UNIOSUN Journal of Engineering and Environmental Sciences. Vol. 1, No. 1. March 2019
DOI: 10.36108/ujees/9102.10.0160

Impact of Landscaping on Residential Property Value in Lekki Phase 1 Lagos

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Abstract: Previous studies established that landscaping is a significant factor with impact on residential property value. However, there is absence of similar study in the study area. This study filled the gap by examining impact of landscaping on residential property value at Lekki Phase 1, Lagos. Population for the study are Estate Surveyors and Valuers managing residential properties in the study area. Simple random sampling technique was employed to arrive at a sample size of 94 out of 124 study population. Out of the 94 questionnaire administered, 90 questionnaire were retrieved. Data gathered were analyzed using descriptive statistics like frequency distribution table and relative importance index. The hypothesis was tested using correlation and regression. Findings from the study revealed that fence is the most prominent landscaping feature in the study area, while shrubs and trees is the least prominent landscaping feature in the study area. The research also revealed that the residence have the highest preference for fence as a landscaping feature and have the least preference for shrubs. Findings from the research established that the most prominent impact of landscaping on residential property value is that it increases residential property sale value and the least impact is that residential property rental value remains static. The first hypothesis of the study established that there is a strong positive correlation between landscape and property value. The second hypothesis established that landscape has a significant positive impact on residential property value in the study area. The study recommended that more trees should be planted and landscape should be part of property development.

Keywords: Landscape, Residential Property, Property Value, Lekki Lagos, Nigeria

I. Introduction

Factors impacting property value have been classified by different scholars. [1] Classified factors affecting property value into three which are: structural or physical, neighborhood and location factors. In the same vein, [12] classified factors that impact property value into: external and internal factors. However, irrespective of the classification, attributes that influence property value can be categorized under any of the broad classifications. Also, it is pertinent to note that determining property value is a complex process due to the interwoven impact of property attributes on property value [2]. Previous studies have examined impact of different property attributes on property value, ranging from impact of internal property attribute to external property attributes. External property attributes are the macro influences while the internal property attributes are the micro factors that affect individual properties.

Landscape is an internal factor that studies have established to significantly affect residential property value. Landscaping features which [13] described as the world around us including everything seen such as the earth, water bodies, atmosphere, buildings, streets, trees and cave varies. Landscaping features can be broadly classified as natural and man-made landscaping features. Different studies have been conducted on the impact of both the natural and man-made landscaping features on property value. However, the most widely examined is the impact of man-made landscape on residential property value [5;15;2].

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Previous studies have revealed that the various man-made landscape features have different impact on residential property value. [8] assessed landscaping on residence rental value. The study established that there is a positive effect of landscaping and shade from trees on property rental value. [7] established that public green spaces impact residential property value in the neighborhood positively. In the work of [5] examined the effect of thirty-one residential property landscaping attributes on property value. It was found that non-excessive tree covers impact positively on residential property value. Next to this is the presence of lawn in a residential neighborhood which also impact residential property value positively.

Landscaping positive impact on residential property value cannot be over emphasized. However, there is still paucity of research on the effect of landscape on property value in developing countries like Nigeria. The reason attributed to this according to [2] is the developing state of landscaping in the developing nations. In Nigeria, this study will contribute to the existing literatures on this topic [2] by examining the impact of landscaping on residential property value in Lekki Phase 1 Lagos, Nigeria. The goals of this study are: to examine the prevalence of landscaping factors in the study area, the impact of landscaping on property value and relationship between landscape and property value. In addition to these objectives, these hypotheses were tested in the study:

Ho: Landscape has no significant impact on the property value in study area

Hi: Landscape has significant impact on the property value and in the study area

II. Literature Review

A. Landscape

[13] described landscape as the world around us which include all the things seen such as the earth, water bodies, atmosphere, buildings, streets, trees and cave. Therefore, landscape can be categorised into two which are Natural landscape and Man - made landscape. [11] define Natural landscape as the total surface of the earth that can be grouped broadly under the development of topography which is studied through the science of geomorphology and the development of vegetation as in soil science and plant ecology. Also, [5] described Man – made landscape as landscape that results from natural process interrupted, modified or replaced by human being through Landscaping planning and development for various use such as housing, industry, transportation, mining and recreation. [6] identified the following as major components of the man – made landscape: sidewalk and paths, trees and shrubs, driveway and curb cut, fence and retaining walls, decks and patios, garage, sheds and other secondary buildings. These classifications are not exhaustive as there are other landscape features.

There are numerous benefits of landscape to human. However, a major significance of landscaping is its ability for people to gain series of benefits that ranges from social, environmental and economic in the city, community or nation [6]. Also, among the numerous benefits of landscape is the positive effect on property value as established by previous studies [6;15;2]. However, most of these previous studies focused on impact of some man-made landscape features on property value.

[9] established that the challenge of valuing landscaping has been elaborately discussed in previous studies, most of the studies have

examined the effect of tree cover, recreation centers, parks and other natural landscapes on the residential property market and very few have researched on the man - made landscaping such as hedges, curbs, patio, balcony arrangement, garage [5].

III. Empirical Studies on the Impact of Landscape on Residential Property Value

[4] examined the effect of thirty parks and open spaces on the prices of property and it was revealed that the impact of twenty-five parks on neighborhood properties prices was positive. There was variation in the impact considering other attributes like size of property and orientation of the park. However, closeness to park translates into 10% - 20% increase on close properties prices. The impact of the closeness covers a radius of 500 feet in some situation. [14] employed land prices regression model to show if properties close to open spaces are higher in price. The result showed that sale value of properties situated adjacently to an open space experience increase in by a range of 23% - 32%, in comparison to properties few distance away from the neighborhood.

[3] examined the impact of 14 open parks in Beijing on average house prices in 76 residential neighborhoods. The study adopted inventory data of urban spaces and GIS to assess the contribution of 18070 hectares public green spaces to residential property value. Findings from the study revealed that green spaces have an effect of 14.1% increase in the price of houses prices in Beijing. The sum of monetary benefit of green spaces contributes to residential property sale prices were estimated as 2.86billion CNY at an average of 0.16billion CNY per hectare. The study established a positive impact of open spaces on residential property value.

[2] examined the landscaping effect on rental value of residential property in Ijapo housing estate Akure, Nigeria. Simple random sampling technique was used in selecting 248 fully developed plots in the study area. Frequency distribution and multiple regression was employed in analyzing questionnaires administered to tenants in developed plots. The study established fence and retaining as the most common landscaping feature in the neighborhood. While the presence of trees and shrubs are the second most prevalent landscaping feature followed by driveway and curb cut that ranked third. Finally, the study revealed that the landscaping features are significant at 0.05 translating into a strong impact on rental value.

[8] examined the impact of trees on office commercial property rental value in Ohio, United States of America. The study sampled 85 office buildings considering the number, usefulness and condition of landscaping. Data gathered were analyzed using multiple regressions that is hedonic model that downplay economic impact of landscaping. The model considered the lease term and condition, physical characteristics and distance as variables for the hedonic pricing model. Findings from the study revealed that landscaping have strong positive relationship with the rental rates.

[10] assessed landscaping impact on prices and values of houses in residential neighborhood in Klang Valley, Malaysia with special consideration on impact of green open spaces on prices and values of properties. Questionnaires and observation were employed to gather data and descriptive statistics were employed to analyzed data gathered. Findings from the study revealed that residents have clear ideas of the importance of green space in residential neighborhood as a means for achieving sustainable environment.

Also, the study revealed that residents most preferred attribute of landscaping is conformability and the most prevalent landscaping feature in houses in the study area is fountains.

[5] investigates landscaping effect on residential property values. Residential property values for 760 single family houses disposed were examine in a study that spanned between 1993 and 2000 in Quebec. Thirty one landscaping features of houses and the surrounding were considered in the study. The study adopted regression model for analysis. Findings from the study revealed that excessive tree cover translates into higher value of property. In addition, the following landscaping features translate into market premium in order of importance: flower arrangement, rock plants, and hedges.

IV. Methods and Materials

Questionnaires were employed as a data fathering instruments. The questionnaires were administered to Estate Surveyors and Valuers with private practice presence in Lagos territories of Lekki and Victoria Island. The directory of the Nigeria Institution of Estate Surveyors and Valuers revealed that there are 124 practitioners in the area under consideration. Taro Yamane's formula for determination of sample size was employed to determine sample size at a confidence level of 95% and error level of 5%.

$n = N/1 + N (e)2)$

Where n depicts the sample size

N depicts the population under study

E depicts the margin error

$$n = \frac{124}{1 + 124(0.05)^2}$$

$$n = \frac{124}{1 + 124(0.0025)}$$

$$n = \frac{124}{1 + 0.31}$$

$$n = \frac{124}{1.31} = 94$$

This translates into a sample size of 94. Simple random sampling technique was employed to

Table 1: Order of prominence of landscaping features

Landscaping Features	Most Prominent	More Prominent	Prominent	Less Prominent	Rarely Prominent	RII	Rank
Flowers	30	45	10	0	5	4.06	3rd
Shrubs	2	4	12	36	36	1.89	6th
Trees	2	7	10	35	36	1.93	5th
Lawn	48	15	25	2	0	4.21	2nd
Fountain	5	15	35	25	10	2.78	4th
Fence	60	15	10	5	0	4.44	1st
Kerbs	30	45	10	0	5	4.06	3rd

Source: Field survey, 2019

Table 2: Order of preference for landscaping features

Landscaping Features	Most Prominent	More Prominent	Prominent	Less Prominent	Rarely Prominent	RII	Rank
Flowers	48	15	25	2	0	4.21	2nd
Shrubs	2	4	12	36	36	1.89	7th
Trees	2	7	10	35	36	1.93	6th
Lawn	16	29	25	20	0	3.46	4th
Fountain	5	15	35	25	10	2.78	5th
Fence	60	15	10	5	0	4.44	1st
Kerbs	30	45	10	0	5	4.06	3rd

Source: Field survey, 2019

administer the questionnaires to the respondents. Out of the 94 questionnaires administered to the study population, 90 questionnaires were retrieved which is 96 % of the respondents. The high retrieval rate could be attributed to follow up by the research assistant engaged for the purpose of this research. Data gathered were analyzed using descriptive statistics, Analysis of variance, relative importance index relying on weighted average of the factors, and multiple regression.

V. Analysis and Discussion

Inference could be made from table 1 that the most prominent landscape features in the study area is fence with a relative weighted average of 4.44. Next to this is lawn that has a second rank with a relative importance index of 4.21. Flowers and kerbs has the third rank with a relative impact index of 4.06, the complementary nature of the two can be attributed to the rank. Also, fountain has the fourth rank with a relative impact index of 2.78 and trees has the fifth rank fifth with a relative impact index of 1.93 and finally shrubs has the sixth rank with a relative impact index of 1.89. This ranking corroborates the assertion of [2] who established that fence is the most prevalent landscaping feature in Ijapo Estate, Akure, Nigeria.

Table 2 above examined residence landscaping feature preference. It was established that residents have preference most for fence with a relative impact index of 4.44. Information gathered from further interview of respondents revealed that residence preference for fence can be attributed to security reason. Ranked second is flowers with a relative impact index of 4.21, next to this are kerbs that ranked third with a relative impact index of 4.06. Next to this is lawn that ranked fourth with a relative impact index of 3.46, then fountain that ranked fifth with a relative impact index of 2.78. Trees ranked sixth with a relative impact index of 1.93 and shrubs ranked seventh with a relative impact index of 1.89.

Table 3 reveals landscaping impact of on value of residential property. It can be deduced that the most prominent impact of landscaping is that, value of residential property is increased by landscaping with a relative impact index of

Table 3: Impact of landscaping on residential property value

Impact	Most Impactful	More Impactful	Impactful	Less Impactful	Rarely Impactful	RII	Rank
Increase in rental value	70	8	12	0	0	4.64	2nd
Increase in sale value	70	14	5	1	0	4.76	1st
Decrease in rental value	5	4	5	29	47	1.79	4th
Decrease in sale value	0	1	15	39	35	1.80	3rd
Rental value remain static	0	0	0	15	75	1.17	6th
Sale value remain static	0	0	1	19	70	1.23	5th

Source: Field survey, 2019

Table 4. Multiple Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.257	.204		-1.264	.208
	Number of rooms	.019	.047	.020	.413	.006
	Landscaping	.374	.088	.308	4.250	.000
	Internal finishes	.169	.081	.173	2.082	.039
	Neighborhood security	.201	.060	.169	-3.338	.001
	External Finishes	.505	.074	.548	6.822	.000

4.76. Increase in rental value is the second most prominent impact of landscaping on value of residential property with relative importance index of 4.64. Ranked third is decrease in sale value with a relative importance index of 1.80 and decrease in rental value ranked fourth with a relative importance index of 1.79.Ranked fifth is sale value remains static with a mean of 1.23 and rental value remain static with a relative importance index of 1.17. It can be inferred that the impact of landscaping on value of residential property is positive in the neighborhood under consideration due to an increase in sale and rental value.

A. Hypothesis Testing

Ho: There is no significant impact of landscaping on residential property value in the neighborhood

Hi: There is significant impact of landscaping on residential property value in the neighborhood

a Predictors: (Constant), Number of rooms, Landscaping, Internal Finishes, Neighborhood security, External finishes

b Dependent Variable: property value

Table 4 reveal the impact of the independent variables (number of rooms, landscaping, internal finishes, neighborhood security and external finishes) on dependent variable (property value). The multiple regression analysis reveals that landscaping has a significant impact on residential property value in the study area. Therefore, the null hypothesis was rejected and the alternative hypothesis was accepted. The study revealed that 37.4% of changes in property value can be attributed to landscaping. From table 4, it can be inferred that external finishes of the building has the highest significant impact on

Table 5. Test of Statistical Significance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	165.979	5	33.196	148.170	.000[b]
	Residual	30.021	134	.224		
	Total	196.000	139			

residential property value with 50.5% of changes in property value attributed to external finishes.

a Predictors: (Constant), Number of rooms, Landscaping, Internal Finishes, Neighborhood security, External finishes

The sum of squares regression (165.979) is greater than sums of squares residual (30.021) which implied that the model explained more of the variation in MS. F statistic value of 0.000 is less than 0.05, which implied that the explanation of the variation is not as a result of probability.

In considering the F test for this model, the F stat of 148.170 is significantly less than 5% therefore the model is internally valid.

VI. Conclusion

It can be concluded that landscaping has a significant impact on residential property value. Landscaping increases both the rental and sale value of properties in the study area. Also, it can be concluded that man-made landscaping features is more prominent in residential neighborhoods than the natural landscaping features. Also, it can be concluded that there is variation between landscaping features that residents wants and the landscaping features that provided in the residential neighborhood. Finally, it can be concluded that residents landscaping preference are not usually taken into consideration when providing residential apartments.

VII. Recommendations

As a result of the inference drawn from the study, the following recommendations are therefore suggested;

a. More Trees and shrubs should be planted in the study, because the study revealed that shrubs and trees are the least prominent landscaping feature in the study area.

b. Developers should incorporate landscaping as part of proposed residential property development. This will avail developers opportunity to benefit from the positive impact of landscaping on residential property value.

c. There is need for property developers to conduct study on residence landscaping preference because the study has established that there is difference between landscaping feature present on site and residence preference for landscaping in the study area.

d. Landscaping should be an integral part of building codes and all the professionals in the built environment should be exposed its benefit.

e. Feasibility and viability study of proposed residential property development should include impact of landscaping on residential property value. This will avail a property developer opportunity to determine whether landscaping will impact the proposed development positively or negatively. Also, if the landscaping will have positive impact on the residential property value, the developer will be able to determine the extent of the positive impact that the landscaping will have on the proposed residential property.

f. Furthermore, impact of natural landscaping on residential properties should be examined in a proposed development. Examination of the impact of landscaping on residential properties should not be limit man-made landscaping but should include natural landscaping features.

g. Furthermore, there is need to examine the impact of landscaping on other classes of properties like; commercial properties, recreational properties and industrial properties.

h. Finally, the local and international professional bodies regulating the practice of property appraisal and valuation should integrate in the valuation standards consideration for landscaping, procedure and methods when valuing properties. This will encourage best practices in the valuation of properties or appraiser of properties with landscaping features.

References

1. Abidoye, R. B., & Chan, A. P. C. "Critical determinants of residential property value: professionals' perspective" *Journal of facilities management, Vol 14, Number 3, 2016, pp 283-300.*
2. Bello, V.A (2016) "The Effect of Landscaping on Rental Values of Residential Property in Ijapo Housing Estate Akure, Nigeria". *African Journal of Geo-Science Research, Vol 1,Number 1,2016, pp 1 – 6, ISSN: 2307-6992*
3. Biao, Z, Gaodi, X, Bin, X and Canqiang, Z (2012) "The Effect of Public Green Spaces on Residential Property Value in Beijing". Journal of Resources and Ecology, Vol 3, Number 2, 2012, pp 243- 252, DOI:10.5814/j.issn.1674-764x.2012.03.007.
4. Crompton, J. L. "The Impact of Parks on Property Values: empirical evidence from the past two decades in the United States" Department of Recreation, Parks and Tourism Sciences, Texas A&M University, TX, USA.

Managing Leisure Vol 10, Number 3, 2005, pp 203-218, DOI:10.1080/13606710500348060

5. Des Rosiers, F., Theriault, M., Kestens., Y and Villeneuve, P. "Landscaping and House Value: An Empirical Investigation" *Journal of Real Estate Research Vol 23, Number 1, 2002, pp 139 – 161*

6. District of Coloumbia Historical Preservation Guidelines Landscaping, Landscape Features and Secondary Buildings in Historic District. US Department of Interior. Ohio Drive S.W Washington, 1992

7. Jim C Y, Chen W Y. "External effects of neighbourhood parks and landscape elements on high-rise residential value" *Land Use Policy, Vol 27, Number 1, 2010 pp 662-670*

8. Laverne, R.J and Winson-Geideman, K. "The Influence of Trees and Landscaping on Rental Rates of Office Buildings" Journal of Arboriculture, Vol 29, Number 5, 2003, pp 281 – 290

9. Luttik, J. "The Value of Trees, Water and Open Space as reflected by House Prices in the Netherlands" Landscape and Urban Planning, Vol 48, Number 4, 2000, pp 161 – 167.

10. Mohd Hussain, R.M, Tukiman, I, Hj Zen, I, Shali, M "The Impact of Landscape Design on House Prices and Values in Residential Development in Urban Areas". *APCBEE Procedia 10, Number 1, 2014, pp 316 – 320, Elsevier Publications.*

11. Nishimura, Y. "Urban Landscapes and Community Development, New Frontiers in Architecture: Urban and Regional design" Research Paper for Architecture Institute Japan. Vol 3, Number 2, 2005, pp 64–66

12. Oloke, O. C, Simon, F. R. and Adesulu, A. F (2013) An Examination of the Factors Affecting Residential Property Values in Magodo Neighbourhood. *International Journal of Economy, Management and Social Sciences, Vol 2, Number 8, 639 – 643.*

13. Powel, A. U. "Landscape as the world around us" Paper accepted for presentation at the conservation and management of the in conflict regions' conference, Birzeit, November 30th - December 1st, 2005, Birzeit University, Palestine.

14. Standiford and Scott T. "Value of oak woodlands and open space on private property values in Southern California. Special Issue-Towards the new forestlands commercial and environmental benefits" accounting: theories and applications, Vol 1, Number 2, 2001 pp 137- 152

Zhang, B., Xie G., Xia, B., Zhang C "The Effect of Public Green Spaces on Residential Property Value in Beijing" *Journal Resource Ecology, Vol 3,Number 3, 2012, pp 243 - 252*