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Determinant Factors Affecting the Number of Visitors in Recreational Parks in Ethiopia: The Case of Addis Ababa Recreational Parks

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ABSTRACT

This study was conducted to determine factors affecting the number of visitors in recreational parks in Addis Ababa. The study encompasses the analysis of the data collected from 180 randomly selected sample visitors of Hamle 19 and Future recreational parks selected purposively selected from Addis Ababa recreation sites. Both descriptive statistics and econometrics model were used to analyze the quantitative data. To determine the factors influencing the number of visitors to the recreational parks econometric model called multiple regression model used. To analyze the data a statistical software known as SPSS used. The mean of age of visitors to the recreational parks were 31 years with minimum of 18 and maximum of 59. And the average family size was 3.6 while the minimum and the maximum household size were 1 and 10 respectively. Travel costs, visitor's income and acquaintance with the site were found to be significant of a recreation demand at Addis Ababa recreation sites. Whereas other explanatory variables such as Gender, marital status, group visit and occupation, were found to be insignificant of visits to Addis Ababa recreation site. Among the other variables, visitors' monthly income is considered as one of the critical variables that affects the number of visits positively. As the income of the visitors' increases by one birr, the number of visits is expected to increase by 0.00193 percent.

Keywords: Recreation parks, Hamle 19, Future Park, and Travel cost, Recreational Parks, Addis Ababa

1. INTRODUCTION

Recreation is an activity of leisure and also a human activity, which increases visitor's utility (Rao & Wogine, 2015). The need to do something for recreation is an essential element of human biology and psychology. Recreational activities are often done for enjoyment, amusement, or pleasure and are considered to be fun. Parks and green spaces should not only provide places to recreate, but create an opportunity for psychological revitalization of daily life. (Rabiatul et al., 2013). Edginton et al. (1989) define recreation parks as purposeful, wholesome activity and from the contemporary standpoint it is viewed as assisting individuals to have positive leisure experiences that help renew the spirit, restore energy, and rejuvenate individuals. Recreational parks if properly more accessible can improve social cohesion and interaction as more people patronize those (Tabassum and Sharmin, 2013). Moreover, recreational parks are integral to a favorably built environment and provide places for physical activity (Kaczynski and Henderson, 2008) health behavior that protects against cardiovascular disease, type 2 diabetes, and certain cancers. Nevertheless, in spite of the possible benefits, various studies show that some parks lack visitors while others are used a large number of visitors (Cohen et al., 2007).

Following a rise in population, income and mobility the demand for outdoor recreation has been increasing in many developing countries (Clawson et al., 1966). Theoretically, Clawson (1959) explained that putting an accurate and acceptable value on outdoor recreation would be valuable in resource management in different ways. First, it would provide a means for comparing the importance of recreation with that of other uses of the same resources. Secondly, the value of the recreation to be provided by a proposed recreation site would provide one measure of the desirability of making the necessary investment in the project. Thirdly, the value of the recreation would provide a ceiling to any fees that might be charged for its use.

Visitor demand and associated recreational park choices have been extensively examined, and correlations with internal park features and related quality have been identified (Manning, 2011). However, external characteristics such as access, accommodations, and available services outside the park have also been noted as factors that influence visitation (Neuvonen et al., 2010; Puustinen et al., 2009). Page (2009) stated the reason behind the issue of defining visitor attractions is due to the diversity of users (tourists, residents, day trippers) who provide a market broader than just tourists. Page also states as the above reason has made many researchers to acknowledge the appropriate term to these attractions is a 'visitor attractions'. Wu et al (2000) also confirm this by stating that traditional city parks are generally overlooked as part of the tourism products and their function is confined to daily recreation for local citizens with little service for tourists. Recreational service of natural resources is one of the services among many others that provide satisfaction for household or recreationist (Rao & Wogine, 2015).

The economic impact of visitors at a destination is influenced by the magnitude of visitor spending, the number of visitors travelling to the destination, the type of destination (park) and the activities offered, the number of days spent in the area and the circulation (multiplier) of visitor spending through the economy of the area (Saayman & Saayman, 2006). Tourist spending is one of the most critical variables in analyzing tourist destinations, since it directly determines the tourism sector's profitability (Frechtling, 2006). It is the first input in an economic impact assessment, so a true reflection of this spending and the factors that influence the amount that particular visitors spend is therefore an essential input in any economic impact

study (Saayman et al., 2005). It is important to identify which visitors spend most at a destination and which variables are most influential in determining their expenditure levels (Kastenholz, 2005). Once the factors that affect visitor expenditure have been determined, policies can be developed to strengthen the spending and maximize the economic benefits (Gokovali et al., 2007). Thus, when doing market segmentation the Park's management will be able to refer to the factors identified in the present study, so as to focus their marketing efforts on the number of visitors who spend the most at the Park (Kruger, 2009; Kastenholz, 2005).

2. MATERIALS AND METHODS

2. 1. Description of the Study Area

Addis Ababa, a capital city of Ethiopia, has an area of 540 square kilometer, receives mean annual rainfall of 1200 mm and mean annual temperature of 16°C. Green area of the city covered 9,100 ha and plans to increase 22,000 ha. It is situated in the Western part of the Awash River Basin at the geographic location of 8° 50' - 9° 05' N and 38° 39' - 38° 55' E in the altitude ranging from 2350 to 3300 m.a.s.l. The city is divided into 10 sub-cities, which are Addis Ketema, Akaki-Kality, Arada, Bole, Gulelle, Kirkos, Kolfe-Keranio, Lideta, Nefasilk-Lafto and Yeka, and in 116 woredas.



Map 1. Location of the study area
Sources and Methods Data Collection

A mixed methods research design was employed for collected and analyze data. Quantitative and qualitative data was gathered through primary data. The primary data was collected through face-to-face interviews of the recreationists on the site using structured questionnaire and Key-Informant Interviews (KII). Quantitative data was generated from 180 sample recreationist from Hamle 19 and Future parks by random sampling whereas qualitative data was generated through Key-Informant Interviews (KII) with officials from Addis Ababa Beautification, Parks and Cemetery Development and Administration Agency and park managers at Hamle 19 and Future parks. Secondary data were also collected and used from government and private recreation parks reports and internet browsing for substantiated the survey data.

Most research has been based on qualitative analyses via expert panels (Deng et al., 2002; Lee et al., 2010) or quantitative tourist surveys (Thapa et al., 2011). While both approaches have their merits, limitations are evident given the subjectivity and ability to analyze multiple destinations, especially remote regions where most protected areas are located.

2. 2. Data Management and Analysis

Data analysis is the process of systematically reaching and arranging the interview transcripts, filled questionnaire, field notes and other material that the researcher accumulates to increase understanding of the respondent's subjective experiences and to enable the researcher to present what has been discovered. Both descriptive statistics and econometrics model were employed to analyze the quantitative data. Multiple regression model and descriptive analysis (mean, frequencies and percentages) were used to identify and explain the determinant factors affecting the number of visitors to Addis Ababa recreation parks. A statistical software known as SPSS version 20 was used to analyze the data. On the other hand, qualitative data was consistently organized and presented in the form of thorough discussion and narratives.

2. 3. Econometric Analysis

The econometric model presented in this section attempts to make some analysis and make inferences based on the information obtained from the sampled respondents. These econometric methods are employed to analyze the determinant factors affecting the number of visits to the recreational factors. Hamle 19 and Future recreation demand study was carried out based on information obtained from actual visitors of the site during the survey period. Since potential visitors were excluded from the sample, the dependent variable is truncated. i.e. only number of visits greater than or equal to one is considered in this recreation demand model. Foreign visitors were excluded from the sample because of multipurpose trip and difficulty to isolate the particular cost to the site. Hence, ordinary least squares (OLS) might give biased estimates of the parameters. Since the dependent variable (number of visits) is truncated at a certain point, maximum likelihood estimation is taken as an appropriate technique in selecting recreation demand model (Greene, 2003).

In this method, a demand function will be estimated using the number of visits to a site as the dependent variable and the travel cost associated with the trip and other socio economic characteristics as independent variables. The ITCM is better suited to provide inferences about individual consumer behavior. As a result, the ITCM gains better statistical efficiency than the ZTCM (Bowker and Leeworthy, 1998). The individual travel cost approach is similar to the

zonal approach, but uses survey data from individual visitors in the statistical analysis, rather than data from each zone. In this study the specific econometric model used to describe the relationship between individual visits per year and the travel cost and other explanatory variables of the ITCM is given in log - linear form. Englin (1995) compared linear, quadratic and semi log forms and got semi log is better in explaining the TCM demand function.

$$\ln(\text{Visit})_i = \beta_0 + \beta_1(\text{TCost})_i + \beta_2(\text{Income})_i + \beta_3(\text{Age})_i + \beta_4(\text{Edu})_i + \beta_5(\text{Fsize})_i + \beta_6(\text{Know})_i + \beta_7(\text{Sex})_i + \beta_8(\text{Mstatus})_i + \beta_9(\text{Group})_i + \beta_{10}(\text{MTransport})_i + \beta_{11}(\text{Occ})_i + \varepsilon_i \dots \quad (1)$$

Table 1. Summary of Definition of Variables, Expected Sign and Types of Data

Variable	Definition	Type of Data	Expected Sign
Socio-economic Characteristics			
Sex	Sex dummy variable (1 = male and 0 = female)	Categorical	indeterminate a priori
Age	Age of respondents (years)	Continuous	-
Fsize	Total number of people in the visitor's household	Continuous	-
Mstatus	Marital status of the visitors (dummy as 1 = married and 0 = otherwise)	Categorical	indeterminate a priori
Income	Disposable monthly income of visitor (in Birr)	Continuous	+
Edu	Visitor's educational level in years of education	Continuous	+
Occ	Visitor's current occupation (dummy as 1 = public and 0 = otherwise)	Categorical	indeterminate a priori
Trip Characteristics of the respondents			
Tcost	Total travel cost associated with a round trip to and from the park (in Birr).	Continuous	-
Know	Respondents have known the park (number of years)	Continuous	+
Group	Respondent's travels in group (dummy as 1 = yes and 0 = no)	Categorical	indeterminate a priori
MTransport	Respondent's mode of transportation to the park (dummy as 1 = own vehicle; 0 = otherwise)	Categorical	+

3. RESULTS AND DISCUSSION

3. 1. Descriptive Statistics

The result and discussion part of the study displayed in this chapter in the descriptive and econometric analysis. Demographic characteristics of the respondents analyzed descriptively. Truncated Poisson model or log linear model employed to identify the factors affecting the number of visits to recreation parks in the study area.

3. 2. Demographic characteristics of respondents

From the collected sample data, household characteristics, namely sex, age, marital status, family size, educational status, occupation, and income level were believed to influence the issues related to visit the recreation parks. These household characteristics were assessed and the result was presented in Table 2. Accordingly, the majority of visitors were male (about 71 percent). And, 89 percent of the visitors were married. The mean of age of visitors is 31 years with minimum of 18 and maximum of 59. The average family size was 3.6 while the minimum and the maximum household size were 1 and 10 respectively.

Table 2. Distribution of the respondents’ demographic characteristics.

Parameter	Park Name		Overall (n = 180)
	Hamle Park (n = 90)	Future Park (n = 90)	
Sex			
Male	62 (68.89%)	65 (72.22%)	127 (70.56%)
Female	28 (31.11%)	25 (27.78%)	53 (29.44%)
Marital status			
Single	57 (63.33%)	32 (35.56%)	89 (49.44%)
Married	33 (36.67%)	55 (61.11%)	88 (48.89%)
Divorced	0 (0%)	3 (3.33%)	3 (1.67%)
Occupation			
Public	17 (18.89%)	24 (26.67%)	41 (22.78%)
Private	22 (24.44%)	33 (36.67%)	55 (30.56%)
Self employed	23 (25.56%)	28 (31.11%)	51 (28.33%)
Student	19 (21.11%)	4 (4.44%)	23 (12.78%)
NGO	7 (7.78%)	1 (1.11%)	8 (4.44%)

Parameter	Park Name		Overall (n = 180)
	Hamle Park (n = 90)	Future Park (n = 90)	
Unemployed	2 (2.22%)	0 (0%)	2 (1.12%)
Education			
2 nd degree	7 (7.78%)	11 (12.22%)	18 (10.00%)
1 st degree	44 (48.89%)	41 (45.56%)	85 (47.22%)
Diploma	32 (35.56%)	23 (25.56%)	55 (30.56%)
High school	6 (6.67%)	14 (15.56%)	20 (11.11%)
Junior high school	1 (1.11%)	1 (1.11%)	2 (1.11%)
Travel characteristics			
Group	80 (88.89%)	88 (97.78)	168 (93.33%)
Alone	10 (11.11%)	2 (2.22%)	12 (6.67%)
Mode of transport			
Own vehicle	14 (15.56%)	39 (43.33%)	53 (29.44%)
Public transport	53 (58.89%)	35 (38.89%)	88 (48.89%)
Rented vehicles	23 (25.56%)	16 (17.78%)	39 (21.67%)
Days of preference			
Weekdays	25 (27.78%)	12 (13.33%)	37 (20.56%)
Week ends	63 (70.00%)	78 (86.67%)	141 (78.33%)
Holidays	2 (2.22%)	0 (0%)	2 (1.11%)

Source: Computed from the survey data

4. ECONOMETRIC RESULTS

4. 1. Determinant Factors Affecting the Number of Visits to Recreation Parks

Writing out the linear equation of the results above gives the following trip generating function:

$$\text{Visit} = 1.473196 - 0.001655\text{TCost} + 0.0000193 \text{ Income} - 0.0030013 \text{ Age} - 0.0513206 \text{ Edu} - 0.0266012 \text{ Fsize} + 0.086443 \text{ Know} + 0.1369191 \text{ Gen} + 0.1698127 \text{ Mstatus} + 0.5340889 \text{ Group} - 0.0266182 \text{ MTransport} - 0.0917587 \text{ Occ} \dots\dots\dots (2)$$

The log-likelihood ratio (LR) test is formally more preferred to test the significance of the model. The log-likelihood ratio test was estimated as follows:

$$LR = -2(\text{Restricted Log} - \text{Unrestricted Log L}) \dots\dots\dots (3)$$

where: the restricted log is the log-likelihood only with constant and the unrestricted log is the log-likelihood of the full model. The calculated LR $\chi^2(11)$ is 47.23 and the critical value of the test with 11 degrees of freedom ($\chi^2(11)$) at one percent significant level is 24.72. The calculated value is higher than the tabulated value at one percent significant level. Therefore, the likelihood ratio statistic test models goodness-of-fit under the null hypothesis that all parameters are zero can be rejected.

The demand function of the independent variables includes Sex, Age, Mstatus, Fsize, Edu, Income, MTransport, acquaintance with the site (Know), Group travel and TCost. It is expected that Age, Fsize and TCost are negatively correlated with the number of visits; and Income, Edu, Know and MTransport are positively correlated with the number of visits. But, other explanatory variables such as Gender, Mstatus, Occ, and Group visit are found to be indeterminate a prior of visits to Addis Ababa recreation site.

Most of the estimated coefficients have the expected signs and they are in conformity with the theories suggested in recreation economics. Travel costs (TCost), visitor's income (Income) and acquaintance with the site (Know) are important determinants of a recreation demand at Addis Ababa recreation sites.

Table 3. A maximum Likelihood Estimation of the Truncated Regression Model.

Visits	Coefficients sign	Coefficients	Std. Err.	z	P>z
Sex	+	0.1369191	0.1210197	1.13	0.258
Age	-	-0.0030013	0.010594	-0.28	0.777
Mstatus	+	0.1698127	0.1301911	1.30	0.192
Fsize	-	-0.0266012	0.0289582	-0.92	0.358
Edu	-	-0.0513206	0.0606876	-0.85	0.398
Occ	-	-0.0917587	0.0472294	-1.94	0.052
Income	+	0.0000193	8.44e-06	2.29	0.022**
Transport	-	-0.0266182	0.0846771	-0.31	0.753
Know	+	0.0886443	0.0183577	4.83	0.000***
Group	+	0.5340889	0.203089	2.63	0.009

TCost	-	-0.001655	0.000879	-1.88	0.060**
_cons	+	1.473196	0.5076372	2.90	0.004
LRchi ² (11) = 47.23			Log likelihood = -547.3428		

Source: Own computation

*** 1 percent level of significance

** 5 percent level of significance

The most important coefficients in this study for the purpose of gaining consumer surplus measures is the travel cost. The negative sign of the travel cost coefficient was as expected and is significant at 5 percent significance level. The negative sign is consistent with the demand theory because as the costs of travel to the site increase, one is expected to take fewer trips per annum, *ceteris paribus* (given a fixed level of income). The regression result indicates that an increase in the travel cost by one birr will decrease the number of visits made to the site approximately by 0.16 percent.

Visitors' monthly income is also considered as one of the main variables that affects the number of visits positively. As indicated in table 3, the coefficient of income variable is 0.0000193; it suggests that as the income of the visitors' increases by one birr, the number of visits is expected to increase by 0.00193 percent. As we expected, the income coefficient was positive and is significant at 5 percent significance level. This seems reasonable, because when the income of an individual increases then the individual might be willing to substitute wage for leisure. It is natural that people are willing to pay more for normal goods when their income increases.

Furthermore, visitors' acquaintances with Hamle 19 and Future recreation sites (Know) have a positive and significant influence on the demand for visits, as expected. It reflects the accumulated knowledge of visitors about the sites. It measures both the quantity and quality dimensions of visits, suggesting that longer acquaintance with the site reflects a greater degree of preference for the area. The coefficients of the variable for sites are positive and significant at 1 percent.

The value of the coefficient for age suggests, an increase of visitors' age by 1 year is expected to the number of visit decreases by 0.30 percent. The negative relationship between age and the number of visits shows that as one gets older, the number of visits to the site reduces. Perhaps, older individuals are usually settled, either working or taking up other responsibilities that may not give them enough time for leisure, whilst younger individuals may not be engaged in a lot of responsibilities.

They are usually very active, energetic and have more time for recreation. It is therefore not surprising that about 74 percent of the respondents were below 35 years. The coefficient of education variable -0.0513206 suggests that less educated people (elementary and high school) visit the site more frequently than educated ones (college and university) which is not consistent with our expectation. Perhaps this result may need further investigation.

5. CONCLUSIONS

The results of this study indicated that most of the recreation parks were not properly valued with appropriate and well-defined scientific approaches in developing countries particularly in Ethiopia. The quality of these resources is therefore decreasing from time to time due to lack of proper management of resources. Poor resource management occurs, among other things, due to absence of estimated value of resources.

The regression results obtained from this study showed that sex, marital status, income, know and group positively affected the number of visits to recreation parks. Whereas age, family size, education level, occupation and means of transportation were negatively affected the number of visits to recreation parks. Similarly the coefficient of income variable was positive and significant. This implies that the demand for recreation increases as visitors' income increases and vice-versa.

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