

Application of Travel Cost Method to Valuation of Historic Building: Old Residence in Calabar, Nigeria

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Abstract: The old residence is one of the historic buildings in Nigeria as a legacy of the British colonial administration as headquarters of Niger Coast, Oil River, Southern protectorates of Nigeria, perhaps first presidential lodge of the present day Nigeria. It is a national monument of historic site. This study is one of the first to value the building, using travel cost method to estimate the use value of the building. The data used for the study were obtained from a structured questionnaire administered to visitors to the building. Sample sizes of 240 visitors were analysed, which were collected over a period of 13 months. The results of the study show that individual visitors mean annual use value of the old residence ranges from ₦ 83,087(\$237.37) to ₦ 373, 206 (\$1,066). This result far exceeds annul average income of ₦ 331.67 (\$0.95) individual pay to visit the building as entrance fee.

Key words: Historic Building • Travel Cost Method • Use Value • Valuation

INTRODUCTION

A historic building or heritage building is any building which requires conservation or preservation for historical or architectural, artisanary or aesthetic or cultural or environmental purposes. International Valuation Standard Committee (IVSC) [1] defined historic property as assets that embody a cultural, historic and architectural heritage. A building may be historic because it was designed by a well know architect or was the first county courthouse or is the place where significant event occurred [2]. Historic building is applied to a building that is part of a community tangible past [3]. There are several benefits of historic buildings that worth preserving them. There are: it has intrinsic value, place to start new business, it is very attractive to people, it reminds the people of their culture and complexity, it tells some the history of a place. Characteristics of historic properties are historic, architectural and or cultural importance; enjoy statutory or legal protection; restraint and limitation upon use, alteration and disposal; and obligation that they be accessible to the public [1]. City of Brandon [4] Suggested that historic building have the following characteristics: History- this tells us who was the original occupants, what they do for a living and which event took place there? Architecture- informs us when the building was

constructed, who designed it and what material was used? Integrity- reveal the changes made to the building, does it fulfil its present function? Environment-disclose the look of the building whether it appears like any other one in the community (unique appearance) and is the building a land mark? These are what makes buildings historically significant and want preservation.

Historic building plays a significant role in the development of the individual and the society. Despite the fact they provide cultural, aesthetic and spiritual satisfaction, historic buildings have economic values. Historic or heritage building may be classified as public goods and as such there are expected to be maintain and preserve for public interest as it provides some eternal benefits to the area in which there are located. The characteristics of public goods are: they provide services to everyone, no one may be excluded from enjoying them and no one can reject its consumptions. The important thing is that historic buildings have value to those who own it and to non-owners as well. For instance, a property owner who has a beautiful old building in his compound and the property own knows that passer-by on the street or road enjoys looking at this building and some takes photograph of it, but cannot receive any payment from them. That is the building is generating social benefits, but those benefits are accruing to the public users

(passer-by), not to the owner. The owner has no incentive to preserve the building and indeed may not have the resources to do so. As a result, this building has use and non-use (intrinsic or passive) values in them. In deed the relative importance of these categories of values varies among historic buildings.

The value that a person gets from being able to enjoy a historic building or cultural heritage good is defined as the large amount of money that that person would willing pay to have that opportunity [5]. That is considerable amount of money that the visitor would be willing to pay, over and above any actual entry fee, to gain access to the site. This value simply is the use value. Historic building also generates values even to those who do not visit the site. These values are referred to as non-use or passive value [6]. There are four types of these values (existence, bequest, option and stewardship value). Historic buildings have the right to exist own their own as the fabric of human achievement in arts, design and construction and especially an essential ingredient to the spiritual and cultural well-being of the people and the nation.

The bequest value in historic buildings enjoys the support of the vast majority of the population. That is there is a wide public acceptance that the present generation have a duty to preserve the built cultural heritage for future generations. Therefore, non-use value is defined as the amount that a non-visitor would willing pay to be assured that the cultural heritage good is preserved [5]. Another related issue is determining the degree of the market. That is the total population who hold values for the non-use good. In other words assessment of the benefits or worth of heritage building lies on the concept of value. The question is what are the various dimensions to the value of heritage and how can they be assessed in a way that makes sense for public sector decision-making [7].

International Valuation Standards Committee [1] suggested that the sales comparison, cost and income capitalisation approaches may be employed in the valuation of historic property. The selection of the approach or approaches to be used depends on the availability of data required to apply those approaches. These approaches are employed by real estate valuers or appraiser. However, economists have developed various methods to value environmental goods: Replacement cost, Travel cost, Hedonic method, Contingent valuation, Benefit transfer [8]. These methods differ in their intent and use. Some aim to estimate value directly and indirectly. As regards historic building, if one is instructed

to estimate the damage resulting from fire destroying the building, the replacement cost approach is appropriate. The aim of such valuation is to provide policy makers the need to repairs the building. However, if one is interested to know the behaviour of visitor to the site of building other methods would be appropriate. Poor and Smith [9] suggested that Cultural heritage sites possess public goods characteristics and thus non-market valuation methods must be employed to measure the benefits that they provide to visitors.

[10] have suggested that new valuation studies on cultural or historical heritage should address specific policy problems rather than provide general values for the goods. In Nigeria, the application of environmental valuation techniques has been much more limited. The few of such studies are [11] who used contingent valuation method to estimate the value of non-market market good damaged by oil pollution in the Nigeria delta of Nigeria. Ayangbile and Abiodun [12] examined how heritage places and spaces are protected and managed. Well [13] concentrate on how Architects and Planners uses concept of integrity, authenticity and historic values to determine which historic places are worthy of conservation rather than monetary values. As diminutive studies have been carried out specifically using any of the environmental economist techniques to value heritage sites in Nigeria, this study contributes to the existing knowledge on the economic valuation of historic building using travel cost method. Direct use value of historic building is the value that accrues to tourists visiting heritage sites. Throsby [14] suggests that direct use value of heritage sites can be measured by entrance fees, or, if appropriate data are available, by consumer surpluses estimated using methods such as travel cost analysis. The aim of the study was to apply travel cost method to estimate visitor's direct use value of the Old Residence (a historic building), in Calabar, Nigeria.

Literature: There have been several debates as to whether the usefulness of introducing economic values into discussions in the historical realm may ultimately be useful to decision-makers. The questions lie between the conservation of natural and historical goods. This pragmatic application of economic tools to historical issues is evident in the use of valuation techniques to improve museum operations and regional impact analyses to justify public subsidy for historic or heritage buildings. This debate has generated many studies, using different environmental economist's techniques of valuation. Kolstad [15] in discussing travel cost method observed

that this method is most frequently applied to valuation of natural environment that people visit to appreciate its uniqueness. It is probable the oldest method of valuing environmental goods. There are two basic models use in travel cost method. The zonal travel cost model and individual travel cost model.

Poor and Smith [9] used the Travel Cost Analysis to estimate consumer surplus welfare measures of St. Mary's City (a Cultural heritage sites) located in rural southern Maryland, USA. They employed a revealed preference methodology, the zonal travel cost model. They analyze three years of visitor sample data to compare three functional forms of visitor demand. The result shows that the three years average visitor consumer surplus measures ranged from approximately \$8.00 to \$19.26. When aggregated to the total number of individual paid visitors, the average annual benefit estimates range from approximately \$75,492 to \$176,550.

On methodology, Poor and Smith [16] combines the travel cost method (TCM) with contingent behavior questions to estimate domestic visitors' use values for cultural heritage sites in Armenia, a transition economy in which conservation of cultural monuments is hampered by limited resources. They used information on respondent's visitation patterns, experience at the site, perception of the state of conservation of the monuments and rating of the quality of the services and infrastructure. The results show that (i) there are significant use values, which are associated with the study monuments and (ii) conservation programs and initiatives that improve the cultural experience, or simply make it easier for the respondent to reach and spend time at the monument, are valued by domestic visitors and would encourage higher visitation rates.

Alberini and Longo [17] used the travel cost method to estimate the recreational benefits of a beach along the eastern coast of Xiamen Island in China. The results indicate that the total value for the beach and its associated recreation is in excess of US\$ 10 million. The study suggested that the site should be protected as it provided a potential significant tourism resource and considered the use of a suitable entrance fee. Chen *et al.* [18] used TCM to estimate the use value of US National Park Service Preserved battlefield. Data for each visitor were collected on-site. The result indicated that an average individual willingness to pay for some battlefields trip granges a battlefields trip granges from \$8 to \$25. Melstron [19] used TCM to estimate the consumer surplus value for four cultural goods (Artistic event, a historic ensemble, a Museum and a Cathedral in Castillay

Leon region of Spain. Bedate, Herreron and Sanza [20] used national choice modeling to value marginal changes in several attributes of Old Parliament House in Australia and reveal that only some of them are valued positively. The positive attributes are temporary exhibitions, hosting various events and having shop and café and fine dining. Choia *et al.* [21] applied the TCM and CVM to assess the value of two rural institutions in order to compare the results of the valuation methods. The results reveal that visitor experiences core cultural experience as well as other valuable experiences before and after the visit. The study also shows that CVM allows for a valuation of the core cultural experience separately from other experiences while TCM is limited to an overall assessment. They suggested that TCM is an inappropriate measure of the value of cultural experiences when the total experience includes several other experiences. That is to say if a visitor travel for the sake of only one cultural experience, TCM may be preferable due to its simplicity and cost efficiency.

Armbréch [22] applied TCM to estimate consumer surplus and total value attributed to the Poseidon temple in Sounio Greece. The Poseidon temple is one of the important archaeological sites in Greece, which was built in the middle of the 15th Century BC. They used designed questionnaire and personal interview to collect data for the study. The results of the study show that consumer surplus for visiting the temple ranges between Cl.5 to 24.5 million per year. This gives an insight for the amount of money that Greek State need to spend to protect and maintain the monument. Tourkoliaa *et al.* [23] have argued that a good understanding of the characteristics of beach users and their recreational use values is of fundamental importance to formulate effective beach management policy. They used the individual travel cost method and estimated the recreation use value of Gold Coast beaches in Australia. The result of the study shows that the value of a single beach visits is estimated to be \$19.47 per person.

Historical buildings as tourist sites contribute to the local and national economy of the sites. Zhanga *et al.* [24] conducted a study on the Colombian Seaflower Marine Protected Area (SMPA), which is one of the largest Marine Protected Areas in the Caribbean. They conducted 1793 surveys to capture information about tourist experience and the value they place on San Andre's beaches. The result shows that the tourist would be willing to pay additional US\$997,468 annually on top of what they had already paid for their vacation to protect San Andre's beaches. The study also shows that

environmental degradation such erosion will impact negatively on the economy of the beaches if not protected. The study reveals that erosion will reduce revenue by 66.6% annually (US \$73 million annually). This study demonstrates the importance of valuation in the management of tourist sites. The insinuation is that the study reveals the importance of recreational sites on economic development of any nation and the potential loss. The study also reveals the immense opportunity for investment in natural infrastructural development and management. It also reiterates the application of valuation studies in the development of financial sustainability of any nation.

Cranenburgh *et al.* [25] and Mayor *et al.* [26] investigated vacation behaviour of tourist under travel cost conditions. The findings are that vacationers exhibit considerable diminishing marginal disutility of vacation travel costs. The interactive effects are destination, length of stay, accommodation type and mode of transport. The implication is that if there are increase in transportation cost and accommodation and other expenses it will have substantial effects on tourism industry. Clawson and Knetsch [27] investigated the recreational use value of Irish forest using TCM and CVM. The investigation shows that the result of TCM willingness to pay (consumer surplus) ranges between IR £ 2.38 and IR £5.96 per adult equivalent per trip. While the result of CVM willingness to pay cluster IR £ 1 per equivalent per trip. The implication is that people are finding it very difficult to state their true willingness to pay. This may be due to poor interpretation of the survey or willingness to pay questions.

The Old Residence in Calabar: Old residence is located in Calabar, the capital city of Cross River State one of the ancient cities in Nigeria. It is one of the very few history museums in Nigeria, which host some of the most preserved artefacts, monuments and documents dating back to pre-colonial Nigeria. The Old residence is one of the historic buildings in Nigeria as a legacy of the British colonial administration. It is a one-storey building prefabricated of Scandinavian Red Pine wood shipped from Britain to Nigeria and constructed in 1884. The timber frame structure currently depicts 18th century buildings with the original architectural design. It situates at old Calabar on a knoll-hill overlooking Calabar River within a scenic view. The site is approximately 6,000 metres in size. It was declared a National Museum by National Commission for Museum and Monument (NCMM) in 1959. Thus, it becomes one of the tourism destination

sites in Nigeria. It was first occupied by Consul Edward Hewett the Administrator of Niger coast Protectorate. The house has served as both the administrative headquarters of the Colonial government and South Eastern State and residence of early British administrator and officers such as Lord Luagr. It was the first headquarters of British colonial administration of the Niger Coast Protectorate, Oil River Protectorate and latter Southern Nigeria Protectorate before amalgamation of South and North Protectorates in 1914 by Lord Lugard. This becomes first presidential lodge of the present-day Nigeria. It was renovated to preserve its original materials and architectural design in 1986 by Dr Ekpo E Ekpo the then Director general of National Commission for Museum and Monument (NCMM).

Currently it situates between the residence of Chief Jude of the State, Deputy Governor' House and Presidential lodge. The Museum exhibition tells the story of old Calabar as a cluster of native settlement on the bank of Calabar River, early culture, economics and missionary activities of the British colonial administration in Nigeria. The Museum has a rich library, restaurants, shop and craft exhibition hall. It also has slave trade history collections and a collection of pre-colonial and colonial palm oil trade materials. There are several artefacts kept in the museum, such as 20th century velocity motorcycle used by Mr. Colin MacDonal who was a teacher in Hope Waddel Training Institute (first Secondary School in Nigeria). Some are steam engine iron boat used by United African Company (UAC) to carry palm oil from Nigeria to Britain and other European countries for their industrial uses and many artefacts and antiquity of ritual terracotta and other material excavated locally dated 4000AD and -1500AD. The old residence museum charge little admission fees which may not reflect the operation cost and maintenance cost. It is funded entirely by (NCMM) of the federal government of Nigeria. That is to say visitor use value of the site is not fully reflected in admission fees [9]. Therefore, in order to estimate the visitor willingness to pay or use value benefits of the museum, it is proper to use the non-market techniques, travel cost approach.

Table 1 shows total numbers of visitors that have visited the old residence from 2000 to 2016. It reveals that for the past 17 years the old residence have recorded a total of 200,658 visitors (187,461 and 13,197) Nigerian and Foreigners respectively, an average of 11, 803 yearly and 984 monthly. Calabar city attract visitors during the months of December and January yearly due to Street Carnival organised by the State government and most

Table 1: Total visitors to Old residence from 2000 to 2016

Years	Nigerian	Foreigners	Years	Nigerian	Foreigners
2000	5,263	214	2009	10,790	961
2001	6,107	244	2010	10,415	927
2002	6,346	210	2011	10,884	953
2003	7,556	443	2012	10,415	936
2004	8,575	414	2013	10,603	953
2005	5,963	474	2014	10,415	944
2006	39,810	1,999	2015	10,790	927
2007	12,134	702	2016	11,072	969
2008	10,321	927	Total	187,461	13,197
Grand total				200,658	

Source: National commission on museum and monuments, Calabar 2016

visitors use the opportunity to visit the museum. The year 2006 recorded the highest visitors. This is attributed to the introduction of the Calabar street carnival.

Travel Cost Method Mechanics: One of the methods used by Environmental economist to value historic or cultural heritage site is the Travel Cost Method (TCM). The basic principle behind TCM is that the expenses and time that people incur to visit a site represent the value of the site. That is the willingness to pay by people to visit a particular site can be estimated based on the number of trips to that site at various times and costs. It is often referred to as a 'revealed preference' method because it uses actual individual behaviour and choices to infer value [15]. There are three approaches in the application of TCM: Zonal cost approach which was first used by Clawson and Knetsch [27] individual travel cost approach used by Brown and Mendelsohn [28] and the random utility approach. In this study, the individual travel cost approach is adopted. This approach uses data from survey of individual visitors to the site rather than from zones. The approach attempts to estimate the willingness for each visitor at a particular site. The dependent variable is the numbers of visit to the site by each visitor. The implication is that the travel cost and time will differ from one individual to another even where the place of origin is the same.

The basic procedures are: first, elicit data from the behaviours of the visitors to the sites using sample data obtained from the visitor, which involves data on number of trips to the site, place of origin and other socio-economic data. The essence of this is to estimate the relationship between number of visits and travel costs and other variables.

The general equation is expressed as follows:

$$Y=f(O, T, A, TC, I, TS, OP, EQ) \quad (1)$$

where 'Y' number of times visited the site in the past years, 'O' place of origin, 'T' length of time travelled, 'A' amount spent on the site. Other includes 'TC' travel expenses, information on 'I' income of the visitor, 'TS' amount of time spent on the site, 'OP' other places of visit during the trip and 'EQ' perception of the environmental quality of the site. The second step is to estimate the willingness to pay by apply the regression analysis. The third step is to use the regression result to estimate the value of the site from total number of visitors to the site derived from the coefficient estimates from model forms.

Methodology: There are several ways of applying TC method such as zones, individual and random utility. In this study, we opted for individual method. The data used for the study were obtained from a structured questionnaire administered to visitors to the property. Data were collected for a period of 13 months. The first was collected from in 15th December 2014 to 16th January 2015 as a pilot survey to test the understanding of the questionnaire by visitors. The second questionnaires were administered to visitors at the Museum from 1st March, 2015 to 31st March, 2016. The Museum Staff that distributed the questionnaire to visitors were trained on how to approach visitors and explain the essence of the survey. However, not all that visited the Museum filed the questionnaire.

Variables Specification: Number of visits (Y) - number of times respondents have visited the old residence in the past years. The visitor has opportunity to spend his leisure time in either exercise (sport) or other things instead of embarking on a recreation trip. So, the value of travel time to a recreation site is the best opportunity cost to the visitor at that particular time.

Travel Cost (TC)-Travel cost or expenses are unavoidable expenses by a tourist which must be taken into consideration in planning for a trip. The cost varies from place of origin of the visitor. The place of origin of the visitor measures how far the visitors have travelled to the site to enjoy the services. The length of trip and amount of time a visitor spent on site affect the cost of travel and the utility derived on site. The presumption is that visitors who travel a long distance spend more time on the site than other short distance visitors to enable them recoup their total cost of the trip. Thus, transportation cost, admission fees, parking fees (if any), meal, accommodation (if need be) are inevitable data. Transportation could be calculated based on whether the visitor uses personal car or public transportation services,

air or sea. For purpose of this study we only use transport costs by land (private vehicles only as public transportation is not allowed to the site) and sea (boat). For those travelling by aeroplane and boat the fees on ground transportation cost were calculated from point of landing to the site as per vehicle and added to the cost for flight or boat.

$$\text{Travel cost} = \frac{\text{distance in KM} \times 2 \times 20}{(\text{number of person in the vehicle}) \times (\text{length of trip in hours})} \quad (2)$$

Other cost such as food, accommodation, purchases etc are excluded because of willingness of visitor to supply them. Data were collected on the distance travelled in kilometres, cost per kilometres (₦ 20 (\$0.058) per KM) (travel allowance approved by the federal government of Nigeria), Number of persons in the vehicle, length of trip measured in days. The expected result is that travel cost should be positively related to the number of visitors.

Income: The personal income of the visitor measuring the value of their time. The WTP to enjoy or visit a recreation site depends not on the distance but on the income and opportunity cost of time [29]. The willingness to visit a site is correlated to individual nature of employment. The expectation is that there is positive relationship between the number of visit to the site and income of the visitors.

NAT: Indicates whether the visitor is a Nigerian or a foreigner. The perception of nationality differs with number of visit. Foreigners who visit the museum may have different motives outside recreational, but locals may visit the site for specific purpose.

Age: This shows the demography variable of the visitor. The expected sign is positive relationship with number of visit. In the analysis, we excluded school children who visit for education purposes and may not really understand the essence of the survey.

Dummy: This measures the perception of the quality of site. The quality of a site is what attract most visitors to visit it and if a site is not well preserved and maintained it will not attract visitor to it. Other quality of site is the level of congestion. This is measured qualitatively on a five-point scale. Our assumption is that the site has pleasant view, superlatively preserved and maintained and no congestion to the visitors.

Model Specification: The study employed two forms of regression estimates: Linear and semi-log. The semi-log is where dependent variable is transformed by taking the natural logarithm. The essence of using semi-log regression form is to minimize or eliminate the potential problem of negative trip predication, which can occur using a linear regression forms. The regression models are:

$$\text{Linear model: } Y = \alpha + \beta_1 TC + \beta_2 INCOME + \beta_3 NAT + \beta_4 AGE + \beta_5 DUM + \epsilon$$

$$\text{Semi-Log model: } \ln Y = \alpha + \beta_1 TC + \beta_2 INCOME + \beta_3 NAT + \beta_4 AGE + \beta_5 DUM + \epsilon \quad (3)$$

where Y is the number of visits per individual to the museum or (willingness to pay), TC is the travel cost, $INCOME$, mean annual income of visitors, NAT Nationality of the visitor, AGE , the average age of the visitors, DUM the dummy variable and ϵ is the random error the estimation. The coefficients to be estimate are $\beta_1, \beta_2, \beta_3, \beta_4$ and β_5 .

In order to calculate the mean willingness to pay (MWTP) the model becomes

$$MWTP = (\alpha + (\sum \beta_i \times TC) / \beta_1)^{-1} \quad (4)$$

where X is mean value of the variables.

In estimating the use value of the site for a year: MWTP multiply by the mean visitor to the site.

RESULTS AND DISCUSSION

To estimate the use value of the old residence in Calabar using travel cost method, a non-market valuation technique, the result of regression estimate for the functional forms are presented below.

Table 2 summarises the statistics for the variables included in the regression models. The total number of observations include in the estimate is 240 while number of visit is the dependent variable.

Table 2: Variable summary statistics

Variable name	Mean	Std. Deviation	N
Number of Visits	9.3917	7.38232	240
Travel cost	5.6843	9.46469	240
Income	2.2779	3.47081	240
Nationality	1.1375	.34509	240
Age	34.1250	12.94052	240
Dummy	4.5542	.73552	240

Table 3: Linear Coefficients^a estimate

Variable name		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	9.435	4.368		2.160	.032
	Travel cost	-.113	.052	-.145	-2.190	.029
	Income	.134	.138	.063	.972	.332
	Nationality	-2.117	1.499	-.099	-1.413	.159
	Age	.062	.037	.109	1.677	.095
	Dummy	.128	.678	.013	.189	.850
	F-statistic	3.291				
	Sig	0.007				
	R-squared	0.66				
	Std Error	7.21150				

a. Dependent Variable: Number of Visits

Table 4: Semi- log Coefficients^a estimate

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	9.517	4.714		2.019	.045
	Travel cost	-.032	.056	-.039	-.573	.567
	Income	.134	.149	.060	.897	.371
	Nationality	-1.198	1.617	-.053	-.741	.460
	Age	.034	.040	.056	.839	.402
	Dummy	.550	.732	.052	.751	.453
	F-statistic	0.859				
	Sig	.509				
	R-Squared	0.018				
	Std Error	7.78191				

a. Dependent Variable: Number of Visits

Table 3 show linear regression estimates as is stated in equation 3. The F-test for the overall independent variables is significant at level of 0.05% with P- 0.007 whereas individual variables were not significant at level 0.05% except TC with p-0.029. As this is the case we reject the null hypothesis that the coefficients estimate is equal to zero.

Table 4 show semi-log regression estimates as is stated in equation 3. The F-test for all independent variables is not significant level of 0.05% with P- 0.509. Therefore we reject the null hypothesis that the coefficients estimates are equal to zero. In comparing the two model estimates with respect to travel cost coefficient estimate for the two models, the result shows consistency with demand theory, that there is inverse relationship between numbers of visits and travel cost. The significant level of the coefficient estimates for travel cost is all different from zero at 0.05% and 0.01% for both linear and semi-log models.

As relates to income variable, all the two model's coefficient estimates did not show an inverse relationship between income and quantity of visits to the museum.

This confirms the result in previous study [30]. Nationality coefficient estimates were significantly different from zero at the level 0.05% and 0.01 for all the models. The sign on the nationality coefficient estimate was negative in all the models indicating a negative relationship between nationality and number of visit to the museum. The age coefficient estimates were positive for the models indicating positive relationship between age of visitor and numbers of visit.

Table 5 shows the estimation of the means willingness to pay by individual visitors to the Museum, for linear model is ₦ 83,087.7 while semi-log model is ₦ 373,206 using equation (5). This means that the value that some an average individuals are willing to pay annually to visit the museum ranges between ₦ 83087 to ₦ 373,206. However, it does not mean they have to pay it before visiting the site. The average access entrance fee to the site is ₦ 331.67 but it just expresses they value of the site in monetary terms. Infer from the regression model forms used, it is imperative to note that the model used in the estimation of willingness to pay have a significant influence on the visitors' value estimates.

Table 5: Calculation of Means willingness to pay

Variables	Mean willingness to pay (MWTP) calculation				
	Linear Coefficient	Mean	Coefficient*mean	Semi-Log Coefficient	Coefficient*Mean
Travel cost	-0.113	5.6843	-0.6423	-0.032	-0.18190
Income	0.134	2.2779	0.3052	0.134	0.30524
Nationality	-2.117	1.1375	-2.4081	-1.198	-1.36273
Age	0.062	34.125	2.1158	0.034	1.16025
Dummy	0.128	4.5542	0.5829	0.55	2.50481
(Constant)	9.435		9.4350		9.51700
Total			9.3885		11.94268
MWTP			83.0867		373.20625

It has been observed that semi-log WTP estimates exceed the linear model estimates by ₦ 290,119. That is semi-log model yield a more robust regression estimate than linear model and so it is a more reliable model to use in non-market valuation studies.

In this study, it is pertinent to note that the value visitors placed on the old residence is more than the access fee charged by the (NCOMM) of an average of ₦ 331.67 which this cannot cover the operating expenses in a month. With average visitor of 11,803 and Museum generate about ₦ 3,908,681.5 However the average annual benefit or use value that an individual visitor placed on the Museum ranges between ₦ 83, 087 and ₦ 373, 206 in 2016. This simply indicates that it is worthwhile for NCOMM to spend money to protect the museum as there are so many people that generate benefits from visiting the old residence Calabar. This figure appears to be conservative in that it only reveals the value of current users, there are other passive values (option, bequest and existence and stewards) that are not included in this study. Also, there is the tendency that the population of visitors and their income will increase which is likely to increase their willingness to pay in near future. The study also reveals that conservation of historic building is not to achieve 'value for money' rather the social value that it passed on to future generations. This result discloses that future value of historic building is much more than its current value and external benefits individuals and society get from it.

CONCLUSION

Historic buildings such as the old residence located in Calabar, Nigeria has the characteristics of public goods and its benefits can be valued using non market valuation techniques such as stated preference or revealed preference methods. This study employed the travelled cost using the individual model to estimate visitors use value associated with the historic building. The results show that the estimation of the means willingness to pay

by individual visitors to the museum, for linear model is ₦ 83,087.7 while semi-log model is ₦ 373,206 using equation. This means that the estimation of the willingness to pay for visiting museum depends on the model employed and provides significant information for the administration of the museum. The study also finds out that the value visitors placed on the old residence is more than the access fee charged by the (NCOMM) of an average of ₦ 331.67 which this cannot cover the operating expenses in a month. This also shows that visiting historic building or museum is for leisure, educational etc and not for profit making.

The limitation of the study is that it was very difficult to determine whether the visitors took a single purpose trip to the museum. Bearing in mind the fact that when the distance is greater the travel cost is greater and lower rate of visit, visitor may tend to recoup their cost by taking multiple trip purposes. This was very difficult to determine as the visitors find it difficult to reveal their multiple purposes. To resolve this issue, it is suggested that further studies using the stated preference methods (contingent valuation method) be employed to investigate the willingness to pay by visitors to visit the museum. However, the travel cost method appears to be less cumbersome if all the necessary data are available or the visitors are willing to give information about their travel expenses.

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