AN ECONOMIC VALUATION OF TOURISM IN SHËNGJINI BEACH USING THE ZONAL TRAVEL COST METHOD

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ABSTRACT

With increasing income and opportunities for entertainment, the demand for tourist visits to the beaches will increase. In addition, the expected warming weather will lead to the extension of the summer touristic season, which ultimately will increase demand for touristic activities. On the other hand, coastal erosion and sea level rise will affect the quality of beaches. The impact of these events on tourist visits in the country depends on the level of destruction of the area and the availability of substitute areas for tourism in Albania or in the region. Studies predict that the coastal area of Albania will be seriously affected by climate change, and the beaches of Shëngjini and Tale on the northern coastal area of Albania will be partially destroyed in 2080. This paper will offer a calculation of tourism values in Shëngjini beach using a zonal travel cost method. This method of environmental valuation is based on choices of individuals to spend their holidays in a given area, compared to the possibility to choose another area, or to do other activities such as going to work. In addition, travel cost method is the most used in the literature to assess the benefits of coastal tourist areas. The result of the assessment will be the compilation of a demand curve for tourism in Shëngjini beach. Knowing this value will give a strong support to all projects or activities undertaken by public authorities for the protection and further development of the area in the future.

Keywords: *environmental valuation, touristic values, travel cost method, coastal areas, Albania*
JEL Classification: *Q54, Q570, Q260*

1. Introduction

The environment contributes to several economic sectors through the services and functions it provides. The functions of the ecosystem are categorized by De Groot (1994) into four categories: Regulation functions, which are related to the ability of natural ecosystem to regulate the main ecological processes; Carrier functions, which contribute to the development of some main economic and human activities, such as agriculture, tourism, etc.; Production functions, which are related to the ability of the ecosystem to produce several goods, including food, raw materials, energy products and genetic materials; and Information functions, by which the environment contribute to the mental health of individuals by offering them the opportunity for recreation through its aesthetic values (de Groot, 1994).
The focus of this paper are the tourism values created by the environment. A particular setting has been chosen for this purpose. With increasing income and opportunities for entertainment, the demand for tourist visits to the beaches is expected to increase. In addition, the expected

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warming weather will lead to the extension of the summer touristic season, which ultimately will increase demand for touristic activities. On the other hand, coastal erosion and sea level rise seriously affects the quality of beaches. Studies (Laçi, S., 2009; Laçi, S., Muçaj L. 2010, MoEWFA& UNDP, 2013) predict that the coastal area of Albania will be seriously affected by climate change, and the beaches of Shëngjin's end's Tale on the northern coastal area of Albania will be partially destroyed in 2080.
This paper will offer a calculation of tourism values in Shëngjini beach using a zonal travel cost method. The result of the assessment will be the compilation of a demand curve for tourism in Shëngjini beach. This exercise will be preceded by a thorough exploration of environmental assessment methods in general and travel cost method in particular. This method of environmental valuation is based on choices of individuals to spend their holidays in a given area, compared to the possibility to choose another area, or to do other activities such as going to work. In addition, travel cost method is the most used in the literature to assess the benefits of coastal tourist areas. The analysis of results will offer accordingly the main recommendations of the study.

2. Literature review

2.1. Environmental valuation and methods of assessment

Ecosystem valuation is the process by which a monetary value, or non- monetary is assigned to environmental resources or products and/or services provided by those resources, a task rather difficult because of the diversity of such values (ELC, 2007). The process of assessment plays an important role in creating markets for biodiversity conservation and environmental services (TEEB, 2010). The value in the context of an environmental assessment contains some characteristics (TEEB, 2010, ELC, 2007). First, the economic perspective of "value" is focused on the individual. Second, the value is determined by the will of the people to make exchanges. If a person spends money for a good, he has less money for other goods. Thus, environmental values are associated with two very important concepts: *willingness to pay (WTP)* - maximum amount of money that an individual would be willing to give up to have something good (or to avoid something bad); and *willingness to accept compensation (WTC)* - minimum amount of money that an individual would be willing to accept as compensation for giving up something good (or accepting something bad).Researchers have traditionally preferred the use of WTP, because of its conceptual framework: its easier and more trustable to declare how much money an individual is willing to pay rather than how much he would accept for something. However this depends on the context and method of assessment (OECD, 2006).Third, environmental values vary depending on the context of their calculation: local, regional, national, or international. For example, the value of a colony of rare species, which are located in a poor village, normally is expected to be much lower for rural residents, slightly higher nationally and much higher at international level. This distinction is very important, because it is through this quality that foreign donations are justified. Sometimes benefits and environmental costs go beyond the borders of an area or a country. For example, damage caused by pollution emitted by an industry located near a state border, may damage the citizens of the other state as well. Therefore, it is important to carefully select of area and population affected by an environmental consequence.
When it comes to the assessment of environmental benefits, the concept of Total Economic Value (TEV) is commonly used (DEFRA, 2007; TEEB, 2010). TEV is composed of two

components: *use values*, and *non- use values*. Use values are usually divided into two categories:*direct use values*, defined as the benefits associated with the direct use of ecosystem services, such as the consumption of goods or simply enjoying the natural aesthetic sights; and *indirect use values*, usually associated with regulatory services, such as improvement of air quality and prevention of erosion, which can be seen as public services that are not reflected in market transactions. Non- use values, also called protection (conservation) values, are related to the responsibility that the natural environment must be maintained. In this case, just the awareness of knowing that the environment is being protected creates an additional value to individuals, although they are not using or do not plan to ever use an environmental service. Often these values are derived from environmental regulatory and information functions. Because of problems of recognizing and quantifying the economic and monetary value of these non-use benefits, they often are not part of national income accounts. Literature usually distinguishes three components of non- use values: existence value, bequest value, and altruism value (Krutilla, 1967, De Groot, 1994, Krutilla and Fisher, 1975).Extending the time frame in which the values are taken into consideration, leads to the possibility of assessing the option for the future use of a specific environmental service (Krutilla and Fisher, 1975). This refers to the "option value".

There are several possible ways to assess the environmental benefits in economic terms. In general terms, methods for environmental assessment can be divided into two categories: *methods which are based directly on the market*, and *methods based on people's behavior* (Bolt et. al, 2005; TEEB, 2010, Garrod and Willis, 1999).

The methods based directly on the market use information from current markets, thereby reflecting preferences or actual costs. They are based on scientific measurements, dividing the process of environmental impact assessment in two parts: first, the impact assessment for environmental change in quantitative terms (e.g., changes in the amount of crops) is conducted; second, the monetary evaluation of these changes is completed. Required data are generally available and easy to obtain. Methods based on the behavior of people calculate the willingness to pay directly from people's reactions to a given environmental change. Two main categories for measuring value in these cases include: revealed preference methods, which analyze the decisions that people make in response to changes in environmental quality, and stated preference methods, which determine the values directly from the survey methods. When the implementation of any of the methods described above is not appropriate or is not possible the literature suggests using the technique of benefit transfer. It uses the results of existing studies and adapt their values to the conditions of the study in question.

Each of the methods described above has its own restrictions. The main limitation associated with each of the methods lies in the fact that its implementation will require a number of assumptions, which leave much room for discussion and possible alternatives. For this reason, the implementation of environmental assessment methods is often associated with the so-called “sensitivity analysis”, which develops the "what if" scenarios for the valuation results by manipulating several independent variables.’

2.2. The travel cost method

The travel cost method (TCM) has evolved over the almost 50 years since Clawson first proposed the model in 1959 (Clawson & Knetsch, 1966). The travel cost method (TCM) has been usually used for the evaluation of non-market goods, especially in geographical areas that are used for recreational purposes, such as parks, beaches, protected areas (Brandli et al, 2014;

Jim and Chen, 2005; del Saz Salazar and Mene´ndez, 2005; Tameko et al, 2011). Such areas, for several reasons, usually do not have a market price and thus alternative means have to be used to calculate their value. TCM assumes that the trip to the tourist area and the touristic area itself are complementary goods. Usually, the touristic area is a good that does not have a price in the market, therefore the market values for the trip to the touristic area serve as a reference for its valuation. Using TCM a researcher can determine a demand curve for visits to the area and assess the consumer surplus, which shows the willingness to pay of those who visit the zone (OECD, 2006; TEEB, 2010; Haaband McConnell, 2002, ecosystem valuation, 2013).

One of the main advantages of the TCM is that it uses actual behavior for conducting the valuation process. Therefore the results of such methods are less controversy and more accepted for decision making and policy planning. On the other hand the valuation of the travel cost has several issues. It includes the calculation of two elements: the monetary cost of tickets of bus or fuel consumption and amortization of the vehicle used for travel and the cost of time spent for traveling. This second one is particularly difficult to access. The concept used for assessing the cost of time is the opportunity cost: if an individual chose to travel he is giving up doing other activities, such as working, which would earn him income. Thus, the demand for travel will increase if the travel time would decrease, despite other monetary costs of travel. A value used for assessing the cost of time is the level of income of the individual.

The starting point (Haaband McConnell, 2002) for compiling a demand curve is the equation of the budget constraint of the individual:

$$\sum_{j=1}^{n} x_{ij} c_{ij} + z_i \leq y_i \qquad \textbf{(1)}$$

where: $x_{ij}$is the number of visits that the individual pays to the area; c_{ij} is the cost of the round trip to the area;$z_i$is the combined basket of goods that an individual purchases, with an average price equal to 1, and $y_{ij}$is his level of income. Then it's assumed that each travel requires t_{ij}units of time. The individuals earn money mainly by working, despite other sources of income they might have. It is supposed that the individual can chose how much he can work[2]. Under such circumstances and supposing that the individual works $h$hours in each period, its time constraint can be shown as:

$$\sum_{j=1}^{n} x_{ij} t_{ij} + h_i = T_i \qquad \textbf{(2)}$$

Where: T is the total amount of time he has. The total amount of disposable income is shown as:

$$y_i = y_i^0 + w_i h_i \qquad \textbf{(3)}$$

Where $w$is his net wage and $y^0$is his fixed income. If we solve equation (2) in relation to the hours of work, and (h) and substitute the value in the budget constraint equation, the later can be written as:

$$\sum_{j=1}^{n} x_{ij} (c_{ij} + w_{ij} t_{ij}) + zi \leq y_i^f \qquad \textbf{(4)}$$

Where $y_i^f = y_i^0 + w_i T_i$ represents the full income that an individual would earn if we worked during the whole time he as at its disposal. The utility function of an individual is shown as $u(x_{ij},...,x_{in},q_1,...q_n,z_i)$, where$q_j$is the quality of a specific areas. If an individual visits more areas and their quality improves, than the utilitylevel would also increase. On the other side, other

[2]This assumption is a strong one, since this is not possible in real world.

aspects of travel, such as time and money spent would decrease the utility. The price of travel can be shown as (from equation 4):

$$p_{ij} = c_{ij} + t_{ij} w_i \qquad \textbf{(5)}$$

Maximization of the utility function, will produce the standard equation of demand:

$$x_{ij} = f_j(p_i, q, y_i^f) \qquad \textbf{(6)}$$

where, $p_i=(p_{i1},...,p_{in})$ is the vector of prices for different touristic areas and $q=(q_1,...q_n)$ is the vector of defining their quality.

This is the easiest conceptual framework of TCM, which assumes that the time of travel can be converted into the cost using the level of wage. TCM can be applied in practice in three different ways (OECD, 2006; ecosystem valuation, 2013). Its easiest application is the zonal TCM (ZTCM), which uses secondary data to gather information on: number of visits to the destination area from different origin areas, demographic information on individuals coming from each origin areas, distance of the round trip travel to the area, cost of travel per km, value of time spent traveling, or the opportunity cost of time (Loomis et al., 2009, duPreezandHosking, 2010). This method does not consider possible marginal changes to the area. The second application of the TCM is the individual TCM (ITCM). In this case the data are gathered through on site surveys conducted with visitors of the area. Through this method is possible to access the travel behavior if potential changes to the area and its quality will happen, and use this information for compiling the utility and demand function. The information gathered from them is similar to the information described before when using ZTCM. The analysis of this data in either case will include a regression analysis, which will find a relation between the number of visits to area with the cost of travel and other demographic factors. The behavior of an average visitor will be predicted through it and after the demand function will be constructed. The most complicated application of the MCU is the random utility approach. The rational of the method is that individuals make exchanges between different areas based on their quality and cost of travel. This method assumes that individuals will chose the area they prefer between all their substitutes, and this choice is the starting point of valuation.

TCM can be used for different purposes which lead to decision making at public and private level. Such decisions would include: changes in the entry fee of a touristic area, destruction of an existing area, construction of a new touristic area, improvement of an existing area, etc.

3. Touristic demand and value of coastal tourism in Shëngjini beach

The following analysis will include the calculation of the value of coastal tourism in Shëngjini beach (Albania). This study has been conducted in 2013 by the author, based on data from a project focused on climate change impacts in the study area[3]. The author has been part of the project team during its implementation. The zonal travel cost method has been used for this purpose. Shëngjini beach is situated in the northern part of Albanian coast and represents the main coastal attraction in that area. Shëngjini beach attracts visitors from nearby areas, as well as visitors from Kosovo and FYROM. No official sources are known for “extended stay” tourists (e.g. families, couples, etc. renting accommodations for a week or more on summer holiday) or

[3]Title of Project: “Identification of adaptation response measures in the Drini-Mati river deltas”, developed by UNDP and MoEFWA.

“day” tourists (families, couples, etc. typically from the nearby region spending only the day at beaches and restaurants, and again returning home at night) in Shëngjini or even Lezha (MoPWTT, 2012). The main touristic facilities include hotels, guest houses, bars and restaurants. The main touristic season in summer, starting from June until September. The number of visitors, including daily visits is between 13000-40000 visits (Laçi, S., 2009; MoPWTT, 2012). Studies (Laçi, S., 2009; Laçi, S., Muçaj L. 2010, MoEFWA& UNDP, 2013) have shown that the beach is seriously affected by coastal erosion, climate change, sea level rise and human activity. These have put much pressure on the beach and its quality affecting the number of tourists visiting the area. These studies have foreseen that if no measures are taken to protect the beach, it will be partially destructed by 2080. On the other hand, projections on tourist flows based on the current number of tourists and other demographic developments show that the area of Shëngjini has a potential for attracting more tourists. The Final Design/ Masterplan Reports by CES calculate about a 14percent increase in Lezha and 33 percent increase in Shëngjini increase over the “year round” population forecasted in 2025 – and does not appear to specifically address the issue of day tourists. This study has forecasted an increase in the number of tourist to 44000 in 2040.
The application of the ZTCM includes several steps and assumption. In the first step the origin areas of visitors have been identified. Figure 1 shows the origin areas using concentric circles. The numbers 1-5 of each area divided by the circles show the distance from Shëngjini, 5 representing longer travels to the area. A combination of public data on the number of visits and origin towns of visitors is used. It is assumed that the average number of visits is 26400 during a year including daily visitors. Most visitors usually come from: Tirana, Kosovo and Macedonia. Public data do not show any detailed division between daily visitors and those who stay longer in the area (1 week or more). Therefore, some assumptions have been made for this purpose. It is assumed that 50% of the number of reported visits are daily visits and 50% are weekly visits; the visitors are coming from areas 1, 2, 3, and 4, while beyond the area 4 (zone 5) there are no more visitors;there is an equal distribution of daily visits between visitors coming from areas 1, 2 and 3. There are no daily visits from the area 4; in relation to weekly visits, the following distribution have been assumed: 10% of visits come from area 2, 40% are from areas 4 and 50% of visits are from area 4.These assumptions have been summarized and detailed in Annex 1.

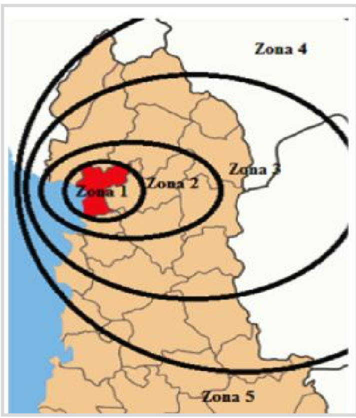

Figure 1: Map of visits to the area
Source: Author

Annex 2 shows a summarized information about the visits and their conversion in the *visitors report*, which is based on the actual number of visits from one area divided by the number of the total population of that area. In this case, weekly visits have been converted to daily visits by multiplying them by the number 8, which represents the average number of days spent in the area for long trips (7 nights and 8 days).

The next step is to complete the calculation of the cost of travel, which includes direct costs associated with travel, as the cost of fuel and depreciation of the travel vehicle, as well as the opportunity cost of time spent in travel and tourism in the area. This calculation is shown in Table 3. The information collected to carry out this evaluation include: the average distance of each zone to Shëngjini and average travel time (round trip) travel; the average cost of travel by car (a low value have been used in this case, in order to make an average assessment taking into consideration also those who may travel by bus or in groups); the average salary in three countries: Albania; Kosovo; Macedonia.

After these calculations the demand curve for visits in the area has been compiled, which will show the relationship between visits and total price (value) of entry into the area. For its construction a regression equation has been used which shows the relationship between the number of visitors rate (calculated in Annex2) with total daily cost / visit (calculated in Annex3). The regression equation is as follows:

VR = 107.229 – 0.006*TC

Where: VR – represents the visitors report; and TC – represents the cost of travel.

Using the data obtained from the regression function and the actual number of visits in the area, you can build the demand curve. The curve will be constructed assuming different entry fees in the area, which are added to the cost of travel. By increasing the entry fee, the number of visitors will be reduced. The change will reflect the reduced demand and increased cost. Area under the curve of demand obtained in this way represents the value of Shëngjini beach. The first item in the demand curve, which represents the actual number of visits to the area in conditions where there is no entry fee, is (26400, 0). Details concerning the demand curve –its different coordinates –are shown in Annex4, while the demand curve itself shown in Figure 2.

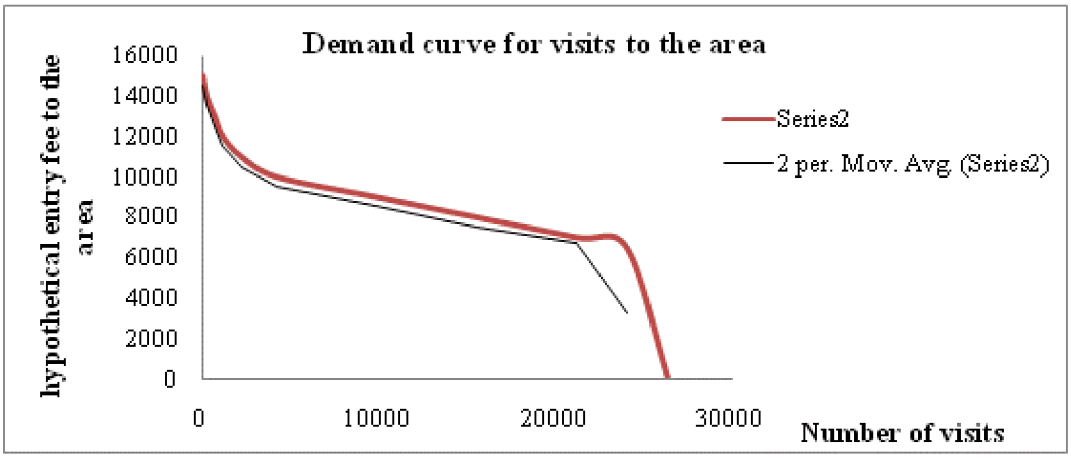

Figure 2: Demand curve for visits to the area
Source: Author

The area under the curve of demand, calculated in Excel, is ALL 219,658,728.93, representing the total value of visits in the area, based on the travel cost method. Converted to Euro, the value obtained is approximately 1,570,000 Euro.

Discussions and conclusions

The analysis performed in the previous session is based on one of the most used environmental assessment methods in the literature: the travel cost method. The evaluation process has shown the value that one of the touristic sites in Albania generates each year. This calculation is based on actual individual choices, which means that it is based on their actual behavior. It is their decision to travel to this area and not to other substitute areas which generates the basis for making this calculation. In terms of the risk of losing the beach quality due to sea level rise by 2080, this amount represents the loss of the converted annual monetary value of this natural resource. In the context of a sensitivity analysis, the value used for daily expenses in a travel can be alternated and changes would occur to the cost of damages to different cases. It is believed that the value calculated here is the lower limit. Also, a national point of view, as noted, these values may not represent loss, since visitors can move to other beaches within the country.
This valuation process can serve as a basis for public sector to justify investment in the area which aim will be the improvement of the quality of the area or further development of the site for touristic reasons, especially in the light of projections on tourist flows shown before. These improvements can even lead to higher values in the future since the number of tourists can significantly rise because of the higher quality of the area. This valuation in this case can serve as a basis for any cost-benefit analysis for future investments in the area.

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Annex 1: Summary of daily and weekly visits to Shëngjini Beach

<table>
<tr><th>Areas</th><th>Description of the area</th><th>Total (No. daily visits)</th><th>Percentage of tourists coming from each area for daily visits</th><th>Number of daily visits from each area</th><th>Total number of weekly visits</th><th>Percentage of tourists coming from each area for weekly visits</th><th>Number of weekly visits from each area</th></tr>
<tr><td>1</td><td>Villages and towns in the district of Lezha</td><td rowspan="3">13200</td><td>33.3%</td><td>4400[4]</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>2</td><td>Kurbini, Miredita, Puka</td><td>33.3%</td><td>4400</td><td rowspan="3">13200</td><td>10%</td><td>1320</td></tr>
<tr><td>3</td><td>Kukës, Tiranë</td><td>33.3%</td><td>4400</td><td>40%</td><td>5280</td></tr>
<tr><td>4</td><td>Dibër, Kosovë, Maqedoni</td><td>0</td><td>0</td><td>0</td><td>50%</td><td>6600</td></tr>
<tr><td>5</td><td>Beyond the above listed areas</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td colspan="2">Total</td><td>0</td><td>100%</td><td>13200</td><td>0</td><td>100%</td><td>13200</td></tr>
</table>

Source: Calculation of the Author

Annex 2: Calculation of the visitors report

[4] 26400/(2*3)

	Total number of daily visits	Number of weekly visits converted in daily visits (weekly visits *8 days)	Total daily visits	Population from each area	Visitors report (Visits/inhabitants)*1000
Area 1	4400	0	4400	77184	57.0066335
Area 2	4400	10560	14960	105968	141.1746942
Area 3	4400	42240	46640	763050	61.1231243
Area 4	0	52800	52800	3909000	13.50729087
Area 5	0	0	0		0

Source: Calculation of the Author

Annex3: Total cost of travel to the area

Area	Average round trip distance from Shëngjini (km) (1)	Direct cost of travel (2)	Average time of travel (min) (3)	Time of weekly travel distributed per day 4)	Average daily time spent in the area (min) (5)	Total time (6) = (4+5)	Average/minimal e wage (7)	Cost of time spent traveling (8) = (7)*(6)	Total daily cost per visit (9) = (2+8)
1	0	0	0	0	480	480.0	3.8	1824.0	1824.0
2	100	2500	96	3.2	480	483.2	3.8	1836.0	4336.0
3	168	4200	132	10.2	480	490.2	3.8	1862.7	6062.7
4	428	10700	378	54	480	534.0	5.35	2856.9	13556.9

Source: Calculation of the Author

Notes:

(1) The average distance is calculated from the center of the area for areas that are within Albania, and from the average distance of some of the main cities of Kosovo (Pristina, Prizren, Peja) and Macedonia (Gostivar, Tetovo, Skopje)

(2) Direct cost of travel is calculated based on technical information on the average consumption in a standard vehicle: the average consumption for vehicles with smaller motorized power than 80-110 Kw is 9 liters per 100 km. The average price of fuel used for the trip is taken 200 lek / liter (including depreciation). The value of consumption per km calculated in this way results 25lek / km, which is considered a low value, considering that similar studies us a value of 0.3 Euro / km. The lower value is used to include in the average of all cases, even for those visitors traveling in groups or for those traveling by public transport.

(4) The weekly travel time spread over days represents the conversion and distribution of time spent on the trip shown in column (3) in each of the days within week because the weekly trips include one round trip in the area and not daily traveling. Calculation of converted time is accomplished by considering the percentage of weekly visits compared to total visits.

(5) The time spent in the area represents the time of one working day converted in minutes, so (8 hours*60 min), time which is actually spent on holiday, reflecting the opportunity cost of labor.

(6) The average salary is derived from the data of the Statistical Institutes in all three countries: Kosovo, Macedonia and Albania in 2013.

Annex 4. Details on coordinates of demand function

Entry fee	0	6500	7000	8000	9000	10000	11000	12000	13000	14000
Number of visitors	26400	24054	21215	15538	9861	4184	2179	1128	665	202

Source: Calculation of the Author