

BUSINESSES, TOURISM AND ENVIRONMENTAL SUSTAINABILITY IN PROTECTED AREAS

Abstract

In recent years, tourism in natural areas has gained importance in the tourism panorama. Nature tourism is presented as a key factor in the socio-economic sustainability of protected areas. Therefore, this piece of work aims to analyse the relationship between the development of tourism enterprises located in the areas of influence of Spanish peninsular national parks and different aspects related to the perception of the local population.

For this purpose, data were collected referring to the economic evolution of tourism companies and the sustainability of the environment perceived by local agents between the years 2009-2019. Because of the apparent heterogeneity of the data, these indicators were aggregated in clusters by running cluster analysis and then were set as part of a binary regression. The resulting clusters represent the dimensions around which the study question revolves. Besides, once they are obtained, further studies may be performed. These three clusters are (1) the operating income, (2) the economic profitability and (3) the perceived economic development. ANOVA tests were performed to assess whether the clusters were correctly classified.

Afterwards, a binary regression was run using the clusters as independent variables for defining those more profitable businesses and those less profitable businesses. The results draw the following main conclusion: the participation of the local population in the planning and management of the public use of these protected natural areas is essential to achieve sustainable development.

Keywords: business, cluster analysis, environment, logistic regression, sustainability

Extended abstract

In recent years, tourism in natural areas has gained importance in the tourism panorama. Nature tourism is presented as a key factor in the socio-economic sustainability of protected areas (May et al., 1991; Ko & Stewart, 2002; Chaabouni, 2018). Therefore, this piece of work aims to analyse the relationship between the development of tourism enterprises located in the areas of influence of Spanish peninsular national parks and different aspects related to the perception of the local population. Considering the above, the hypothesis underlying this study is the following.

The perceptions of the local population have a positive significant effect on tourism business development.

To contrast this hypothesis, data were collected referring to the economic evolution of tourism companies and the sustainability of the environment perceived by local agents between the years 2009-2019. It was obtained through SABI (2021), the National Statistics Institute (2021) and the Ministry of Finance and Public Affairs (2021). The sample compiles information about the Natural Parks in the Iberian Peninsula under Spanish territory (Canary Islands and Balearic Islands were excluded from the study because Natural Parks are sometimes mixed with sun and beach tourism zones). It is a convenience sample, which finally includes a total of 103 valid cases. These observations constitute the core sample for running the cluster analysis. The choice of this type of analysis lies in an attempt to homogenise the obtained data into easily identifiable groups. Despite two original dimensions being used to gather the data - business and local perception -, the results of the cluster analysis (Table 1) returned three clusters: (1) the operating income, (2) the economic profitability and (3) the perceived economic development. An ANOVA test for each one positively assessed whether the clusters were correctly classified (Greene, 1997).

Table 1. Obtained clusters.

Variables	Cluster			ANOVA
	G1	G2	G3	Sig.
Operating Income	885601.16	380101.01	100310.16	0.000
Economic Profitability	10.47	4.49	-8.68	0.000
Perceived Economic Development	4.52	3.07	3.99	0.000
Number of Cases	21	48	34	0.000

Source: Authors

Afterwards, a binary regression was run using the clusters as independent variables for defining those more profitable businesses and those less profitable businesses. Therefore, two binary regressions were run, considering the dependent variable as 1 when the analysed cases were the ones previously mentioned. In both cases, the standard tests for the model are required.

First, the omnibus test (Table 2), which assess whether the model is substantially different - by improving it - from the reference model - no variables involved. The favourable result confirms this point. Then, the proportion of the variance that is explained through the model must be addressed. For this, because of the nature of the model, pseudo-R² are calculated (Table 3). Nagelkerke's R² (1991) - as well as the others - confirm the model is fine and it explains up to 38.3% of the variance. Lastly, Table 4 shows the Hosmer and Lemeshow (2013) test which, essentially, assess the predictive power - on the sample - for the model. Both proposed logistic regressions have good predictive power according to the results.

Table 2. Omnibus Test

	Chi-cuadrado	df	Sig.
Model	15.249	4	0.004

Table 3. Log likelihood and Pseudo-R²s

-2 Log likelihood	Cox & Snell R2	Nagelkerke R2
43.381	0.267	0.383

Table 4. Hosmer and Lemeshow test.

Less profitable businesses (G1)			More profitable businesses (G2)		
Chi-square	df	Sig.	Chi-square	df	Sig.
10.375	8	0.240	4.986	8	0.759

Then, both models are run using SPSS software (IBM Corp. 2020). The results are displayed in Table 5. From these results, a solid result arises: only the perceived economic development explains whether the businesses in a certain municipality are more or less profitable. Since the rest of the variables have p-values way above the expected 0.05 - or even 0.1 threshold -, they are not statistically significant and, therefore, their interpretation lacks support.

Table 5. Binary logistic regression

Independent variables	Dependent variables					
	Less profitable businesses (G1)			More profitable businesses (G2)		
	B	Sig.	Exp(B)	B	Sig.	Exp(B)
Perceived economic development (PDE)	1.928	0.005	6.876	-1.928	0.005	0.145
Perceived social development	-0.203	0.581	0.816	0.203	0.581	1.226
Perceived quality of life	-0.082	0.874	0.922	0.082	0.874	1.085
Perceived global valuation	-0.811	0.155	0.444	0.811	0.155	2.250
% Classification		75,5%			75,5%	

However, the one which is statistically significant worth be commented. The perceived economic development as a predictor of the profitability of businesses in protected areas is interesting not only because of the sentence itself but because of the size of the effect. In other words, that variable, for both cases, has a high effect. Firstly, for those most profitable businesses, the increase in the perception of economic development increases the chances of being a high-performance business by 687.6%. Conversely, this same relationship but regarding those less profitable businesses returns a decrease in those chances by 85.5%.

The results draw the following main conclusion: the participation of the local population in the planning and management of the public use of these protected natural areas is essential to achieve sustainable development. Tourism can contribute to the develop of rural areas but risks arise when it takes places un protected areas. Limitations in the use of the territory may prevent local businessmen to invest in the village or the surrounding areas. Consequently, they may leave and invest anywhere. Since the proposed model reflects how the perception of economic development if a strong predictor for the performance of the business, actions should be carried out. Local authorities ought work together with the ones in charge of regulating how the tourism activity can take place in the surrounding areas of National Parks in Spain, in order to make a sustainable development of the territory. The depopulation process that many inland villages are suffering might be tackled thanks to this type of initiatives.

This study can be improved by including new variables that allow us to identify more relationships between the tourism business fabric of the municipalities in the area of socio-economic influence of the National Parks and other dimensions. New dimensions of study could be the socioeconomic evolution of population settlements, transport and communications infrastructures or the accommodation capacity of these municipalities belonging to the area of influence of the National Parks.

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