

Article

Determining Residential Location Choice along the Coastline in Victoria Island, Nigeria Using a Factor Analytical Approach

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Abstract: This paper evaluates how households consider environmental attributes alongside other housing attributes in their residential location decisions along the coastline in Victoria Island, Nigeria. The data were obtained from tenants' revealed preference surveys where 204 respondents rated 15 identified and most common key factors in the order by which they influence their residential location choices. The factor analytical approach was then applied to understand how these factors influence such decisions. Thus, this study also gives bearing to the factors considered in making policy and/or investment decisions around residential location choice (RLC). The results revealed the presence of four key components with a total variance of 70.76%. Among the components, neighbourhood, critical dwelling cum socio-economic attributes are found to have a significant influence in explaining 39.78% of the variation in the factors influencing the study area's selection as the residential location choice (RLC) for households. The findings have implications for households' residential location choices. For residential locations to be equally attractive to tenants, policymakers and urban planners should pay attention to addressing the menace of the neighbourhoods including crime and traffic congestion. Moreover, property owners should respond to tenants' needs by paying attention to the provision of utility facilities such as portable water and an appropriate mix of toilet/bathrooms to available bedrooms.

Keywords: built environment; coastal area; construction industry; housing attributes; residential location choice; stakeholder; tenants; real estate decision



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1. Introduction

Many factors have been taken into consideration when making choices of residential location for every household. The choice of residential location among alternatives is a conscious or unconscious task that involves the evaluation of various parameters and desires by household for an ideal environment [1,2]. Several empirical contributions from the literature have pointed to the determinants of the residential location choice of households, suggesting that the factors influencing residential location choice of households could include neighbourhood characteristics; socio-economic attributes; socio-cultural attributes; dwelling attributes; and accessibility variables such as nearness to work or

children school [3–11]. Notable bodies in developed nations such as the European Environment Agency (EEA), and the Intergovernmental Panel on Climate Change (IPCC) have identified various climatic factors that must be considered in making decisions for residential houses [12–15].

Although, amidst such positive and quantifiable benefits, man's attachment to coastal areas across the globe has been bedevilled with hazards [16–18]. Numerous studies have been conducted to investigate people's perceptions of floods and the hazards associated with living in places at risk of flooding [19,20]. It is noteworthy that over 4 billion individuals, constituting over 50% of the global populace, inhabit areas within a 200 km radius of the coastline [21,22]. This suggests that many people reside, work, and procreate in coastal areas globally. In addition, residential property values in coastal locations have been found to be profitable for investment, with studies [23,24] showing that those located closest to the coastlines outperform those located further back in the neighbourhood. This trend continues as one moves farther away from the water [23,24].

Lagos coastal areas, particularly that of Victoria Island, are not without their fair share of the risks associated with the coastline [25,26]. Despite the supposed threats associated with coastal areas globally, it has been established that coastal environments are still desirable locations that people seek to live [27–31]. Although, in coastal environments, different studies have capitalised on environmental attributes, including natural features as well as proximity to the coastline, using the hedonic price model to determine the property values of the developments [30–33]. None of the approaches deployed have shown significant motives influencing the household's decisions on their residential location choice [34]. Moreover, with the complexity revolving around residential situations, various methods such as sensitivity studies, decision-making analysis, risk analysis, SWOT (strength, weakness, opportunities, threat) analysis, perception analysis, and choice analysis, among others [35,36], have been adopted for investigating studies around coastal environments.

As a result, understanding the factors that guide the decision-making process when making choices about residential locations along the coastline for households, particularly in developing economies and fast-rising environments such as Victoria Island, constitutes a case that calls for empirical investigation. This paper, therefore, presents an analysis of how housing characteristics including those closer to the coastlines influenced the residential location choice (RLC) of tenants within the study location. The next section reviews empirical studies that have investigated influential contributors to the RLC of households. Section 3 of the present study is devoted to explaining the study location where the research is carried out. Section 4 attempts to describe the methodology employed for achieving the goal of the research, while Section 5 presents the results of the information gathered through the survey and then analyses them using the factor analytical approach. Then, the conclusions and possible recommendations are proposed in the final section of the paper.

2. Literature Review

In any urban area, the selection of residential location is of particular concern to every household. The choice of residential location by household involves the evaluation of multiple housing attributes and the subsequent trade-off among them, resulting in a choice of a particular residential property in an ideal environment, *ceteris paribus* (It is a Latin phrase, meaning 'all things being equal'. This expression is used in real estate, the built environment, economics and financial management to refer to having the influence of one economic variable over another, while all the other economic variables are remaining the same.). Although studies have used different approaches to investigate the factors influencing the RLC of households with a focus on broad cities in general, there have been none specifically focussing on developing economies with a fast-rising population and city growth in coastal neighbourhoods. For example, Pandya and Maind [6] employed multinomial logistic regression to analyse the RLC of households for the Mumbai Metropolitan Region (MMR). Their study emphasised that the role of building area, proximity to school, nearness to hospital, and travelling time in deciding RLC within Mumbai are important

but have less significant impacts compared to the distance to Central Business District (CBD), house price, and household income. Their study, however, indicates that house types, duration of water supply, toilet facilities, and parking facilities are not significant predictors of RLC. The authors concluded that house price, accessibility, and socio-economic attributes dictate the RLC of the households within Mumbai more than other attributes related to dwelling. In Ouagadougou, Burkina Faso, and Traore [10] highlighted, in order of importance, that proximity to the workplace, the presence of one's relations living within one's area of locality, and distance to recreational parks within an urban neighbourhood are considered the most important explanatory variables for RLC. The outcome of that research indicates the influence of socio-cultural, environmental, and accessibility attributes as significant predictors of RLC. Like the study by Pandya and Maind [6], Traore [10] also deployed a conditional logit study and found that housing attributes related to the dwelling are less significant in the RLC of households. The conditional logit model is a technique most frequently used in conjoint analysis, it is nevertheless helpful when analysing data in relation to the built environment, particularly on household-related issues (see [37,38]).

Owoicho and Ogwuche [7] utilised factor analysis to reduce the variety of housing variables to a smaller set of components influencing RLC in Otukpo town of Benue State, Nigeria. The study revealed the presence of two components that accounted for 79.61% of the variation in the factors influencing RLC in the study area. The authors found that the principal component in the determination of the residential location of households is socio-demographic characteristics comprising sex, marital status, occupation, household size, educational level, and public transport. They also found that the second principal component is access to urban infrastructure factors or attributes related to the neighbourhood, with the safety of the neighbourhood, availability of schools, power supply, and water supply ranking very high. Their results indicate that socio-demographic characteristics play an important role in explaining the location decision of people in the study area, while neighbourhood attributes played a moderate role.

Oladapo et al. [9] employed factor analysis to describe the contributory effect of housing attributes on the choice of residential location of households in Bosso Local Municipality, Minna, Nigeria. They provided a specific role for each of the explanatory variables employed in the analysis and found that dwelling attributes play a significant contributory role. Contrastingly, Oladapo et al.'s [9] findings contradict those of Pandya and Maind [6] and Traore [10], whose studies suggest that the function of dwelling attributes is insignificant to other housing attributes. Oladapo et al. [9] also found that accessibility factors, neighbourhood cum dwelling characteristics, and accessibility cum dwelling attributes play moderate, limited, and even more limited roles, respectively, in the RLC of households in the study area. The finding of the moderate role played by accessibility factors, particularly proximity to schools and proximity to clinics or hospitals, in RLC is similar to that in the study by Pandya and Maind [6].

A recent study by Deeyah et al. [11] utilised weighted mean scores and Relative Significance Index on thirteen (13) factors to identify important influences on households' residential location decisions in seven (7) waterfront settlements in the northern parts of Port Harcourt, Nigeria. They found that living close to family or friends, low rent and low costs of living, livelihood opportunities, proximity to work, commuting cost, nearness to children's school, and personal reasons are significantly related to factors influencing the RLC of households in the study area. The results of their study suggest that socio-cultural, dwelling, neighbourhood, and accessibility attributes are significantly important. Unlike Traore [10], Deeyah et al. [11] found that attributes related to the environment, particularly natural features, are significantly unimportant.

Moreover, Sanni and Akinyemi [39] argued that different categories of residential density districts of the city have a distinct set of household residential district preferences particular to them; hence, broad generalisations for the whole city could be erroneous. Consequently, several other studies have concentrated on the different residential density districts of the city to explore the distinct set of influential contributors to households' RLC.

For instance, Jiburum et al. [3] used the chi-square test to interrogate the effect of crime on households' residential location decisions across certain high, medium, and low residential density areas in Enugu, Nigeria. Their primary finding was that neighbourhood, dwelling, and socio-economic attributes, particularly crime level, rent, and household income, dictate the RLC of households across the residential density areas. Their analysis indicates a significant association between neighbourhood crime and household RLC, which implies that households consider the incidence of crime before choosing a neighbourhood to live in.

Research by Muhammad et al. [4] employed a multiple regression model to identify the influential contributors to residential segregation in low (around the traditional walled city), medium (within the urban periphery), and high-density areas within areas designated as government-approved layout such as those within and around government reserved areas (GRA) of Bauchi metropolis, Nigeria. The authors modelled the residential segregation process as a function of a variety of socioeconomic characteristics, physical characteristics, individual preferences of the neighbourhood, and political and institutional factors. Their study emphasised that socioeconomic attributes, namely household income and socio-cultural attributes, particularly ethnicity, are significant contributors to RLC across the density areas. In addition, the individual preference of neighbourhood played an important role in RLC in medium-density areas.

The study of Yoade [5] examined the determinants of RLC of Residents in Parakin (low density), Igboya (medium density), and Irewo (high density) areas of Ile-Ife, Nigeria, by assessing the percentage distribution. The study revealed that neighbourhood amenities such as the availability of good roads and water supply and socio-cultural attributes, particularly closeness to family and friends, are the most important determinants of residential district preferences within the study area. The author, however, concluded that the factors that influence households' residential location preferences vary from one residential density district to another.

Oladapo and Adewolu [8] used the binary logistic regression to analyse residential property users' choice of low (Bodija Old and New Estates, Ikolaba Estate areas), medium (Basorun, Idi-Ape, Basorun, and Ashi areas), and high (Mokola, Oniyarin, Omitowoju and Inalende-Ode Olo areas) density neighbourhoods in Ibadan North Local Government Area of Oyo State, Nigeria. Their study revealed that rather than neighbourhood attributes, dwelling attributes, particularly the consideration of house price, were significant and constant factors in the choice of residential location across the residential densities. Their results provided other specific significant factors for the choice of residential location in each residential density neighbourhood, with neighbourhood and accessibility attributes such as noise consideration and access to children's school and place of worship considered by households as other priority factors for RLC in high-density neighbourhoods. The authors also found that accessibility, neighbourhood, and dwelling attributes such as distance to workplace, access to children's school, place of worship, police station, and portable water are significant factors for households' residential location preferences in medium-density areas. The study findings further suggest that accessibility and neighbourhood attributes (distance to workplace, neighbourhood less prone to flooding, access to recreation centre and shopping centre) constitute other important influences on households' RLC in low-density neighbourhoods.

Following the review of the aforementioned empirical studies, the findings have been generalised either for the whole city or based on the different residential density districts of the city. Although in Deeyah et al. [11], it was observed that the study was carried out in a coastal area, proximity to the coastal shoreline was not considered in explaining the RLC of households within the area under focus. Notably, studies conducted in Africa do reflect the roles played by socio-cultural attributes as a significant predictor of residential choice location (see [4,5,10,11]). The ethnic affection of households in an African setting could be the possible reason for this finding. Recent studies by Traore [10] and Deeyah et al. [11] take into account the function of environmental amenities in their studies. Traore [10] showed that environmental amenities are important explanatory variables for the RLC of

households, but this differs from the study by Deeyah et al. [11], which provides evidence that environmental attributes are less important in the RLC of households. This study, therefore, provides an example of the importance of environmental attributes such as closeness to the coastline for the view of water and closeness to the beach for leisure and recreation purposes to the residential location analysis to reveal their peculiarities in the study area. Furthermore, the preponderances of the conclusions of the empirical investigations imply that the factors influencing households' RLC differ from one residential density neighbourhood or geographical area to another. Unlike the studies reviewed, the choice of the research area in this study is based on residential settlements or neighbourhoods close to the coastline, as the main objective is to use proximity to the coastline and environmental attributes alongside other housing attributes in explaining the RLC of households in a named mega city with an estimated population of 16–21 million [40].

The variables utilised in this study are drawn from the commonly deployed housing attributes within RLC studies. These variables pertain to low house rent (LHR) consideration; availability of utility facilities (AUF) such as toilet facilities and water supply; workplace location (WL); access to children's school (ACS); and access to the public transport bus stop (ABS). Others are household income (HI); household size (HS); the age of the household head (AHH); the neighbourhood with good security (NGS); the neighbourhood with less traffic congestion (NLTC/N); and closeness to people of the same ethnic background (CPSEB). In terms of environmental attributes, although not common in empirical studies, certain variables have been identified as amenities or benefits that are likely to attract households or disamenity likely to limit their RLC. These variables are adopted in this study. In their study, Morgan and Hamilton [41] identified water view as well as access to the beach for leisure and recreation purposes as two components of amenity value in coastal communities. These two (2) environmental variables namely 'closeness to the coastline for the view of water' (CCVW) and 'closeness to the beach for leisure and recreation purposes' (CBL/RP) were included in this study's RLC analysis. The advantage that 'neighbourhood not prone to flooding' (NNPF) holds for tenants was also used to assess their location preferences. In addition, Alo [42] stressed that given ocean temperatures, households located near the coast are associated with cleaner air. This suggests that people can decide to live in coastal areas for access to quality and cleaner air; hence, the variable 'access to quality air' (AQA) was included in this study's RLC analysis.

3. The Study Area

This investigation's study area is Victoria Island, of Lagos, Nigeria. Victoria Island is situated between latitudes $06^{\circ}25'00''$ and $06^{\circ}26'20''$ N and longitudes $03^{\circ}24'00''$ and $03^{\circ}28'00''$ E [25]. It is one of the most exclusive and expensive areas to reside in Lagos State. The research area covers the residential buildings close to the coastline along the Atlantic Ocean extending from one part of the Atlantic city called the east mole, which has a boundary with the most southerly part of Lagos State. The extent of the area to cover from the coastline inland is 500 m since researchers have suggested that such a threshold should be used for describing environmental amenities, which are proximal to the apartments analysed [29,43]. Figure 1 gives the map of the study area showing properties at an incremental distance of 250 m to the coastline of Lagos, Nigeria.

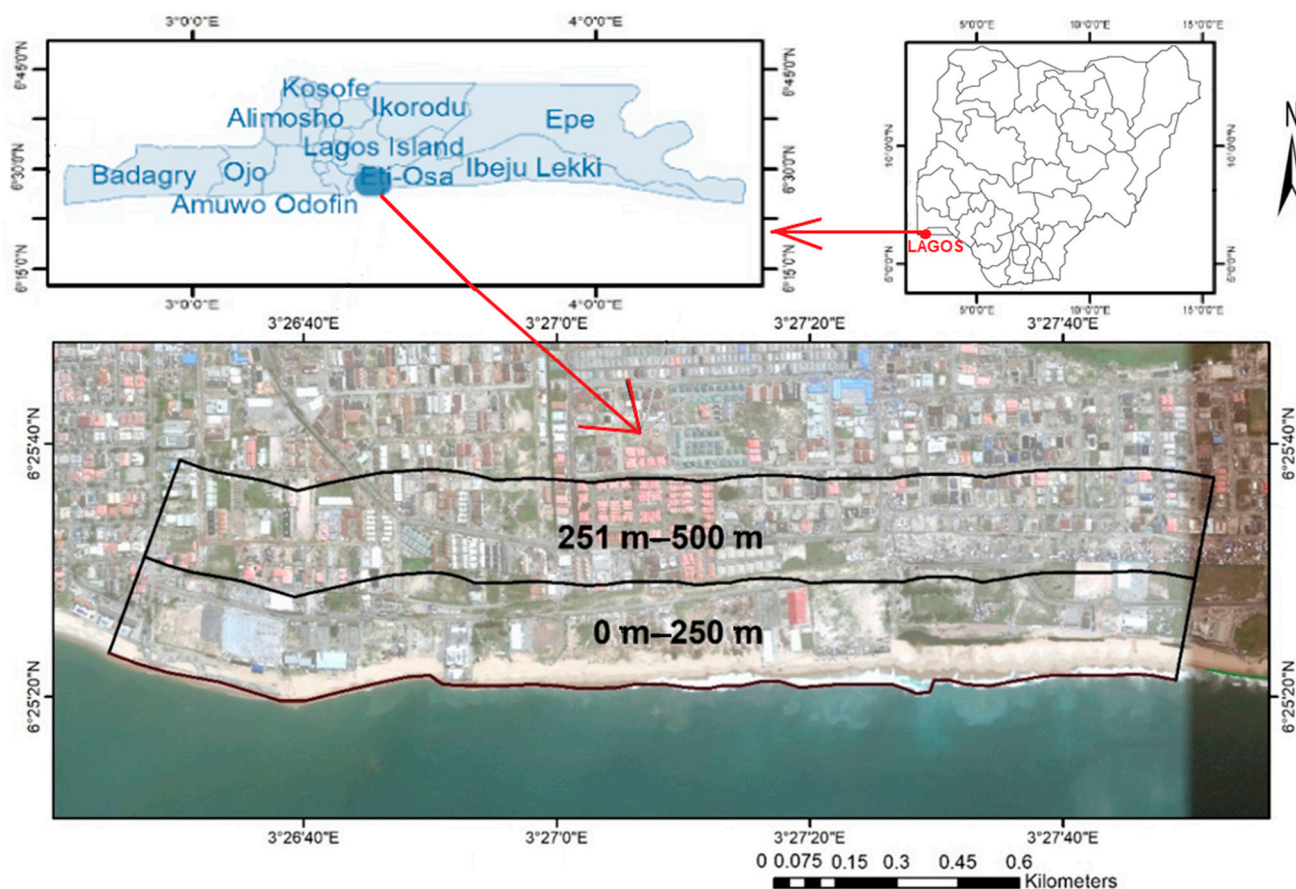


Figure 1. Map of the study location showing surveyed properties at an incremental distance of 250 m to the coastline of Lagos State in Nigeria (data retrieved from Google Map).

4. Research Methodology

This section presents the research methodology for this investigation. The analysis conducted in this research has recourse to housing-related information from tenants. Taking a cue from Gopalakrishnan et al. [44], the residential properties within 500 m of the coastline were counted, and the figures stand at 1273. After ground-truthing, the sample for the study comprised the physically identified single-family rental properties within 500 metres of the coastline (see Figure 1), and the sample size amounted to 224. In this study, only single-family properties were considered because residential location choice (RLC) and coastal hedonic price (CHP) studies have drawn housing-related information mostly from occupiers or owners of single-floor dwelling units [41]. Moreover, the approach eliminates the bias that could arise in the choice of specific tenants over others in multi-tenanted apartments. The development of the data started in 2021, but the questionnaire administration was carried out between October 2022 and January 2023. Table 1 shows the breakdown of the questionnaire process for the data on the amount distributed, those retrieved, and those valid for analysis.

Table 1. The data on the administration of the questionnaire.

Coastline Distance	Stretch along the Coastline	Questionnaires		
		<i>Distributed</i>	<i>Obtained</i>	<i>Valid</i>
From 251 m to 500 m	Buildings designated as residential located at the back of Oniru Beach Resort and extending to Lekki Leisure Lake/Vantage Beach Resort axis	139	138	128
Around 250 m		85	81	76
Total		224	219	204

In order to acquire cross-sectional data on the factors at play, a survey-based method that utilised a developed and structured questionnaire consisting of 15 questions was used for factors influencing RLC from household heads (respondents). The survey was conducted by fourteen trained field assistants for a period of about one (1) month. Based on the Likert scale, it had 5 points, with 1 representing “not important”, 2 representing “fairly important”, 3 representing “moderately important”, 4 representing “important”, and 5 representing “very important”. Each respondent was requested to evaluate each of the factored characteristics based on how important they were to them. Table 2 contains a summary of the statistical information that describes the features of the participants.

An evaluation of the degree of concordance between the two sets of data is the first step in the methodology that was used for the data analysis in this article. The assessment of the extent of concord in the ranking of the RLC factors among the 4 categories of tenants was based on their length of stay in the study area. These include tenants who have stayed in their current houses for less than 2 years; from 2 to 4 years; from 5 to 7 years; and for more than 7 years, respectively. According to Gearhart et al. [45], a metric known as the Kendall coefficient of concordance (W) employs ranks to determine the degree to which raters agree with one another. The values that are close to 1 imply perfect agreement, whilst the values that are close to 0 suggest that there is no agreement.

Table 2. Respondent’s Demographic and Socio-Economic Characteristics (Descriptive statistics).

Variables	Variable Type	Mean	Standard Deviation
<i>PANEL A (Continuous Variable)</i>			
<i>Annual Rent (0–500 m)</i>	Continuous	₦2,947,647.06 (\$8187.91)	1,444,962.15
<i>PANEL B (Binary/Categorical)</i>			
<i>Gender:</i>		Frequency	Percentage (%)
Male	Binary	144	70.6
Female		60	29.4
<i>Employment Type:</i>			
Government Employee	Categorical	25	12.3
Private Employee		122	59.8
Self Employed		57	27.9
<i>Household Size:</i>			
4 or less	Categorical	135	66.2
More than 4		69	33.8
<i>Education Level:</i>			
Illiteracy	Categorical	1	0.5
Primary		3	1.5
Secondary		6	2.9
OND/NCE		12	5.9
HND/BSC		73	35.8
MSC		95	46.6
PHD		14	6.9

Table 2. Cont.

Variables	Variable Type	Mean	Standard Deviation
<i>Household Income:</i>			
Less than ₦50,000 (\$138.89)	Categorical	10	4.9
₦50,000 (\$139)—₦99,999 (\$278)		6	2.9
₦100,000 (\$278)—₦149,999 (\$417)		3	1.5
₦150,000 (\$417)—₦199,999 (\$556)		0	0.0
₦200,000 (\$556)—₦249,999 (\$694)		9	4.4
₦250,000 (\$694)—₦299,999 (\$833)		47	23.0
₦300,000 (\$833) and above		129	63.2
<i>Length of stay in the current house:</i>			
Less than 2 years	Categorical	51	25.0
Between 2 and 4 years		101	49.5
Between 5 and 7 years		42	20.6
More than 7 years		10	4.9

Note: \$1 = ₦360 is based on 2018/2019 currency exchange rate. Moreso, the total number of samples was 204.

The formula for W is given as:

$$W = \frac{12S}{p^2 (n^3 - n) - pT} \quad (1)$$

where T represents a correction factor that is connected to ranks, p represents the number of raters, n represents the number of objects, and S is the sum of squares derived from the row sums of rankings. In addition, the items of the survey questionnaires involving RLC factors were subjected to Cronbach's Alpha (α) reliability test for their internal consistency. The alpha values of Cronbach's coefficient vary from 0 to 1, with higher values signifying more dependability [46,47]. The alpha value equal to or greater than 0.70 has been considered reliable for analysis [48–50].

The Cronbach's Alpha formula for estimating the reliability of a scale is given as,

$$\alpha = \frac{Nr}{1 + r(N - 1)} \quad (2)$$

where N represents the number of observations, r represents correlation, and α represents alpha.

Furthermore, we follow the logic that as the distance towards the coastline increases, the role of 'proximity to coastline' as an RLC influent may vary. Thus, the significant differences in the perception of households on the influence of each of the supposedly 15 factors in RLC within 250 m of the coastline and between 251 and 500 m away from the coastline of the study area were examined. The Mann–Whitney test was utilised for the purpose of determining the extent to which there was a significant distinction between two separate groups based on a continuous variable called independent groups [51,52]. This test is best utilised when the data being analysed has measurements for both ordinal scale values and nominal ordinal scale values [51,52]. Critical to the interpretation of output from the test are the Z value and the significance level. Pallant [51] stressed that the result is significant if the probability value (p) is less than or equal to 0.05. Umeh [52] added that in such circumstances, when utilising a 0.05 level of significance on a two-tailed test, the observed Z value is equal to or more than the Z critical value of 1.96. The significant differences or otherwise, particularly for respondents' opinions relating to 'closeness to the coastline for the view of water' and 'closeness to the beach for leisure and recreation

purposes' between the distance bands, set the stage for factor analysis based on distance bands or for the entire sample.

Finally, the principal components analysis (PCA), which is a form of factor analysis, was used to reduce the identified housing variables to a smaller set of influential components. PCA is a statistical technique that can transfer a data set with many intercorrelated variables into one with a smaller number of uncorrelated variables known as principal components [53]. The data from the field survey were examined using PCA with the Varimax Orthogonal rotational technique. However, before identifying the smaller set of influential components, the data set was scrutinised to ensure that certain assumptions for the adoption of PCA were met. Following Morenikeji [54], Pallant [51], and Umeh's [52] submissions, the size of the sample respondents to be used for the PCA should be at least 4 to 5 times the number of variables. The sample sizes for distance bands that are 76 and 128 within the study area and for the entire sample size of 204 are in each case higher than the minimum sample respondents that are suggested to be adequate for use with PCA. The correlation matrix (see Table 3) for RLC factors in the study shows some correlations of $r = 0.3$ or greater, which implies that the data are suitable for factor analysis [see 51]. More importantly, the Kaiser–Meyer–Olkin (KMO) value of 0.839 with a significant ($p < 0.05$) level of Bartlett's test of sphericity shows that the data obtained are reliable and sufficient to conduct factor analysis. All analyses were estimated using the IBM SPSS Statistics 25 version package.

Table 3. Correlation Matrix for Residential Location Choice Factors in Victoria Island.

	AHH	HS	HI	LHR	AUF	WL	ACS	ABS	NLTC/N	NGS	CPSEB	NNPF	CBL/RP	AQA	CCVW
AHH	1	0.297	0.361	−0.204	0.353	0.264	0.241	−0.159	0.252	0.379	−0.280	0.233	0.097	0.283	0.090
HS	0.297	1	0.381	0.061	0.324	0.265	0.688	0.038	0.324	0.286	0.220	0.183	0.147	0.269	0.181
HI	0.361	0.381	1	0.185	0.570	0.461	0.249	0.250	0.502	0.608	0.113	0.458	0.203	0.622	0.242
LHR	−0.204	0.061	0.185	1	0.202	0.207	0.144	0.587	0.224	0.256	0.409	0.189	0.458	0.367	0.515
AUF	0.353	0.324	0.570	0.202	1	0.520	0.370	0.229	0.515	0.607	0.113	0.461	0.379	0.505	0.366
WL	0.264	0.265	0.461	0.207	0.520	1	0.440	0.366	0.584	0.542	0.138	0.518	0.424	0.517	0.413
ACS	0.241	0.688	0.249	0.144	0.370	0.440	1	0.184	0.440	0.364	0.244	0.337	0.335	0.342	0.313
ABS	−0.159	0.038	0.250	0.587	0.229	0.366	0.184	1	0.383	0.321	0.495	0.266	0.386	0.331	0.417
NLTC/N	0.252	0.324	0.502	0.224	0.515	0.584	0.440	0.383	1	0.602	0.170	0.538	0.343	0.573	0.337
NGS	0.379	0.286	0.608	0.256	0.607	0.542	0.364	0.321	0.602	1	0.121	0.505	0.340	0.643	0.357
CPSEB	−0.280	0.220	0.113	0.409	0.113	0.138	0.244	0.495	0.170	0.121	1	0.123	0.295	0.135	0.333
NNPF	0.233	0.183	0.458	0.189	0.461	0.518	0.337	0.266	0.538	0.505	0.123	1	0.499	0.509	0.417
CBL/RP	0.097	0.147	0.203	0.458	0.379	0.424	0.335	0.386	0.343	0.340	0.295	0.499	1	0.334	0.885
AQA	0.283	0.269	0.622	0.367	0.505	0.517	0.342	0.331	0.573	0.643	0.135	0.509	0.334	1	0.428
CCVW	0.090	0.181	0.242	0.515	0.366	0.413	0.313	0.417	0.337	0.357	0.333	0.417	0.885	0.428	1

5. Findings and Discussion

This section presents the findings and discussion for this investigation.

5.1. Assessment of the Extent of Agreement of Tenants in the Ranking of the RLC Factors

Kendall's coefficient of concordance (W) establishes whether the four categories of respondents based on their length of stay in their current homes were employing similar standards in the ranking of factors influencing location decisions. The mean scores and ranks for the assessment of RLC factors in the study area are presented in Table 4. The result of Kendall's coefficient of concordance for the assessment of RLC factors is presented in Table 5.

Table 4. Factors influencing RLC of Tenants according to Length of Stay in Current House in Victoria Island.

Length of Stay of Tenant in Current House	Less than 2 Years		Between 2 and 4 Years		Between 5 and 7 Years		More than 7 Years	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Age of household head considered for less stress	2.90	12	3.26	12	3.21	13	3.60	10
Household size considered	3.90	8	4.00	8	3.95	9	4.50	3
Household income considered	4.04	5	4.58	1	4.52	2	4.40	4
Low House Rent	2.37	14	2.69	14	3.45	12	3.50	11
Availability of Utility Facilities	4.24	1	4.49	2	4.48	4	4.20	7
Workplace Location	3.94	7	4.25	7	4.24	6	4.40	4
Access to Children School	3.57	9	3.58	9	3.57	11	3.70	8
Access to Public Transport Bus stop	2.41	13	2.70	13	2.90	14	2.00	14
Neighbourhood with Less Traffic Congestion/Noise	4.12	3	4.30	6	4.36	5	4.40	4
Neighbourhood with good security	4.20	2	4.47	3	4.55	1	4.90	1
Closeness to people of same Ethnic Background	2.22	15	1.78	15	2.21	15	1.70	15
Neighbourhood not prone to Flooding	4.10	4	4.39	4	4.19	7	3.70	8
Closeness to beach for leisure and recreation purposes	3.43	11	3.41	10	3.93	10	3.30	13
Access to quality Air	4.02	6	4.37	5	4.52	2	4.90	1
Closeness to the Coastline for view of Water	3.53	10	3.30	11	4.05	8	3.50	11

Table 5. Kendall's W Test for Assessment of RLC Factors.

Statistics from the Test	
Kendall's W ^a	0.892
N	4.000
Df	14.000
Chi-Square	49.947
Asymp. Sig.	0.000

^a Kendall's Coefficient of Concordance. N = 4 indicates categories of tenants based on length of stay in current homes: 1 ≤ 2 years, 2 = between 2 and 4 years, 3 = between 5 and 7 years, 4 ≥ 7 years.

As seen in Table 5, Kendall's (W) value is 0.892, which is indicative of a strong level of agreement among the raters in the study area. The *p*-value was significant at a 0.05 level, also suggesting an agreement among raters. The different categories of tenants based on their length of stay in current homes have therefore employed similar standards in ranking the 15 RLC factors. It can be deduced that neither their varying length of stay nor their socioeconomic levels, such as level of education or income level, in any way influenced the ranking of the factors. In other words, the true situations under which the respondents moved to their current homes were remembered by them rather than imagined.

5.2. Reliability Test and Factorability of the Study Instrument

Based on the responses provided by the tenants to the questionnaires that were distributed to them, a Cronbach's Alpha (α) reliability test was carried out in order to evaluate the internal consistency and dependability of the scale that was applied, as well as to ensure that it is reliable. Table 6 presents the reliability statistics of the questionnaires.

Table 6. Reliability Statistics of the Study Questionnaire.

<i>Cronbach's Alpha</i>	<i>N of Items</i>
0.862	15

As presented in Table 6, the reported Cronbach's alpha value of 0.862 for the instruments used in the study area indicates that there is an acceptable level of correlation with respect to every item presented in this study's questionnaire.

5.3. Relatedness of Respondents' Opinion on the Rating of RLC Factors between Distance Bands

Following the assumption that significant differences in respondents' opinions relating to the variables of interest, namely 'closeness to the coastline for the view of water' and 'closeness to the beach for leisure and recreation purposes', will exist between the distance bands, the Mann–Whitney U test was employed. The reported Mann–Whitney U values of 4152 and 4247 for 'closeness to the coastline for the view of water' and 'closeness to the beach for leisure and recreation purposes' have corresponding *p*-values of 0.068 and 0.113 (see Table 7). Since the *p*-values in both cases exceed the 5% rejection level, it can be confidently concluded that significant differences in respondents' opinions relating to the variables of interest do not exist between the distance bands, and by extension, households perceive the attributes as alike. Hence, the results set the stage for the analysis of RLC factors on the entire sample basis.

Table 7. Residential Location Choice Factors between Distance Bands.

Variables	Mann–Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-Tailed)
Age of household head considered for less stress	3283.5	6209.5	−4.018	0.000 *
Household size was considered	3936.0	6862.0	−2.418	0.016 *
Household income was considered	3133.0	6059.0	−4.896	0.000 *
Wanted a House with Cheap Rent	3481.0	11,737.0	−3.554	0.000 *
Availability of Utility Services	3812.5	6738.5	−2.946	0.003 *
Workplace Location	3655.5	6581.5	−3.304	0.001 *
Access to Children School	4158.0	7084.0	−1.816	0.069
Access to Public Transport Bus stop	4483.0	12,739.0	−0.987	0.324
Neighbourhood with Less Traffic Congestion/Noise	3522.0	6448.0	−3.638	0.000 *
Neighbourhood with good security	3539.0	6465.0	−3.772	0.000 *
Closeness to people of same Ethnic Background	3538.5	11,794.5	−3.795	0.000 *
Neighbourhood not prone to Flooding	4044.5	6970.5	−2.209	0.027 *
Closeness to beach for leisure and recreation purposes	4247.0	12,503.0	−1.583	0.113
Access to quality Air	3824.5	6750.5	−2.867	0.004 *
Closeness to the Coastline for view of Water	4152.0	12,408.0	−1.828	0.068

* *p*-values that are less than or equal to 0.05, which shows significant level.

5.4. Factors Influencing RLC of Tenants in Victoria Island

The results of the extracted components with associated variables influencing the choice of residential locations of the households in Victoria Island are provided in Table 8. The result of Cattell's scree plot is displayed in Figure 2. The scree plot is utilised to arrive at a conclusion on the quantifying the factors to be maintained in an explored factor analysis (FA) or the number of primary elements to be maintained using a principal component analysis (PCA). The process of determining which features or components are statistically significant by employing a scree plot is sometimes referred to as a scree test, and this scree

plot was first established by Raymond B. Cattell in 1966 [55–58]. Based on the present study, the principal component analysis revealed the presence of four components with eigenvalues exceeding 1.0 and expatiated 70.76% as the total variance. Seven items comprising four neighbourhood attributes (neighbourhood with good security, access to quality air, the neighbourhood with less traffic congestion/noise, and neighbourhood not prone to flooding), one dwelling attribute (availability of utility facilities), and two socio-economic attributes (household income consideration and workplace location) were imputed unto Principal Component 1. With respect to the variables and their contents, the component was termed Component 1, viz-a-viz: neighbourhood, critical dwelling cum socio-economic attributes. The second principal component has significant correlation loadings for a two-variable group, which are ‘closeness to the beach for leisure and recreation purposes’ and ‘closeness to the coastline for the view of water’. These are variables of interest. The component is referred to as environmental attributes based on the underlying concept.

Table 8. Factors influencing Residential Location Choice of Tenants in Victoria Island.

Factors	Components			
	1	2	3	4
Neighbourhood with good security	0.822			
Household income considered	0.815			
Access to quality Air	0.786			
Neighbourhood with Less Traffic Congestion/Noise	0.732			
Availability of Utility Facilities	0.705			
Workplace Location	0.655			
Neighbourhood not prone to Flooding	0.615			
Closeness to the beach for leisure and recreation purposes		0.915		
Closeness to the Coastline for the view of the Water		0.868		
Closeness to people of the same Ethnic Background			0.762	
Access to Public Transport Bus stop			0.747	
Low house rent			0.694	
Age of household head considered for less stress			0.611	
Household size considered				0.894
Access to Children’s School				0.829

As depicted in Table 8, the third principal component has four variables with ‘closeness to people of the same ethnic background’ and ‘access to public transport bus stop’ loading high. Others are ‘low house rent’ and ‘age of household head considered for less stress’. The preceding investigations from various researchers serve as the basis for the variables selected herein. Thus, this study’s approach considered prioritising the variables that loaded high, Component 3 is termed socio-cultural cum accessibility attributes. An assessment of Component 4 reveals the loading of two items onto it, namely household size consideration (a socio-economic attribute) with access to children’s school, which is an accessibility attribute. The component was termed other socioeconomic cum accessibility attributes (Component 4) with respect to the contents.

The tasks that are undertaken by every one of the components are distinct because they each account for different variances in the elements that influence the RLC of the tenants in the study region in their own unique way. The first component, neighbourhood, critical dwelling cum socio-economic attributes, with an eigenvalue of 5.967, accounts for 39.78% of the variation in the factors influencing the RLC of households in Victoria Island. This component accounts for the highest portion of the overall variance that can be explained by the dataset, which is 70.76%. As a result, it serves a significant part in the process

that determines the RLC of residences in the research region. The second component, environmental attributes, is on 2.244 as its eigenvalue. This component is responsible for 14.96% of the overall variation. In light of these considerations, it is possible to assert that the component plays a relatively minor role in establishing the RLC. The third component, socio-cultural cum accessibility attributes, is on 1.302 as its eigenvalue and it plays a limited role in establishing the RLC. Thus, it explains the 8.68% of the overall variance obtained. Similarly, the fourth component, other socio-economic cum accessibility attributes, with an eigenvalue of 1.101 and variance of 7.34%, may be described as playing a role that is even more limited.

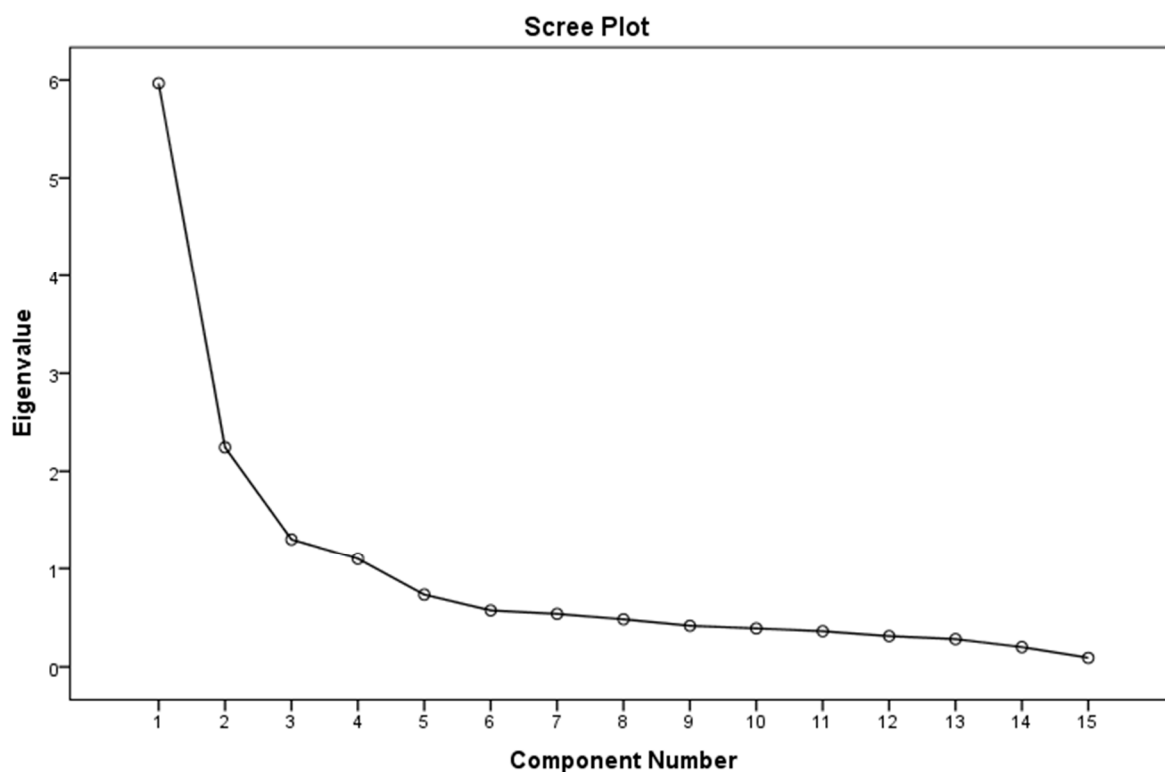


Figure 2. Scree Plot of Factors influencing RLC of Tenants in Victoria Island.

Generally, the results suggest that neighbourhood critical dwelling cum socio-economic attributes play an important role. Environmental attributes, socio-cultural cum accessibility attributes, and other socio-economic cum accessibility factors play moderate, limited, and even more limited roles, respectively, in determining the RLC of tenants in Victoria Island, Nigeria. These align with Jiburum et al. [3], and Oladapo and Adewolu [8] submissions that neighbourhood characteristics, especially crime level, noise consideration, and neighbourhood less prone to flood, play an important role in the choice of residential location. However, these conflict with previous studies, such as that of Owoicho and Ogwuche [7], on the moderate role of neighbourhood attributes, especially the safety of the neighbourhood. The findings are in agreement with Oladapo et al. [9] that critical attributes for dwellings such as the number of toilets play an important role in explaining the RLC of households but contradict the author's submission that neighbourhood attributes, particularly neighbourhood security, play a limited role. The findings differ from overseas studies, such as the one in Mumbai, where dwelling attributes such as water supply duration and toilet consideration are not important in deciding the RLC of households [6]. The findings also reaffirm studies such as Jiburum et al. [3], Muhammad et al. [4], Pandya and Maind [6], Owoicho and Ogwuche [7], Traore [10], and Deeyah et al. [11] on the role of socio-economic attributes, particularly household income and workplace location, as highly crucial for RLCs.

Notably, the finding of the modest influence of environmental attributes on RLC differs from the finding of Traore [10], where environmental attributes play an important or significant role in the choice of residential location, and the study of Deeyah et al. [11], where the role played by environmental attributes are unimportant or not significant. Given the fact that numerous individuals in African settings have cultural roots and affinity to their cultures, socio-cultural attributes exert limited influence on the choice of residential location. Considering the study area for the present study, Victoria Island is a choice area in Lagos State associated with high-class tenants from different parts of the country and abroad. This could possibly explain why socio-cultural attributes, especially closeness to people of the same ethnic background, are deemed less important in RLC decisions. This finding contradicts studies such as Muhammad et al. [3] Yoade [5], Traore [10], and Deeyah et al. [11] on the influence of socio-cultural attributes as very important in the choice of residential location. However, there is evidence of the limited influence of socio-cultural attributes on the choice of residential location in Dhaka, Bangladesh [59]. Furthermore, the results of this study run counter to studies such as Owoicho and Ogwuche [7], Oladapo and Adewolu [8], and Deeyah et al. [11] on the influence of accessibility attributes as highly crucial for RLC determinants but reaffirm Pandya and Maind's findings [6] on the role of accessibility as less important. The finding that low house rent plays a limited role in RLC contradicts several studies, such as Jiburum et al. [3], Pandya and Maind [6], Oladapo and Adewolu [8], and Deeyah et al. [11], where consideration of house rent plays a very important role in RLC. The finding suggests that households in Victoria Island do not consider 'low house rent' as an important influence on their residential location choices. It is not surprising that the factor is not a priority to tenants for RLC in the study area, as an average tenant is a high-income earner (see Table 2) and will be able to afford a decent and costly apartment.

6. Conclusions and Recommendations

In this paper, Victoria Island was employed as a case study to investigate the role that environmental attributes, alongside other housing attributes, play in residential location decisions. Remarkably, the most important determinant of RLC in the study area is 'neighbourhood', 'critical dwelling' cum 'socioeconomic' attributes. These attributes in specific terms include a neighbourhood with good security, access to quality air, less traffic congestion/noise, and not prone to flooding, and the availability of utility facilities, household income consideration, and workplace location. The attributes have the greatest impact on RLC and subsequently could limit the choice of residential locations in the research area. The research findings mean that residents when choosing where to live pay special attention to a crime-free and less traffic-congested area, as well as an area with clean quality air and not prone to flooding. In addition, the utility facilities associated with a house such as toilet and kitchen facilities, water supply, electricity, and drainage constitute a major priority factor for households when choosing where to live. A further strong point is that households are significantly guided by household income and workplace location. This means that the majority of the households in the research area are considered high-income earners due to their high standard of living and consider selecting housing located near their workplace location provided house rents are within the spendable limit of their income. The results also reveal that environmental attributes play moderate roles in determining the RLC of households in the research area. This means that environmental attributes occupy a moderate position on the ladder of residential location determinants, an indication that households in the study area pay some attention to the view of water, leisure, and recreation. In other words, having satisfied their family welfare within the limits of household income as displayed in Component 1, households to some extent move to be closer to the aesthetic value of the water and recreation at the beach; as such, they ascribed high scores to environmental variables in Component 2.

The outcomes of this investigation have significant ramifications for the best attainment of the preferences of households about their residential location. To satisfy the residential location desires of households in the study area, there should be concerted and

coordinated efforts by policymakers, urban planners, and relevant government agencies toward addressing the downsides of the neighbourhoods, including crime, traffic congestion, noise, and blocked drains, as well as enhance the steady supply of water and electricity. The availability of the appropriate number of toilets and bathroom facilities in relation to the number of bedrooms is an important consideration for real estate developers and property owners of residential assets. They should also provide alternative private sources of water other than the public source. Furthermore, the coastal managers are required to avoid water pollution and adopt sound protection measures at the coastline to manage coastal risks to satisfy the quest for cleaner air, avert flooding, and allay the fears of tenants of the risk of flooding in the neighbourhoods. It is envisaged that if these issues are addressed, residential areas across the study region will have a greater appeal to tenants. The addition of this study to the RLC literature contributes to the body of knowledge in the built environment. The discussion now includes a comprehensive list of housing characteristics, and it has increased our understanding of the factors that influence the RLC of tenants' households in Victoria Island, Nigeria. Some limitations of this study include the fact that the data are obtained from a coastal community comprising neighbourhoods with similar urbanised economies and that the study is not a generalised study. Thus, further study could look into decision-making factors for residential locations along this coastline part of Lagos, Nigeria.

Analysing the factors determining the RLC of households of coastal communities with varying economic situations will be more revealing in their peculiar determinants of RLC. There is a need to employ comparative analysis of data from different coastal communities covering high or urbanised developments to rural economies. Evidence from studies that have empirically analysed factors that influenced the RLC of households was considered in the choice of statistical tool. It is important to add that the study employed factor analysis, which was one of the basic analytical tools used for analysis in RLC studies. Kendall's coefficient of concordance and the Mann–Whitney test were preliminary tests utilised. Kendall's coefficient of concordance was used to assess the extent of concordance in the ranking of the RLC factors among different categories of tenants based on their length of stay. It was also used to enable the present researchers to establish whether the respondents were ranking the RLC factors on the same standard despite their varying lengths of stay in their current houses. However, it is noteworthy to add that aside from this statistical analysis based on Kendall's coefficient of concordance applied in the study, there are other methods of statistical analysis as well as the use of geographic models (GIS-based) or econometric models, which could be considered in future research.

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