Spatial Preference of Urban Residential Location in Osogbo, Nigeria

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Abstract

This study examined the spatial preference of urban residential location in Osogbo, Osun State, Nigeria. It identified the types and qualities of residential housing units; and examined the factors influencing the choice of residential location in Osogbo. Data were obtained from primary and secondary sources. Primary data were obtained through field observation and administration of questionnaire to 431 households. Secondary data were sourced from topographical map and the township map of the study area. In view of the observed inequalities in the number and density of buildings, the study area was divided into three zones: Zone 'A' (the old core), Zone 'B' (intermediate zone) and Zone 'C' (the outskirts). For easy identification of sample points, each of the zones was further divided into ten quadrants of equal sizes. Relative Importance Index (RII) indicated that occupation (RII = 0.769), house quality (RII = 0.768), nearness to place of work (RII = 0.766) and physical quality of the neighbourhood were the principal indices of residential location. Furthermore, results indicate that nearness to children's schools (X_{13}) constantly recorded the least RII value; it was the only factor with RII value of less than 0.5 both at the zonal and overall levels of assessment. The study concluded that low-income households and or whose heads have below college education or completely uneducated were satisfied with any house in any location where the rent is affordable and provided easy and quick access to their places of work.

Keywords: residential location, residential neighbourhood, housing characteristics, residential quality, Osogbo

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Introduction

Residential housing is one of the basic needs of humans; it is regarded as an indicator of a person's standard of living and a major component of economic development (Adedeji, 2007; Oderinwale, 2011). Housing as a unit of the environment has profound influence on health, efficiency, social behaviour, satisfaction and general welfare of the community (Aribigbola, 2000; Lynch and Rasmussen, 2001; Hampton and Charles, 2006; Omole, 2010). Therefore, the choice of residential location is a function of a wide range of attributes, the taste for which is differentiated by a variety of household characteristics. This differentiation identifies and characterizes the relative importance of different attributes to various types of households and the desire to reside with others in areas with similar social characteristics.

The choice of where to reside within an urban area by either an individual or a household is a function of many factors. In some cases, choices are based on housing itself and neighbourhoods. In this regard, the decision-making mechanism considers the relations among elements such as housing availability, dwelling types, housing quality, the characteristics of a neighbourhood, and accessibility to various activities such as business, shopping, commuting, and leisure (Smith, 1977; McFadden, 1978; Waddell, 1993; Amao and Ilesanmi, 2013). Expatiating this further, Hunt *et al*. (1994) showed that in Calgary, Canada, a wide variety of dwelling unit attributes, location attributes and household characteristics influence housing choice behaviour. He emphasised that a community's facilities, social amenities, and services form an integral part of the housing concepts and should be receiving as much attention as the housing unit itself. But, Brown and Robinson (2006) think differently when they explored the nature of heterogeneity in residential preferences within south-eastern Michigan. The results revealed that residential locations are selected by residential agents, who evaluated locations on the basis of certain stated preferences. However, Habib and Miller (2009), in their study of Toronto (Canada), concluded that several variables, including dwelling characteristics, land uses and other zonal attributes, accessibility measures, and household socio-demographics influence residential location.

The roles of transportation in affecting the residential location decisions in urban areas have been greatly emphasized. Households make significant trade-offs between factors like transportation services and other public services in evaluating potential residences. Thus, housing location choice and commuting behaviour in cities are of significant interest (Weisbrod *et al*., 1980; White, 1988; Andre *et al*., 2005). Kim *et al*. (2003), in a study of residential location choice behaviour in Oxfordshire, showed that transport related attributes and higher quality of school have significant positive impacts on residential location choice. In like manner, Chaug-Ing and Shwu-Ping (2006), in their study of some Chinese cities, found out that residential locations better served by rail transit lines attract more households; thereby, resulting in higher residential densities. Gutie´rrez-i-Puigarnau *et al*. (2014) corroborated the consideration for commuting patterns and spatial job distribution. They showed that for Denmark, conditional on the workplace location, the income elasticity of distance is negative and larger for single-earner households than for dual-earner households. In addition, Zhonghua and Xuejun (2015) observed that in Hangzhou, China, neighbourhood characteristics, public facilities and housing characteristics are the main factors of residential satisfaction.

Kwan and Masaki (2013) showed that, desire for non-housing luxury goods have a significant positive association with the choice of where to reside within the city. In addition, they identified such attracting

factors as, variation in demographics across neighbourhoods within the area, attributes of surrounding neighbours and the level of amenities in terms of education, higher social capital, and/or physical amenities such as beach and parks. Therefore, the evaluation of Myung-Jin (2013) using the income levels of households could not be jettisoned. Myung-Jin (2013) evaluated the impact of medium-income and high-income households' preference for apartments on residential location choice by constructing a random utility-based land use simulation model of the Seoul Metropolitan area. Myung-Jin observed that apartment preference of medium-income and high-income groups would have contributed to providing more apartment units, more housing units in the suburbs, and higher apartment rent premiums in wealthy communities than the assumed housing market under the counterfactual scenario in terms of housing type, location, and rents.

In the developing countries, studies have shown that many residents of urban areas live in a particular location due to various reasons or factors. In Nigeria particularly, several scholars have emphasised that such factors as availability of certain essential social services, infrastructural facilities, socio-economic characteristics of a household, and housing quality as the most significant deciding factors in choosing where to live (Salau 1990; Afolayan 1994; Amao and Ilesanmi, 2013). Olatubara (1994) identified availability of vacancy, movement costs and income of the household making the decision as factors that would decide residential location choice. In another study, Olatubara (1998) opined that urban residential location is determined by the distribution of household activity nodes. Ajala and Olayiwola (2011) examined household residential location choice behaviour using samples of households from two large urban centres in south-western part of Nigeria. They found that socio-economic status of the households were the most significant factors of residential location decision in south-western Nigeria. However, in Lagos, with more heterogeneous population and better economic opportunities, Jiboye (2012) found that the quality of physical appearance of houses plays a significant role in determining residents' satisfaction level in Oniru Estate.

From the foregoing, it is clear that there has been an extraordinary revival of interest on the spatial preferences of households in choosing urban housing location, especially in the urban areas because of the exceptional evolution of urban housing. However, little is known on the spatial pattern of urban housing in Nigeria. In effect, this study examined the relationship between housing quality and preferences of the households involved in choosing household location in urban areas using Osogbo, Nigeria as a case study. This is with the view of understanding the social and spatial transformations of the physical structure and socio-economic characteristics of the residents of urban housing in developing countries. In pursuance of this, the study identified the types, characteristics and qualities of residential housing units; assessed the factors influencing the choice of residential location; and evaluated the socio-economic and environmental issues associated with people living in Osogbo, Nigeria.

The Study Area

This study was carried out at Osogbo, the administrative headquarters of Osogbo and Olorunda Local Government Areas (LGAs) and the capital of Osun State, Nigeria. It has a total land area of 47 square kilometres and shares boundary with Ifelodun, Ede North, Atakunmosa West, Egbedore and Boripe Local Government Areas (Osun State Government, 2006). Osogbo is located between Latitudes 7°42'20" and 7°49'20" North and Longitudes 4°30'20" and 4°38'20" East (Figure 1).

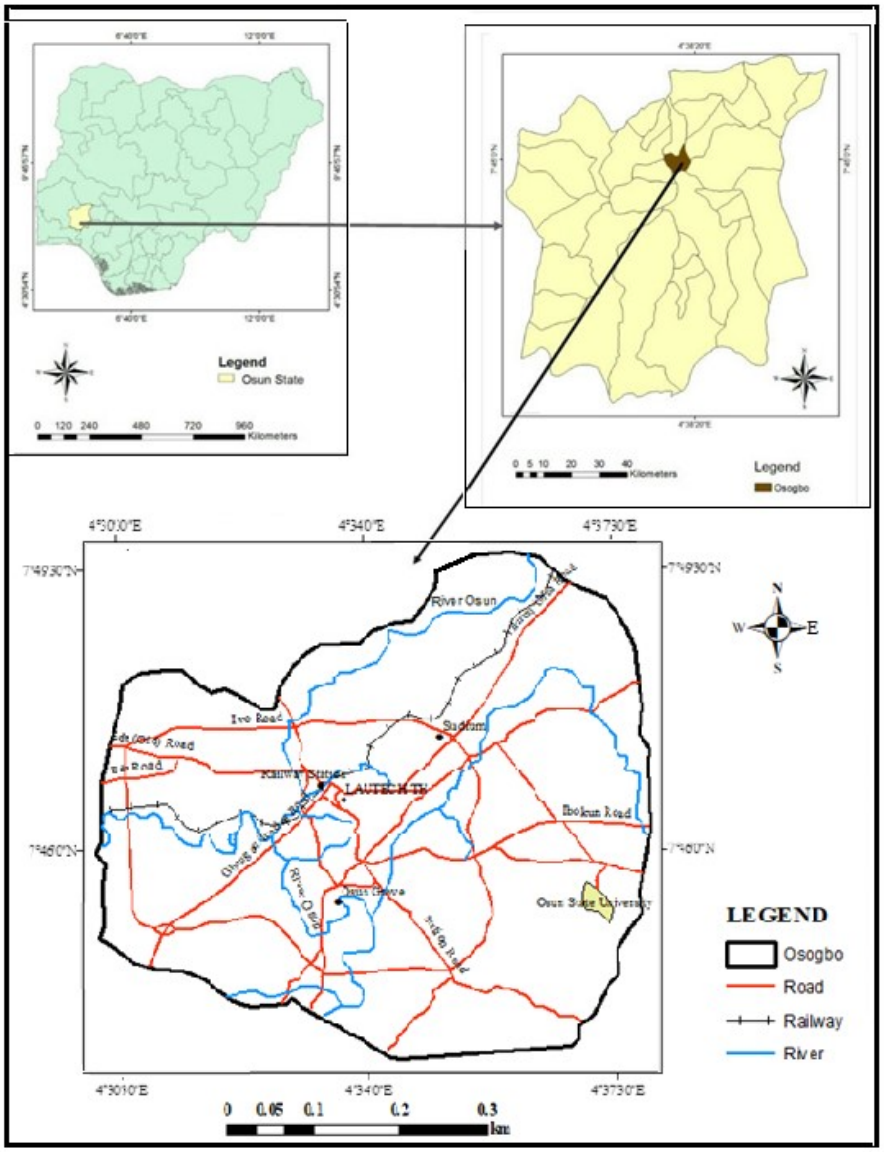

Figure 1: The Study Area

Sources: Topographical map (Sheet 243 N.W., 1966)

Town Planning Division, Osogbo Local Government Area, 2015

Osogbo is largely dominated by the Yoruba ethnic group and unified by a general language (Yoruba Language). Other tribes such as Hausa, Igbo and Fulani are also found in the city. According to the 1963 census results, the population of Osogbo was 152,424. In 1991, when Osun State was created with Osogbo as the state capital, the population increased to 250,951 (Table 1). In 2006 the population of Osogbo was 381,405. Based on this figure, the population of Osogbo was estimated to be 527,954 in 2017 at the official rate of 3% annual growth rate (National Bureau of Statistics, 2016). The growth in the population of Osogbo over time is largely related to the introduction of modern technology and administration as Osogbo became a growth centre that pulled population from its neighbouring settlements (Agbola, 1992; Proudly Yoruba, 2013).

Table 1: Population Growth of Osogbo, 1963 - 2017

Year	Population	Percentage Change
1963	152,424*	24.1
1991	250,951*	64.6
2006	381,405*	52.0
2017	527,954**	38.4

*Sources: * Census figures (National Population Commission of Nigeria, 1991; 2006)*

*** Projection at official 3% annual growth rate for urban centres in Nigeria (National Bureau of Statistics, 2016)*

Osogbo falls within the tropical environment characterised by Köppen's Aw classification. The average annual temperature is 26.1˚C and average annual rainfall is 1241mm. Whereas the warmest month of the year was March with an average temperature of 28.3˚C, the lowest temperature of 23.7˚C was recorded in August (Adejuwon and Jeje, 1975). In effect of these climate attributes coupled with intense human activities, the dominant vegetation type is deciduous forest. Osogbo is made up of Precambrian rocks and fairly fertile clayey loamy soil, which is derived mainly from the underlain basement complex. Osogbo is situated on a raised land which is well over 500 metres (800 feet) above the sea level. There are many rivers and streams in Osogbo of which the most permanent is River Osun (Adejuwon and Jeje, 1975; Faniran and Jeje, 1983; Osun State Government, 2016).

In view of these geographical attributes of Osogbo, farming is the major traditional occupation of inhabitants. The tropical climate of the area favours the cultivation of cash crops such as cocoa, cotton and kolanuts, and food crops such as yam, maize and vegetation. In addition, Osogbo is a major dyeing centre, thus, it is often referred to as "*Ilu-Aro*" (home of dyeing). Apart from farming, cloth dyeing is another traditional activity of the people of Osogbo. The people of Osogbo are also famed for their commercial activities in handmade traditional weaving of cloth (Aso-Oke) and Batiks, same with embroidery, pottery and gold-smiting (Agbola, 1992; Murphy and Sanford, 2001; Osun State Government, 2006).

Osogbo became a commercial town mainly with the arrival of railway in 1907 which brought the colonial government of then to the threshold of the town (Agbola, 1992; Peter, 2011). With the creation of Osun State in 1991, Osogbo became a state capital in Nigeria. This led to commercial and socio-economic boom in the city. Apart from this, there are some industries in Osogbo, such as Nigerian Machine Tools, Osogbo Steel Rolling Company (OSRC), Wire and Nail Industry, Garment Industry, the Industrial development centre and others. A major landmark in Osogbo is the "Sacred Osun Groove" which is a UNESCO World Heritage Site, where the annual Osun Osogbo Festival takes place. This ancient Sacred Groove brings millions of people from all over the world into the city every year for the annual celebration of Osun Osogbo Festival (Murphy and Sanford, 2001; Peter, 2009; 2011; 2013; Osun State Government, 2016).

Methods of Research

Data Sources and Sample Selection

Data for the study were derived from primary and secondary sources. Primary data was derived from administered questionnaire to 431 households, complemented with structured interviews and ground checks. Secondary data was obtained from cartographic sources such as topographical map (Sheet 243

N.W., 1966), street map of Osogbo Township, which is prepared by the Town Planning Division of Osogbo Local Government Area.

The target population for the study encompasses heads of households in Osogbo, Nigeria. The 1991 census results indicated that there were 41,933 heads of households in Osogbo, this increased to 64,870 in 2006 (NPC, 1991; 2006). Based on the 2006 figure and using NPC official annual growth rate of 3%, the total households in Osogbo was estimated to be 89,795 in 2017. Of this, a total of 431 heads of households were selected as samples for the study. Selection of samples for the study involved multi-stage sampling procedures. First, Osogbo was divided into three zones: the old core (Zone A), the intermediate zone (Zone B) and the outskirts (Zone C) (Figure 2). Furthermore, each zone was divided into four quadrants of equal sizes based on the current maps prepared by Planning Division of Osogbo Local Government Area. Second, for easy identification of sample points and because of unequal distribution of houses, each quadrant was further divided into ten cells in which systematic sampling method was employed to select sample housing unit. Thus, every *kth* residential house was selected as sample point; the size of *k-value* depended on the number of houses contained in each cell. The calculation for sample selection was determined by (Kish, 1965):

$$k=N/n \quad (1)$$

Where: k is the sampling interval
N is the number of dwelling housing units in the study settlement
n is the number of elements contained in the sample (per quadrant)

Table 2: Selection of Samples per Zone

S/N	Zone	Number of Household	Sample Size
	A	44,932	208
	B	28,815	138
	C	16,048	85
Total		89,795	431

Source: Field work, 2017

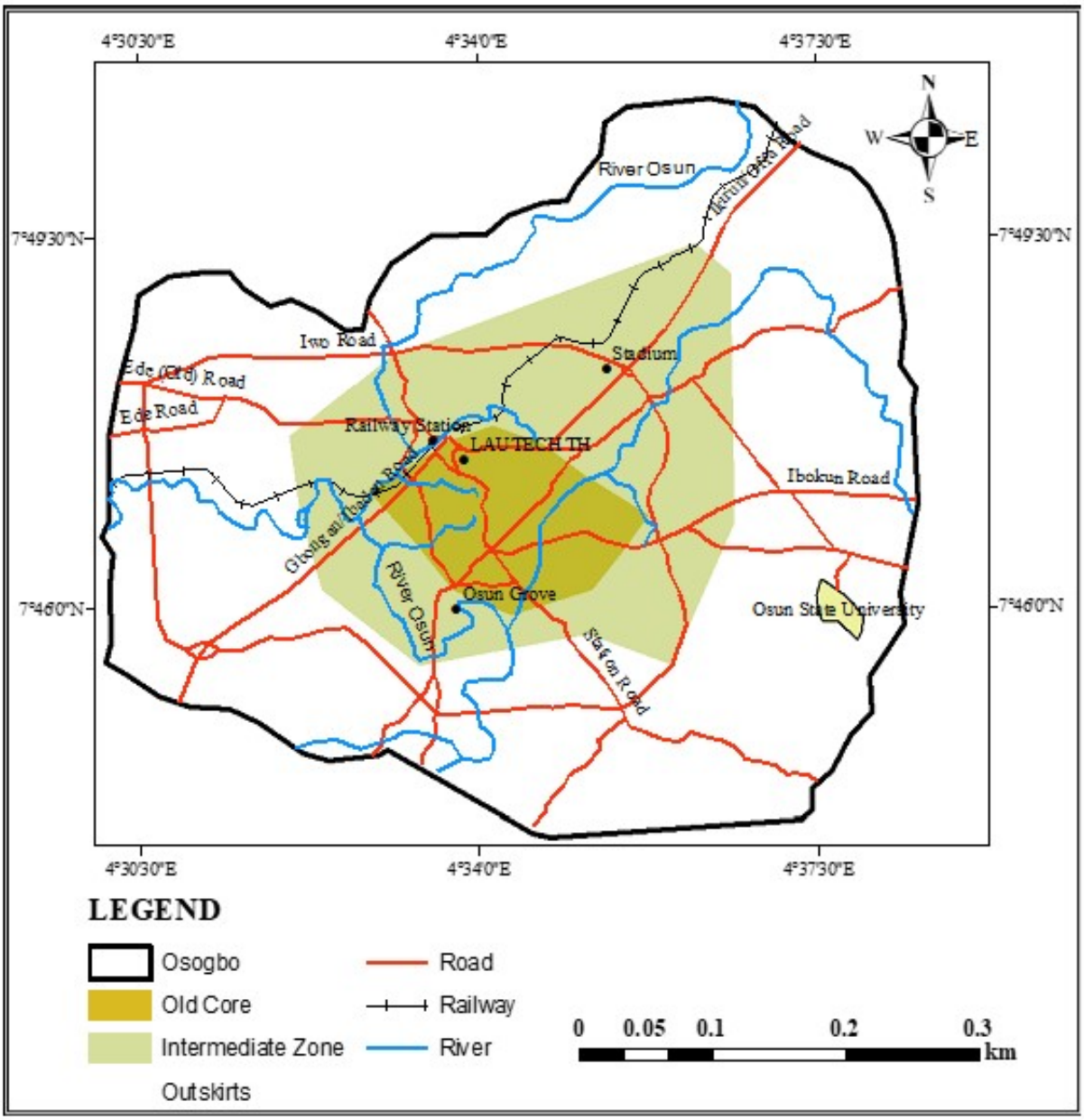

Figure 2: Residential Zones of Osogbo

Sources: Topographical map (Sheet 243 N.W., 1966)

Town Planning Division, Osogbo Local Government Area, 2015

Data Analysis

Thirteen factors were identified as major variables influencing choice of residential location decision in Osogbo, Nigeria. For easy reference, these factors were attached with identification codes: X_1, X_2, …… X_{13} (Table 3).

Table 3: Identification Codes of Factors Influencing Residential Location Decision

S/N	Factors	Codes
	Occupation	X_1
	Level of Education	X_2
	Annual Income	X_3
Marital Status		X_4
	Physical quality of the Neighbourhood	X_5
	House Quality	X_6
	House Type	X_7
	Cost of Land	X_8
	House Ownership	X_9
	Cost of Living	X_{10}
	Nearness to Work Place	X_{11}
	Nearness to Service Centre	X_{12}
	Nearness to Children's School	X_{13}

Source: Field work, 2017

Statistical Analysis

Data collected from the respondents were analysed using percentages and the Relative Importance Index (RII). The respondents were asked to rate the importance of the factors influencing their residential location decision based on the principle of the Likert Scale (Likert, 1961). The scale was ranked in a descending order of importance (Very High = 5, High = 4, Average =3, Low = 2 and Very Low = 1). These values were transformed into RIIs for each factor. Mathematically, this is expressed as follows (Likert, 1961):

$$RII = \frac{\sum W}{A*N} \quad (2)$$

where W is the weighting given to each factor by the respondents to the survey (i = 5 to 1), A is the highest weight (which is 5 in this case) and N is the total number of respondents. Each of the identified factors influencing residential location decision was computed to identify the most significant factors. The factors were ranked based on RII values, which in turn enabled the identification of the most important factors influencing residential location decision across the three residential zones in Osogbo, Nigeria. The higher the value of RII indicated the most important the factor that influence residential location decision.

Results and Discussion

The research findings of this study are presented primarily on the choice of or preference for residential location, the types and characteristics of residential housing units in Osogbo, Nigeria.

Socio-economic Characteristics of Respondents

The basic elements included in the socio-economic characteristics of the sampled respondents are age, sex, marital status, level of education and occupation. Table 4 indicates that, there were both male and female heads of household in the study area. However, there were more males than females; simply because in Yorubaland a man is regarded as the head of the family. The cases of 38.7% female heads of household were recorded in situations like divorced and widowed, living with their children. In addition, there were other categories of females, such as civil servants, who were living on their own (Table 4). The self-employed category included other business activities other than trading, farming and artisan (such as driving, laundry services). The professional group include doctors, nurses, accountants, pharmacists, surveyors and lawyers that were not engaged by government. This indicates that most of the respondents were in the working class with majority in the active labour force. Average annual income per head of household statistics shows that more than 50% of the respondents earned below ₦5,000,000 (USD 13,888.89) per annum.

Table 4: Socio-Demographic Characteristics of Respondents

Parameters	Frequency	Percentage	Parameters	Frequency	Percentage
Age			Occupation		
18 - 40 years	55	12.8	Trading	64	14.8
41 – 65 years	231	53.6	Artisan	82	19.0
Above 65	145	33.6	Civil Service	114	26.5
Total	431	100	Student	60	13.9
Gender			Farming	27	6.3
Male	264	61.3	Self Employed	37	8.6
Female	167	38.7	Professional	20	4.6
Total	431	100	Unemployed	27	6.3
Marital Status			Total	431	100
Single	172	39.9	Average Income per Annum (in USD)*		
Married	221	51.3	Below 600	34	7.9
Separated	21	4.9	600 – 1,389	61	14.2
Divorced	1	0.2	1,389.1 – 2,083	28	6.5
Widowed	16	3.7	2,083.1 – 2,778	33	7.7
Total	431	100	2,778.1 – 5,556	103	23.9
Education			5,556.1 – 13,889	76	17.6
Primary School	39	9.0	13,889.1 – 27,778	3	0.7
Secondary School	143	33.2	Above 27,778	6	1.4
Post-secondary	189	43.9	None	87	20.2
No Formal Education	60	13.9	Total	431	100
Total	431	100			

Source: Field work, 2017

**Based on official minimum wage of ₦18,000 (USD 50) per month (₦216,000/USD 600 per annum) Conversion was based on current conversion rate of ₦360 to $1 as at 22nd January, 2019*

Quality and Characteristics of Residential Housing in Osogbo

Table 5 presents the type of residential housing units in the study area. There were more multi-flat bungalow buildings than storey buildings because of the availability of land at cheaper rates, which facilitate spread of buildings rather than massing of floors. Most of the residential buildings in the study area were built with modern materials and high qualities: while cement blocks are used for walls, majority of the respondents used tiles, marble or terrazzo for flooring. Furthermore, Table 5 reveals that the use of one plot of land is very popular among the residents of Osogbo. This was common in the old core of the city where land is compacted to accommodate many spatial structures. Further outside the core area, very few landlords had built their houses on single plot. Buildings constructed on 3 plots and above were particularly at the outskirts of the study area where duplex and multi-flat housing units were found.

Table 5: Quality of Residential Housing Materials

Housing Quality	Frequency	Percentage	Housing Quality	Frequency	Percentage
House Type			Roofing Materials		
Traditional compound	33	7.7	Iron Sheets	265	61.5
Bungalow	178	41.3	Life span (Long) sheets	61	14.2
Storey Building	123	28.5	Concrete	49	11.4
Multi-flat	77	17.9	Addex	56	13.0
Duplex	20	4.6	Total	431	100
Total	431	100	Size of land (number of plots)		
Materials used for the Wall			0.5	15	3.5
Cement Blocks	322	74.7	1	189	43.9
Mud	24	5.6	1.5	28	6.5
Mud Blocks	15	3.5	2	117	27.1
Plastered	67	15.5	2.5	21	4.9
Not Plastered	3	0.7	3	38	8.8
Total	431	100	>3	23	5.3
Flooring Materials			Total	431	100
Tiles/Marble/Terrazzo	236	54.8	Method of Land Acquisition		
Planks	3	0.7	Purchased	299	69.4
Plastered	116	26.9	Inherited	79	18.3
Earth Surfaced	76	17.6	Leased	12	2.8
Total	431	100	None	41	9.5
Ceiling Materials			Total	431	100
Asbestos	352	81.7			
Ply Wood	9	2.1			
Mat/ Cardboard	31	7.2			
Concrete	39	9.0			
Total	431	100			

Source: Field work, 2017

Table 6 shows the facilities available in the sampled houses; the main sources of water supply in the study area are wells and pipe-borne water. Also, the main source of power recorded is public electricity supplied by the Power Holding Company of Nigeria (PHCN); other sources of power such as generator, gas lamp and kerosene lamps are becoming rather extinct. Table 6 also reveals that, the use of modern means of communication was highly welcomed in Osogbo as respondents attested to using GSM telephone, land telephone and postal services as their means of communication. In addition, Table 6 indicates that majority of the sampled houses had toilet facilities, however many households still dump their household wastes on dunghills at their backyards, in pits or gutters, and streams. These are in line with Bourne's suggestion that, housing should not be just living spaces and shelter but with all necessary services, facilities and device needed for physical mental health and social wellbeing of the family and individual (Bourne, 1981).

Table 6: Residential Housing Facilities in Osogbo

Housing Facilities	Frequency	Percentage	Housing Facilities	**Frequency**	**Percentage**
Water Sources			Toilet Facilities		
Pipe Borne water	136	31.6	Water system	341	79.1
Stream	67	15.5	Pit	43	10.0
Well	168	39.0	Bush	28	6.5
Bore-hole	60	13.9	Bucket	6	1.4
Total	431	100	Dunghill	13	3.0
Sources of Power			Total	**431**	**100**
Public Power Supply	389	90.3	Wastes Disposal System		
Generator	23	5.3	Dunghill at the backyard	143	33.2
Kerosene Lamps	7	1.6	Dunghill	57	13.2
Gas lamp	12	2.8	Pit or gutter	13	3.0
Total	431	100	Public waste disposal	158	36.7
Means of Communication			Stream	6	1.4
Land Telephone	64	14.8	Incinerator	54	12.5
GSM Telephone	352	81.7	Total	**431**	**100**
Postal	5	3.5			
Total	431	100			

Source: Field work, 2017

The category of public waste disposal system in Table 6 refers to those who have embraced O'Clean Programme and agreed to pay for the disposal of their household wastes. O'Clean Programme is a creation of the Osun State Government aimed at improving and maintaining a healthy and sustainable environment throughout the whole state.

Ownership and Occupancy Nature of Residential Housing in Osogbo

Table 7 indicates that most of the residential housing units in Osogbo are owned by private individuals. Therefore, the occupancy nature of residential houses in Osogbo indicates that, most of the respondents were the owners of the properties they were occupying. Others were staying in family houses, while some others were official government residential quarters. However, rental housing can be regarded as relatively expensive in the study area, with about 16.6% of the respondents paying over USD 833.33 per annum on

accommodation, while more than 50% of the respondents earned below USD 2,778 per annum; this is an indication of high cost of living (Table 7).

Table 7: Ownership and Occupancy of Residential Housing Units in Osogbo

Nature of Houses	Frequency	Percentage	Nature of Houses	Frequency	Percentage
House Ownership			House Occupancy		
Individual	321	74.5	Owners Alone	256	59.4
Firm	21	4.9	Tenants Alone	134	31.1
Government	20	4.6	Owners and Tenants	41	9.5
Family House	69	16.0	Total	431	100
Total	431	100	Rent per Annum (in USD)*		
Number of Rooms/Flats Occupied by Tenants			≤139	13	3.0
Below 3	7	1.6	139 – 278	90	20.9
3-6	58	13.5	278.1 - 556	26	6.0
> 6	17	3.9	556.1 - 833	19	4.4
The whole building	93	21.6	833.1 – 1,111	14	3.2
None	256	59.4	1,111.1 – 1,389	10	2.3
Total	431	100	Above 1,389	3	0.7
			None	256	59.4
			Total	431	100

Source: Field work, 2017

**Conversion was based on current conversion rate of ₦360 to $1 as at 22nd January, 2019*

Factors influencing the choice of Residential Housing Units in Osogbo

Housing choice is a serious matter for households because it affects family finances as well as quality of life. Therefore, this study found out and discussed various factors that influenced residential location decisions in Osogbo, Nigeria. First, the factors were treated on the basis of the identified three zones and later, Osogbo was discussed as a single settlement. While Table 8 contains the scores, Table 9 indicates the RII values and the ranks of the factors. It is important to report that, in Zone A, sixty-six respondents did not assess the influence of "Nearness to Service Centre" (X_{12}) on their choice of residential location in the study area. Possible reason for this could be that, they are very close to the service centres, or they did not even use them at all.

Table 8: Scoring of Factors Influencing Residential Location Decision (by Zone)

Zones	Scores	Factors Influencing Residential Location Decision												
		X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}
A	5	63	41	45	49	34	59	51	41	35	43	87	54	46
	4	94	103	87	73	106	76	83	61	72	91	75	7	9
	3	32	49	56	55	39	42	26	63	51	12	32	42	66
	2	7	7	12	16	19	25	37	31	32	34	11	21	49
	1	12	8	8	15	10	6	11	12	18	28	3	18	38
	Total	208	208	208	208	208	208	208	208	208	208	208	142*	208
B	5	38	23	22	31	82	43	48	27	52	16	29	43	7
	4	71	82	62	52	21	63	67	69	62	30	76	29	6
	3	14	25	34	43	24	18	9	38	21	18	27	41	14
	2	4	2	16	8	9	12	13	2	1	47	2	11	18
	1	11	6	4	4	2	2	1	2	2	27	4	14	93
	Total	138	138	138	138	138	138	138	138	138	138	138	138	138
C	5	23	24	22	10	21	31	28	39	34	6	9	5	2
	4	26	30	32	39	31	30	25	29	23	22	25	13	1
	3	26	23	14	9	12	4	19	12	20	8	18	16	9
	2	2	3	15	18	16	19	11	2	4	21	24	23	20
	1	8	5	2	9	5	1	2	3	4	28	9	28	53
	Total	85	85	85	85	85	85	85	85	85	85	85	85	85

Source: Field work, 2017

Table 9 shows that nearness to children's school was consistently the least important factor influencing the choice of residential location in Osogbo with RII values of 0.577 (Zone A); 0.333 (Zone B) and 0. 315 (Zone C). Whereas nearness to place of work was the most important factor in Zone A, physical quality of the neighbourhood was given prominence in Zone B, and cost of land attracted the highest value at the outskirts of the town (Table 9).

* 66 respondents in Zone A did not assess the influence of "Nearness to Service Centre" on their choice of residential location

Table 9: RII Values of Factors Influencing Residential Location Decision (by Zone)

S/N	Factors	ZONE A (Old Core)			ZONE B (Intermediate)			ZONE C (Outskirts)		
		SW	RII	Rank	SW	RII	Rank	SW	RII	Rank
	X_1	813	0.782	2	535	0.775	6	309	0.727	7
	X_2	786	0.756	3	528	0.765	8	320	0.753	5
	X_3	773	0.743	5	496	0.719	10	312	0.734	6
	X_4	749	0.720	8	512	0.742	9	278	0.654	9
	X_5	759	0.730	6	586	0.849	1	302	0.711	8
	X_6	781	0.751	4	547	0.793	4	326	0.767	3
	X_7	750	0.721	7	562	0.814	3	321	0.755	4
	X_8	712	0.685	10	531	0.770	7	354	0.833	1
	X_9	698	0.671	12	575	0.833	2	334	0.786	2
	X_{10}	711	0.684	11	375	0.543	12	212	0.499	11
	X_{11}	856	0.823	1	538	0.780	5	256	0.602	10
	X_{12}	748	0.719	9	490	0.710	11	199	0.468	12
	X_{13}	600	0.577	13	230	0.333	13	134	0.315	13

Source: Field work, 2017

Calculated from Table 8

Notes:
SW = sum of weights

Zone	N	A*N
A	208	1040
B	138	690
C	85	425

In Table 10, Osogbo was considered as a single settlement; the variables were treated not on zonal basis but rather at the level of settlement. The overall scores indicate that, while nearness to children's school was rated as the least important factor (RII = 0.447), type of occupation was rated as the most important factor (RII = 0.769) influencing choice of residential location decision in Osogbo, Nigeria (Table 11). In a study at Denmark, Gutie´rrez-i-Puigarnau *et al*. (2014) found out a similar result with the conclusion that the rich lives farther away from the city centre. This is because they either own a car or can afford transport fares to observe any service outside their residential area.

Table 10: Overall Scores of Factors Influencing Residential Location Decision

S/N	Factors	Frequency of Scores				
		5	**4**	**3**	**2**	**1**
1. 1	X_1	124	191	72	13	31
	X_2	88	215	97	12	19
	X_3	89	181	104	43	14
	X_4	90	164	107	42	28
	X_5	137	158	75	44	17
	X_6	133	169	64	56	9
	X_7	127	175	54	61	14
	X_8	107	159	113	35	17
	X_9	121	157	92	37	24
	X_{10}	65	143	38	102	83
	X_{11}	125	176	77	37	16
	X_{12}	102	115	99	55	60
	X_{13}	55	16	89	87	184

Source: Field work, 2017

Table 11: Overall RII of Factors Influencing Residential Location Decision

S/N	Factors	N	A*N	SW	RII	Rank
	X_1	431	2155	1657	0.769	1
	X_2	431	2155	1634	0.758	5
	X_3	431	2155	1581	0.734	9
	X_4	431	2155	1539	0.714	10
	X_5	431	2155	1647	0.764	4
	X_6	431	2155	1654	0.768	2
	X_7	431	2155	1633	0.758	5
	X_8	431	2155	1597	0.741	8
	X_9	431	2155	1607	0.746	7
	X_{10}	431	2155	1298	0.602	12
	X_{11}	431	2155	1650	0.766	3
	X_{12}	431	2155	1437	0.667	11
	X_{13}	431	2155	964	0.447	13

Source: Field work, 2017
Calculated from Table 10
SW = Sum of Weights

Table 11 shows that 12 of the 13 variables influencing the choice of residential location in Osogbo have RII values greater than 0.5. Only one factor (nearness to children's school) had RII of less than 0.5 (X_{13} = 0.447). For better assessment of the contribution of each factor in influencing residential location decision in Osogbo, a comparison of RII values and ranks by zone and factor was attempted (Table 12).

Table 12: Comparison of RII Values and Ranks by Zone and Factor

Rank	ZONES						OVERALL	
	A		B		C			
	Factors	RII	Factors	RII	Factors	RII	Factors	RII
1st	X_{11}	0.823	X_5	0.849	X_8	0.833	X_1	0.769
2nd	X_1	0.782	X_9	0.833	X_9	0.786	X_6	0.768
3rd	X_2	0.756	X_7	0.814	X_6	0.767	X_{11}	0.766
4th	X_6	0.751	X_6	0.793	X_7	0.755	X_5	0.764
5th	X_3	0.743	X_{11}	0.780	X_2	0.753	X_2; X_7	0.758; 0.758
6th	X_5	0.730	X_1	0.775	X_3	0.734		
7th	X_7	0.721	X_8	0.770	X_1	0.727	X_9	0.746
8th	X_4	0.720	X_2	0.765	X_5	0.711	X_8	0.741
9th	X_{12}	0.719	X_4	0.742	X_4	0.654	X_3	0.734
10th	X_8	0.685	X_3	0.719	X_{11}	0.602	X_4	0.714
11th	X_{10}	0.684	X_{12}	0.710	X_{10}	0.499	X_{12}	0.667
12th	X_9	0.671	X_{10}	0.543	X_{12}	0.468	X_{10}	0.602
13th	X_{13}	0.577	X_{13}	0.333	X_{13}	0.315	X_{13}	0.447

Source: Adapted from Tables 9 and 11

Table 12 shows that, at the zonal level, the major priority of the inhabitants in Zone A was how to get as close as possible to places of work, thus X_{11} (nearness to work place) and X_1 (occupation) ranked 1st and 2nd, respectively. Majority of the occupants of this Zone believed that only the highly educated individuals can live in the "bush", thus, the outskirts of the city. Therefore, quality of education ($X_2 = 0.782$) ranked 3rd among the factors that played significant roles in determining residential location in the study area. This is not surprising since it is the centre of the city where most activities are located. In sum, all the 13 factors considered were significant in Zone A (RII of $X_{1\text{-}13} > 0.5$) but cost of living ($X_{10} = 0.684$), house ownership ($X_9 = 0.671$), and nearness to children's schools ($X_{13} = 0.577$) were least considered when deciding where to reside within Osogbo.

Zone B used to be the outskirts of the city, but due to development and physical expansion, it has become a transition zone between the old core area and the "present" outskirts of the settlement. In this zone, physical quality of the neighbourhood ($X_5 = 0.849$) and house ownership (0.833) ranked 1st and 2nd respectively. The residents of this zone are more enlightened than those in the old core, though level of respondents' educational attainment ranked 8th ($X_2 = 0.765$), yet there were great concerns for the quality of the environment and the urge to become a house owner. This zone houses those who can afford to break away from family houses and move their nuclear family to their personal houses at the "old outskirts" of the city.

Zone C is the outskirts of the study area where houses with not many houses like the other zones. In addition, houses are scattered in effect of the implementation of planning controls in the area. However, in Zone C, land is relatively cheap. In effect of these backgrounds, the most influencing factors of residential location decision are cost of land ($X_8 = 0.833$), house ownership ($X_9 = 0.786$) and house quality ($X_6 = 0.767$). Majority of the houses in Zone C were of high quality and the occupants are highly educated individuals who value the quality of their neighbourhood. These residents, of who most are civil servants, either own

the buildings they occupy or reside in official quarters provided by their employers.

However, when the three zones were collapsed as a single settlement, the results were different. Type of human occupation ($X_1 = 0.769$), house quality ($X_6 = 0.768$), nearness to workplace ($X_{11} = 0.766$) and physical quality of the neighbourhood ($X_5 = 0.764$) were the four most important factors influencing residential location decision in Osogbo. Even in Lagos with more heterogeneous population and better economic opportunities, physical appearance of houses has been found to be a principal factor determining the choice of where to live (Jiboye, 2012). It is noteworthy that, type of housing units (X_7) and level of education (X_2) tied as the 5th ranked factor influencing residential location decision in the study area. However, it is interesting to note that, residents of Osogbo give less consideration to the location of their children schools in relation to where they live within the city. Therefore, the significance of nearness to children's schools (X_{13}) constantly recorded the least RII value; it was the only factor with RII value of less than 0.5 both at the zonal and overall levels of assessment.

Judging from the foregoing, it can be established that there is residential segregation informed by socio-economic status of residents in Osogbo. This is somewhat similar to findings by Brown and Robinson (2006), where they explored the nature of heterogeneity in residential preferences within south-eastern Michigan. However, unlike in Michigan where residential locations are selected by residential agents who evaluated locations on the basis of certain stated preferences, locations in Osogbo are selected by individual households making the decision.

Conclusion

The study analysed the factors influencing the choice of residential location in Osogbo, Nigeria. Results showed that the residential character of a city or neighbourhood is functionally related to the locational behaviour and decisions of individuals and families. In addition, it was revealed that there was a degree of segregation informed by socio-economic status of residents in residential location in Osogbo. Hence, the study is crucial when it comes to planning and the development of residential neighbourhood. It can help the government when it comes to the subject of spatial planning and development as well as policy implementation. Generally, it can be concluded that the creation of Osun State in 1991 and the construction of a Ring Road (western by-pass) have been speeding up and enlarging the scale of the construction of residential communities in Osogbo. Also, the location of government offices at the southern end of the city has encouraged respondents' preferences to be the first choices of residential location. This implies that accessibility is an important factor that attracts households to reside in a particular location. Therefore, the best location for new housing development can be said to vary with commuting patterns, spatial job distribution, and the changes of attributes influencing residential location choice.

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