ANALYSIS OF TOURISTS' PREFERENCES FOR PUBLIC RECREATION AREAS

Dumitras, Diana Elena*, Simona Dragoi**

*University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania
** Forest Research and Management Planning Institute, Bucharest
ddumitras@usamvcluj.ro

Key words: choice experiments, stated preferences, natural parks, Romania

Abstract: This study presents the choice experiments as a useful tool to analyze the preferences of tourists toward alternative scenarios of public recreation areas in Romania. Results indicate that tourists prefer taking trips in natural areas with steep slopes and forests, enjoy seeing wilderness, and prefer using information like guidebooks and maps. They also declare that the camping places should not be located inside the recreation areas, but near the access roads. More than 10 groups at camping places are considered a high congestion. The study concludes that this type of information plays a key role in decision processes such as how to develop and improve the management of public recreation areas.

INTRODUCTION

Nowadays probably the most challenging task for park managers is how to maintain a balance between conservation of natural resources and development of the areas for tourism in a sustainable development framework. Many rural communities are situated near or inside the natural areas. Some natural areas are under major management changes trying to meet the needs of environment protection on one side and of tourists on the other side. Still various areas have not been included in any management plans. It is also known the fact that such areas do not have a value on the market; however researchers have developed methods that can reveal the true economic value associated to these public areas. The knowledge of these values is very important in taking decisions. On the other hand, decisions such as how to develop the infrastructure, which restrictions should be imposed to visitors are soliciting a special attention from managers in maintaining this equilibrium. Decisions are taken based on several criteria, of which a very important one is represented by tourists' preferences. Managers need to know, understand and consider these preferences for the characteristics related to the natural areas in order to develop efficient management plans. This study presents results from using choice experiments as an efficient tool to analyze tourists' preferences in relation with several attributes of public recreation areas in Romania.

MATERIAL AND METHOD

Although choice experiments was first applied in market and transportation analysis it has been lately used also to estimate the economic value of environmental goods and services. (Champ *et al.*, 2003, Hanley *et al.,* 1998, Hearne *et al.*, 2002, Hearne *et al.*, 2005). Choice experiments (CE) is a nonmarket valuation method that helps emphasizing tourists' preferences. Choice experiments is based on the consumer theory of Lancaster and on the

random utility theory. After Lancaster's theory, the consumer utility is defined over a bundle of attributes of a purchased good (Champ *et al.*, 2003). For instance, a visit to a natural park could imply the consumption of attributes related to the park such as appreciation of a particular type of landscape, observation of wildlife, unpolluted water, entrance fee etc.

This method is based on offering hypothetical markets to consumers letting and supporting them to express their preferences to the attributes of the recreation area. The selected research area is in the Carpathian Mountain, specifically in the Bucegi Natural Park, one of the most visited natural areas, well known for the unique rocks Babele ("Old Women") and Sphinx. Respondents have received information on each attribute and their levels in order to take informed decisions. The original set of attributes allowed for $(5^2x4^2x3^4x2^1)$ possible combinations of attributes and levels. In order to avoid any replication, the choice sets were randomly selected such that each respondent has received differed choice sets. All illogical combinations were excluded. Each respondent was asked to complete 6 choice sets. Data were collected in 2005, the sample being comprised of 130 individuals, thus 780 choice sets were handed in. Table 1 presents the attributes and selected levels and Table 2 a choice set.

Table 1

Attributes and levels used in the description of the recreation areas

Attribute	Description	Levels
Distance	The distance from home to the area	Less than 1 hour [BL] 1-2 hours 2-4 hours 4-6 hours More than 6 hours
Landscape	The presence of particular types of landscape	Karst relief (pass, gorge, crest) [BL] Glacier lakes Hills with cultural monuments Waterside, river meadow Steep slopes with rocks, forested
Wilderness	Presence of wilderness with reduced accessibility	Yes [BL] No
Information	Type of information presented	Guidebook, hiking marks Guidebook, information center Guidebook, map [BL] Guidebook, information center and list of protected species
Infrastructure	Type of infrastructure at the park entrances	Parking and camping place Parking only [BL] Parking and hotel Parking and camping with facilities
Camping	Presence of camping places	Inside the forests Near to access road, on fenced places, guarded Should not be allowed in park [BL]
Congestion	Number of groups at camping places	1-5 groups [BL] 5-10 groups More than 10 groups
Phone networks	Number of networks coverage in the area	1 network [BL] 2 networks 3 networks
Fuel price	Fuel price (actual price: 3.42 RON/l)	10% more expensive Actual [BL] 10% cheaper

[BL] Level of the attribute chosen as base level

Table 2

Example of choice set

Attribute	Place A (Alternative A)	Place B (Alternative B)	None (Alternative C)
Distance from home to the area	Less than 1 hour	2-4 hours	
Landscape	Glacier lakes	Karst relief (pass, gorge, crest)	
Wilderness with reduced accessibility	No	Yes	
Information	Guidebook, map	Guidebook, information center and list of protected species	I will visit neither Place A or Place B
Infrastructure at the park entrance	Parking and camping place	Parking and camping place	
Camping places	Should not be allowed in park	Near to access road, on fenced places and guarded	
Congestion at camping places	5-10 groups	1-5 groups	
Phone network	3 networks	1 network	
Fuel price	10% more expensive	actual	
Please check ONE choice	☐	☐	☐

The collected data was analyzed to estimate the probability of choosing an alternative i from a choice set containing competing alternatives. The systematic component of the utility is assumed to be a linear function of the selected attribute and estimated as:

$$V_j = \alpha_1 Alternative\ C + \beta_1 distance_2 + \beta_2 distance_3 + \beta_3 distance_4 + \beta_4 distance_5 + \beta_5 landscape_2$$
$$+ \beta_6 landscape_3 + \beta_7 landscape_4 + \beta_8 landscape_5 + \beta_9 wilderness_1 + \beta_{10} information_1$$
$$+ \beta_{11} information_2 + \beta_{12} information_4 + \beta_{13} infrastructure_1 + \beta_{14} infrastructure_3$$
$$+ \beta_{15} infrastructure_4 + \beta_{16} camping_1 + \beta_{17} camping_2 + \beta_{18} congestion_2 + \beta_{19} congestion_3$$
$$+ \beta_{20} network_2 + \beta_{21} network_3 + \beta_{22} price$$

where α and β represent the vector of explanatory levels and attributes from which utility is derived. It is assumed that the error terms are independently and identically distributed following a Type 1 extreme value distribution (Champ *et al.*, 2003).

In this case, the multinomial logit model is utilized and the choice probability is:

$$P(i|C) = \frac{\exp(\mu V_j)}{\sum_{j \in C} \exp(\mu V_j)}$$

where μ is the scale parameter and C is the choice set composed of 3 alternatives.

RESULTS AND DISCUSSIONS

Table 3 presents the multinomial logic parameter coefficients and their standard error for each attribute level. The explanatory variables described above were coded with effects codes (Louviere *et al.*, 2000); only price was coded as continuous variable. The base levels

chosen for the analysis are mentioned in Table 1. The alternative specific constant (ASC) was included to shows the marginal utility of the status quo alternative (Alternative C – the choice of not visiting any natural area) relative to the other alternatives (Alternative A or Alternative B – the choice of visiting a natural area described by the attributes).

Table 3

Results of multinomial logit model of preferences for attributes

Attributes	Levels	Coefficient	Standard Error
Distance from home	1-2 hours	0.0860	0.1109
	2-4 hours	0.2448	0.1090**
	4-6 hours	0.1855	0.1091*
	More than 6 hours	-0.3134	0.1119***
Landscape	Glacier lakes	-0.1265	0.1099
	Hills, cultural monuments	-0.4458	0.1120***
	Waterside	-0.5463	0.1116***
	Steep slopes, rocks, forested	0.4741	0.1082***
Wilderness	Yes	0.4754	0.1097***
Information	Guidebook, hiking marks	0.1487	0.0971
	Guidebook, info center	-0.0728	0.0947
	Guidebook, info center, list	-0.1860	0.0946**
Infrastructure	Parking and camping place	0.0418	0.0939
	Parking and hotel	-0.1785	0.0973*
	Parking, camping, facilities	0.3509	0.0946***
Camping	Inside the forests	-0.0295	0.0782
	Near to access road	0.0237	0.0788
Congestion	5-10 groups	0.0956	0.0784
	More than 10 groups	-0.1607	0.0783**
Phone network	2 networks	-0.0602	0.0775
	3 networks	0.0584	0.0778
Fuel price		-0.1474	0.0232***
ASC (for the status quo alternative)		-1.4682	0.1373***

No. of observations   2235
Log- likelihood   -1227.4529
Pseudo-R^2 0.21

* Significant at 10% level of significance;
** Significant at 5% level of significance;
*** Significant at 1% level of significance.

All attributes have signs in the expected direction. Tourists have preference to take trips in natural areas, which are at a distance of less than 6 hours. This result is expected because the average length of trips in Bucegi area is of 3.35 days, many trips being taken at the end of the week. Tourists also prefer to take trips in areas with steep slopes, rocks and forests, similar as Bucegi area, where respondents were approached. A significant preference was stated for the presence of wilderness with reduced accessibility, result that is in accordance with the preference for steep slopes and area with rocks.

Regarding the information attribute, tourists have preference for guidebook and hiking marks as well for guidebook and map. The preference for these types of information is probably because Bucegi is a hiking area where the presence of marks and maps is very important. It seems that visitors are not interested in holding information such as a list of protected species while they are visiting the areas. This certainly is a finding that requires further investigations; we have assumed that they would like to be informed which are the species protected by law.

Tourists also have declared a significant preference for parking areas with camping places and facilities, as well as a significant disapproval towards the presence of parking areas

with hotels. Camping places are preferred to be located near to the access roads on fenced places and to be guarded and not allowed in the park. These results lead to the conclusion that tourists are interested in maintaining the natural resources unpolluted. The presence of more than 10 groups at the camping places is not at all preferred by respondent. A confusing result is the preference for phone networks; respondents have stated they prefer 1 and 3 networks instead of 2 networks.

The coefficient for price is negative reflecting a significant preference for lower fuel prices. The alternative specific constant coefficient is significant and has a negative value, thus tourists appear to strongly prefer the alternatives (the choice of visiting a natural area described by the attributes) to the status quo alternative (the choice of not visiting any natural area).

CONCLUSIONS

This study shows that choice experiments valuation method is an efficient tool to analyze tourists' preferences for recreation public areas. This method helps the researcher to determine respondents' preferences for attributes offered in the choice sets. The results represent important information for managers in developing and improving management plans for public recreation areas.

An important note is that tourists were open to complete the survey. They understood this is an opportunity to express their preferences towards the characteristics of natural areas that they would like to visit. Thus, the results indicate that tourists prefer taking trips in natural areas with steep slopes and forests, prefer using information like guidebooks and maps, enjoy seeing wilderness, they do not want to see any camping places inside the areas.

The findings also reveal the degree in which tourists are informed about the importance of conserving natural resources. As a final conclusion we may affirm that there is an increasing demand for recreation trips in the Romanian natural areas.

BIBLIOGRAPHY

1. Champ, P.A., K.J. Boyle, T.C. Brown, 2003, A Primer On Nonmarket Valuation. Kluwer Academic Publishers, Netherlands

2. Hanley N., R.E. Wright, V. Adamowicz, 1998, Using Choice experiments to Value the Environments, Environmental and Resource Economics, 11(3-4): 413-428

3. Hearne, R.R., C.A. Santos, 2005, Tourists' And Locals' Preferences Toward Ecotourism Development In The Maya Biosphere Reserve, Guatemala, Environmenta, Development and Sustainability, 7:303-318

4. Hearne, R.R., Z.M. Salinas, 2002, The Use Of Choice Experiments In The Analysis Of Tourist Preferences For Ecotourism Development In Costa Rica, Journal of Environmental Management, 65:153-163

5. Louviere, J.J., D.A. Hensher, J.D. Swait, 2000, Stated Choice Methods – Analysis and Application. Cambridge University Press.