Full Length Research Paper

Socio-economic determinants of on-day site demand for recreation in old Oyo National Park, Nigeria

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This paper examines the socio-economic determinants of on-day site demand of a national park in Nigeria. The services provided by the park include recreation that correlates positively with stress removal and enhanced productivity. These are not properly understood and appreciated by the people. Neither are the environmentally sound and sustainable development functions it provides. Purposive sampling technique was applied in selecting the respondents and data were collected with a well structured questionnaire. The on-site individual observation travel cost method and count data distributions were applied in estimating the on-day site demand equation. The very active age classes, male gender of middle class income who are highly educated constitute the tourists to the park. The average length of days spent in the park was two and the preference was for booked chalet accommodation rather than open camping. The on-site day recreation (number of days spent in the park) has a negative and significant relationship (p<.01) with recreation cost. Educational level attained has a positive and significant relationship (p<.05) with the number of days spent in the park. Age and income though negative and not significant did not agree with the logic of the elderly and the rich having more tendencies to seek recreation. Infrastructural facilities that will reduce recreational cost and free and functional education need to be put in place. In addition is massive awareness campaign that emphasizes the positive benefits of recreation that engenders good health, enhanced productivity and well being of the environment.

Key words: Socio-economic determinants, on-day site demand, travel cost method, count data distributions, recreation.

INTRODUCTION

Recreation is the employment of time for the refreshment of one's body or mind. It is a form of relaxation, play or amusement, something that pleasantly occupies one's time after work is done. Examples of recreation include visiting parks, zoos, sea sides, sports ground, forest sight seeing, canoeing, camping, hiking, walking and mountain climbing.

The benefit of recreation cannot be overemphasized. It includes boosting tourism, revitalizing cities, attracting investments and enhancing good health among others. Recreation and tourism go hand in hand. In Nigeria, there

are so many tourist areas which people visit for recreation and tourism. Tourism is a major source of income and revenue for the government. It enhances the image of an area, attracting commercial investment outside the tourism industry. It is a significant catalyst for economic growth. It helps to support and maintain local services such as shops and restaurants, arts, sports and other culture. It equally encourages residents to stay and spend leisure time i.e. it attracts recreation demand and encourages up-grading and reuse of derelict land and buildings.

Bergstrom and Cordell (2004) assert that recreation impacts on agriculture and economic development in many rural areas. They show that the economic impact of open space available for recreation in New Hampshire contributed $8.2 billion per year to the economy of the

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state in 1996/97 budgetary year. This amounts to more that 25% of New Hampshire Gross Domestic Product (GDP). In addition they claim that over 100,000 jobs were dependent on open space. Across the USA, parks, scenic lands, wildlife areas and open space help to support the $502 billion tourism industry. In 1993, they claimed that the National Park Service contributed more than $10 billion in direct and indirect benefits to local economies. Furthermore, they assert that the Golden Gate Park in San Francisco increased the nearby property from $500 million to $ 1 billion while generating $5 - $10 million in annual property taxes. Outdoor Recreation Coalition of America asserts that outdoor recreation generated at least $40 billion in 1996, creating 768,000 full time jobs and $13 billion in annual wages.

Nigeria being a labor based agrarian country needs a lot of recreation. FAO (2002) claims that above 73% of total population in less developed countries in which Nigeria is included have agriculture as their major occupation. There is a lot of stress in the way it is practiced in the country at present and many of the people do not avail themselves of recreation opportunity. This has led to the situation where people die very prematurely as a result of high blood pressure that leads to heart attacks and strokes. These could have been easily averted through relaxations in recreational parks. There is the unawareness on the part of many people to take advantage of this option.

Parks as reserved areas are ecologically rich in biodiversity that tend to act as "sinks" to "green house gases" that lead to global warming and climate change. There is the problem of people getting involved in the deforestation and degradation of these areas through alternative land use incursions. As economic valuations of recreational services are hardly done, policy makers find it difficult to understand the importance of these areas and the need to mobilize resources for their further establishment and protection.

There has equally been the problem of not properly understanding the correlation between recreation and enhanced productivity at work on one hand and improved health on the other. These, if understood, will go a long way in promoting a sustainable economic development so needed in ensuring that the present national plan of making Nigeria among the 20 most developed countries in 2020 is realized. It is in this respect, this paper sets to investigate the following objectives:

i. Describe the socio-demographic characteristics of the tourist respondents.
ii. Estimate the on-day site demand equation.
iii. Postulate the relationship between the socio-demographic characteristics of respondents and their willingness to pay for the park protection and improvement.
iv. Make recommendations for policy formulation with respect to recreation and national parks establishment

and maintenance for national development.

THEORETICAL FRAMEWORK

Unlike in other goods, the value of public goods such as recreation resources and protected natural areas are typically not directly captured through any price mechanism. This in effect means economic value here are not determined by the exchange of goods and services in organized market through price mechanism, the interaction between the forces of demand and supply as well as market mix. Despite this, their economic value is considerable as people are willing to give up their scarce resources including time and money to use such areas and ensure they are continually available. Freeman (2003) classifies these non-market economic values the public goods provide into use and non-use components.

Use values are the benefits which accrue to visitors who use the national park facilities and enjoy the amenities. This is the most likely significant non-market value of major urban recreation sites. It is sub-divided according to Loomis (1993) and FAO (1995) into direct use and on-site values, indirect use values and downstream benefits and option values. Option value according to Loomis (1993) and Bishop (1999) is a future value which arises from the desire of an individual to retain the option to undertake future visit to a site which possesses certain desirable qualities.

The search to finding the means of estimating the value and so the relationships that exist between this value and the factors that determine it have yielded two categories of approaches. These are the direct and indirect approaches of revealed and the stated preference in that order. The Travel Cost Method (TCM) belongs to the revealed preference approach which utilizes the complementarities of market and non-market goods and studies people's behaviors to determine their preferences. The direct method which involves the stated preference approach attempts to gauge value by asking people directly for their idea of the worth of an asset. This involves the contingent valuation method (CVM) which is based on surveying how much respondents would be willing to pay to preserve (or create) a non-market asset. This paper however adopts the TCM approach.

Empirical valuations of national parks for recreation are based on the welfare concepts of environmental economics. The fundamental assumption here is that the neo-classical concept of economic value based on utility maximization behavior can be extended to non-market goods. An individual or household demands greater or lesser quantity of an environmental amenity if a variable price of the amenity exists. This implies for a normal good, the higher the price the lower the demand and vice-versa. The familiar concept of consumer surplus can be used to assign economic value if shadow prices for the amenity can be estimated and a demand curve traced

out. Koutsayannies (1979) defines consumer surplus as the difference between the amount of money that a consumer actually pays to buy a certain quantity of a commodity and the amount he would be willing to pay for the commodity rather than do without it. This in effect implies subtracting what consumers pay from the maximum they would be willing to pay. The value of the surplus is estimated using the area under the demand curve above the price paid. The Travel Cost Method specification for this demand curve is modeled as the expected on-day site demand equation with the dependent variable as the number of days one visitor stays in the park per trip. The explanatory variables include the recreation cost of each day of stay, per capita available recreation income, number of available days to spend with recreation and other socio-demographic variables. The nature of coefficients of the explanatory variables derived through a truncated poisson regression of on-day site demand equation determines how the covariates determine the recreation demand in the national park.

METHODOLOGY

Study area

The National Park is located in Oyo State. This state is based in the South West and is one of the 36 states in Nigeria. The state has a land area of 28,454 km^2 and it is bounded in the north by Kwara State, in the east by Osun State, in the South by Ogun State and in the West, partly by Ogun State and the Republic of Benin.

The park is located across the northern part of the state, between latitude 8°15, and 9°0'N and longitude 3°35 and 4°42'E. The park is rich in biodiversity - flora and fauna that include buffaloes, bushbuck and wide variety of birds. Facilities available include chalets, tourist camps, standard restaurants, air-conditioned buses and facilities for boat cruising and sport fishing.

Sampling technique and sample size

Purposive sampling technique was used to select the tourists to the national park. The sample size was fifty based on the seasonal period of the survey and the focus was on those who stay at least for one night and above.

Data sources and collection

Primary and secondary sources provided the data for this paper. The primary data emanated from the well structured questionnaire that was administered to the respondents during the field work. The secondary data were from books, journals, research reports and other relevant materials.

Analytical techniques

Descriptive statistics in the form of tables, frequencies and percentage distribution was used to capture the demographic characteristics that include sex, age, marital status, educational status, income, number of days spent on site and tourists perception degree. The on-site individual observation travel cost method (TCM) and count data distributions were applied in

estimating the on-day site demand equation. The equation following Mendes and Proneca (2005) is:

$$\lambda_1 = f (Price, Income, Individual\ Characteristics, ß, \xi_i)\ldots\ldots\ (1)$$

Where:
λ_1 = number of days an individual stays per trip ß = vector of parameters.
ξ_i = random disturbance that is independent from the disturbance of other individuals.

In semi-log form, the expected on-day site demand equation is specified as:

$$\lambda_1 = exp\ (ß_0 + ß_i CDRP_¿ + ß_2 YR_¿ + ß_3 TR_¿ + ß_4 ID_¿ + ß_5 ED_¿ + ß_6 P_¿)\ldots\ldots (2)$$

In another form, this is written as: In
$$\lambda_1 = ß_0 + ß_i CDRP_¿ + ß_2 YR_¿ + ß_3 TR_¿ + ß_4 ID_¿ + ß_5 ED_¿ + ß_6 P_¿ \ldots\ldots (3)$$

Where:
$CDRP_¿$ = Travel cost / recreation cost (Naira)
$YR_¿$ = Income (Naira)
$ID_¿$ = Age (Years)
$ED_¿$ = Level of education (years)
$P_¿$ = Perception degree of recreation facilities (binary variable; 1 = satisfactory, 0 = otherwise).
The travel/ recreation cost (in Naira) was calculated according to the formula:

$$CRDP_¿ = CV_¿ / NDE_¿ + CNDE_¿ + TV_¿ + CTv_¿ + PUD\ldots\ldots\ (4)$$

Where:
$CV_¿$ = Round travel cost in Naira
NDE = Number of days spent
CNDE = Cost of stay including accommodation / camping visitors fee, cost of food and other expenses.
$CTv_¿$ and $CTe_¿$ = Opportunity cost in Naira of travel and on-site time per visitor per day.
PUD = Park's entrance fee
$CTv_¿$ and $CTe_¿$ were quantified using one third of individuals wage rate (Bocksteal et al., 1987; Chakraborty and Keith, 2000).

The estimation of the Poisson regression of the on-day site demand equation provided the regression coefficients from which socio-economic relationship as they affected on-day site recreation demand were determined.

RESULTS AND DISCUSSION

The sex distribution of tourists showed that 78% were of the male gender (Table 1). They were mostly married (92%) and with tertiary educational status (72%). They were mostly of monthly income level of below 100,000:= (76%) while those of income level of between 100,000 – 200,000 were 12% and those above this level 12%. The average recreational days spent in the park was two (Table 2). The preference was for booked chalet accommodation rather than for out-door camping. Tourists (80 percent) showed satisfactory perception degree. These in effect show that the very active age classes, male gender of middle class income who are very highly educated constitute the tourists to the park.

The on-site individual observation Travel Cost Method

Table 1. Socio – demographic characteristics of respondents.

1	Sex	Frequency	Percent
	Male	39	78.0
	Female	11	22.0
	Total	50	100.0
2	Age		
	21-20	6	12.0
	31-40	25	50.0
	41-50	17	34.0
	Above 50	2	44.0
	Total	50	100
3	Marital status		
	Married	46	92.0
	Single	4	8.0
	Total	50	100.0
4	Educational status		
	No formal education	2	4.0
	Primary education	4	8.0
	Secondary education	8	16.0
	Tertiary education	36	72.0
	Total	50	100.0
5	Income		
	Below 100,000	38	76.0
	100,000 - 200,000	6	12.0
	Above 200,000	6	12.0
	Total	50	100.0

Source: Computed from Field Survey Data (2008).

and Count Data distributions were adopted in establishing the on-day site demand equation following Mendes and Proneca (2005). The model (Equation 3) was estimated by Poisson regression because of the count data nature of the on-site recreation days not assuming any negative value. The values are as shown in Table 3. The price or recreation cost is negatively and significantly related ($p < .10$) to the number of days spent for recreation in the park. This implies the expected number of recreation days spent in Old Oyo National Park (OYNP) per trip decreases with higher recreation costs. This complies with the basic assumption of demand theory. The demand for recreation is positively and significantly related to educational level ($p < .05$). This implies the higher the education level, the more the value the people attach to recreational activities. This is understandable as the more people become educated, the more they are aware and exposed to the essence and relevance of recreation. The demand for recreation is negatively and not significantly related to age and

income. This implies that old people attach less importance to recreation. The income coefficient being negative and insignificant tends to contradict theory of higher income giving more attraction to getting involved in recreation. This finding however agrees with those of other travel cost studies - Creel and Loomis (1990), Rockel and Kealy (1991) and Yen and Adamowicz (1993). An explanation posited for this by Boxal et al.
(1996) is that higher income groups have lesser time to engage in recreation activities. Their drive is to increase their income more by working harder rather than on embarking on recreation.

Conclusion

The tourists were mainly of ages between 31-50 years. They were mostly male and married couples. They were mostly of middle-income class that earns monthly income of below 100,000 and with tertiary level educational

Table 2. Recreational days, mode and perception of lodging of respondents.

1	Recreation	Frequency	Percent
	Days in park		
	1	13	26.0
	2	27	54.0
	3	10	20.0
	Total	50	100.0
2	Mode of lodging		
	Camping	10	20.0
	Chalet	40	80.0
	Total	50	100.0
3	Perception degree		
	Not satisfactory	10	20.0
	Satisfactory	40	80.0
	Total	50	100.0

Source: Computed from Field Survey Data, 2008.

Table 3. Poisson regression estimation of on-day site demand for recreation model.

Variable	Coefficient estimate	Z-statistics	P/Z/
Price	-0.0412	-1.79	0.0918*
Income	-6.12e-07	-0.28	0.078
Education	0.1205	2.08	0.038**
Age	-0.0451	-0.95	0.344
Satisfaction	-0.8740	-0.07	0.948
Constant	0.8739	1.03	0.0304

Source: Computed from Field Survey, 2008. ** Coefficient significant at 5% level. * Coefficient Significant at 10% level.

attainment. The average length of days spent in the park was two and their preference was for booked chalet accommodation rather than open camping. There was a general show of acceptance to facilities available in the park.

The Poisson regression results indicated a negative and significant relationship ($p<.01$) between the on-site day recreation demand and price (travel cost or recreation cost). This agrees with the economic theory of demand. Educational level attained by tourists had a positive and significant relationship ($p<.05$) with the number of days an individual stays per trip in the recreation park. Higher educational level attained therefore tends to increase the awareness of the essence and relevance of recreational activities. Age and income relationship with recreational days spent per trip on site though insignificant did not agree with economic theory. This shows the more elderly are less interested in recreational activities while the higher income class is more interested in making more money to keep their status quo rather than engaging in what they term as unproductive recreation ventures.

The male gender of the active age group who were mostly married dominated the tourists to the OYNP. They were mainly people with tertiary education and on the monthly income scale of below ₦100,000.

The travel cost (price) had a negative and significant relationship with the number of days spent on site per trip by tourists ($p<.05$). Educational level of respondents had a positive and significant relationship ($p<.05$) with on-site day recreation demand. Age and income had negative but not significant relationship to recreation demand.

Recreation especially through eco-tourism has been found to be very essential for maintaining good health and enhancing productivity for national development. In this sense, government at all levels, non-governmental organizations (NGOs) and community development associations should put policies in place that will enhance

the establishment of recreation parks and reduce recreational costs. This they can do through adequate infrastructural development e.g. construction of good roads that lead to recreational sites. Efforts should equally be put in place to provide pipe-borne water and electricity that will enhance comfort in these areas.

Functional and free education should be put in place. This will boost educational awareness of people and imbibe in them the culture to seek rest through eco-tourism. This will in no small way enhance national productivity through good health.

Enlightenment campaign needs to be put in place especially for the rich class. This should highlight the issue of "health is wealth". There is the need to be healthy to create more wealth and the only way to sustain wealth is to have "down times" in the form of rest through recreation to be able to re-energize and re-strategize. There is no doubt that if all these are put in place, they will on the long run contribute positively to the good health of the people and enhanced wealth for the nation.

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