



Tenants' Willingness to Pay for Landscaping Features in Alagbaka Government Reservation Area of Akure, Nigeria

Bello, Victoria A.; Audu, Adedamola F. and Ezeokoli, Nnaemeka B.

Department of Estate Management, Federal University of Technology, Akure, Nigeria

Corresponding author: Bello, Victoria A., Department of Estate Management, Federal University of
Technology, Akure, Nigeria. vicbellofuta@yahoo.com

Abstract: The growing awareness of the contributions of landscaping to real property and the eco-system in general has made real estate industry to integrate landscaping into property decisions. However, little is known about the individual's willingness to pay for the landscape features as consumers do not really have a clear understanding of the landscape value and its connection to property investment. Thus, this study examined the tenants' willingness to pay for landscape features, and the factors that determine their willingness to pay. Data was gotten from ninety three (93) tenants of residential properties within Alagbaka Government Reservation Area (G.R.A) through structured questionnaire. The retrieved data were analyzed using the Frequency Distribution tables to analyze the socio – economic characteristics of the respondents, and Binary Logistic Regression Model based on the Contingent Valuation Method to analyze the tenants' willingness to pay for the landscape features and the factors responsible for such choices. The study revealed that tenants are willing to pay bid amount of rent for the incorporation of landscape features into housing process. It further revealed that factors such as Length of stay, Fence and retaining walls, Income, Trees and Shrubs significantly influence tenants' willingness to pay for landscaping. Therefore, the study recommended that landscape be encouraged and properly managed to ensure that it fulfills the full potential of its lifespan and for optimum returns from the properties.

Keywords: Landscaping, Property, Tenants, Value, Willingness-to-Pay.

Introduction

Landscaping denotes the process of shaping, modifying and creating an outdoor scene ordered to effectively express the functional and supportive attribute of the public domains (include parks, streets, markets, playground and other open spaces among others) within the urban environment (Fadamiro, Anifowose and Atolagbe, 2006). In general sense, landscape is fundamentally the land as shaped by climate and which results in the distribution of existing flora and fauna (Jim, 2004). It deals with the beautification and management of the environment by the organization of spaces with proper cognizance of the basic principles of design. Therefore, it can be said to be an integral part of culture and plays an essential role in the quality of our environment, affecting economic wellbeing, physical and psychological health. Richter (2009) observed that landscapes are dynamic and their features have life cycles that need to be properly managed to maintain its form and beauty. Hence landscape will necessitate some maintenance in order to improve its scenic value. This scenic value is an important determinant of real estate value, and it is the critical factor as regards the prices of recreational and residential property in the real estate industry (Cellmer, Senetra and Szczepanska, 2012).

In the developed countries the real estate industry has made substantial strides in the integration of landscaping into property decisions. Landscape contractor now convince clients to spend a significant portion of a home's construction budget on landscaping (Nishimura, 2005). While strong progress has been made, majority of home owners are yet to be convinced about the need for landscape; as the value it adds to property investment is yet to be ascertained. In the Nigeria property markets, landscaping is not very common in residential properties as compared to what is obtainable in developed countries. The question therefore is, 'are tenants willing to pay for landscaping features in residential properties'? Willingness to pay is based on the principle that households will maximize their welfare subject to stated constraint

(Okoko, 2003). Whittington, Briscoe, Mu and Barron, 1991 viewed willingness to pay as a key concept in an improved planning methodology designed to obtain information on the value placed on different levels of services which in turn allows for fixing of charges which ensure that operation and maintenance cost is recovered.

In the developed countries, numerous studies have been conducted in the area of willingness to pay for landscaping features (Drake, 1992; Garrod and Willis 1995; Alvarez - Frarizo, Hanley, Wright and Macmillan 1999). The different contextual framework and cultural difference as well as property market characteristics will limit the application of the results of these studies to Nigerian situation. In Nigeria not much has been done in this regard. The few existing research in the area of willingness to pay is centered on willingness to pay for better environmental quality and housing condition (Arimah, 1996, Okoko, 2003, Bello and Bello, 2008) and willingness to pay for trees shade (Bello and Yacim 2009). Unfortunately the research did not focus on willingness to pay for other landscaping features like Fence and Retaining Walls, Driveway and Curb Cut, Deck and Patio, Garage and Shed, Landform and Water form. It is in the light of this that this research is intended to fill the gap that exist and add to existing literature.

The remainder of the paper is organized as follows. The next section deals with the review of relevant literature on the subject matter. Section three presents a detail description of the methodology adopted for the study, while section four focuses on empirical results. Concluding remarks and policy implication are contained in section five.

Literature review

In the last few decades, there has been a great deal of research attempting to place a price on landscaping. The literature therefore most often applies stated preference (SP) approach by using survey based method to uncover consumers' willingness to pay (WTP) for landscape. Drake (1992) used the Contingent Valuation

method to assess values ascribed to Swedish agricultural landscape by asking respondents their WTP, via income tax, for preventing half of all agricultural land from being abandoned and cultivated with spruce forest. Based on a sample size of 1089 respondents from all Sweden, a mean WTP of 468 per person per year was estimated. The study revealed that average WTP varied by region but the variation was not significant. Regions dominated by agriculture showed higher levels of WTP for landscape. However, stronger variation was found for landscape types. Respondents had higher WTP for grazing land, by 91%, and for wooded pasture, by 141%, relative to land cultivated with grains.

Alvarez-Farizo et al (1999) found out that the WTP for environmental improvement of landscape declined with decreasing familiarity with the site in two regions in Scotland: bids were highest for residents or visitors, and lowest for those who had no prior information about the study site. Significant non-use values were found, in that those neither living in nor visiting the sites had positive WTP amounts which were significantly different from zero at the 95% confidence level. Further, residents had a higher WTP than non-residents, although the difference was not statistically significant. Garrod and Willis (1995) also estimated the use and non-use WTP to maintain the current ESA landscape in England. The estimated WTP to general public who has not visited an ESA region and who likely derive non-use value from landscape was £21 per household and year. On the other hand, respondents who visited the ESA regions and who may have both use and non-use value from landscape (i.e. respondents) show higher WTP, between £30 and £45.

Loureiro and López (2000) investigated the preferences of tourists for the local cultural landscape in the Ribeira Sacra region of Galicia (Spain). One hundred and seventy three (173) tourists were interviewed and asked to choose between two alternative types of cultural landscape, with a number of attributes such as preservation of traditional customs, food products, and rural settlements; protection of the local

environment; protection of the traditional agro-forestry landscape; and preservation of the historical-cultural heritage. The WTP for each attribute (€ per day) was estimated as follows: History: 22.39, Tradition: 7.45, Environment: 32.47 and Agri-forestry landscape: 24.44. The study concludes that visitors value the attributes they experience (for example the wildlife, the landscape and historical sites) more than local traditional products (for example local wines and foods).

Erker and Verbic (2007), studied willingness to pay for sustainable development using Volčji Potok landscape area of Slovenian as a case study. The study tried to assess the overall value of the environmental goods for residents and visitors to the area. The study employed the use of contingent valuation model and it was observed that some variables such as the respondent's income, the frequency of visiting the environmental goods, environmentally and spatially related preferences expressed by the respondent and the respondent's attitude towards environmental goods turned out to be statistically significant determinants of willingness-to-pay. It was further observed that the respondent's age is a statistically insignificant determinant of willingness-to-pay at a still acceptable significance level.

In Nigeria, Bello and Yacim (2009) examined the habitability of residential properties and willingness to pay for tree shades in around houses in Maiduguri using the Mean Score Method and Double Log Regression Model to evaluate the benefits the residents were deriving from trees and the willingness of the residence to pay higher value for tree shades around their houses. The result were planted to protect the properties from erosion, strong north – east wind, reduction of the scourging influence of the sun and heat on residents and control of desertification. The result also showed the income level of household head, presence of trees and number of workers in the tenants' family as significant variables influencing the willingness to pay higher rent for property with trees.

The study Area

Akure is a traditional city in Nigeria like other Yoruba towns in the country, which existed long before the advent of the British colonial rule in the country. The city is located within Ondo state in the south western part of Nigeria. Ondo state is one of the 36 states of Nigeria. It lies approximately on latitude $7^{\circ} 15'$ north of the equator and longitude $5^{\circ} 15'$ east of the Greenwich meridian. It is bound in the north by Ekiti and Kogi State, in the East by Edo state in the West by Oyo and Ogun state and in the south by Atlantic Ocean. Akure is located approximately 700 kilometers south west of Abuja, the Federal Capital of Nigeria and 350 kilometers to Lagos. It is located within the tropical rain forest where rainfall is high throughout the year. Akure is a medium sized urban center and became the headquarters of the Ondo state in 1976 consequently, resulting to the heterogeneous massing of people and activities in the city (Ministry of Works and Housing 1980). Akure, the capital city of Ondo state is believed to be the front liner in the urban landscaping within the country. The town has witnessed rapid landscaping all around due to the recent urban renewal programs of the State Government.

Research Methodology

Data for the study was collected through a survey conducted among ninety three (93) tenants of residential properties within Alagbaka GRA through structured questionnaire. The dichotomous-choice contingent valuation questions asked was to evaluate the average WTP and the factors that influence the choice. The data collected were analyzed using Frequency Distribution and Binary Logistic Regression Model based on the Contingent Valuation Method. The Frequency Distribution was used to analyze the socio – economic characteristics of the respondents. The Binary Logistic Model based on the Contingent Valuation Model was used to calculate the total benefit and explain the socio economic factors influencing tenants willingness to pay for landscaping features. The contingent valuation model is a non-market valuation

method that is used to value specific changes from the status quo and to estimates total value of a property. This method is adopted to place value on environmental changes (Spash, 2007). The Binary logistic regression model is characterized by binary dependent variables with mutually exclusive and exhaustive outcomes. The equation is stated below;

$$WTP = \frac{\sum \beta'X}{1 + \sum \beta'X} \text{-----} (1)$$

Where:

$$\beta'X = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \text{-----} + \beta_nX_n + \mu \text{-----} (2)$$

$\beta_1 - \beta_n$ = regression coefficient for variables

$X_1 - X_n$ = independent variables

μ = error term

Table 1: Operationalization of Variables

Variable code	Definition of variable	Measurement scale
X ₁	Fence and retaining wall	Height (metres)
X ₂	Side walk and paths	Area (metres ²)
X ₃	trees and shrubs	Actual in number
X ₄	Drive way and curb cut	Length (metres)
X ₅	decks and patios	Area (metres ²)
X ₆	Garage and sheds	Actual in number
X ₇	Landforms	1(available), 0(other)
X ₈	Water forms	1(available), 0(other)
X ₉	Marital status	1= single, 2=married, 3=divorced
X ₁₀	Age	Actual in years
X ₁₁	Education status	Actual number of years spent
X ₁₂	Occupation	1= self employed, 2 = others
X ₁₃	Income	Actual amount
X ₁₄	Length of stay in the property	Actual number of time

Source: Authors' compilation

Data Analysis and Discussion of Results

This section of the study presents analysis of data collected from the study area and the discussion of results. The analysis was structured to examine the tenants' willingness to pay for the landscaping features and the factors that influence their willingness to pay.

Table 2: Willingness to Pay for Landscape Features (WTP)

Property Type	FREQUENCY (%)		Sample Size
	Yes (WTP > 0)	No (WTP = 0)	
Self contain	5 (71.43)	2 (28.57)	7
2 bedroom flat	10 (58.82)	7 (41.18)	17
3 bedroom flat	25 (55.55)	20 (44.45)	45
4 bedroom flat	2 (100.0)	0	2
Duplex	17 (77.27)	5 (22.73)	22
Total	59 (63.44)	34 (36.56)	93

Source: Field Survey, 2014

From Table 2, 63.44% of the respondents reported a positive WTP, while 36.56% were not willing to pay for landscape features. The respondents who reported a zero WTP were asked a follow-up question through personal interview to explore their reasons. Majority are of the opinion that they had no extra income to pay for landscape features. Other reasons being that the properties they occupied were already landscaped, hence no need to pay for re-landscaping or additional landscaping. Some respondents opined that most landlords usually incorporate landscape features into their properties without due consultation with the tenants, hence the reasons why they cannot pay for such.

Table 3: Cross Tabulation of Socio Economic Characteristic of Tenants and Willingness to pay for residential Property Landscape

Socio economic characteristic of respondents	Frequency (N = 93)		Total Frequency
	WTP = 0	WTP > 1	
Marital status			
Single	1 (8.33)	11(91.67)	12
Married	28 (38.89)	44 (61.11)	72
Divorced	5 (55.56)	4 (44.44)	9
Total	34 (36.56)	59 (63.44)	93
Age			
18 - 27 years	7 (100)	0 (0)	7
28 - 37 years	18 (51.43)	17 (48.57)	35
38 - 47 years	4 (12.90)	27 (87.10)	31
48 years and above	5 (25.0)	15 (75.0)	20
Total	34 (36.56)	59 (63.44)	93
Educational qualification			
OND	12 (60.0)	8 (40.0)	20
HND/ BSc	16 (36.36)	28 (63.64)	44
MSc/PhD	6 (20.69)	23 (79.31)	29
Total	34 (36.56)	59 (63.44)	93
Income			
N50,000 or less	18 (78.26)	5 (21.74)	23
N51,000 - N100,000	13 (61.90)	8 (38.10)	21
N101,000 - N150,000	1 (5.0)	19 (95.0)	20
N151,000 - N200,000	1 (4.35)	22 (95.65)	23
N201,000 and above	1 (16.67)	5 (83.33)	6
Total	34 (36.56)	59 (63.44)	93
Length of stay in the property			
1 - 3 years	15 (78.95)	4 (21.05)	19
4 - 6 years	17 (60.71)	11 (39.29)	28
7 - 9 years	2 (9.52)	19 (90.48)	21
10 years and above	0 (0)	25 (100)	25
Total	34 (36.56)	59 (63.44)	93

Source: Field Survey, 2014

Table 3 shows the cross tabulation of the socio-economic characteristic of the respondents and their willingness to pay or not for landscaping features. From the

Table, majority of those who are single (91.67) and those that are married (61.11) indicate positive willingness to pay for landscaping features respectively, while majority of the divorced respondents (55.56) are not willing to pay. The Table further shows that respondents within the age bracket of 18-27 years are not willing to pay for landscaping features while other age category are willing to pay for it. The result may be because the respondents in this age bracket (18 – 27 years) may or may not have finished school and are still dependants.

The Table also shows that 63.64% and 79.31% of the respondents willing to pay have B.SC/HND and M.SC/Ph.D. This shows that Level of enlightenment increases ones desire for landscaping features in a building thereby prompting the willingness to pay for the features. Furthermore, the income level shows that larger percentages of the respondents (78.26) who earn ₦100,000.00 and below are not willing to pay for landscaping in the selected area. Also, the length of stay of the respondents indicates that majority of those who have stayed 6 years and below within the estate are not willing to pay for landscaping as compared to their counterparts who have stayed for more than 6 years. From the Table, it can be concluded that the socio-economic characteristics of respondents could have effect on their willingness to pay for landscaping in Alagbaka G.R.A., Akure.

Table 4: Responses to whether tenants would pay twice their current Rent for introduction of landscape features in their property

	Frequency (%)	
	Yes	No
Would you pay twice the rent you pay currently for introduction of landscape features in your property?	29 (31.18)	64 (68.82)
Considering your household expenditures, are you willing to pay (a bid amount) money (per year) from your household income for landscaping improvement for the next 5 years so that the landlord could implement this program?	63 (67.74)	30 (32.26)

Source: Field Survey, 2014

Table 4 shows that majority of the respondents (68.82%) are of the opinion that they would not be willing to pay twice the amount of rent for the introduction of landscape, while 31.18% of the respondents said they would be willing to pay. The reasons given for the negative answers included non-affordability and arbitrary rent amongst others. Respondents were also asked whether they are willing to pay (a bid amount) money (per year) from their household income for landscaping improvement for the next 5 years so that the landlord could implement this program. From the response, 32.26% noted that they are not willing to pay, while 67.74% indicate their willingness to pay a bid amount for the next five years for implementation of landscape program in Alagbaka G.R.A.

However, the respondents who replied positive to willingness to pay for landscaping improvements in the next 5 years for the implementation of this program were further asked the bid amount they would be willing to pay for such ranging between N5,000.00 and N30,000.00. The results are detailed in Table 5.

Table 5: Responses to bid amount tenants were willing to pay

Bid amount	₦5,000	₦10,000	₦15,000	₦20,000	₦25,000	₦30,000
Frequency	15	10	10	12	8	8
Percentage (%)	23.81	15.87	15.87	19.05	12.70	12.70

Source: Field Survey 2014

Table 5 shows the bid amount respondents are willing to pay per annum for landscaping improvement in the next 5 years so that the landlord could implement the program. 23.81% are willing to pay ₦5,000.00, 15.87% are willing to pay up to ₦10,000.00 and ₦15,000.00 each. Also, 19.05% are willing to pay ₦20,000.00 and 12.70% were willing to pay ₦25,000.00 and ₦30,000.00 respectively. After excluding the effect of zero willingness to pay, the mean willingness to pay for landscaping by tenants in Alagbaka G.R.A was ₦10,806.45.

Table 6: Hosmer-Lemeshow Test of Goodness of Fit for the factors influencing Tenants' willingness to pay for Landscape in Alagbaka G.R.A

Step	Chi-square	Df	Sig.
1	4.395	8	.820

Source: Survey Data, 2014

Hosmer-Lemeshow's goodness of fit test statistic as shown in Table 6 above has a significance of 0.820, which means that it is not statistically significant and therefore our model is quite a good fit. This desirable outcome of non-significance indicates that the model prediction does not significantly differ from the observed.

The model summary in table 7 shows Cox and Snell's R-Square statistic to be 0.654, indicating that 65.4% 'likelihood' of the sample variation in tenants' willingness to pay is attributed to the independent variables. The Nagelkerke's R- Square which is always higher than the Cox and Snell's R- Square is 0.895, indicating a strong relationship of 89.5% between the predictors and the prediction.

Table 7: Factors Influencing Tenants' Willingness to Pay for Landscape in Alagbaka G.R.A

FACTORS	B	S.E.	Wald	Df	Sig.	Exp (B)
Fence and retaining wall	1.641	1.024	2.567	1	.109	5.160
Sidewalk and path	-.702	.950	.546	1	.460	.496
Trees and shrubs	.732	1.510	.235	1	.628	2.079
Driveway and curbcut	.423	.719	.347	1	.556	1.527
Deck and patio	1.039	1.566	.440	1	.507	2.825
Garage and shed	.005	1.165	.000	1	.996	1.005
Landform	-3.535	3.938	.806	1	.369	.029
Waterform	1.782	1.677	1.129	1	.288	5.939
Marital status	-1.364	1.513	.812	1	.367	.256
Age	-.109	.710	.024	1	.878	.897
Education status	-1.244	.962	1.670	1	.196	.288
Occupation	-.798	.872	.837	1	.360	.450
Income	2.296	.790	8.436	1	.004	9.932*

Length of stay	4.765	2.023	5.550	1	.018	117.341*
(Constant)	-11.326	10.221	1.228	1	.268	.000
-2 Log likelihood						23.320 ^a
Cox & Snell R Square						.654
Nagelkerke R Square						.895

Source: Survey Data, 2014

* Significant at 0.05

The Exp B values in Table 7 present the extent to which one unit of the predictor variable influences the odds ratio when the corresponding measure is raised or increased. Income has 9.932 likelihood, length of stay has 117.341 likelihood; height of fence and retaining wall has 5.160 likelihood, number of trees and shrubs has 2.079 likelihood, length of driveway and curbcut has 1.527 likelihood, number of garage and shed has 1.005 likelihood, presence of deck and patio has 2.825 likelihood and presence of waterform has 5.939 likelihood chances of determining occupiers' willingness to pay for landscape within Alagbaka G.R.A. However, only Income and Length of stay are statistically significant at 0.05 levels. The chances of other independent variables like marital status, age, occupation, education level and presence of landform are relatively low. Hence, as their chances are increased the lesser or drop in the odd of the outcome occurring.

Conclusion

Landscape is a significant asset to our environment and our society regardless of its type whether natural or artificial. It was revealed in this study that the willingness to pay higher rent for a property with landscaping features increases at a high speed per time based on some factors out of which income and length of stay of the respondents are significant. There is therefore, the need for Government to make provision for employment opportunities and further increase the salaries of workers in order for them to be able to pay more for landscaped property. This is because landscaped

properties have advantages and benefits to individuals and society at large. Furthermore, private and public investors on properties should be enlightened on the need to landscape or re-landscape their residential properties from time to time so as to get optimum returns.

References

- [1] Alvarez-Farizo, B, N. Hanley, R.E. Wright and D. Macmillan (1999). "Estimating the Benefits of Agri-environmental Policy: Econometric Issues in Open-ended Contingent Valuation Studies." *Journal of Environmental Planning and Management* 42 (1), 23-43.
- [2] Arimah, B. C. (1996). Willingness to Pay for improved Environmental Sanitation in Nigerian City. *Journal of Environmental Management*, 48 127 - 138
- [3] Bello, M. O and Bello, V. A (2008). Willingness to Pay for Better Environmental Services: evidence from the Nigeria Real Estate Market. *Journal of African Real Estate Research*, 1 (1), 19 – 27
- [4] Bello, V. A and Yacim, A. J (2009). Residents Willingness to Pay for Tree Shade in Maiduguri Metropolis, Nigeria. *Journal of Forestry*, 39 (1), 1 - 8
- [5] Cellmer .R Senetra .A and Szczepanska .A (2012). The Effect of Environmental Factors on Real Estate Value. FIG working paper: *Knowing to manage the territory, protect the environment, evaluate the cultural heritage* Rome, Italy, 6-10 May
- [6] Drake, L. (1992). "The non-market value of the Swedish agricultural landscape. *European Review of Agricultural Economics* 19 (1), 351-364.
- [7] Erker R.S and Verbič M. (2007). An Econometric Analysis of Willingness to Pay for Sustainable Development: A case study of the Volčji Potok landscape area. *European Network of Economic Policy Research Institutes Working Paper*
- [8] Fadamiro .A .J, Anifowose M. O. Atolagbe, (2006) Urban Environmental Sustainability: A Challenge to Effective Landscaping in Nigeria. *Journal of Dimensi Teknik Arsitektur* 34 (1), 44 – 51
- [9] Garrod, G. and Willis, K. (1995). The Non-use Benefits of Enhancing Forest Biodiversity: A Contingent Valuation Study. *Ecological Economics* 21 (1997) 45–61.
- [10] Loureiro, M. L. and López, E. (2000) Valuing preferences towards cultural landscapes and rural heritage: a perspective from Northern Spain, in: Birol, E. and Koundouri P. (eds.) *Choice experiments informing environmental policy: A European perspective*, New Edward Elgar: UK.
- [11] Nishimura, Y. (2005). Urban Landscapes and Community Development, New Frontiers in Architecture: Urban and Regional design. *Research Paper for Architecture Institute Japan*. 3, 64–66
- [12] Okoko, E. (2003). Tenants Willingness to Pay for better Housing in targeted core area Neighbourhoods in Akure, Nigeria. *Habitat International*, 28 317 - 332
- [13] Richter. S (2009). Low Maintenance Landscaping Tips. Texas AgriLife Extension Service, Travis County U.S. Department of Agriculture.

- [14] Spash, C. L. (2007). The Contingent Valuation Method: Retrospect and Prospect. Socio-Economic and Environment in Discussion, Working paper
- [15] Whittington, O; Briscoe, J, Mu, X and Barron, W. (1991). Estimating Willingness to Pay for Housing Services: Case Studies of Water Supply in South Haiti. In *Housing the poor in the Developed World. Methods, Analysis, case studies and Policy* (A. G. Tripple and K. G. Wills eds), 189 207, London Rutledge.