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THROUGH THE LENS OF THE COMMUNITY: RESIDENTS' PERCEPTION ON TOURISTS' BEHAVIOR IN CONSTANTA CITY, ROMANIA

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ABSTRACT. *Considering the complex relationship between tourism and sustainable development and the importance of residents' attitude towards tourism for the advancement of the industry, the article focuses on the investigation of residents' perception on tourism and its role in the sustainable development of the destination.*

To evaluate the influence of different variables related to tourism on the city and the residents' lives the visual comparison method was applied. The variables were grouped under four dimensions (socio-economic impact, overcrowding, crime, traffic, and landscaping, and environmental impact) and subsequently there was observed and analysed the influence of the dimensions, considered two by two, on the evolution of a computed index - Residents' Acceptance and Tourism Sustainability. The research determined the hierarchy of the dimensions' influence on the Residents' Acceptance and Tourism Sustainability index as follows: socio-economic, overcrowding, crime, traffic, and landscaping, and environmental dimension. The residents' attitude and acceptance of tourism and its perceived impact on the sustainable development of the destination was fairly positive and influenced mainly by the impact of tourism as an economic and social phenomenon.

KEYWORDS: tourism; residents' attitude; sustainable development of the destination; residents' acceptance for tourism.

JEL classification: I.83.

Introduction

The tourism industry has rapidly developed in the modern world. Sustainable development of tourism represents the current approach based on economic, environmental, and social impact (Marzo-Navarro *et al.*, 2015; Streimikiene *et al.*, 2020). The close relationship between sustainable tourism and sustainable development involves different topics related to population, peace, ethics, prosperity, poverty, pollution, protection, and conservation (Buckley, 2012).

Within the EU-28 states, tourism is generally seen as a convergence factor, one of the foremost economic growth sectors (Rasoolimanesh *et al.*, 2020), sustainable tourism becoming a central part of tourism planning and management (Haller *et al.*, 2020).

The concern of the last decades to investigate the ways to achieve the development of the tourism industry and to what extent this development contributes to the sustainable development of the destination remains the subject of a lively debate (Vancea *et al.*, 2021). Sharpley (2000a) questioned the very depth of the investigation into sustainable tourism development and the relationship with the sustainable development concept, pointing out that the vast existing literature failed to reveal the principles of such a concept. Moreover, the analysis of the theoretical constructs of development, sustainability, and the connection to tourism highlights a heterogeneous approach, concentrated at local or at best, regional level, considering primarily the economic effects within the community and lacking an inter-sectoral approach. Twenty years later, the author (Sharpley, 2020b, p.2) pointed out that, even though the flow of articles on sustainable tourism research is impressive and counts thousands of papers, little if any evidence of progress towards the actual achievement of a sustainable tourism development can be noticed. However, the author admits that the approach has changed and deepened to encompass the concepts of well-being or prosperity, while "societies and in particular, individuals within societies, are able to enjoy meaningful, fulfilled and hopeful lives dependent upon the satisfaction of basic" (Sharpley, 2020b, p.11).

In this context, the study of residents' perception regarding tourism in their community became a point of reference in the literature, as the residents were key-stakeholders (Hsieh *et al.*, 2016). Most of the tourism literature indicated tourism as a driver of local sustainable development (Aivaz, Vancea, 2009); however, studies on residents' attitudes towards tourists underlined both negative and positive effects (Abdollahzadeh, Sharifzadeh, 2014; Eusébio *et al.*, 2014; Hajimirrahimi *et al.*, 2017). At the same time, while the residents considered mostly that tourism had a positive economic impact, the research revealed mixed results regarding the social and environmental effects (Getz, 1994; Gursoy, Rutherford, 2004; Haralambopoulos, Pizam, 1996; Kousis, 1989; Lankford, 1994; Stan *et al.*, 2021). The residents' attitudes, perceptions, and support for tourism have become therefore the object of numerous studies and different methodological approaches.

The most popular theory used to explain the factors that determine residents' attitudes and perception of tourism, balancing the positive and negative effects of tourism on residents' quality of life, is Social Exchange Theory (SET) (Andereck *et al.*, 2005; Ap, 1992; Gursoy *et al.*, 2002; Jurowski *et al.*, 1997; Ko, Stewart, 2002; Látková, Vogt, 2012; Nunkoo *et al.*, 2013; Rasoolimanesh *et al.*, 2015; Sharpley 2014; Wang, Pfister, 2008). Other theories are Weber's theory of substantive and formal rationality (WTSFR) (Boley *et al.*, 2014; McGehee, 2007; Md Noor *et al.*, 2019; Mody *et al.*, 2020) and the stakeholder theory (Byrd *et al.*, 2009; Luštický, Musil, 2016; Nicholas *et al.*, 2009; Rasoolimanesh, Jaafar, 2016). As some of the above-mentioned studies highlighted the limitations of applying the SET (Andereck *et al.*, 2005; Boley *et al.*, 2014) another direction of research was developed by studies combining SET and WTSFR (Andereck *et al.*, 2005; Boley *et al.*, 2014; Gannon, *et al.*, 2021; Rasoolimanesh, *et al.*, 2017).

The concern for determining the relationship between the presence of tourists and the attitude and perception of residents regarding the development of tourism in a community has led to the proliferation of various research methods and techniques for testing different theories. Most research has sought to create a construct of factors that influence residents' perceptions of tourism and has developed various models to identify these influences. While some authors have clustered or segmented residents' attitudes and perceptions (Brida, *et al.*, 2011; Davis, *et al.*, 1988; Perez, Nadal, 2005; Sinclair-Maragh *et al.*, 2015) others have developed specific scales (Boley and McGehee, 2014; Boley *et al.*, 2014; Perdue *et al.*, 1990) to evaluate the level of support for tourism development in the analyzed community or created indexes (Gursoy and Rutherford, 2004).

It is important to analyze the results of these studies in relation with the type of destination because its particularities and the development pattern determine the attitude of the residents. Therefore, one may identify studies focused on developed countries (Boley and McGehee, 2014 – USA; Cardoso and Silva, 2018 - Portugal; Escudero Gomez, 2018 – Spain; Gilbert and Clark, 1997 – UK; Janusz *et al.*, 2017 - Belgium; Nepal, 2008 - Canada; Ross, 1992 - Australia), while others tackled the residents' attitudes and perception in developing countries (Abdollahzadeh and Sharifzadeh, 2014 – Iran; Lopez *et al.*, 2018 –Peru; Tichaawa and Moyo, 2019 – Zimbabwe). Studies also focused on tourism development in mountainous areas (Boley and McGehee, 2014; Nepal, 2008; Weaver and Lawton, 2001), on islands where tourism is the main economic activity (Hanafiah *et al.*, 2013; Mitchell and Reid, 2001; Perez and Nadal, 2005;). The study of residents' attitudes and perceptions focused on destinations with main attractions such as anthropogenic or natural parks, cultural, and historical attractions included in the World Heritage Sites list (Mensah, 2016; Rasoolimanesh *et al.*, 2017). It can also be noted that researchers focused on rural tourist destinations (Abdollahzadeh and Sharifzadeh, 2014) and urban tourist destinations (historical/ancient cities (Gilbert and Clark, 1997; Janusz *et al.*, 2017), coastal cities (Eshliki and Kaboudi, 2012; López *et al.*, 2018). Recent studies focused on the social effects of the presence of tourists in

the community. Some of the studies dealt with quality of life (Lankford, 1994; McCool and Marin, 1994; Perdue *et al.*, 1990; Santisi *et al.*, 2013; Tosun, 2002; Wang and Pfister, 2008) and well-being (Nawijn and Mitas, 2012).

Researchers have also paid attention to the impact of tourists in connection to the sustainable development of tourism (Kitnuntaviwat and Tang, 2008; Ogorelc, 2009; Rasoolimanesh and Jaafar, 2016; Scaccia, 2016).

López *et al.* (2018) revealed that residents' support and the perceived benefits of tourism are preconditions for tourism sustainability, although the majority of studies did not investigate thoroughly this connection but rather declared it as implicitly true. While the sustainable development of tourism remains subject to debate, several authors managed to provide evidence that the residents' support is important for the sustainable development of both tourism and the community. Nunkoo and Ramkissoon (2011) investigating residents support for tourism in Port Louis (Mauritius) concluded that the sustainable development of tourism required the active participation and support of the local community. At the same time, the involvement of the residents would add value to the sustainable development strategies of the destination and would enhance the support for tourism development. López *et al.*, (2018) showed that the locals' support (Trujillo, Peru) and the perceived benefits positively influenced tourism sustainability thus confirming other findings such as that of Gursoy *et al.* (2002). Demirović *et al.* (2020) investigating the determinants of residents' support for the sustainable development of tourism in rural areas in Serbia, provided better understanding of the factors affecting the residents' attitudes in relation to tourism and stressed out the need to focus on the local community as one of the most significant players. Focusing on tourist destinations aiming for sustainability, authors such as Marzo-Navarro *et al.* (2015) emphasized the imperative to consider the residents' opinions when planning and managing the development of a certain tourist destination. They also pointed out that the residents' beliefs and perceptions of the tourism impact were more important in gaining their support for a sustainable development of the destination than an objective perspective of sustainability indicators.

Bearing in mind the complex relationship between tourism and sustainable development and the importance of residents' attitude, we considered the investigation of residents' opinions on tourism and the sustainable development of the destination to be a useful and necessary approach. Therefore, the objectives of the research may be summarized as follows:

- to evaluate the general attitude of residents toward tourist activity;
- to evaluate the residents' opinion regarding the tourism impact on the city image;
- to evaluate the perceived impact of tourism on the development of the destination and on the residents' lives, through a series of variables focused on the economic, social, and environmental impact;
- to evaluate the residents' perception regarding the impact tourism on the sustainable development of the destination.

In order to attain the objectives, the present article has the following structure: introduction, materials and method, results and discussion, and conclusions.

1. Materials and Methods

1.1. General Presentation of the City of Constanta

Constanta, the largest coastal city on the Romanian Seaside, is a favored summer tourism destination. It is the capital of Constanta County, which ranks 5th in Romania according to the number of inhabitants (764,021 inhabitants, on July 1, 2019, according to the Constanta County Directorate of Statistics (Constanta County Directorate of Statistics, 2020). Constanta County includes the entire Romanian coast where an ensemble of tourist resorts lies: Mamaia Nord-Navodari, Mamaia, Constanta, Eforie Nord, Eforie Sud, Techirghiol, Costinesti, Neptun-Olimp, Jupiter, Cape Aurora, Venus, Saturn, Mangalia, 2 Mai, and Vama Veche. From an administrative point of view, Constanta city includes Mamaia resort, which lies in the north of the city. Constanta city is the epicenter of the summer tourism in Romania, being a holiday destination for tourists staying in the city and in Mamaia resort, but also an attraction for tourists staying throughout the entire Romanian coast. Constanta is the most important Romanian seaport and also the fourth largest port in Europe (Romania Tourism, 2020). The economic profile of Constanta is mainly related to shipbuilding, industrial and civil engineering, maritime and river transport, and tourism (Constanta City Hall). The development of tourism is the natural result of natural and anthropic resources, many of them being unique in the country and even in the world. Recent years have brought a rapid growth in the tourism industry in Constanta and Mamaia. In 2009 the number of tourists was 0.45 million, while ten years later, in 2019, it reached 0.62 million tourists. Had it not been for the particular and unprecedented situation brought by the year 2020, all evidence indicates that the growth tendency would have continued. Even under the pandemic conditions, Constanta and Mamaia were very attractive tourist destinations, since 0.32 million tourists were registered in the first eight months of 2020 (Constanta County Directorate of Statistics, 2020).

1.2 Sample Selection

The research targeted the adult population of Constanta city (aged above 18, that is 263,001 according to the official statistics for the year 2019 (Constanta County Directorate of Statistics, 2020). The research was conducted for two months, between October and November 2020, online, using Google Forms. The sample size (N=384) was determined using the formula (Daniel, Cross, 2013):

$$N = \frac{\frac{z_{\alpha}^2 p(1-p)}{e^2}}{1 + \frac{z_{\alpha}^2 p(1-p)}{e^2 P}}$$

where P is the size of the general population (263 001), z_{α} (1.96) is the z-score, e (0.05) is the margin error, and p (0.5) is the probability to obtain an affirmative answer to the question addressed.

In order to obtain a proportionate stratified sample based on the age criterion, from the number of filled in questionnaires received (556), we extracted 384 questionnaires using the first in - first out principle. In the end, the sample had the same age structure as the total targeted population (18-25 years – 8%; 26-35 years – 17%; 36-45 years – 20%; 46-55 years – 17%; 56-65 years – 17%; over 66 years – 21%).

1.3 The Questionnaire

The research instrument was a questionnaire designed to integrate several sections, taking into consideration previous studies focused on residents' attitude towards tourism (Milman, Pizam, 1988; Pizam, 1978; King et al., 1993). The questions focused on the respondents' general attitude toward tourism, the living conditions in a tourist city, as well as the intensity of their interaction with tourists. Further, the questions aimed at revealing the impact of tourism on the city's image, on its development, and on the lives of the residents. The perceptions of tourist behavior, as well as information about the places where residents and tourists interact most often were obtained as well. In the end, the questionnaire included questions focusing on the socio-demographic characteristics of the respondents (gender, studies, professional status, and monthly average income per family member).

1.4 The Variables and Modeling

We computed an index, the Residents' Acceptance and Tourism Sustainability index, as an average of four variables: 1. the attitude toward tourism in Constanta (measured on a five-point semantic differential from 1 - very little to 5 - very high acceptance); 2. the evaluation of the general living conditions in Constanta as a tourist city (measured on a five-point semantic differential from 1 - very unsatisfying to 5 - very satisfying); 3. the impact of tourism on the city image (measured on a five-point semantic differential from 1 - significant worsening to 5 - significant improvement); 4. the impact of tourism on the sustainable development of the city (measured on a five-point semantic differential from 1 - very low to 5 - very high impact).

Twenty-seven independent variables were considered to observe the perceived impact of tourism on the residence acceptance. The variables were measured on a five-point semantic differential from 1 - severe worsening to 5 - significant improvement. They referred to the perceived impact of tourism on: the number of jobs, residents' income, public revenues, prices of products and services, quality of life, residents' behavior and hospitality, residents' morality and honesty, residents' attitude toward labor, mutual trust, residents' good and civilized behavior, consumption of drugs and alcohol, prostitution and crime, vandalism, traffic, public health, spatial planning and landscaping, street overcrowding, parking spaces availability, overcrowding of tourist attractions, overcrowding of restaurants/cafes/bars, overcrowding of shops, overcrowding of health facilities, nervousness and tiredness of employees, pollution, availability of products and services, noise, city cleanliness.

The twenty-seven variables enumerated above were subject to an Exploratory Principal Component Analysis (PCA) with oblique rotation. A four-component solution was preferred, and the variables were grouped as follows:

- C1 (socio-economic dimension): the number of jobs, residents' income, public revenues, prices of products and services, quality of life, residents' behavior and hospitality, residents' morality and honesty, residents' attitude toward labor, mutual trust, residents' good and civilized behavior, public health;
- C2 (overcrowding dimension): overcrowding of tourist attractions, overcrowding of restaurants/cafes/bars, overcrowding of shops, overcrowding of health facilities, nervousness and tiredness of employees, availability of products and services;
- C3 (crime, traffic, and landscaping dimension): consumption of drugs and alcohol, prostitution and crime, vandalism, traffic, spatial planning and landscaping;
- C4 (environmental dimension): street overcrowding, parking spaces availability, pollution, noise, city cleanliness.

The variables used in the research cannot be categorized or separated into patterns, thus applying modeling and simulation methods can be challenging. The authors' first attempt involved the use of artificial intelligence in the form of artificial neural networks (ANNs) of the feedforward type with the backpropagation-training algorithm. The results were unsatisfactory, due to the heterogeneity of the data; the ANN did not establish a link between the values and the evolution of the input data and the output data. Subsequently, alternative methods to evaluate and compare these influences were sought out. Following the tests performed, the chosen method was the evaluation and visual comparison of the impact of the four components (socio-economic impact, overcrowding, crime, traffic, and landscaping, and environmental impact), considered two by two, on the evolution of the Residents' Acceptance and Tourism Sustainability index (OUT_D).

The applied method included the following steps:

Step 1. Elaboration of graphs of the OUT_D evolution according to each component (example in figures 3, 4, 5, 6 (b), using Microsoft Excel). These graphs contained the trends of evolution. Several variants of trend functions were tested and those that followed as closely as possible the influence on the evolution of OUT_D were chosen.

Step 2. Starting from the types of functions chosen in step 1 (n-degree polynomials) and considering, based on previous research experiences, the limitation of function determination in Microsoft Excel, Mathcad 14 was chosen to determine the free terms of the functions (using the Minerr function), starting from the real values of the variables. The data were included in vector forms and influence functions were determined.

Step 3. For this type of visual analysis method, the graphical representation must be accurate. The graphs of OUT_D evolution according to each component were visually compared to those determined in Microsoft Excel in order to detect possible errors (figures 3, 4, 5, 6(b) and (c)).

Step 4. The four functions determined in Mathcad, corresponding to the four independent variables, were used two by two to determine the response areas. The 3D evolution of OUT_D was determined by the evolution of the four independent variables represented on the x-axis and y-axis (Figure 7(a) to (f)).

Step 5. Each of the graphical representations was analyzed aiming at comparing the evolution of OUT_D under the influence of the four independent variables, observing the magnitude of increase (positive direction) or decrease (negative direction) of the evolution of OUT_D, as well as the number of inflexion points (positive or negative change) of the graphs.

Step 6. Depending on the magnitude of the increase or decrease of the OUT_D evolution, as well as the number of inflexion points, the independent variables are hierarchized.

2. Results and discussion

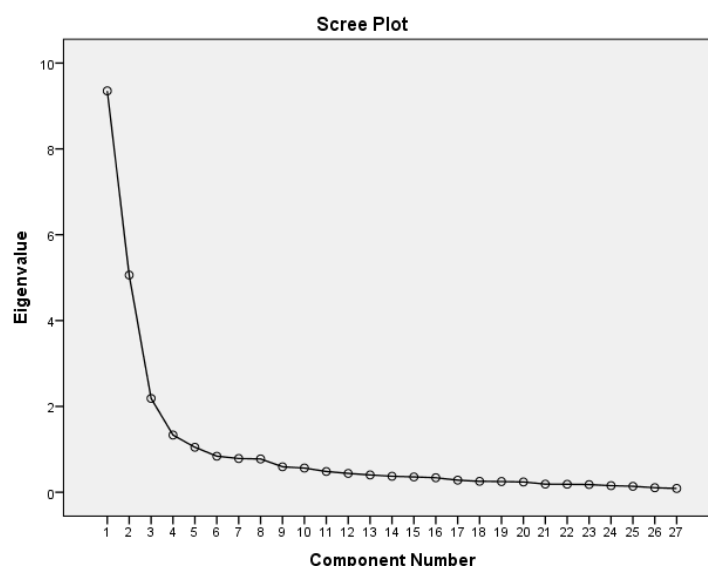
The sample structure and characteristics are presented in *Table 1*.

Table 1. Characteristics of the sample

Gender		Studies				
Female	Male	Elementary education	Secondary education	Bachelor and Post-university		
(%) 57.55	42.45	0.52	13.02	86.46		
Socio-professional status						
Employees	Students	Entrepreneurs	Freelancers	Retired	Stay-at-home persons	Unemployed
(%) 57.29	19.01	11.46	4.69	4.17	2.08	1.30
Income (Lei)						
1346-1500	1501-2500	2501-3500	3501-4500	4501-5500	5501-6500	>6500
(%) 13.02	22.04	19.01	15.10	8.33	7.03	15.10

Source: authors' calculations.

A Residents' Acceptance and Tourism Sustainability index was computed as an average of the following four variables: the attitude toward tourism in Constanta, the evaluation of the general living conditions in Constanta as a tourist city, the impact of tourism on the city image, and the impact of tourism on the sustainable development of the city. For the first variable, the mean score obtained was 4.52 indicating that residents are highly in favour of tourism, confirming several previous studies (Mensah, 2016; Nepal, 2008; Rasoolimanesh *et al.*, 2020). The living conditions in Constanta as a tourist city were perceived as averagely satisfying, with a mean score of 2.98. The impact of tourism on the city image received a mean score of 3.84, indicating that the residents' considered tourism contributed to the improvement of the city image, in line with previous studies by Andereck *et al.* (2005), King *et al.* (1993). The impact of tourism on the sustainable development of the city recorded a mean score of 3.76 thus indicating a high perceived impact. The mean value of the computed index was 3.78.



Source: authors' calculations.

Figure 1. Scree Plot

The twenty-seven variables related to the tourism impact of the city and residents' lives, which enumerated in the previous section, were subject to an Exploratory Principal Component Analysis (PCA) with oblique rotation. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was 0.908 and Bartlett's Test of Sphericity $\chi^2(351)=7916.695$, $p<0.001$ indicated that the factor analysis could be performed. The PCA based on Eigenvalues greater

than 1 generated a five-component model accounting for 70.296% of the variance. Analysing the outputs of the PCA and the scree plot (*Figure 1*), we decided upon a four-component approach. A new analysis was performed to extract the four components, accounting for 66.415% of the variance.

Table 2 shows the factor loadings.

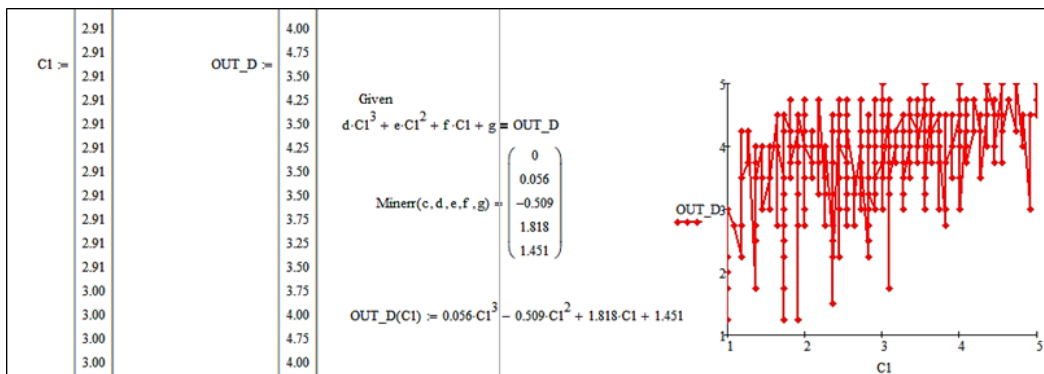
Table 2. Factor loadings

Variable	C1	C2	C3	C4
	Socio-economic dimension	Overcrowding dimension	Crime, traffic, and landscaping dimension	Environmental dimension
1	.831			
2	.836			
3	.821			
4	.543			
5	.889			
6	.903			
7	.886			
8	.880			
9	.888			
10	.851			
11			.883	
12			.953	
13			.912	
14			.692	
15	.487			
16			.473	
17				.625
18				.723
19		.659		
20		.786		
21		.756		
22		.721		
23		.766		
24				.584
25		.704		
26				.651
27				.666

Source: authors' calculations.

Subsequently, the influences of the four dimensions (C1, C2, C3, C4) on the previously computed Residents' Acceptance and Tourism Sustainability index (OUT_D) were analysed.

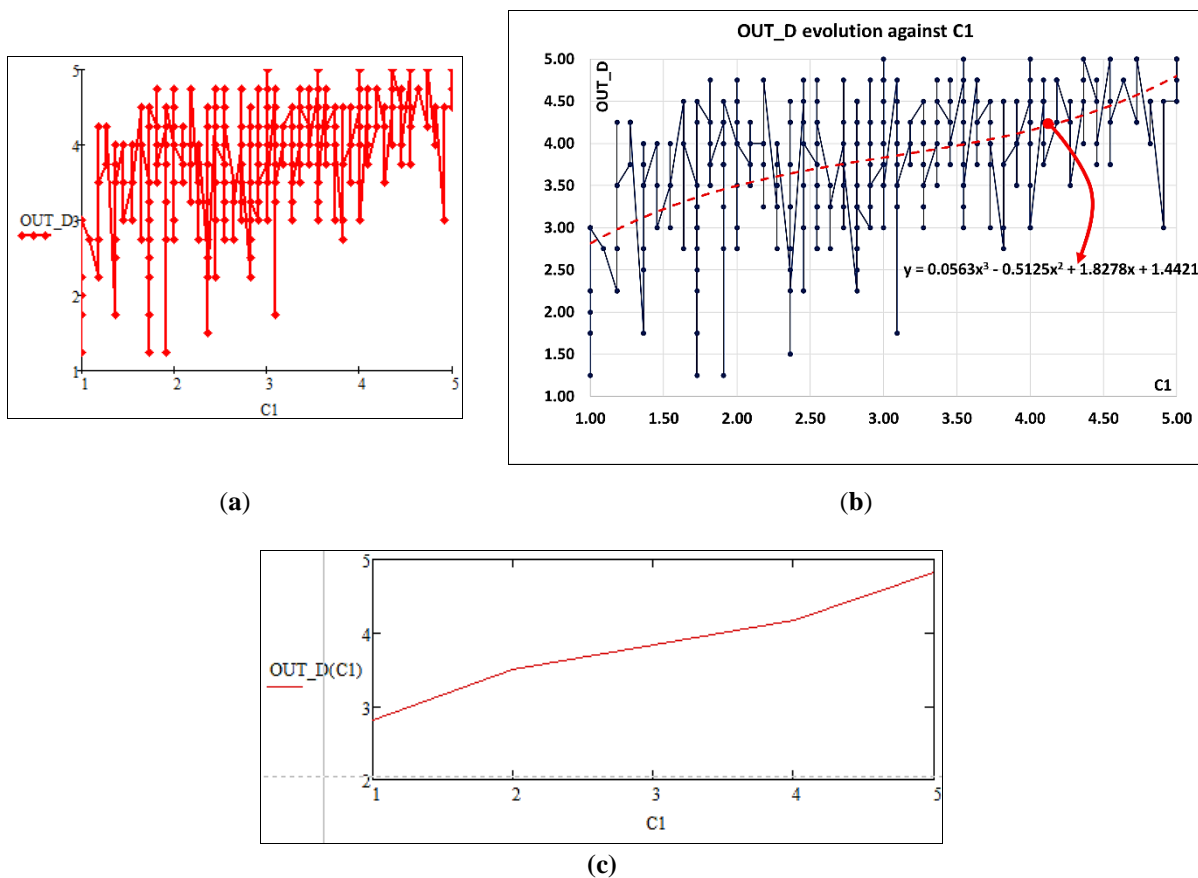
Figure 2 presents the determination of the mathematical function that estimates the trend of OUT_D under the influence of the socio-economic dimension (C1).



Source: Authors' calculation using Mathcad.

Figure 2. OUT_D under the Influence of C1.

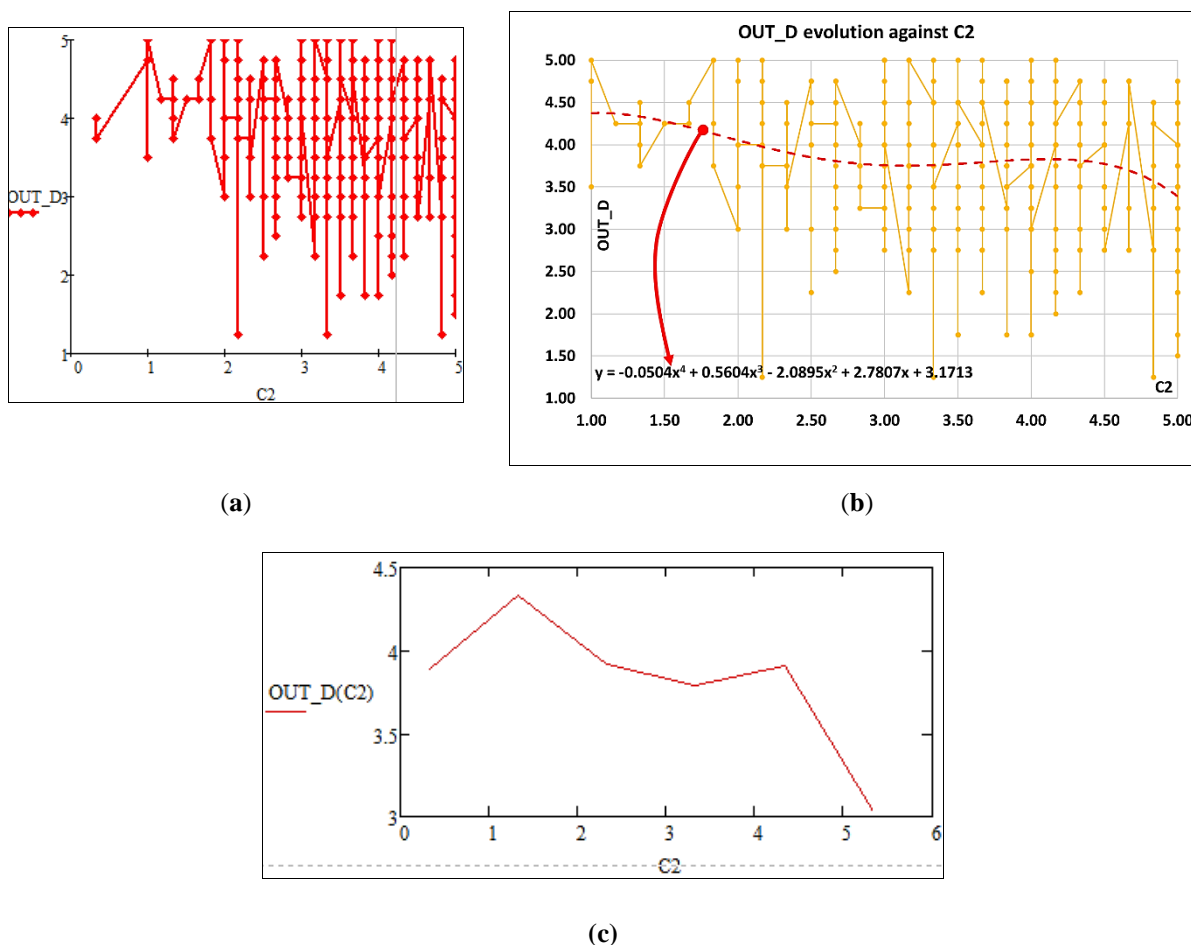
To verify the trend representation in Mathcad, another simple image was created in Microsoft Excel and the two were compared. In Figures 3 to 6 (b) Excel trend image (with equation form) and (c) Mathcad trend image were compared. It can be easily observed that the two are almost identical, which means that the values for the OUT_D were properly calculated.



Source: authors' calculation and representation.

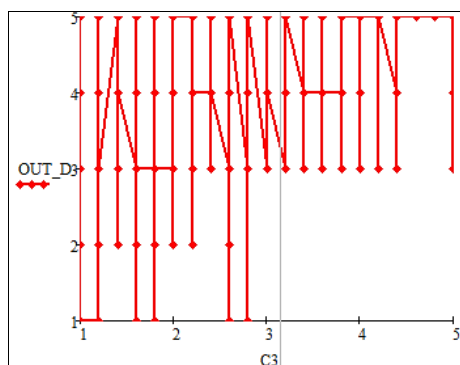
Figure 3. OUT_D evolution against C1 values. (a) Mathcad representation; (b) Excel representation with trend and trend equation; (c) trend in Mathcad

The choice of mathematical functions that represent the graphical representation of OUT_D against each of the four dimensions was made considering their evolution on the graphics in the Excel representations. Even though Excel also provides a form of equation, from our experience the Mathcad calculus is more accurate. Five mathematical functions were considered, starting with the ones available in Excel: exponential, linear, logarithmic, polynomial (order 2 to 6), and power. It should be noted that the example was elaborated in Microsoft excel and it served only as tool for justifying the choice of the functions type. Starting from the equation, several tests were performed in order to determine the best fit for the equation type according to the values' representation.

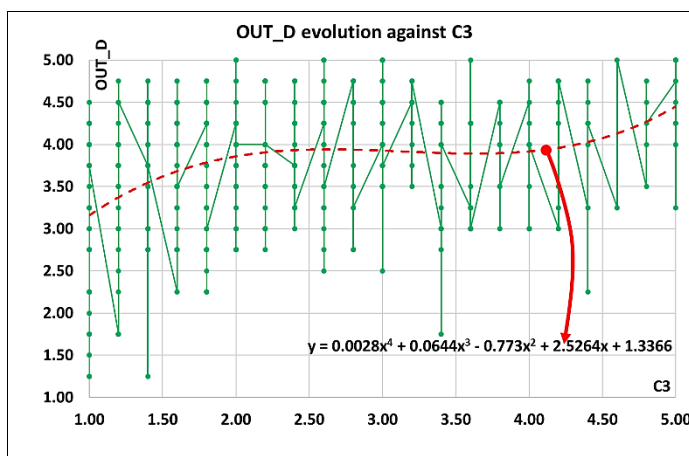


Source: authors' calculation and representation.

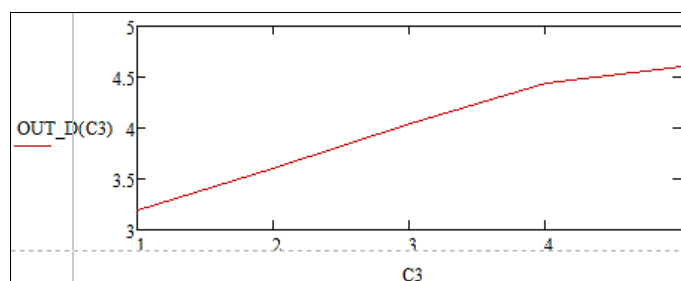
Figure 4. OUT_D evolution against C2 values. (a) Mathcad representation; (b) Excel representation with trend and trend equation; (c) trend in Mathcad.



(a)



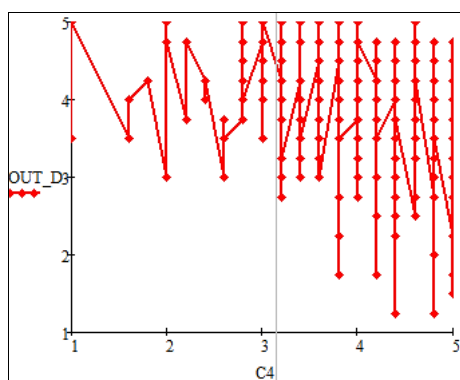
(b)



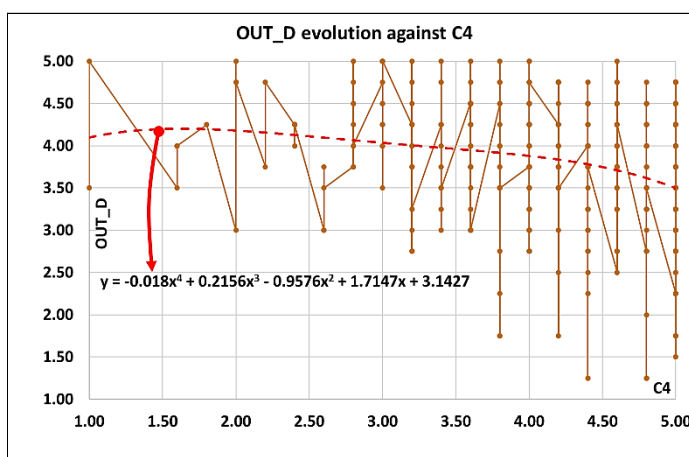
(c)

Source: authors' calculation and representation.

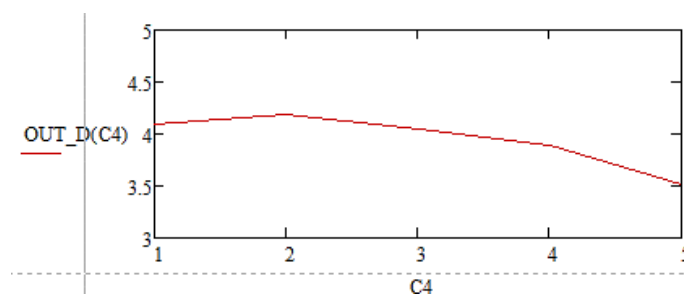
Figure 5. OUT_D evolution against C3 values. (a) Mathcad representation; (b) Excel representation with trend and trend equation; (c) trend in Mathcad.



(a)



(b)



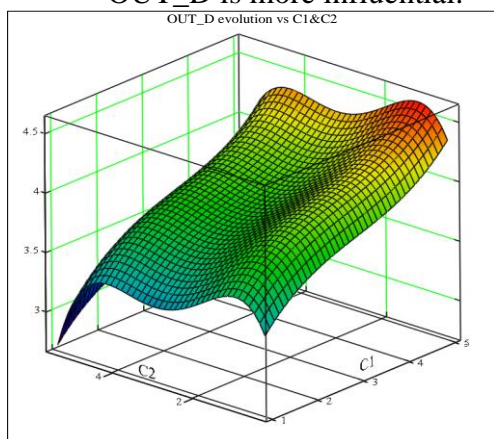
(c)

Source: authors' calculation and representation.

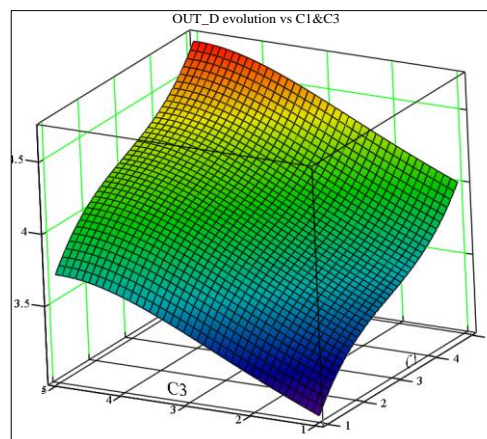
Figure 6. OUT_D evolution against C4 values. a) Mathcad representation; b) Excel representation with trend and trend equation; c) trend in Mathcad.

In order to compare visually the influence of the four indexes on the OUT_D, 3D response surfaces were generated in Mathcad, each of the four indexes were used two by two in OUT_D's representation as surface. The results are presented in figure 7. In order to analyze and compare the influence of each of the four indexes on OUT_D we applied the following two criteria:

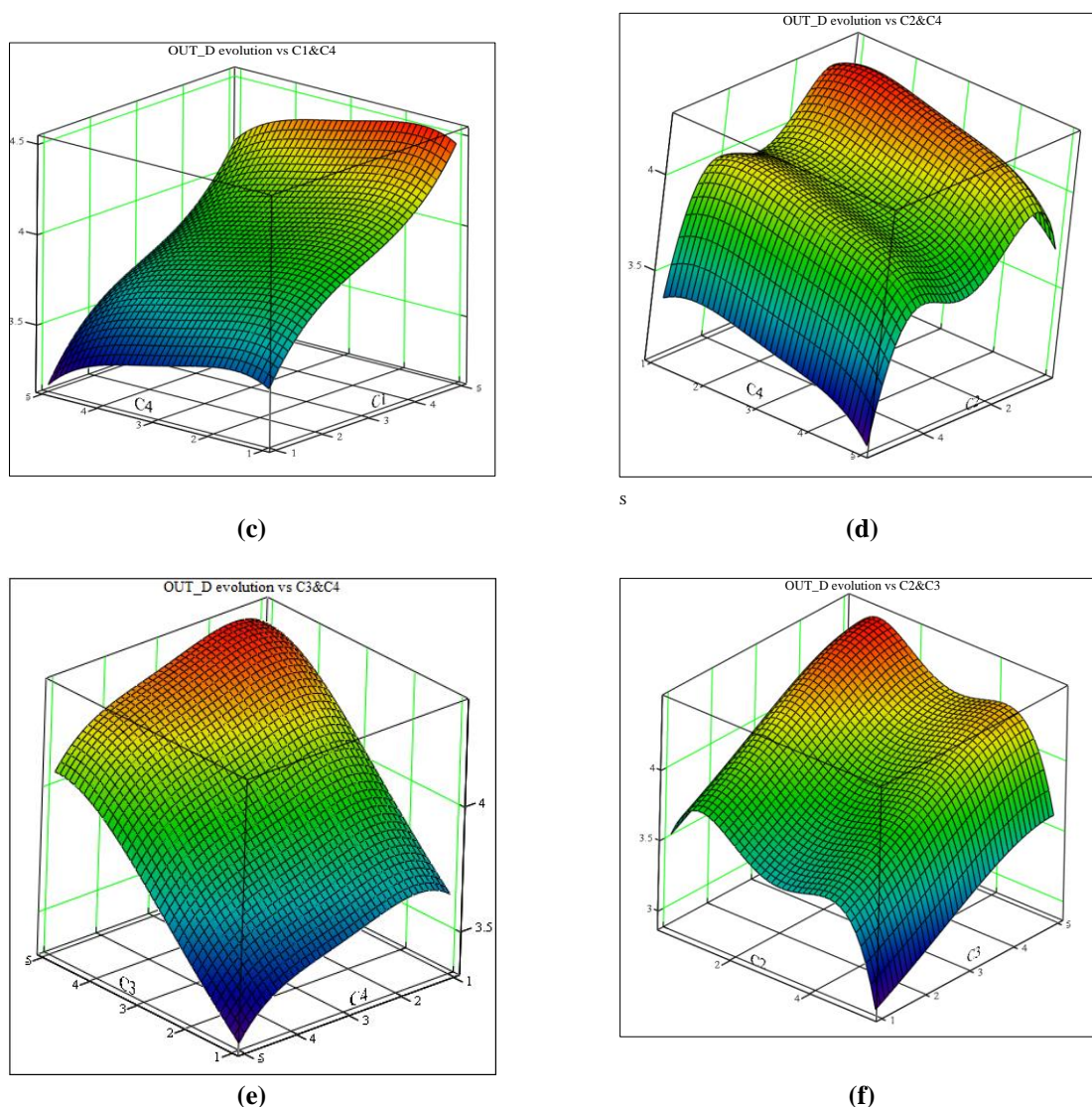
1. We observed how steep the graphical evolution of OUT_D is against the evolution of each dimension in comparison with the other three. The steeper the trend is, the more influential the dimension is. So, comparing the influence of two dimensions, we considered to be more influential the one determining the steeper trend of the graphical evolution of OUT_D;
2. The dimension that has more inflexion points on the trend of the graphical evolution of OUT_D is more influential.



(a)



(b)



Source: authors' calculation and representation.

Figure 7. OUT_D evolution against each of the dimensions. (a) C1 vs. C2; (b) C1 vs. C3; (c) C1 vs. C4; (d) C2 vs. C4; (e) C3 vs. C4; (f) C2 vs. C3.

Table 3 shows how the influences were considered for each dimension in the comparison process. Applying the two above-mentioned criteria and inspecting each of the six 3D graphs from figure 7, the following conclusions can be drawn:

- In figure 7(a) - OUT_D against C1 & C2: C1 is slightly more influential on OUT_D than C2, even that C2 has more inflexion points. C1 has two inflexion points in the evolution of OUT_D, while C2 has two inflexion points. Also, C1 has a positive influence, while C2 has a negative influence on OUT_D;
- In figure 7(b) - OUT_D against C1 and C3: C1 is slightly more influential on OUT_D than C3. OUT_D has a superior value modification in the case of C1 than the C3. Both dimensions have positive influences;
- In figure 7(c) - OUT_D against C1 and C4: C1 has more influence on OUT_D than C4. Again, C1 has a positive influence, while C4 has a negative influence on OUT_D;

- In figure 7(d) - OUT_D against C4 and C2: the evolution of OUT_D is steeper in the case of C2 than C4. Both have a negative influence on OUT_D. While C2 has three inflexion points, C4 has only two;
- In figure 7(e) - OUT_D against C3 and C4: C3 has a greater influence on OUT_D than C4. C3 has a positive influence, while C4 has a negative influence on OUT_D. C3 has one inflexion point and C4 has two inflexion points.
- In figure 7(f) - OUT_D against C2 and C3: C2 influences the OUT_D slightly more than C3. C3 has a positive influence, while C2 has a negative influence.

Table 3. Comparison of the influence of the four dimensions on the evolution of the OUT_D

Dimensions	C1	C2	C3	C4	Level of influence
	Comparison of the first column with the first row:				
C1		=>	=>	>>	I
C2	<=		=>	>>	II
C3	<=	<=		>>	III
C4	<<	<<	<<		IV
No. of dimensions that are more influential than the one presented in the first row of the table (on each column)	0	1	2	3	

Legend:

=< - almost equal, slightly more influential than	=> - almost equal, slightly less influential than
< - more influential than ...	> - less influential than ...
<< - much more influential than ...	>> - much less influential than ...

Source: authors' calculations.

Each of the four dimensions from the first column is compared to each of the dimensions from the first row. For an easier way to read the table, we present the following example: Considering one of the dimensions from the first column of the table 3 – C3 – we compare its influence against each of the other three from the first row (C1, C2, C4). Observing figure 7(e) and implementing the two criteria defined above, one can state that C3 is much more influential than C4 on the evolution of OUT_D (C4<<C3). Similarly, from figure 7(b) we can conclude that C3 is almost equal, but slightly less influential than C1 (C3<=C1). Therefore, C1 is the most influential of the four dimensions.

Studying all six figures (7(a) to 7(e)) and applying the same criteria presented above, we can determine a hierarchical list of four dimensions in the order of their influence on OUT_D. Considering that C1 has three cells which show that it is more influential than all the other three, it has a level I influence. Therefore, the final influence hierarchy is: 1. C1 (socio-economic dimension); 2. C2 (overcrowding dimension); 3. C3 (crime, traffic, and landscaping dimension); 4. C4 (environmental dimension).

A vast body of literature has been dedicated to understanding the multiple dimensions of the residents-tourists relationship, the residents' acceptance towards tourism (Andereck *et al.*, 2005; Ap, 1992; Jurowski *et al.*, 1997; Mensah, 2016; Perez and Nadal, 2005; Rasoolimanesh *et al.*, 2017; Ross, 1992; Sharpley, 2014; Wang and Pfister, 2008;) as well as their support for the sustainable development of tourism (Kitnuntaviwat and Tang, 2008; Ogorelc, 2009; Rasoolimanesh and Jaafar, 2016; Scaccia, 2016). A less studied dimension is that of the residents' opinion regarding the impact of tourism on the sustainable development of the destination.

One of the results of our study was the identification of several dimensions that influence the residents' acceptance and the perceived impact of tourism on the sustainable development of their city. The research revealed that the residents' opinion was mainly and positively influenced by the socio-economic dimension of tourism (the number of jobs, residents' income, public revenues, prices of products and services, quality of life, residents' behavior and hospitality, residents' morality and honesty, residents' attitude toward labor, mutual trust, residents' good and civilized behavior, public health). Our results are in line with those of previous research confirming that the perceived economic benefits had a positive influence on the residents' acceptance for tourism (Abdollahzadeh and Sharifzadeh, 2014; Eusébio *et al.*, 2014; Hajimirrahimi *et al.*, 2017). The social benefits were identified in several studies as having a positive influence on the residents' acceptance for tourism (Hajimirrahimi *et al.*, 2017, Rasoolimanesh and Jaafar, 2016). It is also worth mentioning that some studies reported negative social impacts of tourism (Kousis, 1989).

Secondly, residents' acceptance and tourism impact on the sustainable development of the city was negatively influenced by a series of shortcomings they experience during the tourist season (overcrowding of tourist attractions, overcrowding of restaurants/cafes/bars, overcrowding of shops, overcrowding of health facilities, nervousness and tiredness of employees, availability of products and services). Previous studies revealed similar results referring to the negative impact of overcrowding (Brunt and Courtney, 1999; Ko and Stewart, 2002; Látková, Vogt, 2012).

The third dimension referring to crime, traffic, and landscaping had a reduced influence, ranking third, after the socio-economic and overcrowding dimensions. The research results confirmed the characterization of the city as a safe and secure tourist destination. Previous studies showed that crime and traffic congestion had a negative impact on the residents' attitude toward tourism (Ko, Stewart, 2002; Nunkoo, Ramkissoon, 2010; Rasoolimanesh, Jaafar, 2016).

The environmental dimension negatively impacted the residents' acceptance and the perceived impact of tourism on the sustainable development of the destination; however, this dimension was the least important. This result indicated that the residents' acceptance for tourism and perception on the tourism impact on sustainability was primarily assessed through the factors that affected their everyday lives, and only marginally through factors that were explicitly related to the sustainable development concept. Ramkissoon, Nunkoo (2011) found a strong positive effect of the socio-environmental dimension on the residents' perception of the tourism impact in Port Louis (Mauritius), while Scaccia and De Urioste-Stone (2016) showed that the residents had little interest in the environmental issues and took a rather neutral stance to the environmental impact of tourism in Maine. On the other hand, Nunkoo and Ramkissoon (2010) in a study conducted in Port Louis (Mauritius) revealed concerns about increased pollution due to tourism.

Conclusions

The present research explores a gap in the literature, that is, the residents' perception regarding tourism and its impact on the sustainable development of the destination. The research focused on the city of Constanta, a popular summer tourist destination, situated on the Romanian Black Sea coast.

Using 3D mathematical representations, the study revealed a hierarchy of factors that influence the residents' attitude toward tourism and its impact on the sustainable development of their city. The residents' attitude and acceptance of tourism and its perceived impact on the sustainable development of the destination was fairly positive. The residents' opinion was above all influenced by the impact of tourism as an economic and social phenomenon. The

residents identified negative consequences as well, mainly referring to overcrowding or unavailability of products and services. Factors strongly related to the environmental dimension of sustainability such as pollution, noise, or city cleanness seemed to have a marginal influence on the residents' attitude.

Our study brings forth the importance of residents as primary stakeholders in the development and implementation of a sustainable development strategy of a tourist city. As revealed by previous studies (Gursoy, Rutherford, 2004; López *et al.*, 2018; Vargas-Sanchez *et al.*, 2015), the successful implementation of a sustainable development strategy should take into account the residents' opinions and attitudes, their support being essential. Moreover, the residents' input is required not only in the early stages of the development and implementation of the sustainable development strategy, but the residents should become a permanent dialogue partner for policy makers and local administrations. Thus, further research directions should focus on identifying and evaluating the impact of tourism through other research instruments, as well as conducting studies on destinations with similar characteristics and types of tourism. Moreover, a sustainable development strategy for the city of Constanta is currently in the early stages of development, thus opening numerous opportunities for exploring the residents' role and involvement.

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PER BENDRUOMENĖS PRIZMĘ: GYVENTOJŲ POŽIŪRIS Į TURISTŲ ELGESĮ KONSTANCOS MIESTE RUMUNIJOJE

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SANTRAUKA

Straipsnyje daugiausia dėmesio skiriama gyventojų požiūriui į turizmą ir jo vaidmenį darniam vietovės vystymuisi. Siekiant įvertinti įvairių su turizmu susijusių rodiklių įtaką miestui ir čionykščių žmonių gyvenimui, taikytas vizualinio palyginimo metodas.

Rodikliai buvo sugrupuoti į keturias kategorijas (socialinis ir ekonominis poveikis, per didelis žmonių kiekis, nusikalstamumas, eismas ir kraštovaizdžio formavimas, poveikis aplinkai), o vėliau buvo stebima ir analizuojama kategorijų, nagrinėjamų po dvi, įtaka apskaičiuoto indekso, t. y. gyventojų požiūrio į turizmą ir jo tvarumą, raidai.

Pasitelkus 3D matematinį vaizdavimą tyrimo metu atskleista veiksnių, reikšmingų gyventojų požiūriui į turizmą ir jo poveikį darniam jų miesto vystymuisi, struktūra. Gyventojų požiūris ir pritarimas turizmui bei jo suvokiamas poveikis darniam vietovės vystymuisi buvo ganėtinai teigiamas. Gyventojų nuomonei pirmiausia reikšmingas buvo turizmo kaip ekonominio ir socialinio reiškinio poveikis. Gyventojai įvardijo ir neigiamą poveikį, daugiausia nurodydami per didelį žmonių kiekį arba produktų ir paslaugų neprieinamumą. Veiksniai, glaudžiai susiję su aplinkosaugos tvarumo aspektu, pavyzdžiui, tarša, triukšmas ar miesto švara, gyventojų požiūrio stipriai nepaveikė.

Be to, gyventojų indėlio reikia ne tik ankstyvuosiuose darnaus vystymosi strategijos rengimo ir įgyvendinimo etapuose, bet ir jie patys turėtų tapti nuolatiniais politikos formuotojų ir vietos administracijos dialogo partneriais. Konstancos miesto darnaus vystymosi strategija šiuo metu yra ankstyvojoje rengimo stadijoje, todėl atveria gausybę galimybių iširti gyventojų vaidmenį ir įsitraukimą.

REIKŠMINAI ŽODŽIAI: turizmas; gyventojų požiūris; darnus vietovės vystymasis; gyventojų pritarimas turizmui.