can be random, in amplitude and period. In order to respect this hypothesis, the variations according to seasonality are estimated through seasonality coefficients. In the case of an additive model of aggregation of the components of a series of time, the coefficient of the seasonality according to a sub-period is calculated as an arithmetic average of the seasonality-waste, deviations related to that period, over the analyzed years. In the case of the multiplicative aggregation model, the seasonality coefficient if calculated as the arithmetic average of the season-waste indicators according to a sub-period, over the analyzed years. The method of the mobile average is the classic method of decomposition and analysis of the series of time according to seasonality. In the present study, we used this method, because the analyzed series present seasonality well marked and rigorously repetitive. Through the methods of mobile mediums, we obtain the corrected series of variations according to seasonality and seasonality component. For the series of time of sufficiently big dimension, the mobile medium has the property to preserve the tendency, by filtering the random and seasonality variations. The tendency presented as a medium mobile is eliminated from the initial series. From the resulted series, the random variations are filtered, obtaining, in the end, the seasonality component, presenting seasonality coefficients. The calculation of seasonality coefficients is made according to the principle of compensation of the seasonality variations at the level of the year (the principle of conservation of areas).

DATA, RESULTS AND DISCUSSIONS

In the analysis of seasonality at the level of Mamaia station we used a data base made up of the monthly values of three indicators of touristic circulation, from 2010-2016. In order to measure the internal and international touristic circulation, we consider the mostly used indicators are the number of tourists/arrivals, number of overnights and the average duration of the stay, registered at a total level and on two different sub-populations: "resident tourists" and "not-resident tourists". The chronological series used in the statistics processing were provided by the County Direction of Statistics Constanta.

In order to know the amplitude of the seasonality variations we calculate the indicators of seasonality, valid for an entire series of annual periods. The idea that is the base of the calculation of seasonality variations consists of the possibility and using the determination of that part from the annual total which is owe to each of the 12 months of the year. The coincidence factor that can emerge in a certain year is considered as independent of what might come up in the next year. For instance, if in a certain year, the month of July is very rainy, this coincidence factor is considered as independent towards any other factor that might happen in the month of July in the next year or in any other month of July. If they are summed up for the month of July from a series of year, the perturbations caused by coincidence factors will be compensated reciprocally. If the trend is also eliminated, what will remain will be the seasonality variation that can be expressed through an indicator or coefficient of seasonality.

In order to calculate the indicators (coefficients) of seasonality there are more methods. One of these, the method of "mobile mediums", used in the present study as well, is the mostly used method for measuring the seasonality variations. Due to the fact that the variations have, by definition, a periodicity of 12 months, we used the mobile mediums for 12 months. The method of the mobile mediums means calculating the seasonality components of the chronological series through dividing the trend at the total of successive values of the series, the factor coincidental conjuncture factor being afterwards eliminated.

In order to model the tendency we used the method of regression with the time variable. Because the method of the mobile mediums is built on the principles of classic conceptions, the seasonality variations are considered identically repetitive from one seasonality period to another, and the forecasted values of the seasonality coefficients are equal to determined values for the observed period. (Vogelvang, B., 2005).

The calculation of the seasonality coefficients, application of the method of mobile medium and

modeling of tendency was made with the specialized program E-views.

Analysis of seasonality using the indicator "Number of arrivals"

The monthly values of the seasonality coefficients for the indicator "number of arrivals" are presented in table 1.

The closer the value of these indicators gets to 1(100), the more the seasonality gets diminished, and backwards; when it gets further away from 1 (100), the seasonality character of the number of overnights is more obvious. As we can see, the months July and August indicate very big values of this indicator, especially for the resident category, which implies a bigger value of the indicator at a total level. Also, the months of January, February, March, October, November and December record very small values.

In the majority of studies, the indicator "number of tourists" is considered the most representative indicator and the most important in measuring the touristic circulation. (Minciu, 2004). This is a physical, quantitative indicator, that reflects the dimension of the real demand recorded in the hosting units. Another expression, used in recordings/statistics, for this indicator, may be "the number of departures/tourists' departures", for the internal tourism, as well for the international one.

From the analysis of the values of the seasonality coefficients for the indicator "number of arrivals", from 2010-2016 (see Table 1), we consider the next aspects:

-the values of the seasonality coefficients for the indicator "total number of arrivals" present big differences between the levels recorded in the months of May-September and the one recorded in the other months of the year (Graphic 1). The high values of the seasonality coefficients show an overall intensification of the number of tourists, in the period May-September in comparison with the other months of the year.

-the values of the seasonality coefficients for the indicator "number of arrival for resident tourists", in the period May-September, are bigger than the values of seasonality coefficients for the indicator "total number of arrivals", which show that the resident tourists come to Mamaia mostly during this period. (graphic 2). At the same time, we can see that the values of seasonality coefficients for the indicator "number of arrivals for resident tourists" record the smallest values (comparatively with the other values of the indicator: total and not-resident tourists), during the period January-March and October-December. In other words, the resident tourists do not prefer to come to Mamaia in the first and last quarter of the year.

-the values of the coefficients of seasonality for the indicator "number of arrivals" for "not-resident tourists" and bigger than the ones registered by the resident tourists, as well as the total tourists, in the period January-March and October-December (graphic 3). In this situation, we can say that more not resident tourists arrive at Mamaia than resident tourists, but also that the values of seasonality coefficients for the indicator "total number of arrivals" are influenced (in the same periods) by the arrivals of not resident tourists. In the months June, July and August, even if the values of the coefficients grow significantly, comparatively with the levels from the other months, they remain with much lower values that the values of the coefficients recorded by the resident tourists and total residents.

The analysis of seasonality using the indicator "Number of overnights"

The monthly values of the seasonality coefficients for the indicator "number of overnights" are presented in table 2.

The indicator "number of overnights" or "number of days-tourist" is a quantitative indicator, calculated as the sum of the products between the number of tourists and duration of the touristic activity, expressed in days. (Minciu, 2004)

From the analysis of the values of the seasonality coefficients for the indicator "number of overnights", from 2010-2016 (see Table 2), we consider the next aspects:

-the values of the seasonality coefficients for the indicator "total number of overnights" present big differences between the levels recorded in the months of May-September and the ones recorded in the other months of the year (Graphic 4). The high values show an intense touristic activity in the period May-September (this being seen as the best period of the year, and the very big values from July and August form the peak period.

-the values of the seasonality coefficients for the indicator "number of overnights for resident tourists", present bigger differences among the levels registered in the months May-September and the ones registered in the other months of the year, in comparison with the values of the coefficients of seasonality for the indicator "number of total overnights" (graphic 5). This means that the resident tourists come in bigger numbers and spend more vacation days in Mamaia in the period May-September, but particularly in the months July and August.

-the values of the coefficients of seasonality for the indicator "number of overnights" for "not-resident tourists" are, on one side, much smaller than the ones registered by the resident tourists, and on the other side, they register smaller differences between the values from the period May-September, in comparison with the values from the other months of the year (graphic 6). In this situation, we can say that the flux of not resident tourists and/or duration of their vacation at Mamaia are smaller, in comparison with the resident tourists. At the same

time, the flux of not resident tourists in the period January-May and October-December is bigger than the one of resident tourists.

The analysis of seasonality using the indicator "Average duration of the stay"

The monthly values of the seasonality coefficients for the indicator "the average duration of the stay" are presented in table 3.

The indicator "the average duration of the stay" is calculated as the division between the number of overnights (or day-tourists) and the number of tourists.

From the analysis of the values of the seasonality coefficients for the indicator "the average duration of the stay", from 2010-2016 (see Table 3), we consider the next aspects:

-the values of the seasonality coefficients for the indicator "the average duration of the stay" present a special evolution, comparatively with the other analyzed indicators. On one side, we can see that the differences between the monthly values of the seasonality coefficients are not as big as the ones from the two first indicators. On one side, the highest values of the seasonality coefficients are registered in the months of January, February, March and not in the period of summer months (as we could see at the first two indicators). These values (from the period January-March) are even bigger than the values from July and August. Also, the values of seasonality coefficient for November is bigger comparatively with the values registered in April, May, June and September. From the analysis of the values of seasonality coefficients for the indicators "total average duration of the stay" we can say that the seasonality is not as emphasized as in the case of the analysis "total number of arrivals" and "total number of overnights". The conclusion is that the average duration of the stay varies not much, in the 12 months of the year (graphic 7)

-the values of the seasonality coefficients for the indicator "average duration of the stay for resident tourists", from May-September, are bigger than the values of coefficients of seasonality for the indicator "total average duration of the stay", which shows that the resident tourists spend at Mamaia, in this period, a bigger period of time. Also, the values of seasonality coefficients in May and September are much bigger, comparatively with the values registered by "not resident" tourists, which shows that the promotion programs (based on smaller tariffs/prices for resident tourists) contribute to the reduction of seasonality (graphic 8);

-the values of the coefficients of seasonality for the indicator "total number of overnights" for "not-resident tourists" are bigger than the ones registered by resident tourists, but also by the total tourists, during January-March and October-December. Totally different than the evolution of all the presented indicators, in the period May-September,

the smallest values of the indicator "average duration of the stay for not resident tourists" are registered. This situation shows that the not resident tourists spend a smaller duration of the stay during summer and a bigger duration of the stay in the other months of the year (graphic 9).

CONCLUSIONS

The touristic offer of Mamaia station is based on elements of natural factors (especially the beach, the sea, the sun, weather and temperature) and anthropological factors (represented by building of all types: hosting units, alimentation, recreation, treatment, for developing touristic activities). From the beginnings of the touristic activity, the offer was determined, especially by natural factors, aspect that determined and maintained the seasonality.

From the analysis of the values of seasonality coefficients (see tables 1,2 and 3) of the three indicators analyzed in our study, we can conclude the following:

-the resident tourists choose to spend the vacation at Mamaia in a bigger number, in the period May-September, being attracted especially by natural factors. The main forms of tourism practiced during summer are: resting, relaxing, having fun, sports, events, and to a smaller degree, the ones of cultural tourism and business. In the other periods, Mamaia offers resident tourists conditions for practicing business, professional, cultural-academic tourism etc.

-not-resident tourists spend the stay at Mamaia in all the months of the year, but we can see an increase in the period of extra-seasonality (see table 3), because most of them have other motivations than the loisir ones, as business and professional reasons.

During the last 10 years, the material base has grown and diversified, a very important component of the touristic offer of Mamaia station, but we can also notice a strong intensification between 15th of June-15th of September of every year. There are concerns of tourism operators, in order to stimulate the demand in the beginning and ending periods of seasonality (the so-called "seasonality borders", respectively the pre-seasonality and post touristic seasonality), in order to prolong the duration of the seasonality, as it used to be in the 70s-90s. It is important to take measures at a macroeconomic level (regulations regarding the structure of the schooling year, the number of national holidays, duration of work time and free time), that should sustain the efforts made at a micro-economic level (the growth of the level of quality and satisfaction of touristic performance, the increase of degree of tourists' loyalty, giving stimulations, discounts of prices and tariffs, measures able to increase the demand on a short term). On the other side, we consider that it is necessary to organize more events

on the shore, in the periods before and after the touristic seasonality, in order to attract tourists, having other motivations that enjoying the sun, beach or taking baths in the water of the sea.

REFERENCES

[1] Allcock, J.B. (1989). Seasonalityality. In S.F. Witt & L. Moutinho (Eds.), Tourism marketing and management handbook, Prentice Hall, London

[2] Baltagi, B.H., Econometrics, Third Edition, Springer, 2002

[3] Biederman, P.S. (2008). Travel and tourism: an industry example, Pearson Education, Upper Saddle River

[4] Bourbonnais, R., Terraza, M., Analyse des series temporelles. Aplication a l'economie et a la gestion, Dunod, Paris, 2004.

[5] Direcţia Judeţeană a Arhivelor Naţionale Constanta, dosar nr4/1887, f.9-13, în Păuleanu, 2006, p144

[6] Direcţia Judeţeană a Arhivelor Naţionale Constanta, dosar nr.19/1892,f.2-6, în Păuleanu.2006 p.188

[7] Direcţia Judeţeană a Arhivelor Naţionale Constanta, dosar nr41/1899, f.3-5, în Păuleanu. 2006 145

[8] Grigorescu,M. 2003. Sezonalitate în Marketing. Dictionar explicativ. Bucuresti:Editura Economica (coord. Malcomete, P., Florescu, C.,Pop, Al.N.)

[9] Gujati, D., Econometrics by Example, Palgrave Macmillan, 2001

[10] Jugănaru, I. D., 2007. Politici şi strategii în turismul mondial. Bucureşti: Editura Expert.

[11] Jugănaru,M.1998.Teorie şi practica în cercetarea de marketing.Bucureşti: Editura Expert

[12] Jugănaru, M. 2000. Marketing. Bucureşti: Editura Expert

[13] Koenig-Lewis, N., Bischoff, E., 2005. Seasonalityality research: the state of the art, International Journal of Tourism Research 7 (4-5)

[14] Minciu,R. 2004, Economia turismului, Bucureşti: Editura URANUS

[15] Păuleanu,D. 2006-Constanţa 1878-1928.Spectacolul modernităţii târzii, Vol I, Bucureşti: Editura ARCADE

[16] Vogelvang, B. Econometrics. Theory and Applications with Eviews, Prentice Hall, 2005

[17] http://constanta-imagini-vechi.blogspot.ro/2012/07/mamaia-numele-unei-legende- partea I - 1906 - 1920.html

ANNEXES

Tabel.1 Coefficients of seasonality for the indicator total"number of arrivals"and for the two subpopulations (residents and not-residents), from 2010-2016

Number of arrivals	Total	Residents	Not-residents
Jan	0.176125	0.154069	0.383781
Feb	0.240378	0.229922	0.367856
Mar	0.261553	0.251215	0.396399
Apr	0.703518	0.722948	0.693554
May	1.748458	1.812673	1.591563
Jun	5.415487	5.894835	2.652918
Jul	9.552377	10.56099	3.374301
Aug	10.38197	11.48618	3.598088
Sep	2.849856	3.028851	1.975969
Oct	0.500468	0.453472	0.981344
Nov	0.329750	0.306257	0.579742
Dec	0.290658	0.285078	0.447081

Source: personal results obtained through E-views program

Tabel 2 Coefficients of seasonality for the indicator total"number of overnights" for the two subpopulations (residents and not-residents), from 2010-2016

| Number of overnights	Total	Residents	Not residents
Jan	0.234831	0.160085	0.630573
Feb	0.277854	0.213156	0.661096
Mar	0.295581	0.256553	0.602520
Apr	0.551132	0.593166	0.652308
May	**1.298837**	**1.533008**	**1.069994**
Jun	**5.311711**	**6.904481**	**1.805585**
Jul	**10.58614**	**14.04434**	**2.540156**
Aug	**11.90130**	**15.79880**	**2.846991**
Sep	**2.967266**	**3.780914**	**1.340464**
Oct	0.402715	0.347149	0.816406
Nov	0.316890	0.261898	0.675612
Dec	0.285833	0.238535	0.590841

Source: personal results obtained through E-views program

Tabel nr. 3 Coefficients of seasonality for the indicator total"average duration of the stay" for the two subpopulations (residents and not-residents), from 2010-2016

Average duration of the stay	Total	Resident	Not-resident
Jan	1.456476	1.024390	1.645887
Feb	1.170477	0.915668	1.707489
Mar	1.121840	1.045134	1.335822
Apr	0.832324	0.787281	0.947470
May	0.704206	0.830730	0.689291
Jun	0.942699	1.151991	0.693256
Jul	1.127638	1.316346	0.876095

Aug	1.152916	1.366323	0.905925
Sep	1.016807	1.237341	0.706243
Oct	0.767799	0.765859	0.772907
Nov	1.028194	0.970343	1.071975
Dec	0.906796	0.818652	1.266840

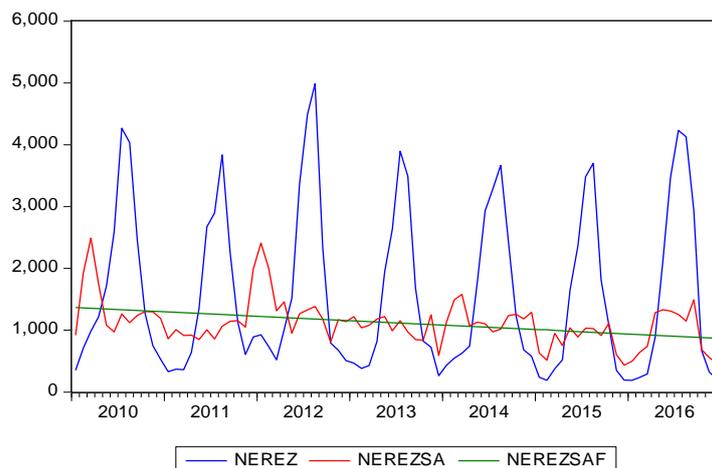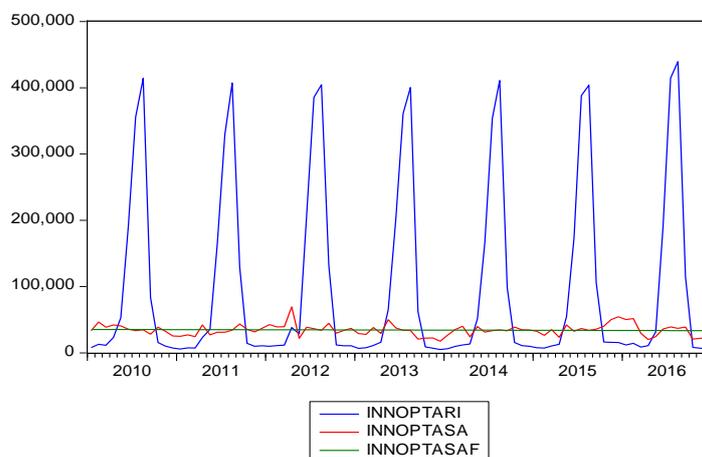Source: personal results obtained through E-views program
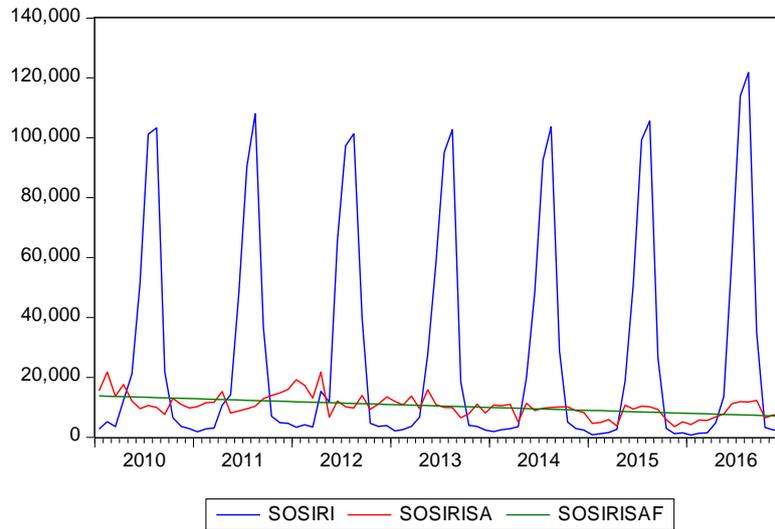
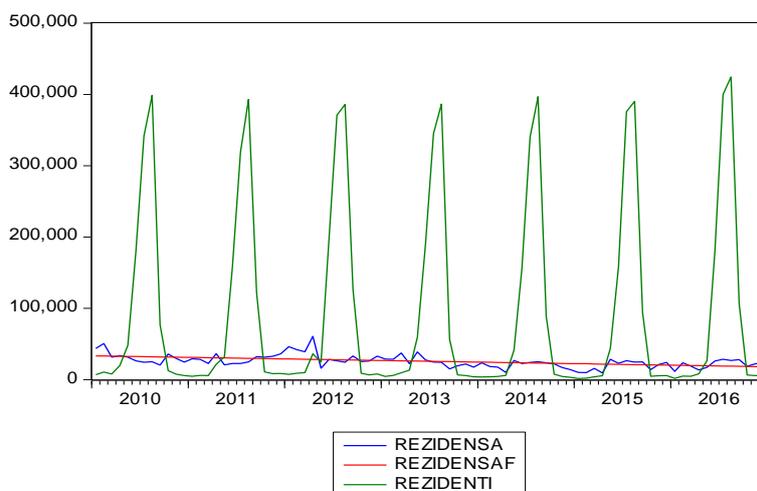Graphic 1:The trend, the real series and the seasonality-disregarding one for the indicator "number of arrivals at a total level"

Source: personal results obtained through E-views program
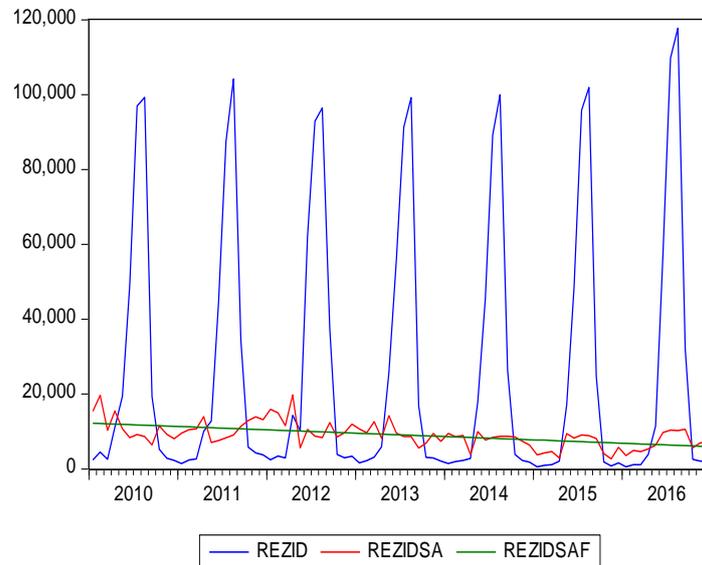
Graphic 2   The trend, the real series and the seasonality-disregarding one for the indicator "number of arrivals for residents"

Graphic 3   The trend, the real series and the seasonality-disregarding one for the indicator "number of arrivals for not residents"
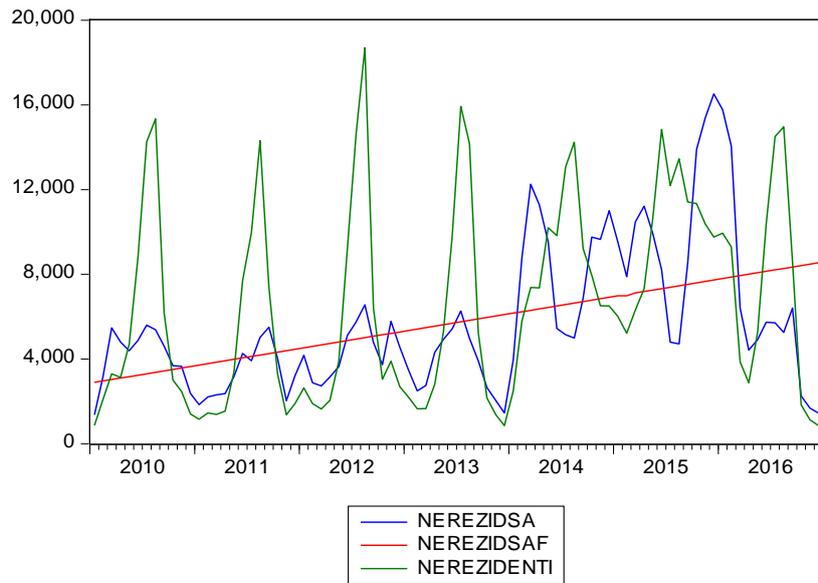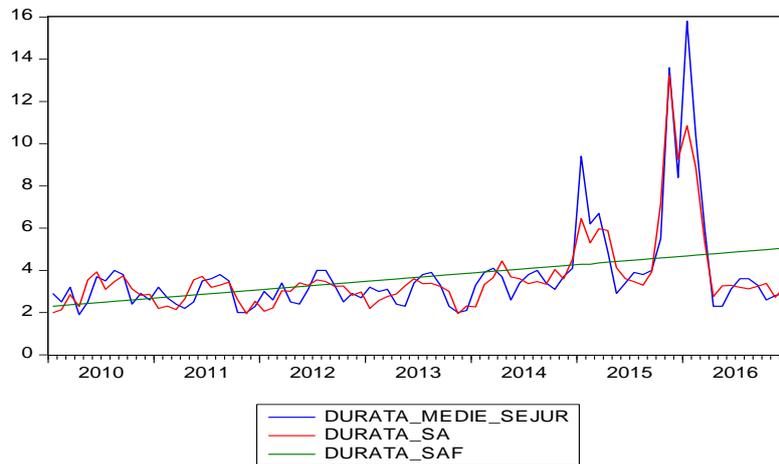

Graphic.4 The trend, the real series and the seasonality-disregarding one for the indicator "number of overnight staying at a total level"
Source: personal results obtained through E-views program

Graphic 5 The trend, the real series and the seasonality-disregarding one for the indicator "number of overnights for residents
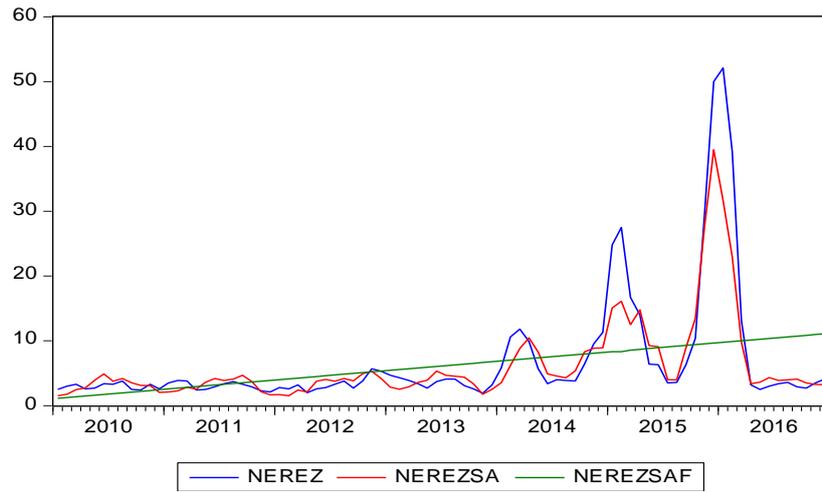
Graphic.6 The trend, the real series and the seasonality-disregarding one for the indicator "number of overnights for not residents

Graphic 7 The trend, the real series and the seasonality-disregarding one for the indicator "average duration of the stay at a total level"
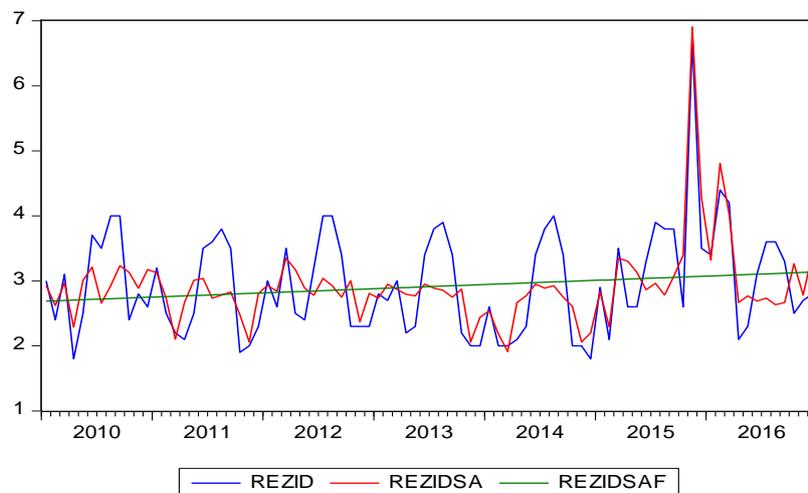
Graphic 8 The trend, the real series and the seasonality-disregarding one for the indicator "average duration of the stay for residents"

Graphic 9. The trend, the real series and the seasonality-disregarding one for the indicator "average duration of the stay for not residents"