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Tourists' Satisfaction and Revisiting: an investigation of causality effects

Kompotis Apostolos, *Associate Professor*
Papanastasiou Ioannis, *Assistant Professor*
Vassiliadis Christos, *Lecturer*
Voyatzis Alexandros, *Associate Professor*
University of Macedonia[*]

Abstract

In this paper , a switching regime model with known sample separation is applied to Greek data, to investigate causality linkages between tourists' satisfaction and their willingness for revisiting. The empirical evidence shows the existence of these causality effects. Moreover, it shows that the willingness for revisiting crucially depends on many qualitative aspects of tourist services and accommodation.

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Switching regime models, causality, tourism.
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1. Introduction

Indisputably, tourism is an important factor of economic development for many countries. Thus, tourist problems have been analyzed in many stud-

[*] Kompotis Apostolos, Associate Professor
Papanastasiou Ioannis, Assistant Professor,
Tel.:+302310891696, e-mail:papan@uom.gr
Vassiliadis Christos, Lecturer,
Tel.:+302310891581, e-mail: chris@uom.gr
Voyatzis Alexandros, Associate Professor,
Tel.:+302310891882, e-mail:voyatzis@uom.gr
University Of Macedonia, Social and Economical Sciences
156, Egnatia st., P.O.Box 1591, 54006, Thessaloniki, Greece

ies. These problems are directly related to the particular characteristics of the tourism areas. Generally, tourist areas are classified into three broad categories according to their development stage. The first category includes those areas where tourism plays a dominant role in their economic base. Then, these areas are considered to be in the mature stage of their tourist development. Thus, the main problem for these areas is, at least, the maintenance of the number of nights spent by tourists through the upgrading of tourist services. The second category includes areas where tourism plays an important but not a dominant role in their economic base. The tourism industry in these areas is in the developing stage meaning that these areas have some tourist infrastructure. Then, many people agree that the best tourist-developing strategy for these areas is the enrichment of tourist products with new ones, like conferences, cultural, archeological and religious tourism etc. Of course an increase in the number of tourist products requires the availability of the necessary human, technological and material resources. Finally, in the third category belong areas where tourism has a minor impact in their economic base. These areas are now entering the tourism industry. Main strategies for tourists' attraction, in these areas, are considered to be the production of authentic domestic products, the preservation of the traditional way of living and the exploitation of the unique natural beauty of their environments.

Regardless areas' developing stage, key issue in any tourist-developing strategy is the discovering of the factors underlying the satisfaction of visitors (see Vukonic, 1997, Ryon, 1997, Sirakaya, Mohellan and Uysal, 1996, Buhalis D., and Fletcher J., 1995).

Therefore, in any tourist policy it is of vital importance the knowledge of the factors affecting the degree of satisfaction of foreign tourists. In this paper, using data based on a questionnaire, we examine whether the degree of tourists' satisfaction is affected from factors which have been aggregated into four broad categories namely physical and technical characteristics of the areas as well as services and other activities offered by the particular destination places. Furthermore, an econometric model drawing from the switching regime literature is estimated to test causality effects between tourists' satisfaction and their willingness to revisit destination areas.

2. Methodology

The theoretical model draws for the switching regime literature. Letting the subscript g denote the first regime under which the variable Y operates

and ng denote the complementary regime, then each observation of the variable Y may be characterized as:

$$Y_i = X'_{i,g}\beta_g + \varepsilon_{i,g} \qquad \text{if observation } i \text{ belongs to } g \text{ regime} \tag{1}$$

$$= X'_{i,ng}\beta_{ng} + \varepsilon_{i,ng} \qquad \text{otherwise} \tag{2}$$

where X and β are appropriately and conformably dimensioned vectors of variables and parameters corresponding to the structural description of the endogenous variable Y under the two regimes.

To obtain consistent estimates a two-stage estimation procedure is utilized. The structure of the two-stage technique is characterized as:

$$Y_i = X'_{i,g}\beta_g + \varepsilon_{i,g} \qquad \text{if } \gamma' z_1 \geq e_i \tag{3}$$

$$= X'_{i,ng}\beta_{ng} + \varepsilon_{i,ng} \qquad \text{otherwise} \tag{4}$$

where $\gamma' z_i$ is a stochastic criterion function of variables z_i and parameters γ determing whether or not observation i belongs to regime g, so that an indicator function "I_i" may be posited such that:

$$I_i = 1 \qquad \text{if } \gamma' z_i \geq e_i \qquad \text{and the } i \text{ belongs to } g \text{ regime}$$

$= 0$ otherwise

The vector of the coefficients γ can be estimated up to a scale factor by probit methods. It is assumed that the variables $\varepsilon_{i,g}$, $\varepsilon_{i,ng}$ and e_i are normally distributed with zero mean and covariance matrix of the form:

$$\begin{bmatrix} \sigma_g^2 & \sigma_{g,ng} & \sigma_{g,e} \\ & \sigma_{ng}^2 & \sigma_{ng,e} \\ & & 1 \end{bmatrix}$$

It follows that $E(\varepsilon_{i,g} | e_i \le \gamma' z_i) = -\sigma_{g,e} \dfrac{f(\gamma' z_i)}{F(\gamma' z_i)} = -\sigma_{g,e} w_{i,g}$

and in a similar way:

$$E(\varepsilon_{i,ng} | e_i \ge \gamma' z_i) = \sigma_{ng,e} \frac{f(\gamma' z_i)}{1 - F(\gamma' z_i)} = \sigma_{ng,e} w_{i,ng}$$

where $f(.)$ and $F(.)$ are respectively the standard normal destiny function and its cumulant evaluated as its arguments (see Maddala (1983) p. 224).

Thus equations (3) and (4) may be written as:

$$Y_i = Z'_{i,g}\beta_g - \sigma_{g,e} w_{i,g} + u_{i,g} \qquad \text{for} \qquad I_i = 1$$

(5)

$$= Z'_{i,ng}\beta_{ng} + \sigma_{ng,e} w_{i,ng} + u_{i,ng} \qquad \text{otherwise}$$

(6)

where the residuals u are implicitly related to the residuals ε in equations (3) and (4).

The two-stage method utilizes probit analysis in the first stage and a least squares procedure in the second stage. Specifically, in the first stage probit estimates of γ permit establishing values for w_g and w_{ng} for each i via evaluation of the functions f and F. In the second stage , the equations (5) and (6) are estimated by weighted least squares since residuals u are nor necessarily homoskedastic. This procedure provides consistent estimates of the parameters. It should be pointed out that if there is no correlation between e and ε_g, ε_{ng} and the variable Y does not appear in the vector z, the switching process may be thought of as exogenous. Therefore, if the estimates of $\sigma_{g,e}$ and $\sigma_{ng,e}$ are not significantly different than zero this implies that Y does not cause z and thus z may be interpreted as independent of Y. Consequently the individual regimes may be estimated as two independent regression equations provided there is no restrictions across equations that need to be taken into account.

3. Data

We applied our model to Greek data. Specifically, in our model the first regime refers to those tourists who have expressed their preferences for revisiting the same place or any place in North Greece or any other place in Greece

The data set is based on a questionnaire which had been distributed to almost 1900 tourists visiting northern Greece. The variables included in the questionnaire have been aggregated into four broad categories: physical and technical variables, services and activities, by taking the average of the responses. Analytical description of every variable and its measurement is given in Table 1.

Table 1: Variables of the questionnaire

Aggregate Variable	***Variables included in the questionnaire***	**Measurement**
	Satisfaction	0 = not satisfied 1 = satisgfied

	Revisiting	1 = Yes 2 = Maybe 3 = No
Physical Factor	Environment, Climate, Weather	0 = I don't know 1 = Very good 2 = Good 3 = Moderate 4 = Bad
Technical Factor	Room accommodation, Quality of athletic places, Walking roads, Conferences' centers	Same as above
Services	Quality of services and food, Hospitality, Relation between price and services, Queuing in banks, Cleaning, Babysitting	Same as above
Activities	Possibility for exercises, Activities, Entertainment, Hobbies and Aesthetics	Same as above

4. Empirical Results

The estimates of the empirical models related to different regimes are presented below (heteroscedasticity consistent standard errors are in parentheses) :

Model I: Revisiting the same destination place

Regime 1: Revisiting ($I_i = 1$)

Y= –0.250 PH+0.189 SR+0.102 TH–0.061 AC+1.419 W1
(0.029) (0.029) (0.024) (0.011) (0.061)

Regime 2: No Revisiting ($I_i = 0$)

Y= 0.156 PH–0.562 SR–0.215 TH+0.111 AC+1.797 W2
(0.040) (0.075) (0.048) (0.034) (0.117)

The probit estimation of the revisiting function yields:

I= –0.237 PH+0.263 SR+0.163 TH–0.095 AC
(0.075) (0.117) (0.083) (0.066)

Model II: Revisiting other place in Northern Greece

Regime 1: Revisiting ($I_i = 1$)

Y= –0.326 PH+0.238 SR+0.151 TH–0.081 AC+1.569 W1
(0.039) (0.038) (0.029) (0.024) (0.072)

Regime 2: No Revisiting ($I_i = 0$)

Y= 0.262 PH–0.768 SR–0.296 TH+0.108 AC+1.872 W2
(0.052) (0.102) (0.056) (0.041) (0.125)

Probits estimates of the Revisiting function:
I= –0.326 PH+0.458 SR+0.154 TH–0.081 AC
(0.081) (0.126) (0.087) (0.069)

Model III: Revisiting other place in Greece
Regime 1: Revisiting (I=1)
Y= –0.151 PH+0.146 SR+ 0.168 TH+ 0.006 AC+1.823 W1
(0.030) (0.037) (0.026) (0.019) (0.068)
Regime 2: No Revisiting (I=0)
Y= –0.008 PH-0.695 SR–0.442 TH+0.007 AC+1.815 W2
(0.060) (0.144) (0.083) (0.061) (0.215)
The probit estimates of the revisiting function are:
I= –0.104 PH+0.392 SR+0.210 TH+0.036 AC
(0.089) (0.138) (0.098) (0.077)
From the empirical results we conclude the following:

1. Tourists who have expressed their preferences to revisit the same place or another area in northern Greece, show similar behavior regarding the variables affecting their satisfaction. That is, their satisfaction depends positively on the physical variable and the activities offered by the destination place.
2. Tourists willing to visit other places in Greece – except northern Greece – indicate that their satisfaction is positively linked to the physical characteristics of the destination.
3. For those tourists who did not express any preference for revisiting, their satisfaction their satisfaction was found to depend on the services and the technical characteristics of the tourist areas.
4. In all cases there is a clear evidence of causality effect from satisfaction to decision for revisiting a tourist place.

Therefore, the satisfaction of the tourists in Greece, is affected by different variables depending on whether they are likely to revisit the destination place or not. The empirical results revealed that tourists willing to revisit the

destination area derive satisfaction from physical characteristics and the various activities existing in these areas. On the contrary the satisfaction of tourists unwilling to revisit the same place is mainly related to the services and the technical characteristics of these places. This information based on the empirical evidence is quite important especially for those interested in clience-maintenance strategies in tourist marketing.

5. Summary

In this paper we presented a general framework based on the switching regime literature to investigate first, the existence of causality effects between tourists' satisfaction and their decision for revisiting and second, the factors affecting tourists' satisfaction. Using Greek data, the empirical estimation of the model showed the linkage between tourists' satisfaction and their willingness to come back. Moreover this satisfaction depends on whether visitors are planning to come back or not. Specifically, tourists decided to come back seem to derive satisfaction particularly from natural resources. However, for those tourists decided not to come back their satisfaction is mainly related to quality of services and the availability of accommodations (technical characteristics).

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