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SEARCHING FOR ECO TOURISM POSSIBILITIES IN TURKEY, A CASE STUDY: ULUDAG MOUNTAIN REGION EXPERIENCE

The possibilites of alternative tourism (eco tourism) related to the evaluation of available natural potentials in Uludag Mountain Region have been being investigated since 1980's. However, these efforts have not resulted in the desired level due to a great variety of factors. The objective of this study is to investigate the possibilities of eco tourism based on available touristic potentials in the high plateaus of Uludag Mountain Region. The data obtained have been tested by means of the methods of statistical analysis in the model established, and econometric analysis have been carried out.

In this search, findings related to the region of research which are depend on touristic supply and demand have been presented and the interpretations of visual and numerical data based on the field of research have been made.

Furthermore the suggestions concerned with the things which are required in order to develop the tourism peculiar to the region within the context of sustainability an to increase its positive effects on the urban/regional development have been presented.

Key words: Eco Tourism, Sustainabilty, Uludag Mountain Region, Regression Analysis, Econometric Analysis.

1. INTRODUCTION

Increasing importance of tourism in terms of sectoral aspect is accepted by whole world and intense efforts to share the tourism products and to gain income from them grow. Presenting its natural beauty to share with whole world, Turkey also experience this process in recent years and targets on increasing the tourism income which is now yearly 7.6 million $ (27.8% of exportation income) to 50 million $ and rising the number of the foreign visitors which were 10 million in 2000 to 60 million in 2020. Parallel to this, number of bed with investment and management certificate which is now 581 thousand should be increased to 3.33 million in 2020. Hence, even to maintain the current share in world which is approximately 1.5%, significant developments should be carried out in terms of both infrastructure that will serve to

increased number of tourist and facilities. Accordingly, it is known that each year approximately 450 million $ of source should be allocated for advertisement (100 million $), infrastructure (100 million $) and encouragement for investments (250 million $) (Ercan & Ozyaba, 2002).

Among tourism sorts, mass and eco tourism which effect land usage of touristic areas and which have different economical dimension are intensely discussed especially during last 10 years. At the foundation of the mass and eco tourism for which many authors tried to define conceptual limits, lies utilisation forms of tourism sources. After the Rio summit of environment 1992, many nations accepted to experience eco-tourism much more actively as a tourism form. (Ozyaba, 2001)

All discussions about Eco-tourism is significant, since they indicate that a concept developed during last 10 years may determinate the future form of tourism. Intense urban life and artificial spaces far from natural environment increase inclination of men toward nature. It is inescapable for the tourism sector that is supposed to based on scientific ground, considering the misses of men to nature as a determinant factor and presenting new and different tourism opportunities. In this context, those regions, areas and countries that yet do not lost their natural values or do not object of the serious dangers, will be the attraction points for eco-tourism which will be the tourism form of future (Ozyaba, 2001). It is considered that the Uludag Region which is the scope of research is one of the district with certain potentials in terms of eco-tourism.

The aim of the research is presenting the factors that lead the touristic demands toward Uludag Region and searching the effects of tourism sector which consist of touristic movements in the area on the urban and regional economy. Therefore same clues can be obtained about the directions and qualities of politics and planning that may serve as a fundament for nature tourism (especially winter tourism) that is supposed to increase at the future in this area.

2. OVERALL TOURISM STRUCTURE OF TURKEY AND BURSA

In tourism sector, effects of developments and problems of our country is similar to Bursa. A competition similar to international market is occurs between the targets regions of the country and Bursa takes places in this environment of competition.

Table 1 shows the growth of the demand toward Turkey and Bursa within 1990 to 2000.

Table 1. **Number of Tourists who are Accomadate in Bursa and Turkey**

Years	Bursa	Turkey	Bursa/ Turkey (%)
1990	191859	5389308	3,56
1991	85383	5517897	1,55
1992	160284	7076096	2,26
1993	179561	6500638	2,76
1994	122480	6670618	1,84
1995	153271	7726886	1,98
1996	172669	8614085	2,00
1997	241797	9689004	2,50
1998	205291	9752697	2,10
1999	85012	7487285	1,14
2000	77112	10428153	0,74

Source:
1) Summary of Touristic Statistics, Ministry of Tourism, 2002
2) Bulletin of Touristic Statistics, Ministry of Tourism, 2001

Bursa deserved to be recommended as European City by European Council and it is the first municipal administration of Turkey participating to the "European Healthy Cities Project" conducted over European scale by United nations in 2000. In Bursa which has possibility for four seasons and 12 month, development projects are prepared for touristic product points such as mountain, plateau, spa, sea, nature and cave. With third level of difficulty, Kocasu route which is 34 km long and flowing through Keles and Orhaneli to Uluabat Lake is an ideal places for inexperienced athletes. Studies are continuing, creating an important attraction centre for national and international rafting sport by adding 18 km to exixsting course. In addition, 13 tracking route were identified in Uludag which have been touristic attraction points for lover of nature especially after the dissolve of snows. (Ercan & Ozyaba, 2002)

In Bursa there are total 43 accommodations with tourism management certificate given by Ministry of Tourism. 24 of them situated in the centre of the city, 12 in Uludag and the rest are in the towns. They meet touristic demand with their 6431 beds. In addition, there are 20 touristic accommodations at the investment stage. They will begin to operate soon with 4036 touristic beds. 14 restaurants (for 2305 tourists), 4 bars (for 315 tourists) and 6 independent places of amusement (for 1100 tourists) are managed in the boundary of the city. All of them has certificate from the Ministry of Tourism. Total 67 facilities with certificate are servicing to the tourism under the control of Ministry of Tourism. (Statistics of Tourism Provincial Administration, 2002).

Total 109, 73 regional and 36 national, professional tourist guides work to meet the touristic demand to Bursa as dependent to Tourism Provincial Administration. Overall number of travel agency which continue activity to evaluate touristic demand to Bursa is 102. Distribution of them according to their groups is as follows: 32 A, 13 AG, 6 B and 51 C. (Statistics of Tourism Provincial Administration, 2002).

3. GENERAL STRUCTURE OF ULUDAG

Uludag is the highest mountain in the Marmara Region including Thrace and Northwest side of Anatolian peninsula. Uludag is 36 km to the south of Bursa. It takes 40 minutes to reach Bursa and 60 minutes to reach the airport over the highway. Uludag, which was called "Bthynian Olympos" in antiquity, has a special place in classical mitology because it was supposed to be the place from which the gods had watched the Trojan Wars. The range of Uludag in the North West-South East direction is about 40 km long and 15-20 km wide. It is bordered as natural with Nilufer stream west and south, and Bursa city and Inegol country in the north and east. It's highest point is Uludag hill (2543 m). On the northern side of mount are some high plateaus such as Sarialan, Sobra, Kirazli and Kadiyayla. There are moranies and lakes spot at the 2000 m altitude. Aynali, Kara and Kilimli lakes are in this upper level.

It shows an interesting geomorphologic structure with very steep southern slopes of calcareous rocks and north-western part made up of granites. There is Tungsten (Wolfram) mine work at the altitude of 2000 m. This mine has not been run since 1989.

The climate of the mountain changes from base to top, being of Mediterranean type in lowers parts, which are near the city of Bursa at the north west side of mount, and rainy, partially mild microthermic, with icy winter at higher altitudes. The climate of mount could be included in the first family of East Mediterranean climatic group (Akman, 1990). Annual mean number of snow days at the top of Uludag is 66.7, total number snow covered days being 179.2 and maximum snow depth 430 cm (Guleryuz, 1992).

General vegetation shows the change from Mediterranean to Euro-Siberian and Alpine type. This change can be seen very clearly step by step from bottom to top in the northern side. There are humid forests at the north west-south east direction slopes of same side of massive. There are hard leafy forest belt (Lauretum) at the between 300-350 m. altitudes, sub tropical forest belt (Castenatum) at the between 350-700 m. altitudes, forest belt (Pinatum) at the between 700-1000 m. altitudes, over cool forest belt (Fagetum) at the between 750-1000 m. altitudes, needle forest belt (Abietum) at the between 1000-2000 m. altitudes and Alpinetum belt over the 2000 m. altitudes. Sub-alpine and alpine belts are included 28 endemic plant.

Uludag has much kind of animals. There are approximately 46 species butterflies (especially Pannassius Apollo) and 11 species bees.

4. SUPPLY AND DEMAND ANALYSIS ON WINTER TOURISM

4.1. Tourıstıc Supply and Demand Concepts

Tourism supply consists of five main issues that are natural sources, infrastructure, transport and condition of transport, superstructure, accommodation source. Certainly, there are functional relation between natural, artificial and economic

factors which effect tourism supply. When we consider all natural, artificial and economic factors, structure of a model expressing tourism supply will;

$$\sum T_a = f(a_1, b_2, c_3, d_4, e_5, f_6, g_7, h_8, i_9) \qquad \text{where;}$$

$\sum T_a$ = Total touristic supply of a region or district
a_1 = Natural beings
b_2 = Social and cultural beings, values and events
c_3 = Physical infrastructure
d_4 = Institutional structure
e_5 = Current market prices of touristic commodities and services
f_6 = Prices of the production factors (inputs)
g_7 = Prices of other touristic commodities and services
h_8 = Production technology
i_9 = Production conditions

Olali and Timur define tourism demand as "Amount of people who have desire to buy touristic commodities or services out of their dwelling places because of rational or irrational causes in a given market and at a certain price and who have sufficient power and spare time to make possible and realise this desire" (Olali, Timur, 1988).

a) Tourism demand is independent, because there are different motives and reasons that direct people to travel.

b) Structure of tourism demand is not homogeneous. There is difference between those who travel for physical relaxing and psychological happiness and who travel for commercial purposes. Also, in an accommodation places, difference may occurs in terms of consumption items according to the formation and intense of needs such as nourishment, entertainment, dwelling and other commodities and services.

c) Tourism demand absolutely expresses consumption of personal incomes.

d) There is continuous competition between demand of commodities and services with luxurious and cultural characteristic and tourism.

e) Tourism has an excessive elastic character because of some factors such as high substitution possibilities, effects of the economic, social, political, physical, ecologic factors on touristic consumption preferences. In other words, reaction of (elasticity of) the touristic demand to different factors, especially to prices is higher than 1.

f) Excessive competition exists between commodities and services of tourism. It occurs depending on personal preferences. There is a competition between dwelling period and distance, similar competition also occurs between the shares allocated to dwelling and to travel.

g) Touristic demand has a seasonal character and touristic movements are much intense in some particular seasons.

Tourism demand of a country depends on many variables and cereated tourism demand (T_t) expressed as;

$$\sum T_t = f \left(\sum_{i=1}^{n} a_i, \sum_{j=1}^{n} a_j, b_2, c_3, d_4, e_5, f_6, g_7 \right) \qquad \text{where;}$$

$\sum T_t$	= Total touristic demand to a region or district
a_i	= Prices of other touristic products either competitor or substitution
a_j	= Prices of complementary touristic products
b_2	= Economic factors depend on tourists
c_3	= Non-economic (irrational) factors depend on tourists
d_4	= Social factors depend on tourists
e_5	= Political factors in destined region or district
f_6	= Psychological factors depend on tourists
g_7	= Touristic supply (amount of available touristic commodities and services)

As it is shown, the number of independent variables effecting tourism demand of a region are high. Particularly in regions like Uludag, variables such as social taste (fashion), psychological structure and social psychological effect touristic demand directly. In addition, determinants such as official holidays, short distance to crowded cities, activities in the touristic destination (especially characteristics or qualities of the entertainment life) dwelling costs are influence it.

4.2. Structure of Touristic Supply in Uludag

Uludag's extraordinary nature and the richness of its flora and fauna have led to its proclamation as a National Park in 1961 (approximately 11338 hectare). After that the National Park borders are expanded to 12762 hectare. It is the most outstanding place for winter sports and winter tourism in Turkey now. The world standard of its skiing establishments ant the perfection of its hotels make Uludag a very attractive vacation area. Camping, trekking and picknicking facilities in summer also make Uludag an ideal place for summer vacations. Camping areas like Karabelen, Kirazliyayla and Sarialan have highway connections. There are 4 main camping area for excursion. It takes 20 minutes to reach Sarialan with a cable lift from the city center of Bursa. Sarialan also has highway connections with the hotels and touristic regions of the so-called First and Second Development Areas. The skiing season at Uludag is from December till April. There are 9 chairlifts and 5 surface lifts at the hotel region.

Uludag is the largest, most developed ski resort in Turkey and is positioned well in the market. Although the terrain is not the most challenging and the resort has a smaller vertical drop than some of its competitors, the resort offers the largest range of lifts, trails, accommodations, restaurants, and other amenities.

Uludag caters well to the majority of the skiing population with its focus on intermediate skiing terrain and its village nightlife. Significant snowfall at Uludag is a particular strength, with an average 240 cm falling annualy. Known for being less expensive than many of the other resorts in Turkey and in Europe, offering a full range of retail, food and beverage, and overnight accommodations, as well as convenient

access from Bursa and Istanbul, Uludag is considered one of the Turkish people's favorite resorts.

The existing capacity of Uludag Resort is approximately 7 700 guests. Of these guests, 50% (3850) are assumed to be on-mountain guests i.e. skiers and snowboarders, and 50% (3850) are assumed to be participating in off-mountain recreation (not skiing or snowboarding). Approximately half of the current guests (3850) are overnight guests and half (3850) are day guests. The 5379 hotel beds in Uludag Village are sufficient for current needs.

Uludag Resort has been developed and managed by numerous separate parties over the past forty years. The result of separate-party development and operation is a resort which can not provide a high-quality, international destination resort experience. Marketing and promotion of Uludag Resort has historically been accomplished by individual hotel owners; hence, many guests experience a single hotel and its private lift network and facilities, rather than a unified destination resort. The resort base area suffers from a poor sense of resort arrival, congested pedestrian and vehicular traffic, and a lack of regulations which guide signage, landscaping, and erosion control/environmental protection. This situation restricts Uludag Resort from capitalizing on its unique setting in the mountains. The on-mountain experience also does not meet guests' expectations for a world-class destination resort. Lifts are relatively old and many are congested due to their locations on the mountain, guests are required to have multiple tickets to utilize the resort lifts, and, signage, grooming, and lift and trail development are inconsistent throughout the resort (SNO Engineering Inc., 1998).

First opened in 1950s, the resort and its lifts and trails have been developed over the past four decades by industrious businessmen who own the hotels at the resort. At present, all of the lifts are owned by specific hotel owners who sell tickets to their own lifts. The result of this approach is a resort at which guests must purchase numerous tickets in order to have access to the entire resort's skiing facilities. This is not an optimal situation.

Uludag 1st Development Area with 4104 bed capacity is an important attraction centre in terms of winter tourism. 14 mechanical facilities, 9 chair lift, 5 teleski meet touristic demand both national and international scale. In addition, Uludag 2nd Development Area with 324 beds capacity was opened. But 10 accommodations with 2724 beds capacity hav not finished yet even they had received investment certificate. If those accommodations begin to work, than region will arrive total 6807 beds capacity and so it can be a winter tourism centre that may serve to 20 thousand tourist.

4.3. Structure of Tourıstıc Demand in Uludag

Systematic data about the characteristics of the touristic demand toward Uludag as a touristic destination and about the causes of this preference hav not obtained. However, data about the magnitude of touristic demand to Uludag are shown in Table 2;

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Table 2. **Variables**

YEARS	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5 (1)	VAR 6 (2)
1990	46821.00	3699.000	7076.000	3.000	122900.000	200970.000
1991	42570.00	3759.000	6750.000	3.000	192450.000	353400.000
1992	49960.00	3759.000	7103.000	5.000	321100.000	584000.000
1993	45224.00	3759.000	6679.000	8.000	498450.000	982400.000
1994	12986.00	3759.000	6679.000	8.000	1243000.00	2618000.00
1995	41960.00	3759.000	5951.000	12.000	1842900.00	3961000.00
1996	17877.00	4104.000	6009.000	16.000	3762100.00	7311000.00
1997	140079.0	4104.000	6031.000	18.000	6798725.00	13933500.0
1998	104785.0	4104.000	6238.000	23.000	10027100.0	21431900.0
1999	64408.00	4104.000	6148.000	27.000	21719000.0	36800000.0
2000	85232.00	4104.000	5987.000 (*)	29.000	27023650.0	47440000.0
2001	83367.00 (*)	4104.000	5787.000 (*)	32.000	54070000.0	101409300.

(*) Value predicted through linear regression
(1) Rated prices of 2001, it is made reel by using TEFE (1987=100) rates
(2) In 2001 70 $ consumption per tourist was assumed, values of other years were calculated according to T.C.M.B rates of exchange at the end of each year.

Variables in data set;
VAR 1 = Size of touristic demand to Uludag (dependent variable)
VAR 2 = Number of certificated beds of accommodations in Uludag
VAR 3 = Number of certificated beds of accommodations in Bursa
VAR 4 = Number of A Group Travel agency
VAR 5 = Dwelling price of one night full pension of accommodations in Uludag
VAR 6 = Average consumption of one tourist per one day

Necessary data set based on time series in order to make prediction for long term could not formed, since it is impossible to determine many independent variables as seasonal (month, season, year) which effect the touristic demand to Uludag. Hence developed dynamic models (multiple-variable ARIMA models, Auto Regressive Models, etc) based on time series can not be applied. For this reason, investigation of added value which would be created by quantitative magnitude of touristic demand that can be realised depending on present size of touristic demand is considered as better approach than a tourism planning that includes all region.

A study conducted with a dynamic modelling technic requires a large data set including many factors such as social, economic and cultural structures of the places where the tourists come from; their behaviours in the places where they come with touristic purpose; their consumption; quality and quantity of import commodities used in tourism sector and exported touristic products. Whereas many data considered as effective on tourism sector (consumption forms of tourist who came to the district/region, import commodities used in tourism sector, tourism incomes based on income of each city, etc.) could not be obtained, thus a data set could not be established for performing a dynamic modelling.

By considering all those limiting factors, it is much more significant to make predictions and forecasts by using linear regression models established for searching

purpose. But there are some problems with common regression models used in tourism investigations as demonstrated by Pyo, Uysal and Mc Lellan (Pyo, Uysal & Mc Lellan, 1991). These problems can be summed as follows;

1. Generally determined factors considered as unimportant
2. Determination of explaining variables orientated to prediction purposes may be difficult
3. Agreement of variables may change
4. At the long term, factors considered insignificant or uneconomic may be very significant as hoccures in many models.
5. It gives always statistical conclusions

In spite of this problems, it is possible to carry out statistical measurement of truth and significance in order to make " .....or.... if" prediction about cause-effect assumption (Calantone, Benedetto & Bojanic, 1988).

In the following model, Touristic demand oriented to Uludag (VAR 1) is dependent variable, whilst Number of Beds in Uludag (VAR 2), Average Bed Prices of Accommodations in Uludag (VAR 5), Number of beds certificated by Ministry of Tourism in relevant city (Bursa) (VAR 3); Active A group certificated travel agencies in Bursa (VAR 4), average daily consumption of tourist (VAR 6) are independent variables.

$$U_{VAR1} = f (VAR 2, VAR 3, VAR 4, VAR 5, VAR 6)$$

Extend of explanation power of independent variable/variables on dependent variables is unknown in created model. Also relation between independent and dependent variables regarding explanation were uncertain. Regression analysis in which independent variables are inserted to the model as groups, are examined in order to determine this.

1. Following model was created and examined by supposing that the independent variable, Number of Beds in the Uludag (VAR 2) can explain independent variable (VAR 1) alone.

$$U_{VAR1} = \alpha + \beta_1 (VAR 2)$$

2. Following model was created and examined by supposing that the independent variables, Number of Beds in the Uludag (VAR 2) and average Bed Price (VAR 5) can explain independent variable (VAR 1).

$$U_{VAR1} = \alpha + \beta_1 (VAR 2) + \beta_2 (VAR 5)$$

3. Following model was created and examined by supposing that the independent variables, Number of Beds which were certificated by Ministry of Tourism in the Bursa (VAR 3) and The number of A Group Travel Agency (VAR 4) can explain independent variable (VAR 1).

$$U_{VAR1} = \alpha + \beta_1 (VAR\ 2) + \beta_2 (VAR\ 3) + \beta_3 (VAR\ 4)$$

4. Following model was created and examined by supposing that the independent variables, Number of Beds in the Uludag (VAR 2) and the number of active A Group Travel Agency (VAR 4) in Bursa can explain independent variable (VAR 1).

$$U_{VAR1} = \alpha + \beta_1 (VAR\ 2) + \beta_2 (VAR\ 4)$$

Created models were analysed according to "Linear Regression Analysis" models. Statistica package statistic programs was used in the analysis.

Linear regression analysis were carried out at 95 % reliability level (p level=0.05). As conclusion, R^2 values which show the explained portion of the fact and $Ř^2$ values (corrected regression coefficient) which express explanation rate of the values anticipated by model, were calculated. In addition, F test which shows significance of regression in variance analysis used to control regression equation. If F division of F value is bigger than the values of the table, regression equation considered significant.

Also (p level) expressing reliability limits of regression equation and independent variables of the equations is another important indication for the significance of model. P level must be ≤ 0.05 in a regression equation or in variable parameter that may be significant in % 95 reliability limit. Similarly, (t) value of model parameters should be 2 or higher ($-2 \leq t \geq 2$) whilst reliability level of parameters is expected as p level ≤ 0.05.

Durbin Watson (d) coefficient must be expected as close to 2. If this coefficient is between 0-2 than it shows that a positive auto correlation is present between series, whilst coefficient between 2-4 expresses negative auto correlation. Very close values to 2 indicates that there is no auto correlation (interaction between the observation values of the series) between series.

High explanational reliability rate are not expected from the created linear models since they contains very limited numbers of independent variables considered as explanatory for touristic demand.

That the prediction values were closest values to the realised values and statistical significance tests conclusion of created models determined the model preference. But, lest reliability level of model might decrease because of the increasing number of variables exerted to model (statistically reliability of model may decrease by increasing degree of freedom) (Makridakis, Wheel& Hyndman, 1998), testing of the model required to determine most usable model. For this purpose some model evaluation criterions were used.

Model evaluation criterions of econometric analysis are based on the Summing of the residual square and evaluation of the observation number through parameter

number included in model principle. Model evaluation criterions developed by Sihibata (1981) are those (Sevüktekin, 1994), (Makridakis, Wheel& Hynman, 1998) (Montgomery, Jhonson & Gardiner, 1990), excluding "Finite prediction Error" (FPE) and Akaike information criterion (AIC) developed by Akaike (1970, 1974).

$$AIC = (\frac{ESS}{T}) \, e^{(2k/T)} \qquad\qquad RICE = (\frac{ESS}{T}) \, [1 - \frac{2k}{T}]^{-1}$$

$$FPE = (\frac{ESS}{T}) \, (\frac{T+k}{T-k}) \qquad\qquad SHIBATA = (\frac{ESS}{T}) \, (\frac{T+2k}{T})$$

where;

ESS	= Sum of residuals square
T	= Number of observation
k	= Number of parameters at the model
e	= Constant

Values obtained by application of these model evaluation criterions, provides possibility to compare models. It is known that the model by which minimum values are obtained is econometrically better than other models.

After choosing the most proper models that are most proper for model evaluation criterions and that statistically stay at the limits of significance, prediction value (values of 1990 to 2001) of tourist number (VAR 1) were forecasted in the "Time Series and Forecasting' analysis part of Statistica Package Program. "Exponential Smoothing Forecast" was used as forecasting method and (α) value was taken as 0,5. Conducted forecast is not based on auto regressive which depends on time series but on exponential smoothing principle. However, forecasting duration was kept in average term (up to 2010) since it was known that many factors influence tourism sector and it subject to sudden changes. Model which was used for Statistical investigation carried out by Basic Exponential Smoothing Model using Model prediction values and progressive forecast is as follows;

$$\hat{Y}_{T+1} = \alpha \, \hat{Y}_T + \alpha \, \hat{Y}_{T-1} \qquad \text{or in generally;}$$

$$\hat{Y}_{T+1} = \sum_{t=0}^{\infty} \alpha \, \hat{Y}_{T-t}$$

In model, ($\hat{Y}$) expresses model prediction value at (T) time and (a) taken as 0,5. For number (α) expected value should be between 0 and 1, values between 0,5 to 0,8 must be considered as most proper values. ($1 \geq \alpha \geq 0$).

4.3 Model Fındıngs and Conclusıons

Table 3 shows findings obtained by multi regression analysis on a data set consists of variables that are considered explanatory for the touristic demand to Uludag.

Table 3. **Result of Regression Analysis on the Models**

VARIABLES	MODEL 1	MODEL 2	MODEL 3	MODEL 4
Intercept	**-403079**	-391184	-510075	-359793
	(-2.067) *	(-1.50)*	(-0.895)*	(-0.848)*
	(0.065) *	(0.167)**	(0.397)**	(0.418)**
VAR 2	**0.602**	0.586	0.587	0.541
	(2.38) *	(1.70)*	(0.941)*	(0.923)*
	(0.038) *	(0.123)**	(0.374)**	(0.379)**
VAR 3	-	-	0.212	-
			(0.422)*	
			(0.684)**	
VAR 4	-	-	0.203	0.068
			(0.293)*	(0.117)*
			(0.777)**	(0.910)**
VAR 5	-	0.026	-	-
		(0.074)*		
		(0.942)**		
VAR 6	-	-	-	-
R^2	**0.36**	0.36	0.38	0.36
$\check{R}^2$	**0.30**	0.22	0.14	0.22
F	**5.7**	2.56	1.61	2.57
DW	**1.38**	1.39	1.20	1.43
ESS	**-1172740556**	-1091221730	-269190166	-768296079
p level	**0.038**	0.13	0.26	0.13
S.D	**10**	9	8	9
AIC	**-107365599**	63031438	71291736	44378521
FPE	**-136819731**	-151558574	-44865028	-106707789
RICE	**-1759110834**	-2182443460	-67297542	-128049347
SHIBATA	**-130304506**	-136402716	-37387523	-96037010

* (t) value
** (p) confidency level

When statistical significance tests are observed, it is seen that explanation rate of Model 1 is higher then others ($R^2 = 0,36$), F value is higher than that of table, regression reliability values (p level) are higher than 95%. When we observe the reliability levels of parameter again, it is seen that only reliability parameters (p level) of Model 1 are lower than 0.05 and (t) value is higher than 2. When it is examined regarding Model evaluation criterion, all criterions are minimum in Model 4 excluding AIC value. But it is difficult to say that this model is useful since its own reliability level and reliability level of model parameters are low. Hence, by using available data, Model 1 was determined as a model that could explain touristic demand toward

Uludag. According to this model regression equation explaining touristic demand to Uludag is as follows;

$$U_{VAR1} = -403079 + 0.602 \text{ (VAR 2)}$$
$$(-2.067) \qquad (2.38)$$
$$R^2 = 0.36, \ \check{R}^2 = 0.30, \ F = 5.7, \ p \text{ level} = 0.038, \ DW = 1.38$$

As a conclusion of this expression; by adding 1 bed to the accommodations in Uludag it is possible to obtain 0,6 increase at the number of tourist (t= 2.38). Hence to increase the bed capacity of uludag will effect touristic demand positively.

In Table 4 and 5, progressive forecast is carried out by simple exponential smoothing method on prediction values which were calculated by applying chosen regression model and realised value of "Tourist number" (VAR 1) which is a dependent variable in the equations created to measure causal relation about the touristic demand to Uludag, is shown. Table 4 and Figure 1 shows progressive forecasts carried out by exponential trend. Table 5 and Figure 2 shows progressive forecasts carried out by linear trend.

Table 4. **Estimated Values for Touristic Demand According to Exponential Trend**

Years	Model Foresight Values (Model 2)	Smoothed Values	Estimated Values
1990	34368.00	37749.6	
1991	41464.00	43309.1	
1992	41464.00	50800.6	
1993	41464.00	54781.9	
1994	41464.00	56451.1	
1995	41464.00	56667.9	
1996	82263.00	56031.4	
1997	82263.00	80811.8	
1998	82263.00	95377.7	
1999	82263.00	103182.6	
2000	82263.00	106624.1	
2001	82263.00	107362.2	
2002			106522
2003			119677
2004			134457
2005			151062
2006			169718
2007			190678
2008			214227
2009			240684
2010			270408

Exp. smoothing: S0=313E2 T0=1.206 **Expon.trend**, no season; Alpha=.500 Gamma=.100

Figure 1. **Forecasting for Touristic Demand According to Exponential Regression Model 2**
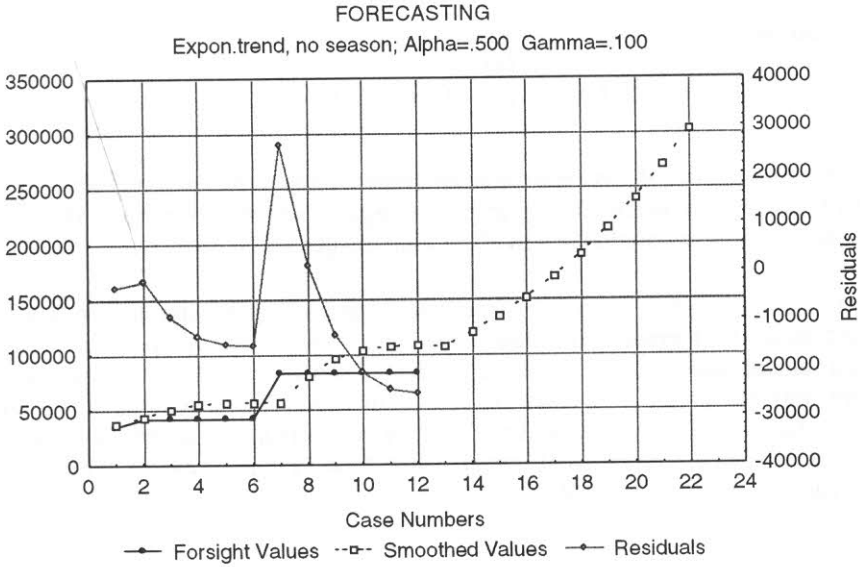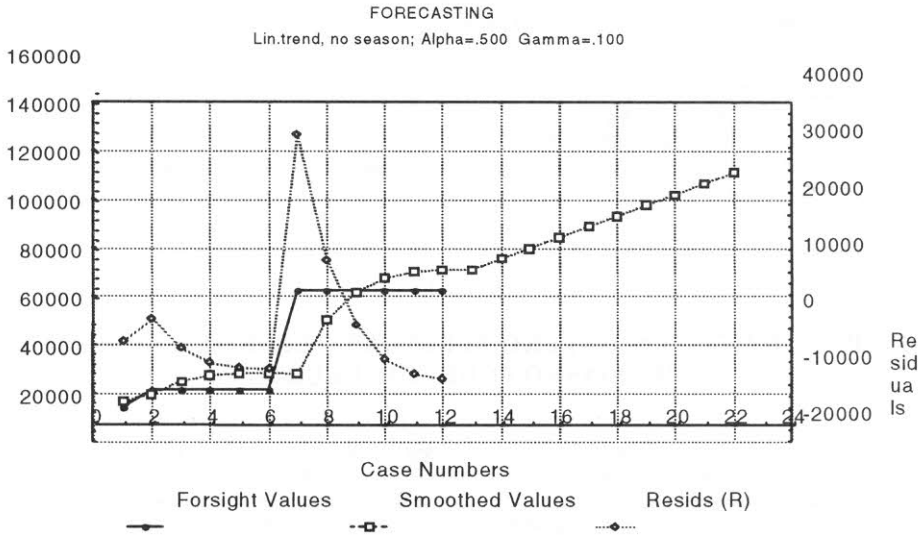

FORECASTING
Expon.trend, no season; Alpha=.500 Gamma=.100

Table 5. **Estimated Values for Touristic Demand According to Lineer Trend**

Years	Model Foresight Values (Model 2)	Smoothed Values	Estimated Values
1990	34368.00	36545.0	
1991	41464.00	39701.8	
1992	41464.00	44916.2	
1993	41464.00	47350.9	
1994	41464.00	48273.8	
1995	41464.00	48394.8	
1996	82263.00	48108.8	
1997	82263.00	70073.0	
1998	82263.00	81664.6	
1999	82263.00	87490.3	
2000	82263.00	90141.8	
2001	82263.00	91073.6	
2002			91099
2003			95530
2004			99960
2005			104391
2006			108822
2007			113252
2008			117683
2009			122114
2010			126544

Exp. smoothing: S0=322E2 T0=4354 Lin.trend, no season; Alpha=.500 Gamma=.100

Figure 2. **Forecasting for Touristic Demand According to Lineer Regression Model 2**

FORECASTING
Lin.trend, no season; Alpha=.500 Gamma=.100

Case Numbers

Forsight Values   Smoothed Values   Resids (R)

When Table 4,5 and Figure 1 and 3 are examined by exponential trend of touristic demand and in progressive forecasts (Table 4- Figure 1) it is seen that considerable intense touristic demand will occur. Accordingly, by supposing that the touristic demand to Uludag will be 270 000 person in 2010, the eco system which is very sensitive would deteriorate. Hence, development is assumed as linear and tourism demand size should be limited within 126 500 person for 2010. It is important to keep in mind that these forecasts would be influenced by a number of independent variables occurring in tourism sector and some differences can happen. In addition, it is not necessary to increase the number of presents touristic accommodations and bed capacity at the high rate, since existing touristic accomodations can meet touristic demands up to 2010. By limiting new constructions, deterioration of flora may be prevented. But it is inescapable to make regulations on infrastructure facilities. For this purpose development predictions of "Uludag Master Plan", prepared in 1998, can be accepted (SNO Engineering Inc., 1998).

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Sažetak

ISPITIVANJE MOGUĆNOSTI EKO TURIZMA U TURSKOJ, NA PRIMJERU: PLANINSKO PODRUČJE ULUDAG

Već od 1980 godine istražuju se mogućnosti alternativnog turizma (ekoturizam) u svezi sa procjenom raspoloživih prirodnih potencijala u planinskom području Uludag. Međutim, zbog velikog broja faktora ovi napori nisu dali željene rezultate. Cilj ove studije je ispitivanje mogućnosti eko-turizma na bazi raspoloživih turističkih potencijala visoravni Planinskog područja Uludag. Dobiveni podaci ispitani su pomoću metoda statističke analize u postavljenom modelu te je izvršena i ekonometrijska analiza.

U ovom radu prikazani su nalazi koji se odnose na područje istraživanja, a koji ovise o turističkoj ponudi i potražnji, te su date i interpretacije vizualnih i brojčanih podataka na temelju terenskog istraživanja.

Nadalje u radu su navedeni prijedlozi načina razvijanja turizma koji je specifičan za ovo područje unutar konteksta održivosti, te povećanja pozitivnih efekata na urbani i regionalni razvoj.

Ključne riječi: eko-turizam, održivost, planinsko područje Uludag, analiza regresije, ekonometrijska analiza.

Zusammenfassung

DIE UNTERSUCHUNG DER MÖGLICHKEITEN IN DER TÜRKEI, AM BEISPIEL: BERGGEBIET ULUDAG

Schon seit 1980 werden die Möglichkeit des alternativen Tourismus (Ökotourismus) bezüglich der gegebenen Naturpotentiale in dem Berggebiet Uludag erforscht. Jedoch, wegen großer Faktorenanzahl haben diese Bemühungen nicht die erwünschten Resultate gegeben. Das Ziel dieser Studie ist die Möglichkeiten des Ökotourismus auf Grund bestehender touristischen Potentiale der Hochebene von Berggebiet Uludag zu erforschen. Die erhaltenen Angaben wurden mit Hilfe der statistischen Analysemethoden im gestellten Model untersucht und auch die ökonometrische Analyse wurde durchgeführt.

In dieser Arbeit wurden die Untersuchungsergebnisse, welche sich auf das Untersuchsgebiet beziehen und von dem touristischem Angebot und der Nachfrage abhängen dargestellt. Ebenfalls sind die Interpretationen der Angaben, welche in den Gebietserforschungen erhalten sind, sowohl visuell als auch zahlenmäßig gegeben.

Weiters in der Arbeit sind die Vorschläge für die Entwicklung des Tourismus, welcher spezifisch für dieses Gebiet im Kontext der Aufrechterhaltung ist, aufgeführt. Es ist auch die Vergrößerung positiver Effekte auf die urbane und regionale Entwicklung gegeben.

Schlüßelwörter: Ökotourismus, Aufrechterhaltung, Berggebiet Uludag, Regressionanalyse, ökonometrische Analyse.