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Willingness to Pay for Ecotourism in Oyan Lake, Nigeria

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Abstract

This study examined tourists' willingness to pay for relaxation and factors that influence the visitors' willingness to pay for ecotourism at Oyan Lake, Nigeria. A cross sectional survey with the use of questionnaire was done; the dichotomous choice method based on payment card method was employed to elicit some information. Three hundred and twenty tourists above 16years that visited the Lake between 2013 and 2014 were selected as respondents. The logistic regression result revealed that visit to local communities, amount to be paid within group, tourism-awareness, group tourism, and the amount that individual tourist should pay had significant effects on the tourists' willingness to pay for tourism. The study indicated that while tourists are willing to support Oyan Lake, the introduction of additional viewing fees within groups would be acceptable; government should improve the marketing of this destination through awareness creation.

Keywords: Ecotourism; Dichotomous choice; Group tourism; Logistic Regression; Viewing-fees

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Introduction

Tourism being a major economic activity and generator of income and employment also promotes social-cultural and environmental development. It is one of the top five sources of foreign currency for most developing nations (Benavides, 2001); but Thompson (2002) estimated that growth rates for general tourism was about 4 percent while ecotourism was rated as between 3 to 10 percent annually. Ecotourism is a fast growing industry according to literatures (Ezebilo *et al.*, 2010, Reynisdottir *et al.* 2008) as many now seek natural scenic areas for relaxation. This move has called for the need to improve important natural areas like Oyan Lake for increased tourism attraction. For ecotourism, the local communities are expected to benefit from such visits, in terms of income generating activities (such as sales of souvenirs, artefacts, local fabrics, indigenous medicines, food and drinks outlets, home stays and guest house businesses), infrastructural developments and salary earning from job-engagements. From another angle, tourism businesses must minimize environmental impacts as well as provide fund for the preservation of wildlife habitats. Conservation as pointed out in literature e.g. Bookbinder *et al.* (1998); van der Duim and Caalders (2002); Kidder and Spear (2011) cannot succeed without funds; therefore it becomes imperative that tourism generates funds for protected area management.

Nigeria is blessed with lots of natural resources like forests, grass-lands, marine waters, Lakes (natural and man-made), National Parks as well as Game-Reserves; while taking leisure in natural areas is not a common phenomenon. Oyan Lake – a man-made Lake in Nigeria is yet to fulfil its mandate. Under the auspices of the Federal Government of Nigeria, the Lake suffers abandonment syndrome that beclouds most giant projects in the country. The site lacks the necessary recreational and other facilities that could enhance tourism at the site; coupled with insufficient budget allocation and inability to generate enough fund for its upkeep. Few studies have also been carried out on the Lake; most importantly the willingness to pay for ecotourism on this site has been hardly researched. Studies like that of Ikenweuwe (2007) only highlighted the tourism potentials of the site in terms of flora, fish and non-fish fauna around the Lake. It is therefore imperative that a study like this be carried out, seeking tourists' willingness to pay for ecotourism, while such funds can be used for the development of the site. The objective of this study therefore, is to assess tourists' willingness to pay for ecotourism at Oyan Lake, Nigeria.

Hypothesis of the study

Ho: Tourists' demographic characteristics have no significant effects on tourists' willingness to pay for ecotourism.

1. Materials and Methods

1.1 The Study Area

The Oyan Lake is located on latitude 7° 15'N and longitude 3° 16'E at an at elevation of 43.3m above sea level on the confluence of Oyan and Ofiki Rivers, both tributaries of

Ogun River, about 20 km North West of Abeokuta (Ikenweirwe, 2005; OORBDA, 1998; Ofoezie *et al.* 1991). A 270 million cubic meters dam is located on the Oyan Lake, a tributary of Ogun River. The Lake is used primarily to supply raw water to Lagos and Ogun States. It has potentials for use in irrigation, tourism and power generation. The Man-made Lake is located in the Western savannah region, with sparse trees and grasses with low fertility. It covers 4,000 hectares and has a catchment area of 9,000 km². The Lake has a terrain and vegetation well suited for the construction of safari lodges and wild life park to meet the demands of business and leisure.



Figure 1: The Oyan Lake
Source: Field Survey, (2015)

1.2 Methodology

Data Collection Method

Every tourist from 16 years old and above, following Han *et al.* (2011) were sampled as they became available to elicit information on tourists' socio-economic characteristics, entrance fee, destination loyalty, and willingness to pay for tourism, level of awareness on the ideals of ecotourism and the determinants of tourists' willingness to pay for tourism. The selected respondents were asked about the maximum amount they would be willing to pay for a day visit to the site, after being presented with the following scenario, following Reynisdottir *et al.* (2008) and Mitchell and Carson, (1989):

The full cost of managing Oyan Lake is currently not covered by government funds. More funds are required to maintain and improve the quality of the environment, e.g. weeding the surroundings of the Lake, removal of litters, care for ornamental plants around, improve signage etc. Presently, there is no entrance fee for individual visitors to access Oyan Dam except groups with an official booking and a token payment of N2,500:00 for the group. That, an entrance fee per person would help to fund and maintain the Lake and its environment, while conservation education received at reception will go a long way in preventing any environmental damage and water pollution That, if an entrance fee is charged per individual, the fund so raised would be used directly in maintaining the Lake environment. What would be

maximum amount that the tourist as an individual would be willing to pay for a day's access to Oyan Lake? Reynisdottir *et al.* (2008) pg. 1079 and Mitchell and Carson, (1989) in Reynisdottir *et al.* (2008).

The chosen format for the WTP questions was the 'payment card', which provides respondents with an array of potential WTP amounts ranging from zero to some large amount, from which respondents would choose a single amount. A 'don't know' option and spaces to write any reasons for not being willing to pay was provided to avoid biasness. The range from zero to large amounts helps in overcoming starting point bias as iterated by Reynisdottir *et al.* (2008) and Mitchell and Carson, (1989) in Reynisdottir *et al.* op cit. Therefore, the tourists were given ten different offers (The values were ₦50, ₦100, ₦150, ₦200, ₦250, ₦300, ₦350, ₦400, ₦450, ₦500) from which to choose one, if otherwise; spaces were given for suggested fees. Three hundred and Forty adult tourists above 16years that visited Oyan Lake between January, 2013 and December, 2014 were selected as they became available, out of which 320 questionnaires were useable.

2. Analytical Technique

The logistic regression model used is as specified by Madalla (2011):

$$Y_i = \beta_0 + \sum_{j=1}^k \beta_j x_{ij} + u_i$$

; if the cumulative distribution of u_i is logistic we have the logit

model. While the dummy variable for willingness to pay WTP (Y_i) is defined by

$$Y_i = \begin{cases} 1 \\ 0 \end{cases};$$

Therefore:

$$Y_i = \frac{1}{X_{ij}}; j = 1 \dots n) = F(Z_i) = \frac{1}{1 + e^{-Z_i}} = \frac{e^{Z_i}}{e^{Z_i} + 1}; i = 1 \dots n$$

Hence:

$$\log \frac{F(Z_i)}{1 - F(Z_i)} = Z_i$$

Then;

$$\log \frac{P_i}{1 - P_i} = \beta_0 + \sum_{j=1}^k \beta_j x_{ij}$$

According to Madalla (2011), the left hand side of the equation is the log-odds ratio and it is the linear function of the explanatory variables.

Where Y_i = responses of tourists willingness to pay, (1 for willingness to pay and 0 for unwillingness to pay).

$$Z_i = \beta_0 + \sum_{i=1}^9 \beta_i A_i + \sum_{i=10}^{20} \alpha_i B_i + \sum_{i=21}^{24} \lambda_i C_i + e_i$$

Where:

Where, WTP denoted by Z is the latent variable. The variables are as follow:

A – Social variables: Age of tourist (in years), Sex of tourist (1 if male; 0 if otherwise), Years of formal education, Household size and Monthly disposable income of tourist (in Naira per month)

B – Tourism variables: Nationality, if Foreigner (Yes = 1, otherwise = 0), Distance to site from tourist’s residence, Tourism awareness (Awareness = 1; otherwise = 0), Amt_grp = Viewing Fees paid within group (₦), Amtindiv = Individual tourists’ entrance fee (₦), Cot = Cost of Transportation to site from tour origin (₦), Grpt = Group Tour (If tour is in group = 1; otherwise = 0), Texp = Experience of tourist to Oyan Dam and other sites (years) , Locat = Residence of tourist (Lake Community = 1; otherwise = 0), Vlc = Visit to local host communities, Conresid = Country of Residence (Nigeria = 1; otherwise = 0).

C - Infrastructure variables: D1 = composite transportation projects (Presence = 1; Absence = 0), D2 = composite health and sanitation projects (Presence = 1; Absence = 0), D3 = Composite Recreation facilities (Presence = 1; Absence = 0), D4 = Composite Hotel and accommodation projects (Presence = 1; Absence = 0) + $e_i = error - term$.

3. Results and Discussion

The mean age of the tourists was 30 years, most of them were males. The mean schooling years was 14 years which indicated that many of them had tertiary education being mostly students, the mean income per month was ₦77,274.3 (\$388.31 at \$1=₦199); while they were mostly singles (unmarried). Most of the tourists were Nigerian residents with a mean tourism experience of 3 years; aside this the tourists were mostly students with about 91.9 percent of them being Nigerians. Most visitors to the site were in groups with only 10.3 percent individual visitors; the mean loyalty to the site was 1.4. On the average, about 51.6 percent of tourists visited the local communities for social interaction. Result indicated that 72.5 percent of visitors were willing to pay for tourism, which indicated that a large number of the visitors were willing to support tourism development on this site (See Table1). Non-readiness to pay seemed to perceive tourism as a public good.

Table 1: Tourists’ Willingness to Pay for Tourism in Oyan Lake

WTP	Frequency	Percentage
Yes	232	72.5
No	88	27.5
Total	320	100

Source: Data Analysis (2015)

Bids for ₦50 and ₦100 (\$0.25 and \$0.50) as entrance fees received the highest responses, 25.6 and 18.1 percent respectively; 14.7 percent were ready to pay ₦200 (\$1.005) while 2.8 percent were ready to pay ₦500 (\$2.51). It is important to note that 34.1 percent of the tourists were not willing to pay entrance fee; this corroborates Fang and Hang (2011) in their study on the willingness to pay for tourism on Kanas Nature Reserve in China.

Table 2: The Frequency of the Bids of WTP within Group Tourists

Bids of WTP (₦)	Frequency	Percentage
0	109	34.1
50	58	18.1
100	82	25.6
150	5	1.6
200	47	14.7
250	3	.9
300	4	1.3
350	0	0.00
400	3	.9
450	0	0.00
500	9	2.8
Total	320	100.0

*Mean = ₦90.31, Median = ₦50; \$1= ₦199

Source: Field Survey, 2015.

Table 3: The frequency of the bids of WTP for individual tourists

Bids of WTP (₦)	Frequency	Percentage
0	86	26.9
50	14	4.4
100	72	22.5
150	16	5.0
200	66	20.6
250	11	3.4
300	2	0.6
350	1	0.3
400	6	1.9
450	0	0.0
500	46	14.4
Total	320	100.0

Mean = ₦164.4, Median = ₦100; \$1= ₦199

Source: Field Survey, 2015

The mean WTP and median for payment within group tourists were N90 (approx. ₦100) and N50 respectively. This indicated that after having paid the group gate fee of ₦2,500:00 (\$12.56), tourists agreed to an additional charge of approximately ₦100 (\$0.5), to be paid by individuals within these group tourists in other to support the conservation of the site. Since the median was lower than the mean for payments within group, this indicated that majority of the selected tourists were willing to pay lesser than the mean WTP specified within their groups. That is, most sampled tourists preferred that individuals within groups should support tourism with a token of ₦50 (\$0.25). The selected tourists were also of the opinion that individual tourists to Oyan Lake, need not be made to pay ₦2,500:00 (\$12.56) as paid by group tourists; rather

they should be allowed to pay a token. The analysis of the respondents' choice of what individual tourists should pay gave a mean and median WTP value of ₦164.4 and ₦100 respectively. This indicated that the sampled tourists expected that individual tourists should be allowed to pay ₦164.4 (Approx. ₦200 = \$1) for visits to the Lake, but with the median value of ₦100 being lower than the mean (₦164.4), it indicated that majority of the selected tourists would wish that individuals who come to visit the Lake should pay ₦100 per visit.

The logistic estimates of the determinants of the willingness to pay for tourism in Oyan Lake are as presented in Table 4. The result indicates that the calculated Chi-square value associated with the likelihood ratio (LR) test was significant at ($p < 0.0001$) which depicts the goodness of fit of the model in the determination of factors that may influence the tourists' WTP for tourism. The Pseudo R^2 was 0.54 and a log-likelihood ratio of 161.95. Sixteen variables were used in the model with only five statistically significant. The coefficients associated with the tourists' visit to local communities, group tourism, viewing fee within group, tourism awareness, and amount that individual tourist should pay and visit to local community were observed to have statistically significant effects on the tourists' willingness to pay for tourism in Oyan Lake at various levels. Findings therefore, revealed that visit to local communities, viewing fee within group, tourism-awareness, group tourism, and the amount that individual tourist should pay were found to have statistical significant effects on the tourists' willingness to pay for tourism on the site.

Table 4 : Logistic Model Estimates of the Determinants of WTP for tourism in Oyan Lake

Variable	β	Std. Error	Z	P value	Marginal Effect
Constant	13.885	17.767	0.78	0.434	
Age	- 2.424	1.648	- 1.47	0.141	-0.28
Sex	0.754	0.494	1.53	0.127	0.094
Nationality	0.328	1.273	0.26	0.796	0.034
Education	- 0.207	0.545	- 0.38	0.703	-0.023
Income	- 0.058	0.433	- 0.13	0.893	-0.007
Vlc	-0.903	0.546	-1.65	0.098*	-0.012
Distance (km)	-0.228	0.819	-0.28	0.781	-0.026
Amt_grp	0.500	0.135	3.71	0.000****	0.057
Tourawr	1.493	0.550	2.72	0.007***	0.243
Gprt	-2.999	1.561	-1.92	0.055*	-0.144
Amtindiv	0.696	0.131	5.32	0.000****	0.080
Texp	0.026	0.538	0.05	0.961	0.003
Hhz	0.698	0.682	-1.47	0.141	0.807
Conresid	0.557	0.848	0.66	0.511	0.076
Locatn	-1.187	1.860	-0.64	0.523	-0.201
Cot	1.341	1.202	1.12	0.265	0.155
Log likelihood	-80.382				

LR chi ²	190.44
Prob > Chi ²	0.0000
R ²	0.542

*p < 0.10, **p < 0.05, ***p < 0.01, ****p < 0.001; R² is the Pseudo R².

Source: Data Analysis, 2015.

The coefficient associated with the tourists' visit to local communities after their activities at the Lake had a negative and statistically significant effect on WTP for tourism ($p < 0.1$) i.e. at 1% significance level. The result suggested that an increase in visits to local communities around the Lake decreased the probability of the tourists' willingness to pay for tourism at Oyan Lake. This may not be unconnected with the distance of the local communities to the site and the situation of the road infrastructure in the area which are in very bad state. The marginal effect of the variable was negative, which suggested that visits to the local communities around the Lake by the tourists, decreases the probability of their willingness to pay for tourism by 12%. Visit to local communities is of primary importance in ecotourism because of the benefits derivable from such interactions, especially where the host communities have gifts shops, restaurants, homestays, guest houses, bukateria etc.

The coefficient associated with the value tourists' were willing to pay as viewing fee within group had a positive and statistically significant ($p < 0.0001$) effect on the tourists' willingness to pay for tourism and the conservation of the Lake and for the improvement of services for ecotourism. The result suggests that paying additional money for viewing does not reduce the tourists' willingness to pay for tourism. It also suggests that even increases in the viewing fee increases tourists' willingness to pay in other support tourism on the site, based on the believe that such funds will eventually go into improving service provision. The marginal effect of the variable amount to pay within group as viewing fee was also positive, which indicates that viewing fee payment within group improves the probability of the tourists' willingness to pay for tourism by 5.7%. This could be so, as most of the tourists knew that the group amount of ₦2,500:00 (\$12.56) paid as gate fee was relatively small when compared with other protected areas. The mean amount agreed to be paid within group as viewing fee by the tourists was ₦100 per tourist.

The coefficient associated with tourism awareness of the tourists has a positive and statistically significant effect ($\rho < 0.01$) on WTP for ecotourism. This indicates that as the tourists become more aware of the benefits of tourism, the willingness to pay for tourism on the site increases. As observed, aside those who came for viewing and sport fishing most of the tourists visited the place for education and will be more willing to see improvements on the site for possible willingness to visit again for leisure. The marginal effect of the variable was also positive, which indicated that as tourism awareness increases, the probability of the tourists' willingness to pay for ecotourism at Oyan Lake increases by 24.3%.

Against expectation, the coefficient associated with tourists being in group (i.e. group tourism), is negative and statistically significant ($\rho < 0.1$) affected the WTP for ecotourism among the selected tourists. This indicates that as the group tourists'

increase, the willingness to pay for tourism on Oyan Lake decreases. This connotes that as we have large number of persons in a group visiting the Lake, the willingness to pay for tourism decreases. This indicates too large a number of visitors at a time may make recreation boring, not enjoyable and so it reduces the willingness to pay for tourism during such visits. The marginal effect of the variable group tourism being negative implies that increases in group tourism decreases the probability of the willingness to pay for tourism by 14%. The implication of this is that it is important to control the number of persons that gain entry to the Lake because of the possible impact on the Lake and its environment. Also, many of the tourists felt tourism to Oyan Lake should be free, hence the low level of money indicated for tourism support within group at the Lake.

The coefficient associated with the amount individual tourists should pay had a positive and statistically significant ($\rho < 0.0001$) effect on the tourist' WTP for tourism. This suggests that individual tourists if allowed to pay the mean amount suggested will be willing to pay for tourism as well as support the conservation of the Lake. The more individuals are allowed to visit the Lake, the more the willingness to pay for tourism. Though, it is not a common to see individuals visit the Lake; as people are not just allowed to come in without written permission to visit. Also, whatever the number, visitors are expected to pay an entrance fee of ₦2,500 even if they are two. The result of this analysis goes to tell us that if individual tourists are given the chances of paying lesser individually, they will be more willing to pay for tourism at Oyan Lake. The result of the marginal effect of the variable was also positive, which indicates that as individuals are allowed to visit the Lake for recreation and are allowed to pay lesser amounts this improves the probability of their willingness to pay for tourism by 8%. The expectation is that, no individual will be willing to pay ₦4,000 (\$20.1) (as groups' fee) for recreation on a public site as Oyan Lake as a Nigerian except otherwise, though foreigners can pay more. The findings indicated that there are no differences in the amount that foreigners and nationals pay as entrance fee at Oyan Lake; registration fees for sport tourists and fishermen are usually not differentiated. Increased number of visitors with affordable entrance fees will go a long way in providing assistance for the management of the Lake and the environment in terms of cleaning the Lake side of debris, the surrounding area for litters, putting up recreation facilities and other facilities that will enhance tourists' visits to the Lake. According to Reynisdotirr *et al.* (2008), modest fees would not have a large impact on the demand for sites, which this study welcomes as a good option for adoption.

Conclusion and Recommendation

The study assessed tourists' willingness to pay for ecotourism in Oyan Lake, Nigeria. The study revealed that tourists to the Lake are mostly students, majority of who are males who visit for relaxation and learning. Very few Sport-tourists often visit the Lake while the age range for the many of the tourists fell between 16 to 25 years. It was also detected that 89.69 percent of the visitors were group tourists. Findings from the study indicate that most of the tourists are willing to pay for ecotourism at the site. This study also shows us that the mean amount to be paid within group tourists if viewing

fees were to be introduced was on the average of ₦100 (\$0.50) per tourist within each group. The study therefore, makes us to understand that introduction of additional fees within groups would be acceptable to the tourists as payment within group and per individual increases the probability of the WTP for tourism in this site. The factors that affect willingness to pay among the tourists were detected as: tourists' visits to local communities, amount to be paid within groups, individual entrance fee, tourism awareness and group tourism participation.

The result of the Logit model also shows that age, education, sex, household size and income have no significant effect on the visitors' WTP for ecotourism at the site. Hence, the hypothesis of no significant relationship between the demographic characteristics of the tourists and their WTP for ecotourism was accepted while the alternative was rejected. Demographic variables according to literature (Legget *et al.*, 2003; Jim and Chen, 2006; Notaro and Salvo, 2010 in Majumdar *et al.* 2011) are often found insignificant in contingent valuation studies. It can then be said that the demographic characteristics of these visitors formed no barrier to their WTP for ecotourism at Oyan Lake.

Visits to local community being significant indicated the need for government especially at the local level to help in improving the level of infrastructural development within the host communities for ease of visits; while it is also highly important that stakeholders should improve the marketing of this destination through awareness creation as tourists' level of tourism awareness was found to contribute to WTP for ecotourism at Oyan Lake. The Federal government of Nigeria should also improve fund allocations to the Lake, as well as seek public-private partnership involvement for the improvement of necessary facilities for recreation, hospitality and infrastructures that will enhance the site as a tourist attraction center. It is important that the country reduce the dependency on petrol-oil for revenue generation, while the tourism industry is improved for good economic returns. Also, policies that would enhance ecotourism in Ogun State and Nigeria at large should be put in place to generate the required socio-economic impact.

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