VISITORS' WILLINGNESS TO PAY FOR ATTRIBUTES OF ECOTOURISM IN PROTECTED AREAS IN EASTERN CAPE PROVINCE, SOUTH AFRICA

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Abstract: Sustained growth in demand for ecotourism products worldwide since its inception have spurred concomitant growth and activities in its promotion in protected areas (PAs). The ecotourism sector is also growing at a faster paste than tourism with potential opportunities for sustainable development of rural areas in developing countries harbouring many PAs. There is a growing evidence on increasing demand for ecotourism products across the globe. However, little is known about visitors' willingness to pay (WTP) for various ecotourism attributes in many PAs in developing countries where these markets are emerging. Hence, discrete choice WTP was implemented for visitors to PAs of Eastern Cape Province in South Africa. A two-stage sampling technique was adopted in administering structured questionnaire to 110 visitors to Eastern Cape PAs. Attribute-based choice valuation technique using four ecotourism attributes of price, village accommodation, village tour and craft market was employed in eliciting visitors' WTP. Empirical findings from conditional logit models indicated that attributes of ecotourism which include village accommodation, craft market and village tour significantly influence willingness to pay of visitor. Also socio-economic characteristics of visitors such as gender, age, income and membership of environmental organizations determine willingness to pay among visitors. Mean willingness to pay for the two consistently significant variables of craft market and village tour with positive coefficients ranges from US$6-8 for craft market and US$8-9 for village tour.

1.1. INTRODUCTION

The phenomenon growth in ecotourism market since its inception is a documented fact in tourism, conservation and economic development discourse (Fennell, 1999; Holden & Sparrowhawk, 2002). This growth has led to ecotourism becoming one of the fastest growing market segments in the world, with annual increase of 10% within the tourism industry (Wight, 2001). The notion of ecotourism was initially developed by Hector Ceballos-Lascurain in 1987 and offered the first definition of ecotourism as:

> *traveling to relatively undisturbed areas with the specific objective of studying, admiring and enjoying the scenery and its wild plants and animals as well as any existing cultural manifestations found in these areas (Boo 1990, xiv).*

This definition suggests that ecotourists are unique class of visitors with distinctive features and characteristics that distinguish them from mass visitors. Ecotourists are individuals who spend a predetermined number of days, engaged in environmentally based activities, and have unique motives for visiting natural areas (Palacio and McCool, 1997). According to Eagle and Cascagnette (1995), ecotourists are individuals who travels with the intent of observing, experiencing and learning about nature. The purpose of ecotourist visit seems to be to enjoy, admire and study the natural environment and appreciate the cultural values of the areas visited (Subbiah & Kannan, 2012).

From the foregoing, it can be deduced that ecotourism is a unique niche area in tourism industry with attributes and economic potentials which ecotourists

are likely to express preferences for through their willingness to pay (Hearne and Salina, 2002). Some of these attributes may be environmental, cultural, educational or experiential interests that motivate ecotourists to visit natural areas (Chaminuka *et al.*, 2012). This study therefore intends to investigate visitors' willingness to pay for attributes of ecotourism in Protected Areas of Eastern Cape Province in South Africa. The attributes of interest in the study are village accommodation, village tour, craft market and price.

1.2. ATTRIBUTES OF ECOTOURISM IN EASTERN CAPE PROTECTED AREAS

Addo Elephant National Park

Addo Elephant National Park which is one of the Protected Areas in Eastern Cape Province where this study was implemented ranks the third largest national park after Kruger and Kalahari Germsbok National Park in South Africa (Figure 1). The park is unique for being the most biologically diverse park in Africa [Addo Elephant National Park (AENP), 2015]. It represents five of South Africa's seven biomes, namely the Nama Karoo, Fynbos, Forest, Thicket, Grassland and the Azonal Wetland (only lacking the Succulent Karoo and Savannah). The AENP currently covers approximately 178, 918 ha traversing four local municipalities.

The Strategic Environmental Assessment (SEA) conducted by AENP in 2003 revealed that extension of the park can catalyse poverty alleviation and contribute to socio-economic development through ecotourism development (AENP, 2008). The existing AENP already has a relatively well-developed ecotourism industry that is making a positive contribution to the regional economy. Since conservation-related forms of land use (such as game farming and ecotourism) have been found to be economically and environmentally more sustainable than livestock farming in thicket vegetation (Stuart-Hill & Aucamp, 1993), the expansion of the park potentially offers further socio-economic, yet environmentally friendly, development opportunities to Eastern Cape Province as well as employment opportunities for local people.

Numerous unique ecotourism attributes abound in AENP. Prominent among these are the rich culture of the traditional and indigenous Xhosa people that live in and around the park. The Xhosa are the kinsmen of the Late Nelson Mandela that dominate the Eastern Cape Province of South Africa. Similarly, there are historical sites that may be of interest to visitors to the AENP in adjacent communities to the park. Many of these sites bear the footprint of apartheid and colonial wars. There are also opportunities for the development of craft markets where visitors can participate in the making of arts and crafts.

Eastern Cape Nature Reserves in Wild Coast

The Wild Coast occupies the region of Eastern Cape Province in the former homeland known as Transkei (Figure 1). It encompasses a coastal (including a stretch of Pondoland coast) stretch between Great Kei River and Mtamvuna River at the North, which is also the limit between Eastern Cape Province and Kwazulu Natal Province, and the Mthatha River at the South (Sogge, Boulle, & Newton, 2007; Avis, *et al.*, 2004; Kepe, 2002). It is made up of three district municipalities (Alfred Nzo, Amathole and OR Tambo) comprising seven local municipalities: Mbizana, Qaukeni, Port St. Johns, Nyadeni, King Sabata Dalindyebo, Mbashe and Mnquma. The Wild Coast is estimated to house a population of 1.4 million people at a density of 96 people per km² (PondoCROP closure report, 2005 cited in Wright, 2005). Although the Wild Coast inhabitants contend with widespread unemployment and low levels of education occasioned by poorly developed infrastructure and severe poverty (Sogge *et al.*, 2007), nevertheless, the Wild Coast is admired for its large tracts of relatively undisturbed coasts and its rare and endemic vegetation. This gives credence to the name "Wild Coast" which is officially adopted essentially for tourism purpose to describe the scenic untouched nature of the area. It symbolizes European aesthetical representation of a beautiful area with a low population density (Guyot & Dellier, 2009).

1.3. WILLINGNESS TO PAY FOR THE ATTRIBUTES OF ECOTOURISM USING DCE

The theory underpinning discrete choice experiment is choice theory. Choice theory can be seen as an
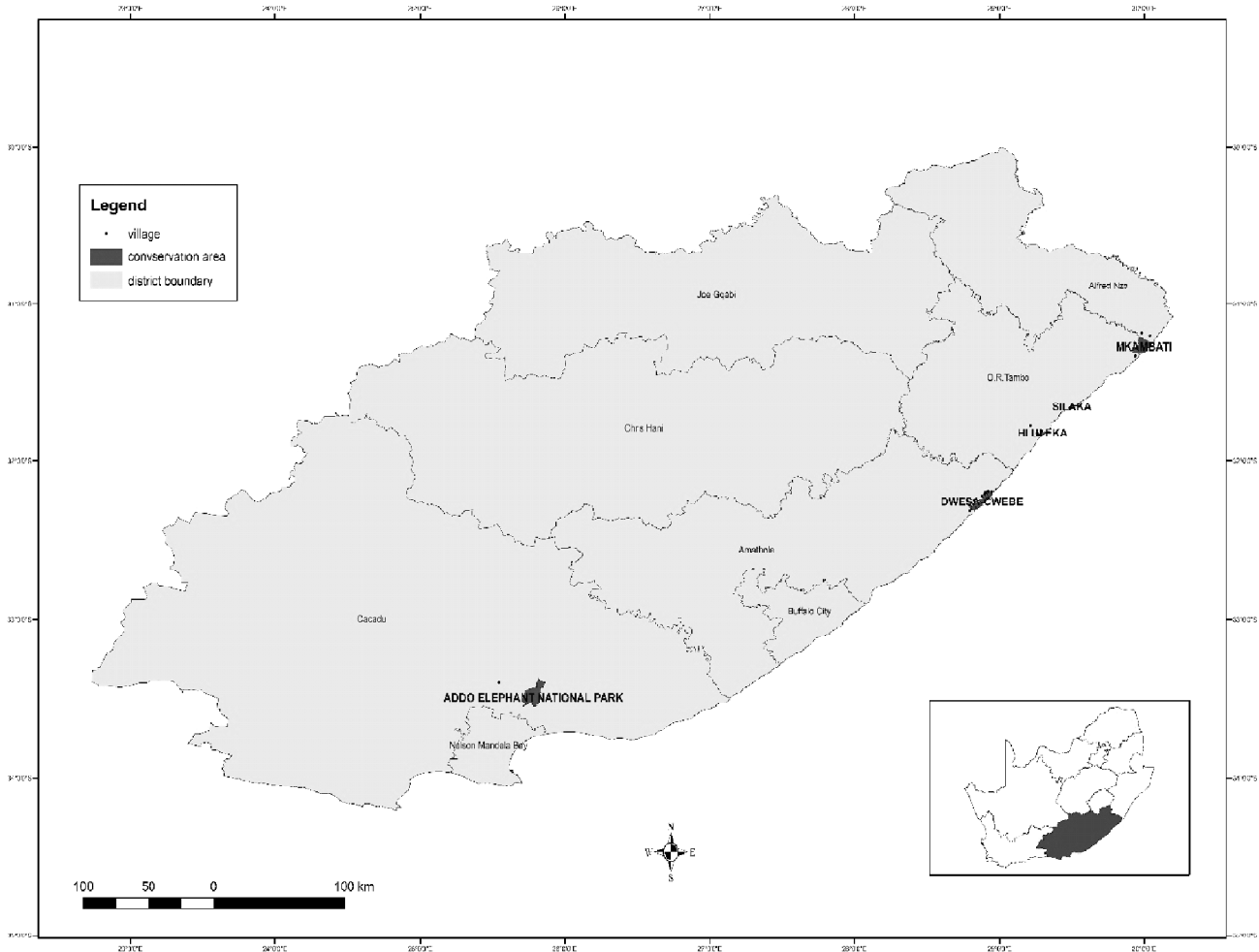
Figure 1: The Map of the Protected Areas in Eastern Cape Province

amalgamation of Lancaster (1966) theory of consumer behaviour and McFadden (1986) Random Utility Theory (RUT). The random utility theory follows the supposition that consumers make choices among products which maximize their utility (McFadden, 1986). Lancaster theory of consumer behaviour on the other hand, posits by shifting away from the traditional approach of seeing goods as the direct objects of utility to the fact that it is their properties or attributes that actually offer utility. Hence, discrete utilities (part-worth) for each attribute can be measured. McFadden's RUT provides the framework for the estimation of this utility. RUT states that all factors influencing individual behaviour cannot be observed, these unobservable factors are captured in the stochastic component of the utility function. Therefore, utility can be decomposed into two components as in equation 1:

$$U_{ij} = V_{(s, x)} + \varepsilon(s, x) \qquad (1)$$

Applying equation 1 to the present study, V denotes the non-stochastic component of the utility function representing the preferences of the visitor population, whereas å is the stochastic component representing the ith visitor's preferences influencing choice for the ecotourism trip alternative x given attributes s. Assuming that V is linear in the unknown parameters, the function $y(s, x)$ takes the linear form as in equation 2:

$$V_{(s,x)} = \beta_1 v^1 (s, x) + \cdots + \beta_k v^k (s, k) \qquad (2)$$

Assuming that the ith $(i = 1 \ldots \ldots I)$ visitor in a population has a vector of measured attributes, and faces J ecotourism trip alternatives $(j = 1 \ldots \ldots J$ i.e. 3) described by a vector of attributes x_j. The resulting random utility

model (RUM) for the ith visitor choosing ecotourism trip alternative j is represented by equation 3:

$$U_{ij} = \beta x_{ij} + \varepsilon_{ij} \qquad (3)$$

Equation 3 gives rise to a panel data because each visitor made several choices. Where β is a vector of parameters to be estimated, x is the vector of attributes represented by ecotourism trip alternativej and visitor i, and ε is the error term. Visitor's utility in equation 4 cannot be directly observed but we can observe choice made by the visitor regarding willingness to pay or otherwise. Therefore, the probability that i[th] visitor will choose the jth ecotourism trip alternative from the choice set means that utility from the jth choice is greater than the utility for all other k choices in that choice set that are not chosen. This can be mathematically represented as in equation 4:

$$P_i = P(\varepsilon_{ik} - \varepsilon_{ij} < \beta x_{ik} - \beta x_{ij}) \text{ for all } i \neq j$$

If the random error terms are independently and identically distributed (IID) with the Weibull distribution and the scale parameter is one, the probability that visitor i will choose alternative j is represented by equation 5:

$$P_{ij} = P(x_{ij} \mid s_i B_j) \qquad (5)$$

Equation 5 is the McFadden's conditional logit model, which has been a popular model for fitting discrete choice data and is estimated using maximum likelihood. Luce (1959) introduces an axiom which states that the relative odds of one alternative being chosen over another alternative should be independent of the presence or absence of a third alternative (McFadden, 1973); that is, the introduction of the third alternative should not affect the probability of choosing the first or second alternative. This is called the Independence of Irrelevant Alternatives (IIA) and the conditional logit model is based on this property.

2. EMPIRICAL LITERATURE ON TOURIST WILLINGNESS TO PAY FOR ECOTOURISM ATTRIBUTES

Several studies have been carried out on tourist willingness to pay for ecotourism products from various countries (Arin & Kramer, 2002; Zhongmin *et al*, 2003; Kim *et al*, 2004; Dumadisile *et al.*, 2005; Chia-Jung & Pei-Chun,

2014). Results from these studies showed variations in tourists' willingness to pay for various attributes of ecotourism offered in various tourists' destinations.

Chia-Jung and Pei-Chun (2014) investigated the *Preferences and Willingness to Pay for Green Hotel Attributes in Tourist Choice Behaviour: The Case of Taiwan.* The study adopted a stated preference of combined green hotel attributes scenarios. Multinomial logit model was employed to estimate the relative influence of behavioural and facility attributes on choice behaviour of tourists. Results from the study indicate that while tourists prefer luxury rooms and the provisions of personal toiletries, they are also willing to accept reduced service quality. Additionally, sex, income and age have significant influences on tourist choice behaviour. The implicit amount that tourists are willing to pay for room quality is around US$13, for the provision of personal toiletries is about US$22 and for service quality is US$12 and requested a discount of approximately US$11 in order to accept the common practices of green hotels.

Moreover, Dumadisile *et al* (2005) reports on Tourist*s' WTP to View Cape Clawless Otters (Aonyx capensis) along the Eastern Cape Wild Coast, South Africa.* A survey procedure was used to assess if tourists at Dwesa would be WTP a trained guide to show them otters. In this research, a total of 120 questionnaires were handed out to tourists who come to Dwesa Nature Reserve. From five bid offered (<R50, R50-R100, R101-R150, R151-R200, and >R200), most of the respondents were WTP either less than R50.00 (US$8.00) or R50.00-R100.00 to view otters regardless of the chances of seeing them. The result show that number of respondents that would pay less than R50.00 to view otters, increased as the percentage chance of seeing otters decreased, while the number of respondents that would pay R50.00-R100.00 to view otters decreased as the percentage chances of seeing otters decreased.

A similar study by Chaminuka *et al* (2012) analyzes the preferences of tourists to engage in ecotourism related activities as well as their MWTP for three specific ecotourism attributes, namely village accommodation, village tours and visits to crafts markets in villages adjacent to the Kruger National Park (KNP) in the Greater Limpopo Transfrontier Conservation Area (GLTFCA)

of South Africa using choice experiment approach. A total of 324 tourists took part in the survey, but only 319 questionnaires were analyzed. The average age of respondents from the study was 42.8 ± 15.2 years. Further, there were differences in the interest of international tourists to purchase certain ecotourism goods and services compared to domestic tourists. International tourists seem to have a higher interest to purchase the goods and services that villages can offer than domestic tourists. For instance, only 48% of the domestic tourists would purchase a village tour compared to 63% of the international tourists. This reluctance of domestic tourists to purchase goods and services from the local communities has also been observed elsewhere in South Africa by Kepe (2001). The results of analysis from the study suggest that there is potential for the development of ecotourism in the surrounding areas close to KNP.

3. METHODOLOGY

3.1. Sampling Procedure

The study adopted face-to-face interview method to administer structured choice experiment questionnaire to visitors. A non-probability availability sampling method was used to select visitor sample that participated in the study because it was difficult to determine the sampling frame of the respondents before-hand. However, care was taken to ensure that only overnight visitors were interviewed since day visitors may not spend sufficient time within the park to participate in the proposed ecotourism tour package. The researcher signed a contractual agreement with South African National Park (SANParks) and Eastern Cape Parks and Tourism Agency to facilitate access to the visitors to the parks. Visitors were approached at different locations within the park at their leisure or most convenient time, the researcher first introduced himself and the purpose of the study and with courtesy later request a formal interview of about 30 minutes. If the visitor agreed to be interviewed, then the interview will commence, otherwise, the researcher is obligated by the contractual agreement signed with the park to politely excuse the visitor without further questions. Where visitors came in groups, researcher requested for volunteer within the group to be interviewed

to avoid duplications of group-shared characteristics such as number of days spent in the PA, group number, nationality and so on. For the Wild Coast Nature Reserves drop-off, only the overnight visitors were given the questionnaires to fill. Ina all, one hundred and sixty (160) visitors were interviewed but only one hundred and ten (110) visitors representing 69% response rate. Each visitor was presented with seven choice sets which comprise three alternatives each, thus making all the 110 to make 2310 (7 X 3 X 110) choices, which were sufficient for our analysis.

3.2. Questionnaire Design

The choice experiment questionnaire was used to elicit responses on the attributes of ecotourism that visitors are willing to pay for. The design of choice experiment questionnaire requires important decisions to be made on the number of ecotourism attributes, the number of levels for each attribute, what those levels should be, and how these levels and attributes should be described (Hanley *et al.*, 1998). The attributes and levels were combined such that a set of alternatives emerge, which was then presented to the visitors. The visitors were asked to choose their preferred alternative from the set. Among the alternatives, a *status quo* option was included, which represented the current visitor trip. Inclusion of the *status quo* option in the choice sets enabled interpretation of the results in standard welfare economics terms (Hanley *et al.*, 2001).

The attributes used in this study were developed following comprehensive literature review and due consultation with key stakeholders (visitors and households in communities adjacent to PAs) was carried out. Since visitors to the PAs probably share similar characteristics with respondents of Chaminuka *et al.* (2012) study, we also identified village tours, craft markets and village accommodation as possible ecotourism services, and hence probable attributes of an ecotourism package in the study area. A price level attribute was added to make four attributes with different levels that were used in the choice sets. The levels for the price attribute compared favourably with what visitors were willing to offer and households were willing to accept in PAs. Table 1 shows the explanation of the attributes and the attribute levels in the choice experiment.

The combination of all attributes and levels results in a full factorial design which has $2^3 X 4^1 = 32$ different alternatives. A fractional factorial design was employed to obtain a smaller number of replicates in which all main effects and two-factor interactions could still be estimated (Johnson & Mansfield 2008). Taking into account the problem of overlap and dominance or near dominance of some choice sets, a total of seven choice sets were generated for the questionnaire. However, utility balance between alternatives to reduce dominance

(Johnson & Orme, 2007; Johnson & Mansfield 2008), could not be considered because of lack of prior information in the area. Visitors were presented with seven choice sets, each with three options. The *status quo* option corresponding to their current visit to the protected areas was included in all the choice sets giving room for a respondent to avoid any of the two alternatives provided, which would in turn give an idea about the interest or lack thereof in the potential ecotourism activities to be offered.

Table 1
Attributes and attribute levels in the choice experiment

Attributes	*Descriptions of Attributes*	*Levels*	
Accommodation	Visitors could have the opportunity to stay in village lodges or PAS accommodation as the current default option. These lodges would have similar prices or standards as those of the PAS accommodation.	PAs accommodation Village accommodation with similar standards and price to PAs	
Craft markets	Currently crafts are sold in PAS shops, but visitors do not have the opportunity to see the making of these products. Establishing village craft markets will give visitors a chance to witness and participate in the process of making souvenirs as an ecotourism activity	PAs craft shop Village craft markets	
Village tours	3-4hours duration. Activities include interaction with locals in their daily activities such as photography, cultural entertainment group, visit a traditional healer, the Tribal court house and visit cultural village.	No village tour Village tour	
Price	These activities would come at an additional cost above the Provincial Nature Reserve entrance fees	R130 ($10) R390 ($30) R520 ($50)	R260($20) R 520 ($40)

Source: Adapted from Chaminuka *et al.*, 2012.

The questionnaire has five sections. General information relating to visitor current visit to the PAs were asked in the first section. The second section deals with visitor interest in purchasing ecotourism in adjacent communities to PAs. Visitors' opinions on deforestation and conservation in the PAs were elucidated in section three. Section four detailed the choice experiment on ecotourism trips offered to visitors with a view to measuring their willingness to pay.

In designing the choice experiment questionnaire, Huber and Zwerina (1996) identify four principles based on a non -linear model: 1) Orthogonality, where attribute levels within each choice set are not correlated; 2) level balance, where attribute levels occur the same number

of times within a choice set; 3) minimal overlap, where attribute levels are not repeated within a choice set; and 4) utility balance, where each alternative within a choice set has approximately the same utility.

JMP 10 statistical package for orthogonal main effect designs was used to fulfill conditions 1, 2 and 3 above. The fourth condition requires *a priori* information about utility associated with visitor preference for attributes. Though including the fourth condition arguably produces more efficient design and estimation, the cost is too high within the budget of this study. However, the final fractional factorial design for the choice experiment consisted of seven choice sets. Thus, each visitor had to complete seven randomly selected choice sets containing

three alternatives (two improved options and one *status quo* (current trip)). The options were labelled. The fifth section of the questionnaire asks questions on the socio - demographic characteristics of the visitors. Table 2 is a typical choice set presented to the visitors during the survey.

Table 2
A Typical Choice Set Presented to Visitor Showing Attributes and Levels

Attributes	*Trip A*	*Trip B*	*Current Trip (SQ)*
Accommodation	PAs Accommodation	Village Accommodation	PAs Accommodation
Craft Market	PAS shop	Craft Market	PAs shop
Village Tour	3-4 hour village tour	3-4 hour village tour	No village tour
Price	R130 (US$10)	R650 (US$50)	PA entrance fee
I Prefer	☐	☐	☐

3.3. Empirical Models

Two variants of models representing different levels of utility in identifying determinants of willingness to pay among visitors were estimated for conditional logit models. The first model includes only the attributes of ecotourism trip and is specified as below:

3.3.1. Conditional Logit Model

$$U_{ij} = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon_{ij}$$

$$U_{ij} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7$$
$$\beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \varepsilon_{ij}$$

The dependent variable is the actual choice made by the visitor for each choice set evaluated. The notations in equation 6 are defined below:

$i = 1 \ldots, N$ is the number of visitor interviewed (110);

j = number of ecotourism trips in choice set J (3 in this study corresponding to ecotourism trip A, B & current trip which is *status quo*).

β_0 = is alternative-specific constants which are dummy variables indicating either Trip A or Trip B with respect to the current trip (*status quo*)

Price attribute has four levels corresponding to R130 or $10/trip, R260 or $20/trip, R390 or $30/trip, R520 or $40/trip or R650 or $50/trip.

The levels for the attributes, accommodation, craft market and village tour are effect coded. In contrast to dummy coding which uses 1 to represent the level appearance and 0, otherwise; effects coding uses -1, and +1. The reference level is coded -1, 1 represents the level appearance, and 0 otherwise. In effects coding, the effects are uncorrelated with the intercept (Bech and Gyrd-Hansen, 2005); therefore, the reference level can be calculated by taking the negative sum of the estimated coefficients.

4. RESULT AND DISCUSSION

4.1. Socio-economic Characteristics of Visitors

The socio - demographic results of foreign and local visitors in Table 3 indicate that 53.1 per cent of the foreign visitors are females while 52.2 per cent of the local visitors are males. Majority of the foreign visitors (57.8%) are 40 years and below (i.e. cumulative percentage of age group less than 30 and 30-40) while majority of local visitors (60.9) are above 40 years old (i.e. cumulative percentage of age group 41-50 and greater than 50 years). An average local visitor (45 years old (approximate)) is five years older than an average foreign visitor (40 years old (approximate)).

The employment status of foreign and local visitors are presented in Table 3. The fact that greater percentage of both foreign (57.8%) and local (52.2%) visitors are engaged in full time employment may suggest that they have come for holidays. Students constitute 12.5 per cent of the foreign visitors while 6.5 per cent represent students among the local visitors. As expected, there are

more retired visitors (15.2%) among local visitors compared to 4.7 per cent retired visitors among the foreign visitors. This may be due to rigour of travelling long distance that may discourage retired foreign visitors. The implications of greater percentage of the visitors engaged in full time occupation could be interpreted in two ways. Visitors engaged in full time occupation will definitely have high purchasing power that may enable them to afford transport fare

Membership of environmental organisation is known to influence the willingness of visitors to pay for non-market goods (Weaver, 2002). The results of both foreign and local visitor's membership of environmental organisations are presented in Table 3. Of all the visitors interviewed, 25 per cent are members of environmental groups. More of the local visitors (28.8%) belong to environmental groups while 18.8 per cent of the foreign visitors claimed to belong to environmental groups.

Table 3
Socio economic Variables of Visitors

Variables	Foreign Tourists		Local Tourists		Total Tourists	
Gender	Freq.	%	Freq.	%	Freq.	%
Male	30	46.88	24	52.17	54	49.09
Female	34	53.12	22	47.83	56	50.91
Total		100.00		100.00	110	100.00
Age (years)						
Less than 30	19	29.69	7	15.22	26	23.64
30 – 40	18	28.13	11	23.91	29	26.36
41 – 50	10	15.63	14	30.43	24	21.82
Greater than 50	17	26.56	14	30.43	31	28.18
Total	64	100.00	46	100.00	110	100.00
Mean	39.56		45.34		41.98	
SD	13.79		15.29		14.65	
Minimum	18		18		18	
Maximum	71		76		76	
Educational Levels						
Secondary/High School	10	15.63	12	26.09	22	20.00
Degree/Diploma	43	67.19	24	52.17	67	60.91
Masters	9	14.06	9	19.57	18	16.36
PhD	2	3.13	1	2.17	3	2.73
Total	64	100.00	46	100.00	110	100.00
Mean	15.73		14.04		15.02	
SD	2.37		2.85		2.70	
Minimum	10		7		7	
Maximum	22		20		22	
Employment Status						
Self-employed	8	12.50	10	21.74	18	16.36
Employed full-time	37	57.81	24	52.17	61	55.45
Employed part-time	2	3.13	0	0	2	1.82
Student	8	12.50	3	6.52	11	10.00
Unemployed	4	6.25	1	2.17	5	4.55
Retired	3	4.69	7	15.22	10	9.09
Others	2	3.13	1	2.17	3	2.73
Total	64	100.00	46	100.00	110	100.00
Organisation Membership						
Yes	12	18.75	13	28.26	25	22.73
No	52	81.25	33	71.74	85	77.27
Total	64	100.00	46	100.00	110	100.00

Source: Field survey, 2016

4.1.1. Income of Visitor

The willingness to pay of visitors is congruent on their income level (Nikodinoska *et al.*, 2014) and whether they are local (from within the country) or foreign visitors (Weaver & Lawton, 2007; Giraud *et al.*, 2002). The income distribution of both foreign and local visitors is presented in Figure 2. Thirty-three per cent of the visitors preferred not to disclose their income. Almost one-fifth (18%) of the visitors claimed to earn between R325000-R650000 (US$20000-40000) annually. Twenty-seven per cent reported income level of above R650000 (Above US$40000). Only 11 per cent earned annual income below R156000 (less than US$10000) and R156000-325000 (US$10000-20000) respectively. The "no" answer

response categories are common to both domestic and foreign visitors who are self-employed, retired elderly visitors and few students with no stable income. Several studies have found non-disclosure of income with similar or less percentage among visitors. For instance, Amy Walker investigated "The Green Movement in Hotels: Are Students on Board" in Las Vegas, USA, of all the 200 respondents interviewed, 36 of them representing 18% preferred not to disclose their income. Similarly, an investigation of public awareness and perception of marine aquaculture in South Affrican Coastal Communities by Morake (2011) revealed that 30 respondents representing 15% of total respondents refused to disclose their income
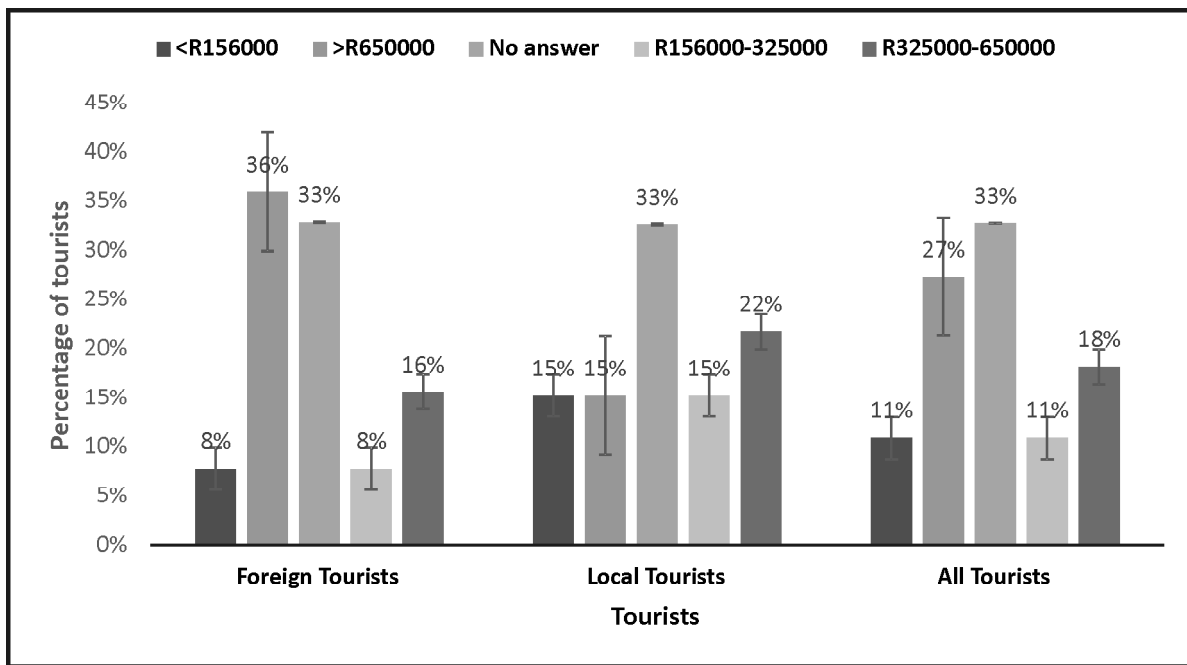

Figure 2: Income Distribution of the Visitors

4.1.2. Frequencies of Visit of Visitor to the Protected Areas

Information relating to frequencies of visits, days spent in the protected areas visited, days spent in South Africa and the visitations of visitors to the protected areas are detailed in Table 4. First time visitors constituted a majority to AENP (57.0%), WCNR (58.3%) and across all visitors (57.3%) that visited the protected areas. Twenty-seven percent of visitors to AENP have visited

2-5 times while twenty-five percent of visitors to WCNR have visited for 2-5 times. More percentage (16.7%) are regular visitors (over 5 times) to WCNR compared to 15.1% that frequent PAS.

4.1.3. Average Numbers of Days Spent by Visitor in the Protected Areas

Visitors spent an average of four days in the protected areas (Table 4). However, visitors to Wild Coast Nature

Reserves (WCNR) spent more days (7 days) compared to Addo Elephant National Park (AENP) visitors who spent three days. In terms of distribution of number of days spent in the protected areas, most of the visitors (60.9%) spent between one and two nights in the protected areas visited. A common trend is observed across the protected areas that as the number of days spent in the protected areas visited increased so also the percentage of visitors decreased progressively. The international visitors were further asked the number of days spent in South Africa. On the average, international visitors spent 15 days within the country before departing

for their countries. Most of the international visitors representing 40.6 per cent of the foreign visitors spent days ranging from 11 to 20 days in South Africa while 26.6 per cent spent above 20 days. The highest day spent by foreign visitor was 41 days.

4.1.4. Numbers of Persons in Visitor Traveling Party to the Protected Areas

Almost three quarters of the visitors (73.6%) travelled with a number of people in the range of one to five. The travel party seems to be concentrated in the range 1-5 among visitors to AENP as 81 per cent belong to this

Table 4
Information on Visitors' Visit to the Protected Areas

Variables / Frequency of visits	AENP Visitors Freq.	%	WCNR Visitors Freq.	%	All Visitors Freq.	%
First time	49	56.98	14	58.33	63	57.27
2-5 times	24	27.91	6	25.00	30	27.27
Over 5 times	13	15.12	4	16.67	17	15.45
Total	86	100.00	24	100.00	110	100.00
Days spent in PA (days)						
1-2	58	67.44	9	37.50	67	60.91
3-5	23	26.74	4	16.67	27	24.55
6-10	3	3.49	6	25.00	9	8.18
Over 10	2	2.33	5	20.83	7	6.36
Total	86	100.00	24	100.00	110	100.00
Mean	2.83		6.66		3.67	
SD	4.03		6.23		4.84	
Min	1		1		1	
Max	35		21		35	
Days spent in South Africa (days)						
2-5	8	12.50	0	0	8	12.50
6-10	13	20.31	0	0	13	20.31
11-20	26	40.63	0	0	26	40.63
Greater than 20	17	26.56	0	0	17	26.56
Total	64	100.00	0	0	64	100.00
Mean					15.20	
SD					9.17	
Min					2	
Max					41	
Travel Party						
1-5	70	81.40	11	45.83	81	73.64
6-10	9	10.47	4	16.67	13	11.82
11-20	4	4.65	5	20.83	9	8.18
Greater than 20	3	3.49	4	16.67	7	6.36
Total	86	100.00	24	100.00	110	100.00
Mean	4.73		11.33		6.17	
SD	5.53		12.16		7.91	
Min	1		2		1	
Max	30		45		45	

Source: Field survey, 2016

category whereas 45.8 per cent of WCNR visitors fall into this category. On the average, six people constitute the mean travel party in the study with proportionally higher travel party members of 11 among WCNR visitors compared to five members among. This result could be explained in terms of the season during which the data were collected. Most of the domestic visitors which constitutes 100% of the WCNR visited during the yuletide with their family members, hence, the higher travel party reported among them.

4.1.5. *Motivations for Visitors' Visit to the Protected Areas*

Reasons why visitors' visit the PAs are shown in the Figure 3 below. Visitors were asked to respond to Yes/No questions relating to various reasons that could have motivated their visits. The highest affirmative response is on viewing of wildlife (59%). This implies that the primary driver of visitors' visits to the PAs are still largely on viewing and photographing of games. This is followed by others which included family traditions, hubby, visiting for a volunteer programme etc. Only five percent visited for ecotourism - related activities and adventure trips, while eight per cent and seven per cent visited because they wanted to visit a specific park and that it was recommended by friends. Also, seven per cent returned because of their previous good experience. Recommendations by friends motivated 7 percent of the visitor to visit the protected areas. Only 3 per cent came because it was included in their tour package. Very negligible (1%) came for business related purpose.
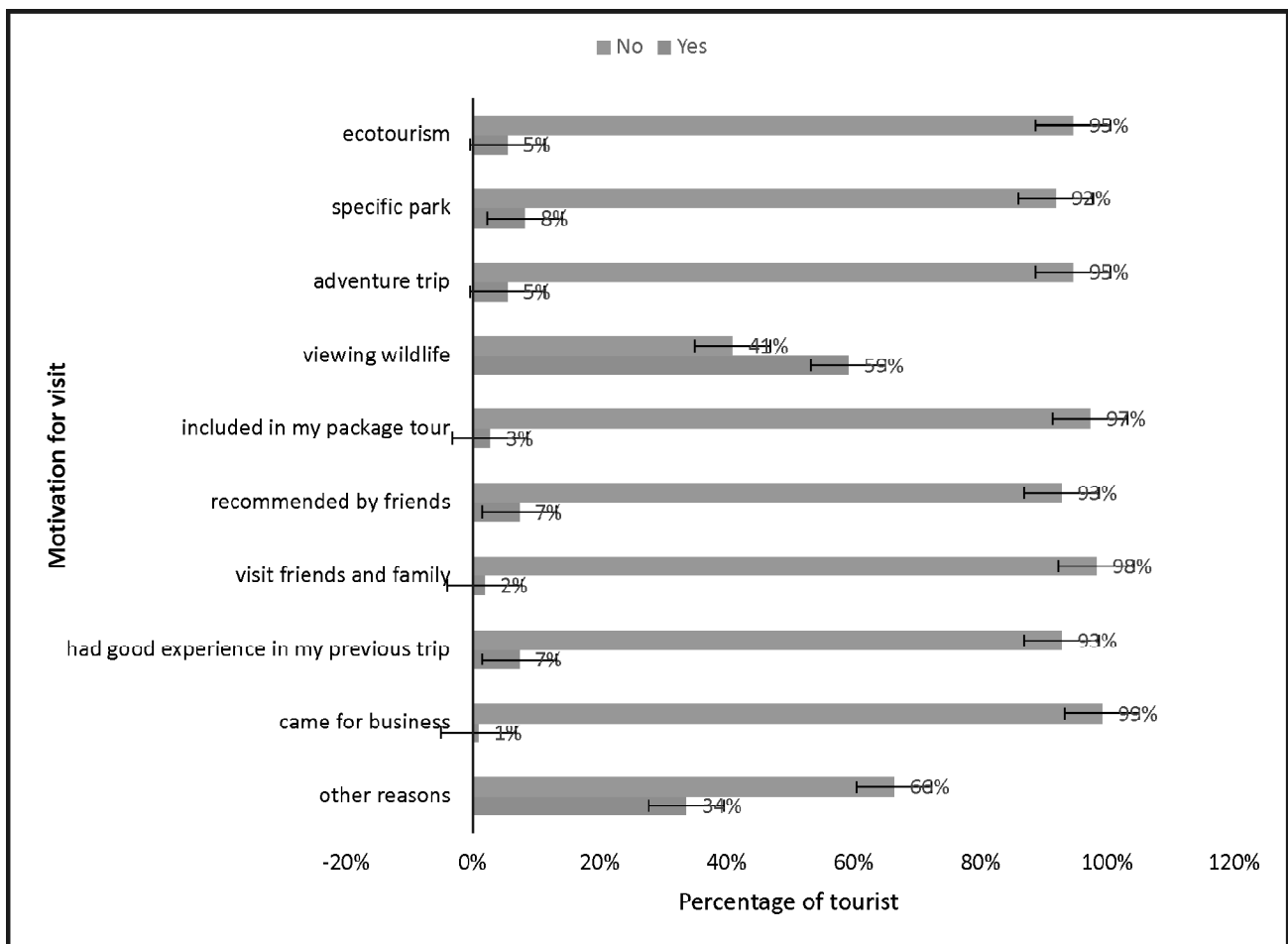

Figure 3: Motivations for Visitor Visit

4.2. Empirical Results from Conditional Logit

The results of empirical finding from conditional logits on visitor discrete choice experiment is presented in Table 5a and 5b below. Table 5a presents a descriptive overview of the outcome of the choice experiment, which provides a cursory insight into the visitors' preferences while Table 5b gives an introduction to the sample by describing its socioeconomic and trip characteristics.

Seven choices that were presented to each of the 110 visitor added up to 770 choice situations, as shown in statistic (a) of Table 5a. Each alternative in the choice set (Trip A, B or Current Trip) is used as a unique observation, and thus the total amount of observations is 2310. As shown in statistic b), Trip A was chosen in 19% of the choice situations, Trip B in 23%, which indicates that the visitors as a group, and as expected, did not show stronger preference for one of the two unlabelled trip alternatives. The "Current Trip" alternative was chosen in 58% of the situations which indicates that

there are high preferences for the status quo (status quo bias).

The demographic characteristics of visitors included in the empirical analysis are shown in Table 5b. More than 50% of visitor are male and 42 years old on the average. This supports previous studies (Nelson et al., 2004; McLean-Meynisse, 2003; and Hui et al., 1996) that found average male visitors visited South African Protected Areas. On average, visitor had 15 years of formal education, equivalent to a minimum of bachelor degree.

Table 5a
Choice Experiment Statistics

a	Respondents	110		
	Choice situations 7*110	770		
	Observations 3*770	2310		
b	Trip Chosen	Trip A	Trip B	Current Trip
		19.48%	22.99%	57.53%

Table 5b
Visitor Descriptive Statistics

Variables	Definitions	N	Mean	SD
Age	Age of household head as at the time of survey	110	41.91	14.72
Male	1 if male, 0 otherwise	110	0.51	0.54
Education years	Number of years spent to attain highest educational qualification	110	15.03	2.70
Income	Annual gross income of visitor in US Dollar	110	2300.13	21000.07
Nationality	1 if South African, 0 otherwise	110	0.42	0.49
Organizations	1 if member of environmental organization, 0 otherwise	110	0.23	0.42
Days spent in PA	Number of days spent in Protected Area	110	3.66	4.82
First time visitor	1 if visiting the protected area for the first time, 0 otherwise	110	0.57	0.49
Traveling Independently	1 if traveling independently, 0 otherwise	110	0.80	0.40

Source: Field survey, 2016

4.2.1. Factors Affecting Willingness to Pay for Ecotourism Trips among the Visitors

The determinants of willingness to pay for attributes of ecotourism among visitors was estimated using conditional logit. Presented in Table 6 are the estimated coefficients and standard errors from the Conditional Logit (CL) and Alternative Specific Conditional Logit (ASCL) models for willingness to pay for ecotourism trip

attributes among visitor visiting the Protected Areas. The basic conditional logit with only attributes of ecotourism is statistically significant at the 0.01 critical level as shown by the likelihood ratio test. The pseudo R^2, reported only for the CL, explains the degree of variation in choice explained by the model compared to a model assuming equal choice shares (Hensher *et al.*, 2005). According to Hensher *et al.* (2005), a pseudo R^2 of 0.3 shows a decent

model fit. Pseudo R^2 values between 0.3 and 0.4 can be interpreted as an R^2 between 0.6 and 0.8 for the ordinary least squares model equivalent (Hensher *et al.*, 2005). An R^2 of this range indicates that the model does a good job of predicting the outcome. The pseudo R^2 for this study is 0.1187, which according to Hensher *et al.* (2005) may be considered not too low, implying that the model still fit the data.

Table 6
Estimates from Conditional Logit Model from Visitor Choice Experiment

Variables	Coefficients	SE^b	Odd Ratios	SE^b	Coefficients	SE^b	Odd Ratios	SE^b	Marginal Effect Effects	SE^b
Accommodation(X_1)	0.0911	0.0776	1.0953	0.0850	-0.1696	0.1152	0.8440	0.0972		
Craft Market(X_2)	0.2567***	0.1042	1.2927	0.1346	0.0685	0.1214	1.0708	0.1300		
Village Tour(X_3)	0.2542***	0.0884	1.2894	0.1140	0.1060	0.1048	1.1119	0.1165		
Price(X_4)	-0.0024***		0.0002	0.9976	0.0002	-0.0113*	0.0070	0.0069	0.0069	
Socio-economic characteristics of visitor										
ASC (β_0)					-0.2220	0.6323	0.8010	0.5064		
Age(X_5)*					-0.0362***	0.0362	0.9645	0.0059	-0.0019*	0.0011
Male(X_6)*					-0.5790***	0.1629	0.5605	0.0913	-0.1681***	0.0321
Education years(X_7)*					0.0571*	0.0344	1.0588	0.0364	0.0058	0.0058
Income(X_8)*					0.0015	0.0051	1.0015	0.0051	0.0028***	0.0007
Foreigner(X_9)*					-0.0456	0.1882	0.9554	0.1798	-0.0416	0.0321
Days spent in PA(X_{10})*					-0.0605***	0153	0.9413	0.0144	-0.0015	0.0030
Independent traveler(X_{11})*					1.0799***	0.2489	2.9443	0.7328	0.1203***	0.0323
Member of organization(X_{12})*					-0.2459	0.1892	0.7820	0.1480	0.0046	0.0409
First time visitor(X_{13})*					-0.3256*	0.1837	0.7221	0.1326	-0.0279	0.0173
Model fitness parameters										
Number of observations	2310				2310					
Pseudo R^2	0.1187									
Wald chi²	(4) 176.68				(14) 229.99					
Prob.>chi²	0.0000				0.0000					
Log likelihood	-745.48498					-690.45246				

Source: Field survey, 2016.
Legends: *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.
b: Standard errors (SE) are robust.
(*) in front of socio economic characteristics of visitor indicate that it has been interacted with ASC (Alternative Specific Constant)

From the basic conditional logit model, all the ecotourism attributes are significant predictors of choice of trip alternative except village accommodation. As posited *a priori* based on past studies, price is negative and strongly significant, implying that as trip price increases, visitor's demand for ecotourism trip decreases. The estimated coefficients for craft making market are positive and statistically significant at the 0.01 critical level. This means that visitors prefer trips with attributes of craft market where they can participate in craft making rather than patronizing finished craft products in Protected Area shops. Visitor utility for village tour which include interactions with locals in their daily chores, photography, entertainment from cultural group, visitation to traditional healer and tribal court house is positive and statistically significant. The implication is

that visitors are favourably disposed to participating in 3 to 4 hours' tour at the adjacent communities in addition to viewing game in the Protected Area visited. These findings alluded to Chaminuka *et al.* (2012) findings on visitor preferences for ecotourism in rural communities adjacent to Kruger National Park, South Africa where both domestic and foreign visitors across different levels of income showed positive willingness to participate in craft making market and village tour. This study however found village accommodation not to be a significant attribute driving willingness to pay of visitor unlike Chaminuka *et al.* (2012) that found village accommodation to be significant with negative coefficient. The non-significance of the village accommodation variable may be due to the fact that some of the visitors interviewed within Addo National Park were actually staying in Bed and Breakfast located outside PAs while visiting the PAs (informal conversation with some visitors), hence this category of visitors may be indifferent to the location of the village accommodation proposed in the hypothetical market.

The alternative specific variant of conditional logit allows the interactions of the socio-demographic characteristics with alternative specific constant (Holmes & Adamowicz, 2003; Hanley, Mourato, & Wright, 2001). Three alternatives were presented to the visitor (2 improved ecotourism trips (Trips A and B) and the current trip as status quo). Both Trip A and B are improved with inclusion of various ecotourism attributes which make them different from the current trip embarked on by the visitors. There is however no distinct difference between Trips A and B. By interacting the socio-demographic characteristics of visitors with the alternative specific constant (ASC), the study was able to establish the socio economic characteristics of visitors that drive visitor willingness to pay. Marginal effects of the socio-economic characteristics of visitor were estimated and discussed below. The ASC for both Trips A and B relative to the current trip are statistically insignificant but negative indicating a "status quo bias choice" (Mazzanti, 2001).

The socio economic variables used in estimating determinants of visitors' willingness to pay include: Age (X_5), Male (X_6), Education years (X_7), Income (X_8),

Foreigner (X_9), Independent traveler (X_{11}), Membership of organisation (X_{12}) and First time visitor (X_{13}). As indicated in Table 6, a unit increase in **age** of visitor decrease the WTP of visitor for attributes of ecotourism by less than 1 percent. This means that the older the visitor, the lesser the probability of their WTP for the improved trip proposed. This is in conformity with what was anticipated *a priori* as young and adventurous visitors are expected to show more willingness to pay than older visitors which may be discouraged due to rigour demand of ecotourism activities (van Tonder, *et al.*, 2013; Adamu *et al.*, 2015). However, the marginal effect of being **male** decrease WTP by 16 percent compared to their female counterparts. This implies that being a male visitor alone is not a sufficient condition for willingness to pay for ecotourism trip. The implication is that, factors such as higher price and less income will further discourage willingness to pay for this trip.

The **income** of visitors also has significant positive effect on their willingness to pay as anticipated *a priori*. This result indicates that one US$ increase in the value of visitor annual income will bring about less than 1 percent increase in the WTP for ecotourism trip attributes of visitors. This follows the popular *axioms* of economics which opine that individuals with high disposable income tend to have higher purchasing power than those with low disposable income. Similarly, independent visitors are 12 percent more willing to pay for ecotourism trip than visitors that patronised various tour packages. This result is anticipated *a priori* since visitor traveling with tour operators tend to have customized traveling arrangement that may not give room for extra activities such as ecotourism activities.

Although being foreign visitor, membership of environmental organisation, education years, first time visitors and days spent in PAs of visitor are not significant determinants of willingness to pay for ecotourism trip in this study, coefficient signs for the values of foreigner, membership of environmental organisations, days spent in the PAs and education years agrees with *a priori* signs (Samdin, 2008; Chaminuka, et al., 2012) while first time visitors has counter intuitive negative value (Weaver, 2002).

The estimated mean willingness to pay of visitor for ecotourism trip attributes in US$ and South African Rand

equivalents from the basic Conditional Logit (CL) and the interacted Alternative Specific Conditional Logit (ASCL) is presented in Table 7 below. Estimates from the CL model shows that visitor are willing to pay US$2.95 (R44.25), US$8.31(R124.65) and US$8.23(R123.45) for village accommodation, craft market and village tour respectively. When the socio economic characteristics were interacted with ASC in Alternative Specific Conditional Logit model, willingness to pay values for

the attributes changes. Negative mean willingness to pay was reported for village accommodation (US$-14.97(R-224.55) implying that visitor utility will decrease by the specified amount staying in village accommodation. Craft market reduced to US$6.05 from US$8.31 (R124.65) while village tour value rises to US$9.36 from US$8.23. However, it should be noted that only craft market and village tour are significant for basic conditional logit model with attributes of ecotourism variables.

Table 7
Estimated Mean Willingness to Pay Estimates from Conditional Logit Models

	Conditional Logit (CL)			*Alternative Specific Conditional Logit (ASCL)*		
Attributes	*WTP (US$)*	*Lower Bound*	*Upper Bound*	*WTP (US$)*	*Lower Bound*	*Upper Bound*
Accommodation	2.95	-1.87	7.77	-14.97	-50.56	20.61
	(44.25)	(-28.05)	(116.55)	(-224.55)	(-758.4)	(309.15)
Craft Market	8.31***	1.83	14.80	6.05	-12.27	24.37
	(124.65)	(27.45)	(222)	(90.75)	(-184.05)	(365.55)
Village Tour	8.23***	2.72	13.74	9.36	-5.87	24.60
	(123.45)	(40.8)	(206.1)	(140.4)	(-88.05)	(369)

Source: Field survey, 2016.

Legends: *** denote significant at 1% level

Figures in parentheses are South African Rand equivalents

5. CONCLUSION

Results from this reveal that foreign visitors made up 58% of all visitors interviewed in the survey. The gender of visitor to the PA are almost equally distributed. The mean age of visitor is 42years. Sixty percent (60%) of the visitors had at least first degree or diploma with average school years of 15 years. Majority are full-time employee (55%) but some (16%) are self-employed. Mean income, number of days spent in the protected area and travel party number are R300654.4, 4 days and 6 persons respectively.

The empirical findings emanating from this study indicated that the determinants of visitor willingness to pay are two folds. First, attributes of ecotourism which include the village accommodation, craft market, village tour and price significantly influenced visitors' willingness to pay. Secondly, the socio-economic and travel related variables also determines their willingness to pay. Results from both the basic conditional logit with only attributes of ecotourism and alternative specific conditional logit

with interactions indicated that ecotourism trip price is a significant determinant of willingness to pay. The coefficient sign for the price variable is negative, indicating that the higher the price the lower the willingness to pay. Craft market and village tour variables are positive and strongly significant in the attribute only conditional logit. This means that the two attributes increased visitor utility.

Estimates from the conditional logit model shows that visitor are willing to pay US$2.95 (R44.25), US$8.31(R124.65) and US$8.23(R123.45) for village accommodation, craft market and village tour respectively. After interacting socio economic characteristics of the visitors with the alternative specific constant (ASC) in the ASCL model, willingness to pay values for the attributes changes. Negative mean willingness to pay was reported for village accommodation (US$-14.97(R-224.55) implying that visitor utility will decrease by the specified amount staying in village accommodation. Craft market reduced to US$6.05 from US$8.31 (R124.65) while village tour value rises to US$9.36 from US$8.23.

Findings from this study has implications for the development of ecotourism market in peripheral areas of Protected Areas in South Africa. The first implication is that the study shed light on the drivers of visitor willingness to pay for ecotourism attributes in South Africa. In addition, it also estimated the average willingness to pay of visitor for attributes of ecotourism in Eastern Cape Protected Areas. Since ecotourism market is new and emerging as an important component of wider tourism industry compactible with United Nations vision on sustainable development and food security; it is therefore suggested that more studies to elucidate the contribution of ecotourism to rural development and food security of households in adjacent communities to protected areas in South Africa should be implemented.

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