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Research Paper

Recreational Value of Shimla Hills Park Abbottabad, Khyber Pakhtunkhwa, PakistanApplication of Travel Cost Method

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ABSTRACT:- The main aim of conducting this study is to estimate the recreational value or value of recreational benefits of the Shimla Hills Park, Abbottabad in Pakistan. This study examines that how much park visitors are willing to pay to visit the park. Various factors influenced the demand for visitation, include the travel cost, household income, free time, age and the quality of the park. Travel cost method is used to measure the willingness to pay (of the visitors), for which we use primary data collection which included intercept interviews from 200 visitors during summer of 2015. The consumer surplus and the recreational value per visitor were estimated at Rs.1085 and Rs.1115 respectively. The results show a prodigious role in producing valuable economic information for government policymakers to set suitable management policies in maintaining quality of the park.

Keywords:*Economic Valuation, Willingness to Pay, Consumer Surplus, Recreational points, Shimla Hills Park, Abbottabad, Pakistan.*

JEL CLASSIFICATION
Q5, Q51, Q13, D12

I. INTRODUCTION

The detailed studies of economics revolve around two major functions which are, production and consumption methods. Production process of any product utilises natural resources and the system or technique by which a good is produced indicates whether a natural resource is utilised to a maximum level. It is solely the responsibility of humans to properly utilise the natural resources and push back the elements affecting these resources.

Areas such as national parks have become the most vital and forceful tool for protecting the natural environment in developed and developing nation's alike(Iamtrakul et.al, 2005).A query is inquired by the planning and development departments on both the federal and provincial levels, whether public investment for the preservation of natural assets provides sufficient returns (Dehlavi and Hussain, 2011). We can solve this query by adding if the people have willingness to pay for non-monetary term then no one can questioned them about in this regard, in other words we can say that economic activity is not about earnings.

There are two primary sources of funds for park administration and they are the share in the federal and provincial government budgets and the other is generation of revenues from park entrance fairs. The government budget allocated for mainframe of parks tends to be very finite since it must contend with other developmental programs including education, medical management, infrastructure, defence spending along with other miscellaneous affairs in the country (Isangkura, 1998).

Similar to other developing nations, Pakistan is now revitalize its tourism sector, this includes nature tourism to develop and expand the national parks and reserves. Pakistan lies in those nations which have poor in bio-diversity. Pakistan lacks forests and only 5% of its land is covered by forests (Himayatullah Khan, 2006). The recreational points in the country are also very low despite nature being very kind to Pakistan with yet many

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undiscovered resources. Insufficient parks in Pakistan are due to soil erosion, forest fire, illegal encroachment by locals, no proper waste disposal system in parks and least amount of funds allocation to the management of these parks (Isangkura, 1998, Grandstaff and Dixon, 1986; Kaosa-ard et al., 1995). These natural resources can be used to earn considerable amount of foreign exchange.

Like other developing countries, Pakistan is now putting its focus on wildlife and national park to revitalise nature based tourism. There are some national parks in Pakistan but their management is not satisfactory. A billion tree project initiative is also going to help in increasing the tourism sector in Pakistan and specifically in the province of Khyber Pakhtunkhwa.

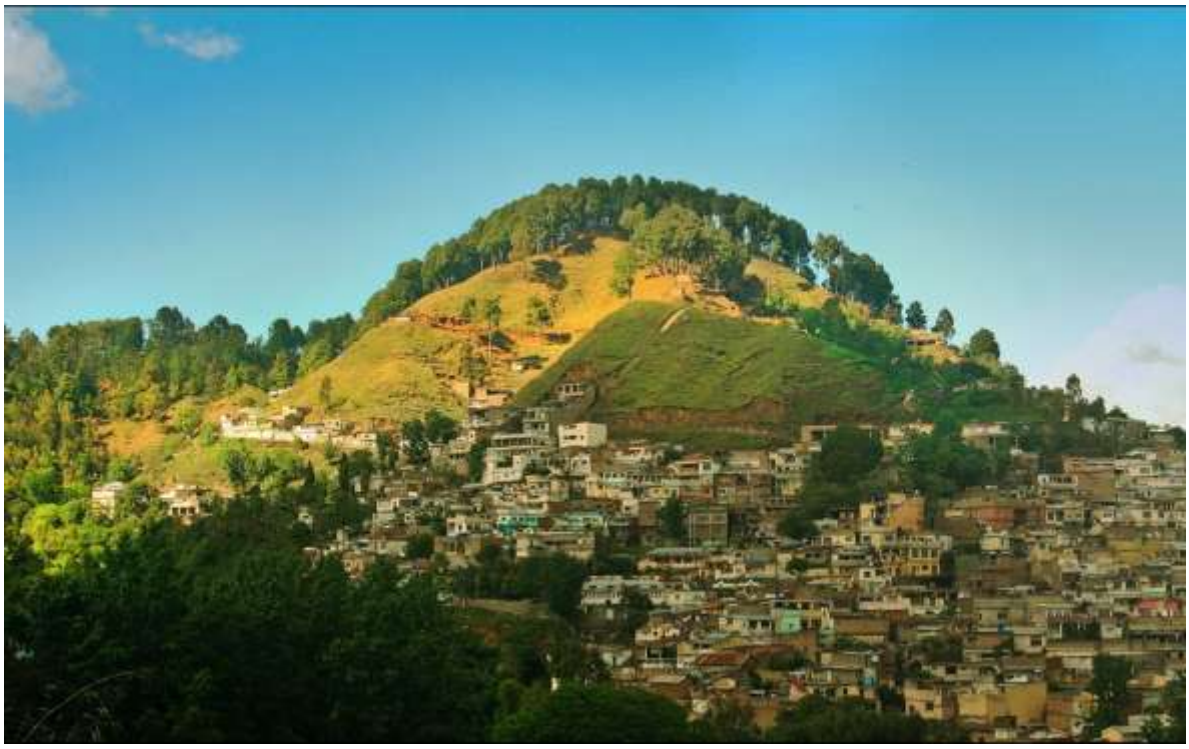
Recreational parks are also source of revenue that can be generated through entry fees and that could be spent on the improvement of the quality of the parks. For Pakistan, need to study how we can manage parks and recreational sites, and these environmental resources can be valued.

National parks benefit a society in many distinct ways. It not onlyperforms ecological functions but also is a source of recreational facilities for those who visit. These parks can help in boosting the foreign exchange through increased tourism. The waste produced in these parks can either be recycled or biomass from these parks can be used for energy production.

The objective of this study is to MEASURE/ANALYSE Recreational Value ofShimla hill, which is an appealing hilly spot in the valley of Abbottabad. Tourists and locals are fascinated by its beauty although it is neglected by management and the government. This park is in the heart of Abbottabad city, which gives the tourists an advantage of visiting it comfortably with least amount of transport issues. A proper café, toilet and other basic facilities can increase the tourists in tremendous numbers, as people can spend a day in woods with their families and get close to the nature while having access to the basic needs and facilities. A minimal amount of parking ticket or minimal entry fee money can be used for maintenance of the Park.

To measure the recreational value of environmental resources and services both Travel Cost Method (Rockel and Kealy, 1991; Guha and Ghosh, 2009; Khan, 2006, Chaudhary and Tewari, 2008; Chopra, 2004) and Contingent Valuation Method (Bowker and Stoll, 1988; Marawila and Thibbotuwawa, 2010; Cook and Cable, 1990, Kadekodi, 2004) have been used. In some studies we have found that both the approaches being used simultaneously for the assessment of the monetary value of the same environmental resources (Navrud and Mungatana, 2004; Herath and Kennedy, 2004; Jabarin and Damhoureyeh, 2006; Chaudhary and Tewari, 2006) but after that Travel Cost (TC) method are widely acknowledged and become most popular that now a day mostly Travel Cost method is being used for any research in the field of environmental economics. But here our focus is on the Travel Cost method. It covers all the aspects such as benefits of public parks, analyze the park user's behavior and travel expenses spend to use public goods, the travel cost method is applied for the assessment of the recreational benefits based on economic value of public park visitation (Iamtrakul, 2005). The major contribution of this study was to know about the value of environmental goods and services without measuring its damages and risk factors.

Shimla Hills Park is positioned in Sherwan range of Abbottabad District, Kyber Pakhtunkhwa Province of Pakistan. It is the paramount for the habitats of the city and interlopers as well, due to its prime location and its closeness to nature people prefer to visit and it also bestows a view of the whole city of Abbottabad.



The study found that the sample respondents visited the Shimla Hill Park the age group varies from 21-40 and they are about 40% who visit SHP, the average visits to park are 3.82 per month, average expenditures are about Rs.756.5, the main reason for the visit is for relaxation which is 22% and for amusement is about 26%. 49% people use their own transport and it also estimated that the nature of visit with family is 23% and alone is roughly 34%. Other than these variables we gather the result for about 34 variables including the above mentioned variables and the research is based on these factors.

The objective of this study is to examine the factors affecting the demand of visitors visiting to Shimla Hill Park. We will be estimating the consumer surplus, the recreational value and specifically the willingness to pay for the park. We will also elaborate the relations of the explanatory variables with the demand of visitation. The Travel Cost Method will be applied to estimate the model.

II. DATA AND SAMPLING

For the valuation of non-market goods it is necessary to use the primary data and use the travel cost method or contingent method to obtain the results, to collect this type of data it is necessary to ask different questions from different respondents present at the recreational point or outside as well.

We conduct primary data survey on willingness to pay and travel costs on Shimla Hill Park from intercept interviews in summers of 2015. Responses from 200 respondents were collected. The data of visitors to Shimla Hill Park (VSHP) that serves as a dependent variable in our study while Age (AGE),Gender (GND), Marital Status (MS), Family Size (FS), Residence (RESD), Education of the visitor (EDU), Distance to Shimla Hill Park (DSHP), Substitute Park (STP), Free time on working days (FTWD), Free time on week-ends (FTWN), Income (INCM), Cost of Travel to Shimla Hill Park (COTS) and Quality of the Park (QU) are taken as independent variables to examine the effect of all these variables on the number of visits to the Shimla hill park, KP, Pakistan.

III. METHODOLOGY

Both the TCM and the CVM have been widely used in valuing different kinds of ecosystems (Maharana et al.). These methods have traditionally been viewed primarily as substitute valuation techniques. In more recent times, however, a different mindset towards ecosystem valuation has been adopted, and CVM and TCM have been successfully combined to estimate welfare measures. This has allowed gains in producing a more comprehensive picture of preferences than what would be available from using either method separately (Kling). This study used both methods but both there are several drawbacks associated with each.

TCM is a revealed preference method in which the visitors travel cost to a recreational site are used as a main factor to estimate the true value of recreational points as well as the rate of visitation to the site (Navrud and Mungatana). The TCM has three main drawbacks and they are summarized by Stoll (1983): First, the TCM is

applicable to specific sites; second the TCM cannot be applied to very unique recreation sites and third is TCM cannot be applied to sites that are located in urban areas.
In this study the visitors were randomly chosen for interviews. Specifically, visitors were either interviewed at the gate when they were entering into park or in the park enjoying recreational benefits. The survey was undertaken in summers of 2015. The desired data were collected with the help of a pretested and well-designed questionnaire.
This chapter will explain the methodology that is followed by this study. The methodology holds in the tests that are fundamental for getting empirical results. This chapter gains control over the description of Travel Cost Method (TCM), Ordinary Least Square Method (OLS), Multiple Regression, Descriptive statistics and Correlation.

IV. DESCRIPTION OF VARIABLES

Following are the descriptions of the variable that are used in analysis.

Table 3.1 Descriptions of Variables

S. No	Variables	Description	Unit
1	Age	Age groups: up-to 20, 21-40, 41-60, 61-80 and above 81	No. of Years
2	Gender	Male = 1, Female = 0	Dummy Variable
3	Marital Status	Married = 1, Unmarried = 0	Dummy Variable
4	Family Size	Open ended question	Number
5	Residence	Ratio of visitors from rural and urban areas. Rural = 1, Urban = 0	Dummy Variable
6	Education	Education groups: Primary level, Secondary level, Higher Secondary level, Bachelors and Graduates.	No. of Years
7	Income	Income groups: Up-to 20K, 21K-40K, 41-60K, 61-80K, 81-100K and above 100K	Pak Rupee
8	Free Time	Open ended question (first about free time on working days and the second was about the free time on weekends)	Minutes/ Hours
9	Distance	open-ended question	Kilometers
10	Cost of Travel	Total cost of the round trip from home to Shimla Hills Park. Asked about mean travel cost. With own transport fuel costs and with public transport the cost was taken accordingly.	Pak Rupee
11	Substitute Park	Statistics regarding price of Substitute Park means the travel cost, travel time and time spent at Substitute Park.	Pak Rupee and Minutes
12	Quality of the Park	Number of visits increase after improvement of quality park.	Number
Source: Author Survey			

Model Equation:

$$VTSHP_i = \beta_o + \beta_1 Cots_i + \beta_2 Incm_i + \beta_3 Dehs_i + \beta_4 Stp_i + \beta_5 Qu_i + \beta_6 Tft_i + \beta_7 Age_i + \beta_8 Edu_i + \beta_9 Fs_i + \beta_{10} D1_i + \beta_{11} D2_i + \beta_{12} D3_i + e_i \quad \ldots\ldots(1)$$

Where:
Visits to Shimla Hill Park = VTSHP
Cost of Travel = COTS
Household Income = INCM
Distance from home to the site: DFHS
Visits to Substitute Park = STP
Quality of the Park = QU
Free Time = TFT
Age of the visitor = AGE
Education level of the visitor =
Joint Family Size of the visitor = FS
Visitor's Gender = GND (D1 for 1 if Male and 0 otherwise)
Visitor's Marital Status = MS (D2 for 1 if married and 0 for single/unmarried)
Visitor's Residence = RESD (D3 for 1 if visitor from rural area and 0 otherwise)
Error term = e

Independent Variables with expected sign and hypothesis

Variables	Expected sign	Description
Age	-	The actual visitors' or respondents Age (in years) at the time of interview. We assume that number of visits to Shimla Hill Park and the visitor's age are inversely related.
Gender	+	Gender of the visitor taken as 1 if male and 0 otherwise. We expect that visits of male will be more than females.
Marital Status	+	Marital Status of individuals as 1 if married and 0 for unmarried and we assume that the number of married visitors will be more than the unmarried visitors.
Family Size	+	The total number of family members and joint family members. The family size may also affect the demand for visitation of Shimla Hills Park but we can't expect the sign; it may be negative or positive. But in our study we are expecting it as positive due to less availability of recreational facilities and less choice of recreations the family size may put positive impact on number of visits.
Residence	+	Respondent's residence taken as 1 if resident from rural and 0 for urban resident. Being the nearest opportunity we expect more visitors from rural areas, located around the Shimla Hills Park and we expect less participation of urban residents.
Education	+	Highest education level of the individual visitors. We also expect the positive sign with the expectation of increased number of visits with increasing level of education.
Income	+	Visitor's monthly income in Pakistani Rupees. We hypothesize the visitor's income and demand for monthly visitation to Shimla Hills Park is positively related. .
Free Time	+	The weekly free time that individuals that can be utilized for recreational activities. We assume that there is a positive relation of free time of visitors with the visiting rate to Shimla Hills Park.
Distance	-	Distance from residence to the site. The hypothesis is that with increase in distance the number of visits decreases so the distance to Shimla Hills Park is inversely related with the number of visits.
Cost of Travel	-	It is the cost that the individual pays for the round trip from home to the site and from the site to the home including the travel time and average time spent at Shimla Hills Park. It is expected to be inversely related. The number of visits will decrease with the increase in travel expenditures.
Substitute Park	-	The average number of monthly visits to the substitute park. It is also assumed to be negatively related because with the increase in number of visits it will put inverse impact on the number of visits to Shimla Hills Park.
Quality of the Park	+	The increasing and decreasing number of visits after improvement has been taken for the quality of the site/park. It is assumed that for better quality of the park the number of visits will increase and vice versa. So the sign is expected positive for the quality of the park as well.

IV. RESULTS AND DISCUSSION

Descriptive Statistics:

Table 5.1 shows some statistics on trips to Shimla Hills Park, free time, distance of site from visitor's place of living to the park and visits to the substitute park. On average, the sample respondents visited Shimla Hills Park about 4 times per year with mean expenditures of Rs. 364 on travel. The average distance from home to Shimla Hills was 7.6 km. The average free time on working days and on weekends was estimated at about 28 hours and 73 hours per week. The average number of trips to substitute site were about 2 monthly. The sample respondents were positive towards improvement and they reported average visits of about 6 per month to Shimla Hills Park after improvements.

Table 5.1: Sample Respondents Reporting Visits to SHP, Free Time per week, Travel Costs to Shimla Hills Park and Visits Substitute Site

Variable	Average	Maxi	Mini
Visits to SHP per month	3.8	10	1
Monthly Visits after Improvement	5.8	12	1
Distance from home to Shimla hills Park	7.6	16	1
Cost of travel per visit (Pak Rupee)	364.2	2000	20
Free time on working days (per week in minutes)	1670	5760	0
Free time on week-ends (per week in minutes)	4380	6720	2400
Visits to substitute parks per month	2	3	1
Source: Author Survey			

Table 5.2 shows descriptive characteristics of sample respondents. 37 per cent of the visitors were up-to the age of 20 years, between the age groups of 21 to 40, 41 to 60 and above 60 were 40 %, 18 % and 5 % respectively. The average household size was about 6. 60 % respondents were male and 40 % were female. As many as 57 % were unmarried and 43 % married. More than half 67 % of the sample respondents were having the education level of Higher Secondary and above. Only 24 % were in primary and secondary level and 9 % of the visitors were illiterate or with no formal education. 44 % visitors were from rural areas of Abbottabad and 56 % were from the urban areas of Abbottabad. All visitors were positive towards improvement and more facilities at park. 100 % visitors were in favor of improvements and 100% were willing to pay for the improvements.

Table 5.2: Descriptive Characteristics of Sample Respondents

Age (Years)	
Up-to 20	37%
21-40	40%
41-60	18%
Above 61	05%
Household Size	6.38
Gender:	
Male	60%
Female	40%
Marital Status:	
Married	43%
Single	57%
Education:	
None	09%
Primary	08%
Secondary	16%
Higher Secondary	17%
Bachelors	30%
Graduates	20%
Residence:	
Rural	44%
Urban	56%
Do you want improvements in quality?	
Yes	100%
No	00%
Are you willing to pay for the improvement?	
Yes	100%
No	00%

Source: Author Survey

Figure 5.1 shows the frequency distribution of trips to Shimla Hills Park. From figure we get that 41 % visitors visited SHP between 1-3 times per month, 36 % between 3-4 times monthly, 19 % between 4-7 and only 3% between 7-10.

Figure 5.1: Frequency Distribution of Trips to Shimla Hills Park

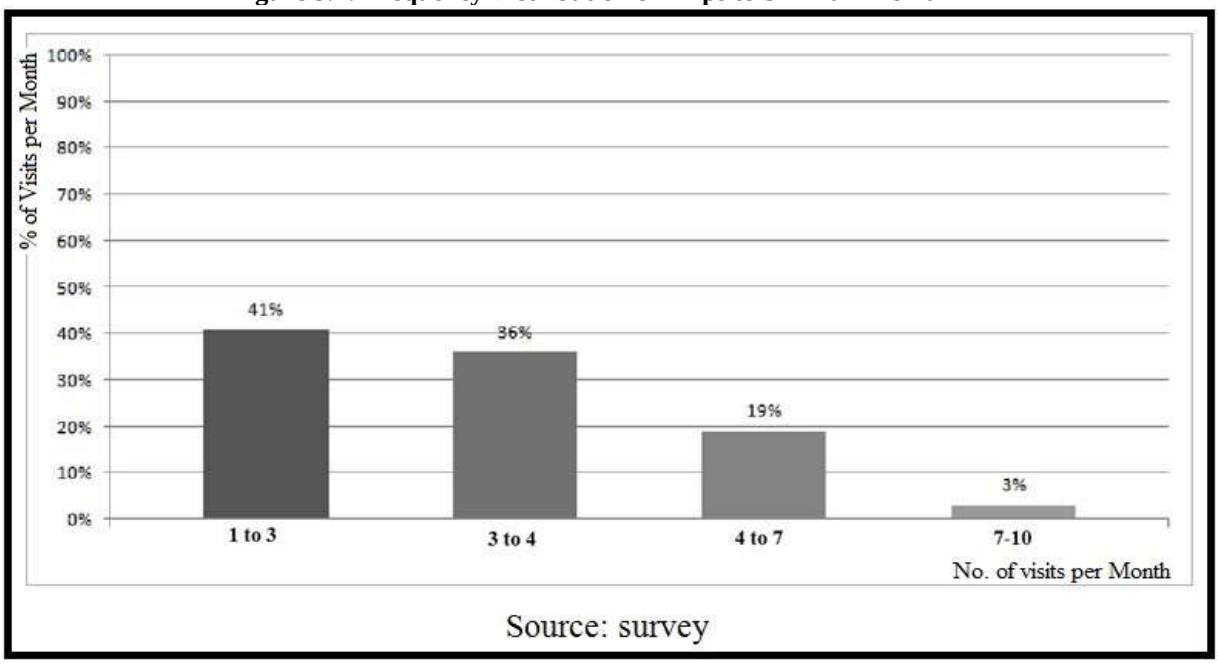


Table 5.3 depicts clearly that visitors visits the Shimla Hills Park for different reasons. Recreational activities at the site include Relaxation, Scenic beauty, Exercising and Entertainment like sliding, pirate boat etc. The majority of the visitors, 31 % reported that they are being attracted by all the recreational activities. 22 % reported Relaxation, 15 % reported Scenic Beauty, 36 % reported Entertainment and only 6 % reported exercising as reason for visiting Shimla Hills Park.

Table 5.3: Reasons for Visiting Shimla Hills Park by Sample Respondents

Reason to visit SHP	No of visitors	Percentage
Relaxation	44	22%
Scenic beauty	30	15%
Exercising	12	06%
Entertainment/Amusement	52	26%
All	62	31%
Total	**200**	**100**
Source: Author Survey		

Table 6 tells about sample household distribution by income groups. According to the table only 5 % of sample households fall in the income group of up-to Rs. 20,000 per month. 23 % of households have a monthly income in the range of Rs.21000-40,000. Some 16 %, 21 %, 20 %, and 20 % of sample households fall in range of Rs.41,000-60,000, 61,000-80,000, 81,000-100,000 and above 100,000. Taken together, 61 % of the sample households fall in the income range of Rs.61,000 and above.

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Table 5.4: Frequency Distribution of Household Monthly Income

Income Group	No of Visitors	Percentage
Upto-20K	10	05%
21K-40K	36	18%
41K-60K	32	16%
61K-80K	42	21%
81K-100K	40	20%
Above 100K	40	20%
Total	**200**	**100**
Source: Author Survey		

V. EMPIRICAL RESULTS AND DISCUSSION

Correlation analysis:

The variables were included according to the logic of an underlying economic theory and past relevant studies. First of all the variables were tested for correlation. According to Khan (2006), an absolute value of 0.8

indicates the possibility of multi-co linearity. The correlation matrix in tables 5.5 below shows no correlation higher than 0.56, which indicates that multi-co linearity, is not a problem with our data set. Thus we can include all the variables initially the analysis. The Correlation Matrix is given below in table 5.5.

Table 5.5 Correlation Matrix

CORRELATION	AGE	GND	MS	FS	RESD	EDU	TFT	INCM	DFHS	STP	COTS	MVAI
AGE	1.00											
GND	-0.18	1.00										
MS	0.51	-0.03	1.00									
FS	0.01	0.03	-0.01	1.00								
RESD	0.02	0.27	-0.04	0.09	1.00							
EDU	-0.14	0.13	-0.19	-0.11	-0.38	1.00						
TFT	0.03	0.004	-0.05	0.05	-0.17	0.20	1.00					
INCM	0.02	-0.11	-0.03	-0.05	-0.17	0.25	0.29	1.00				
DFHS	-0.15	0.10	-0.07	-0.04	-0.23	0.35	0.14	0.32	1.00			
STP	-0.01	0.06	0.07	-0.17	-0.10	0.003	-0.04	0.08	0.24	1.00		
COTS	-0.06	-0.15	0.01	-0.12	-0.25	0.34	0.03	0.37	0.56	0.13	1.00	
MVAI	-0.03	0.07	-0.13	-0.18	0.24	-0.12	0.07	0.31	-0.15	0.02	-0.03	1.00

Multiple Regression Analysis:

Table 5.2 describes the result of the travel cost regression that estimates recreational demand from sample visitors of the Shimla Hills Park. Table 5.2 shows the regression of the model.

Table 5.6: Estimated Results of Linear Regression Equations

Variable	Coefficient (Standard Error)
Intercept	0.261 (0.368)
Cost of Travel	-0.0004*** (0.0002)
Household Income	0.136*** (0.047)
Age	-0.225*** (0.072)
Free time	0.0001*** (0.00003)
Quality of the Park	0.550*** (0.037)
Substitute Park	-0.128* (0.075)
R-squared	0.635
Adjusted R-squared	0.624
F-statistic	56.031
Probability of F-statistic	0.000

As expected, high travel costs incurred by individuals are inversely related to park visitation rates. This implies that the higher the travel cost paid by visitors to reach Shimla Hills Park, the less frequently they visit. We may thus infer that there is less demand to visit the park from those visitors who live far, as compared to those who live near to the park. In addition to travel cost, household income has a positive impact on recreational demand. Visitors with high income are willing to pay for more visits to the park. This implies that if the income level of visitors increases their recreational demand for Shimla Hills park also increases. There is also a significant relationship between the visits to the substitute site and the demand for Shimla Hills Park. As

supporting evidence, Economic demand theory tells that the demand for a site is negatively affected by the demand of substitute site. It means visitation to the Shimla Hills Park will decrease if the visitation to its substitute site increases. The free time of visitors bears a positive sign while the age variable has a negative sign and both these variables have significant coefficients. The result also depicts that if the quality of services of the Shimla Hills Park will be improved, visitor would like to increase their visits to the park.

All of the significant coefficients have the expected signs. The value of R-squared shows that about 64% variations in the number of visits to Shimla Hills Park are explained by all independent variables. This is a reasonable R-square for cross-sectional data. The probability F-statistics shows overall performance of the model is satisfactory.

Consumer Surplus and Recreational Value of the Shimla Hills Park:

Table 5.7 shows the individuals consumer surplus and recreational value of the visitors. The recreational value is the sum of consumer surplus and the total cost of travel to the Shimla Hills Park. The estimated figures tell that per visitor consumer surplus is Rs.1085 and per visitor recreational value is Rs.1115. By multiplying it with the total population will give the total amount that the park yields to the economy. This figure only shows the per visitor estimated values.

Table 5.7 Consumer Surplus and Recreational Value of the SHP per visitor

	Consumer Surplus	Recreational Value
Per Visitor (Rs)	1085	1115

VI. CONCLUSION

The aim of this study is the valuation of recreational demand and how this statistic and information can be used to improve Shimla Hills Park. The Shimla Hills Park can contribute a large amount to the economy through recreation.

The Shimla Hills Park constitutes a valuable environmental resource as well. Although, at present the visitors do not pay any entrance fee, there is consumer surplus of Rs.1085 per visitor. It is large amount to be gained from this Park and this consumer surplus can be improved through the improvement in the quality of the park. Because the survey reports that all visitors are demanding improvements and maintenance management for the park. All visitors are willing to pay for the improvement and even all were willing to pay more amounts after improvement. If the park status improved the number of visitors to this park increased, it would, become more valuable and the survey reports that the people will increase their visits. The recreational value is estimated at Rs.1115 per visitor. The estimated recreational value shows one aspect of the total value of the park, it indicates that, with proper improvement, maintenance and management, recreational demand can be increased and it can be a significant source of benefits.

The survey reports that there is a high recreational demand and the visitors are willing to spend more amount recreational activities at park. As expected, the result shows that the more improvements in the quality of park increases the recreational demand and it leads to increase in the contribution to the economy. The individuals with less or no visits were reporting as there are no safety measures taken by the park management for families and females and the park is covered by the dust. It needs a simple conclusion that all visitors were demanding improvements in the park through government investment initially.

The result pointed out a useful issue that plays a significant role in generating valuable economic information for local government policymakers to place suitable management plans in maintaining quality of Shimla Hills Park. It also can be a useful technique to assist public agencies in planning multiple uses of public lands and prioritize the budget based on benefit value compared to other kind of public facilities.

Recommendations:

Keeping in view the large amount of consumer surplus and recreational values of the park, the Federal and Provincial level governments can justify larger annual budget allocation for the management of the Park. Alternatively, the government may also consider using entry fee to this Park. The average value of willingness to pay is almost Rs.30 for improvement and it is about Rs.60 after improved status. This result shows that visitors are willing to pay a large amount. The result provides a guideline for the possible introduction of entrance fees and makes a strong argument for sustaining the area, provision of safety to the visitors with families and the female visitors as it is the responsibility of the government to protect not only the area but the visitors as well. Individuals demands safety measures, lightening, proper maintenance of the park and more recreational activities. It is has been demonstrated that benefits derived are large.

In addition, the estimated value may also help promoting to sustain other natural areas, like Ilyasi and Harnov in Abbottabad district which have not been protected yet, and are thus presumably even more dependent on fair decision making within the policy arena. Since, the consumers (visitors) are willingness to pay much

higher than they actually pay for park visitation, an entry fee may be used. This would generate a handsome amount of money that could be used for improving the management of the park.

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