

# **The Economic, Social, and Environmental Determinants of Tourism Revenue in Turkey: Some Policy Implications**

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**Abstract.** This research note identifies and determines the relative weights of the economic, social and environmental determinants of tourism revenue at two popular tourism destinations in Turkey, produces revenue-enhancing policy recommendations and formulates a condition under which tourism is a luxury good.

**Key Words:** Tourism; Revenue; Economic, social and environmental determinants.

**Jel Codes:** D12, M21.

## **1. Introduction**

The tourism sector in Turkey has been the key subject of a number of interesting works in the literature. Among the works in question are Akış (1998), Alipour (1996), Baum and Mudambi (1996), Mudambi and Baum (1997), Seckelmann (2002), Tatoglu, Erdal, Ozgur, Azaklı (2002), Tosun (1996, 1999, 2001), Uysal and Crompton (1984) and Yuksel, Bramwell and Yuksel (1999). The issues covered by these works range from “determinants of demand for international tourist flows” to “sustainable tourism development in Turkey.” As vast as the literature on the potential, problems and prospects of Turkish tourism sector may be, it still leaves room for a formulation of a policy-oriented, unified framework exploring multiple economic, social and environmental dimensions of the sector. In this research note, we will take a preliminary step toward formulating certain aspects of such a framework, which will enable us to identify and quantify multiple determinants of tourism revenue. The analysis we undertake yields

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tourism revenue-increasing policy recommendations. It will also clarify the relationship between substitutability/complementarity among different tourism destinations and the luxury nature of the service supplied by the sector.

For empirical analysis, we will select two resort towns, namely Didim and Kuşadası, which are located on the Western coast of Turkey. The towns in question are among the most popular and attractive tourist destinations in Turkey for a number of reasons including their natural parks, climate, beaches, and their proximity to well-known ancient historic cities, sites and one of the centers of Christian pilgrimage (the House of Virgin Mary near Ephesus). The volume of tourism revenue at destinations of the kind, exemplified by Didim and Kuşadası, are likely to be influenced by some broadly-defined factors such as (1) the quality of natural/physical environment, which is measured by such factors as natural beauty and resources, historical heritage, quality of facilities etc. (2) the quality of social environment, which depends on factors such as awareness/recognition and understanding of different people and cultures by the residents, varieties of cultural facilities and activities in the community, the variety of entertainment in the area, positive attitudes of local residents toward tourists, community spirit among local residents, the dynamism and liveliness of the community, etc. (3) the level of economic development at the destination, which is measured by a number of factors including, the standard of living, the number of jobs (or the level of employment) in the community, the variety of economic facilities in the area (4) the prices of goods, services and accommodation (or the prices of vacation packages) at the destination. The following section will theorize about tourism revenue based on these factors.<sup>1</sup>

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<sup>1</sup> Tourism revenue would also depend on the prices of vacation packages at different (alternative) destinations and on the average income of tourists, which could be represented by the average household's income in the tourist-generating countries. However, in the context of our discussion, the exclusion of these factors from the analysis would not significantly affect the results for the following reasons: first, depending on whether alternative destinations are complements to, or substitutes for, Didim-Kuşadası, the cross-price effects on tourism revenue could be positive or negative, canceling, in part, each other out, and hence reducing the net effect on tourism revenue. Second, the average income of households in Germany, which was the main tourist-generating country for Didim-Kuşadası, did not change significantly during the sample period. Hence income factor could not have explained the fluctuations in tourism revenue in the period in question.

## 2. The Model and Implications

We will assume that the dependence of tourism revenue ( $TR$ ) on the quality of physical environment ( $E_p$ ), the quality of social (human) environment ( $E_h$ ), the level of economic development ( $D$ ) and the prices of vacation packages ( $P_c$ ) takes the following form:

$$\ln TR = \beta_0 + \beta_1 \ln E_p + \beta_2 \ln E_h + \beta_3 \ln P_c + \beta_4 \ln D + u$$

where  $u$  is the disturbance term. The price of the vacation package as a composite good is:  $P_c = \frac{1}{4}$  price of goods and services +  $\frac{3}{4}$  price of housing. The weights in the price equation represent the approximate shares of goods-services and housing in tourist expenditures.

The data on  $TR$ ,  $E_p$ ,  $E_h$  and  $P_c$  and  $D$  are based on a sample of 800 observations relating to the Didim-Kuşadası area. The details concerning data collection, sample selection and measures of variables are provided in Appendix 3. The regression results are as follows:

$$\begin{aligned} \ln TR = & -2.529 + 0.212 \ln E_p + 0.04644 \ln E_h - 0.04416 \ln P_c + 1.125 \ln D + u \\ & (-9.848) \quad (2.530) \quad (0.531) \quad (-0.641) \quad (14.180) \end{aligned}$$

$R^2 = 0.529$ . t-statistics are given in parentheses.

The values of the coefficients in the regression equation imply that the tourism revenue in Didim-Kuşadası depends positively on the quality of physical environment, the quality of social (human) environment and the level of economic development, and negatively on the prices of vacation packages. The direct and indirect implications of the values of these coefficients are as follows:

**Implication 1: Tourism elasticities as general indicators for tourism revenue-increasing policies:** Considering that in the log-linear specification of a regression equation, coefficients represent the elasticities of the dependent variable (in this case,  $TR$ ) with respect to independent variables (in this case,  $E_p$ ,  $E_h$  and  $P_c$ , and  $D$ ), we have the following elasticities:

1. *Physical environment elasticity of tourism revenue* =  $\beta_1 = 0.212$ , implying that a 1% increase in the quality of physical environment leads to a 0.212 % increase in tourism revenue.
2. *Social (human) environment elasticity of tourism revenue* =  $\beta_2 = 0.046$ , implying that a 1% increase in the quality of social environment leads to a 0.046 % increase in tourism revenue.
3. *Price elasticity of tourism revenue* =  $\beta_3 = -0.044$ , implying that a 1% increase in the prices of the vacation packages leads to a 0.044 % decrease in tourism revenue.
4. *Development elasticity of tourism revenue* =  $\beta_4 = 1.125$ , implying that a 1% increase in the level of economic development leads to a 1.125 % increase in tourism revenue.

The general managerial implication for private and public authorities is that they should encourage efforts to improve the quality of physical and social environment, support or implement policies stimulating economic development, but discourage price increases. The specific extensions of this general implication are formulated as Implication 2 and Implication 3 below.

**Implication 2: Tourism revenue-increasing price reductions: Tourism as a price-elastic good.** As shown in Appendix 1, the negative relationship between the tourism revenue in Didim-Kuşadası and the prices of vacation packages implies that the demand for tourism in Didim-Kuşadası is price-elastic. The value found in Appendix 1 is  $-1.044$ , indicating that a 1% increase in the prices of the vacation packages would lead to a more than 1% (1.044 %) decrease in the tourism demand. Alternatively, a 1% decrease in the prices of vacation packages would lead to a more than 1 % increase in the tourism demand. Thus, price reductions would generate more than proportional increases in the tourism demand, leading to an increase in the tourism revenue in Didim-Kuşadası. Hence, managerial discretion should be used for price reductions rather than price increases.

**Implication 3: A tourism revenue-increasing state tax:** In the context of our framework, the effect of a state tax on the vacation packages would have two revenue-affecting components. On the one hand, a state tax imposed on the vacation packages would increase the prices of the vacation packages, which would decrease the tourism revenue in Didim-Kuşadası (the revenue-decreasing component). On the other hand, however, the collected tax used for the purpose of improving the physical/social environment or for the purpose of stimulating economic development would increase the tourism revenue (the revenue-increasing component). The overall effect of a state tax on the tourism revenue in Didim-Kuşadası would depend on the relative weights of these two components. If the revenue-increasing component would outweigh the revenue-decreasing component, the overall effect would be positive.

**Implication 4: Tourism as a luxury good:** Policies designed to enhance tourism revenue should, in general, take into account whether tourism is a luxury or a necessity.<sup>2</sup> Luxuries are more sensitive to income fluctuations than necessities. Accordingly, revenues of luxury goods are more sensitive to such fluctuations than those of necessities. Thus, for forecasting purposes, it would be important to determine the conditions under which tourism at a destination is a luxury or a necessity. As shown in Appendix 2, the conditions in question turn out to be related to the relative weights of the effects of complementary and substitute destinations on the tourism demand in Didim-Kuşadası. Though the model above excludes the analysis of such effects, Appendix 2 will revise the model so as to take them into account. The condition formulated in Appendix 2 is as follows:

**If the complementarity outweighs the substitutability then tourism in Didim-Kusadası is a luxury good.**

That is to say, if the cross-price effects on the tourism demand in Didim-Kuşadası of complementary goods/destinations outweigh those of substitute goods/destinations, tourism in Didim-Kuşadası turns out to be a luxury good. To understand the implications of this condition properly, a few explanatory remarks on the concepts of complementarity and substitutability among different destinations would be needed. A destination is said to be complementary (or a complement) to Didim-Kuşadası if tourists would want to visit that destination while (or before/after) visiting Didim-Kuşadası. For

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<sup>2</sup> Formally, luxuries are goods whose income elasticities of demand are greater than one, and necessities are goods whose income elasticity of demand are less than one.

instance, tourists may want to visit the formerly Christian-populated ancient historic cities in Turkey when they visit the House of Virgin Mary near Ephesus. A destination is said to be a substitute for Didim-Kuşadası if tourists would want to visit that destination instead of visiting Didim-Kuşadası. Clearly, cross-price effects of complementary goods/destinations on tourism demand in Didim-Kuşadası are positive, and those of substitute goods/destinations are negative. If the former outweigh the latter, as stated in the condition above, tourism is a luxury good. It is a matter of further empirical work to check whether this condition holds in Didim-Kuşadası, and to determine the extent to which the complementarity outweighs the substitutability, which would be of some importance to managers aiming to enhance the tourism demand and the tourism revenue in Didim-Kuşadası.

### **3. Concluding Remarks**

There are roles to be played by both managers of private enterprises and public authorities for an improved performance in the tourism sector. Private enterprise managers should properly estimate the price and income elasticities and take into account the market signals for their products so as to design optimal pricing policies. Depending on the particular managerial objectives, these policies could be of, for example, revenue-maximizing, profit-maximizing or quality-maximizing types. Policies could be of constrained-optimization types as well (such as policies that are designed to maximize revenue or profit subject to a service quality constraint). On the other hand, public authorities could optimally use taxes or subsidies so as to improve the social, economic and environmental infrastructure (or superstructure) of the tourism sector.

## Appendix 1

From the regression equation, we know that

$$\frac{\partial \ln TR}{\partial \ln p} = -0.044$$

$$\frac{\frac{\partial TR}{\partial p_1} \cdot \frac{p_1}{TR}}{\frac{p_1}{p_1 q_1}} = \frac{\partial TR}{\partial p_1} \frac{p_1}{TR} = \frac{\partial(p_1 q_1)}{\partial p_1} \frac{p_1}{p_1 q_1} = (1 \cdot q_1 + \frac{\partial q_1}{\partial p_1} \cdot p_1) \cdot \frac{1}{q_1} = 1 + \frac{\partial q_1}{\partial p_1} \cdot \frac{p_1}{q_1} = -0.044$$

$$\frac{\partial q_1}{\partial p_1} \cdot \frac{p_1}{q_1} = -0.044 - 1 = -1.044$$

$$\epsilon_p = -1.044 \Rightarrow$$

$$|\epsilon_p| = 1.044$$

So tourism demand is elastic.

## Appendix 2:

**Proposition:** If the complementarity outweighs the substitutability, then the Didim-Kuşadası vacation package is a luxury good.

**Proof:** We will prove the proposition for the standard case where demand function is based on prices and income. The proof could very easily be extended, as done in Kara (2000), to non-standard cases inclusive of other social, environmental and economic factors.

Let

$$q_1 = f(p_1, p_2, \dots, p_m, p_{m+1}, \dots, p_n, m)$$

where

$q_1$  = Quantity demanded for a representative vacation package in Didim-Kuşadası

$p_1$  = Price of the Didim-Kuşadası vacation package

$p_2 \dots p_m$  = Prices of complementary goods.

$p_{m+1} \dots p_n$  = Prices of substitute goods.

$m$  = Tourists' income

The following symbols represent the price and income elasticities:

$\epsilon_{p_i}$  = the elasticity of the Didim - Kuşadavacation package with respect to the price of good  $i$ ,  $i = 1, \dots, n$

$\epsilon_m$  = the elasticity of the Didim - Kuşadavacation package with respect to tourists' income

By the property of demand function via Euler's theorem, we get

$$\sum_{i=1}^n \epsilon_{p_i} + \epsilon_m = 0$$

$$\epsilon_{p_1} + \sum_{i=2}^m \epsilon_{p_i} + \sum_{i=m+1}^n \epsilon_{p_i} + \epsilon_m = 0$$

$$\epsilon_m = -\epsilon_{p_1} - \sum_{i=2}^m \epsilon_{p_i} - \sum_{i=m+1}^n \epsilon_{p_i}$$

$$\epsilon_m = -(-1.044) + \left( -\sum_{i=2}^m \epsilon_{p_i} - \sum_{i=m+1}^n \epsilon_{p_i} \right)$$

$$\epsilon_m = 1.044 + \left( -\sum_{i=2}^m \epsilon_{p_i} - \sum_{i=m+1}^n \epsilon_{p_i} \right)$$

By the property of complementarity

$$\sum_{i=2}^m \epsilon_{p_i} < 0$$

By the property of substitutability

$$\sum_{i=m+1}^n \epsilon_{p_i} > 0$$

Thus if complementarity outweighs substitutability

$$\text{i.e. If } \left| \sum_{i=2}^m \epsilon_{p_i} \right| > \left| \sum_{i=m+1}^n \epsilon_{p_i} \right|$$

$$\text{Then } \left( - \sum_{i=2}^m \epsilon_{p_i} - \sum_{l=m+1}^n \epsilon_{p_l} \right) > 0$$

$$\text{Thus } \epsilon_m > 1$$

Hence the Didim-Kuşadası vacation package (and hence, tourism in Didim-Kuşadası) is a luxury good provided that complementarity outweighs substitutability in the eyes of tourists.

### **Appendix 3: Methodology**

#### **Sample Selection and Data Collection**

This study was conducted in two neighboring tourist communities, Kuşadası and Didim, located on the Western Turkish coastline. The city of Kuşadası has a permanent population of around 37,000 people, while Didim has 21,000 as of 1997. A sample of 800 subjects was randomly drawn from local electoral rolls of both cities. As of 1998, there exist a total of 41,845 registered electorates. All adult members of the visited addresses were approached. Trained interviewers gathered data during a three-week period

in January 2000. A total of 534 respondents completed the survey, with a response rate of 66.8%. The sample appears to represent relatively well the population in terms of the demographic profile of respondents. Also, no significant differences were found between the two tourist communities across major demographic characteristics and responses provided to survey questions.

### ***Measures of variables***

Drawing on the perceptions of subjects in Kuşadası and Didim, all the variables used in the study were measured using five-point scales from 1 = large decrease, 2 = moderate decrease, 3 = no change, 4 = moderate increase to 5 = large increase. An additional sixth point was placed as a category for a “don’t know” response.

The dependent variable, which is the revenue generated in the local economy ( $TR$ ), was measured using a single item. Thus, a respondent who believed that there had been a large increase in “the revenue generated in the local economy” caused by tourism may have indicated a score of 5 for this item. The independent variables, which were measured using multi-item scales, include the quality of physical environment ( $E_p$ ), the quality of human environment ( $E_h$ ) and the level of economic development ( $D$ ). Cronbach’s (standardized) reliability alpha values for each scale are 0.69, 0.81 and 0.75, respectively exhibiting a satisfactory level of construct reliability (Nunnally, 1978). The measurement of these variables are based on the following specific scale items [The quality of physical environment was measured by six items (alpha = 0.69)]:

(1) Quality of buildings and city planning, (2) quality of natural environment, (3) opportunities to benefit from activities in the public areas, (4) recreation and sport facilities, (5) level of urbanization, (6) level of traffic congestion in the area. The quality of human environment was measured by ten items (alpha = 0.81): (1) Understanding of different people and cultures, (2) positive attitudes of local residents toward tourists, (3) community spirit among local residents, (4) traditional and moral values of local residents, (5) awareness/recognition of the local culture and heritage, (6) dynamism and liveliness of the community, (7) change in life style, (8) variety of cultural facilities and activities in the community, (9) variety of entertainment in the area, (10) opportunities to learn about other people and cultures. The level of economic development was measured by four items (alpha = 0.75): (1) number of jobs in the community, (2) personal income of residents, (3) standard of living, (4) variety of shopping facilities in the area.

The independent variable, which was measured using single-item measure, is the price of the vacation package ( $P_c$ ), which is based on the prices of goods and services and the price of housing (accommodation).

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