***Original Research Article***

**Exploring Peri-Urban Residential Land Demand Drivers in Akure, Nigeria: Insights and Implications for Urban Planning**

**ABSTRACT**

**Aim**: To investigates Peri-Urban Residential Land Demand in order to inform sustainable urban planning and development.

**Study Design**: Quantitative Research.

**Place and duration of study**: Oke-Odu, Ipinsa and Aule, Akure, Ondo-State, Nigeria, 2023

**Methodology:** The research utilized a quantitative approach to investigate Akure's peri-urban residential land demand. Google Earth, employing buffering techniques was utilized to identify property quantities in Oke-Odu, Ipinsa, and Aule peri-urban areas of Akure, Nigeria. Sample sizes were determined based on Kothari's formula, and a complete census of 27 estate surveying firms in Akure was adopted. Data SPSS was employed to analyzed the data collected, Descriptive and inferential statistics, including Weighted Mean Scores (WMS), Kruskal-Wallis H test and Mann-Whitney U test, were employed to analyze landowner responses.

**Results:** The Finding reveals that Land affordability was highest in Oke-Odu (WMS: 4.25), market potential in Ipinsa (4.56), and employment proximity in Aule (4.20). Market potential (WMS: 4.18), land affordability (4.11), and job proximity (3.98), drove residential land demand. Kruskal-Wallis analysis revealed substantial differences in views of 11 factors influencing residential land demand. The three peri-urban locations differed in land affordability, market potential, workplace proximity, agricultural land benefits, locational preference, land speculation, strong population growth, low traffic congestion, topography, raw materials, and waste disposal space. Thus, the post-hoc test using Mann-Whitney U test displays the effect sizes (r) for each demand factor. Several factors had small effect sizes, indicating similar views. Oke-Odu and Aule had medium land affordability impact sizes (r: 0.337) and Ipinsa and Aule (r: 0.370. Additionally, significant disparities were seen in other areas. Oke-Odu and Aule differed in land affordability, agricultural land benefits, and habitation eviction. Ipinsa and Aule differed in land affordability, market potential, employment proximity, agricultural land benefits, locational preference, low traffic congestion, degenerating city core dwelling conditions, topography, raw materials, and waste disposal space. Oke-Odu and Ipinsa differed in market potential, workplace proximity, land speculation, low traffic, city core impoverishment and pollution, topography, and eviction experience.

**Conclusion**: This study examined Akure's peri-urban residential land demand determinants' variability. While some elements driving residential land demand are well understood, peri-urban regions vary. Market potential, economic factors, land affordability, and location matter. Thus, this study suggests adapted urban planning strategies to satisfy local demand drivers, promote sustainable growth, and ensure housing affordability and availability.

***KEY WORDS: Residential Land Demand, Peri-urban areas, Drivers***

**1. INTRODUCTION**

Urbanisation influences the physical and social development of cities and their adjacent regions [1]. The significance of peri-urban regions in investigating the correlation between factors driving residential land demand and housing preferences is underscored by urban expansion [2,3]. Akure, the capital city of Ondo State, Nigeria, is currently undergoing rapid urbanisation and witnessing a substantial population growth in its peri-urban areas [4,5]. Peri-urban areas serve as zones between rural and urban areas, offering valuable information on the demand for residential land. Prior research on urbanisation and housing dynamics has primarily focused on metropolitan areas, neglecting the distinct elements that influence land use patterns in peri-urban areas [6,7]. According to Olajiyigbe [8], an in-depth comprehension of the factors that influence the need for land in the peri-urban regions of Akure is crucial for the purposes of urban planning and development.

Furthermore, prior research on urbanisation and the need for residential land has examined variables such as population expansion, income levels, and the advancement of infrastructure [9,10,11,12]. There is a lack of comprehension regarding the peri-urban setting and its distinct patterns of land demand in comparison to the urban core. A dearth of scholarly investigation exists regarding the geographic variations that exist within peri-urban areas of developing countries, specifically with regard to housing preferences and affordability. The existing research exhibits a deficiency in comprehending the spatial patterns that impact land demand in peri-urban regions such as Akure. The factors that influence housing preferences in transitional zones have received limited consideration. The impact of informal settlements, cultural dynamics, and local government on the demand for land in peri-urban areas has not been thoroughly investigated [5,8,11].

previous research on urbanization may not comprehensively depict the dynamics of peri-urban areas [13,14]. The shift from rural to urban living necessitates a thorough analysis of multiple aspects, considering the complexities and possibilities of peri-urban areas [15,16]. Therefore, the objective of this research is to fill these gaps by presenting factual facts and a detailed comprehension of the elements that impact housing decisions in this unique urban setting. This will enhance the discussion on peri-urbanization and provide insights into the consequences for sustainable urban development. This study investigates Peri-Urban Residential Land Demand factors in order to inform sustainable urban planning and development.

**2. LITERATURE REVIEW**

The rapid urbanisation witnessed in developing nations is mostly focused on peri-urban areas, which signifies a notable change in population distribution and urban growth [17,18]. Peri-urban areas, which are in a state of transition between rural and urban, provide difficulties in terms of land ownership, land use, and ease of access. These locations do not fit into traditional categories and are complex to classify [19]. Metropolitan cities frequently experience the proliferation of rural villages in their surrounding areas, leading to disorderly landscapes that exhibit different socio-economic and political features [20].

Numerous researchers have examined the factors that contribute to the expansion of peri-urban regions in emerging nations [21-50]. Braimoh and Onishi [21] ascribe the urban metamorphosis in peri-urban regions of Lagos, Nigeria, to the influx of people migrating from rural to urban areas. The expansion of cities into peri-urban areas is attributed to population growth, as stated by MHUUC (22). The rise of villages in the metropolitan area of Cairo is driven by accessibility, as emphasised by JICA [23] and Osman, Divigalpitiya and Arima [24]. The conflict between urban and rural influences in peri-urban areas, resulting from the transformation of agricultural land for non-agricultural purposes, contributes to the distinct features of these areas [25,26,27]. Research highlights the haphazard combination of land uses in peri-urban areas, which encompass rural-residential, commercial, residential, and agricultural activities, and are frequently prone to alteration [26,28]. The study of peri-urbanism has examined institutional variables, including economic, technical, and land use changes. This has been explored by researchers such as Lambin et al. [29], Lawanson et al. [30], Pitman et al. [31], and Brovkin et al. [32]. Landowners and managers base their decisions on political, social, and economic concerns, with economic rationality playing a prominent role [33]. The literature often examines variables such as rent prices, land values, subsidies, and spatial benefits [34]. The main driver of peri-urban land use transition is the need for housing resulting from population increase, declining housing conditions, and a lack of urban amenities [35,36].

The conversion of land in peri-urban settings is frequently motivated by the prospect of achieving increased economic advantages beyond conventional agricultural purposes, which in turn affects food security [33,37]. The emergence of peri-urban areas is influenced by intense rivalry for land, unregulated acquisition, and speculation [27]. The expansion of cities, the escalating cost of property in metropolitan regions, and the adverse effects of urban centres, such as pollution and insufficient sanitation, have resulted in a higher need for residential land in peri-urban areas [28,30,38,39].

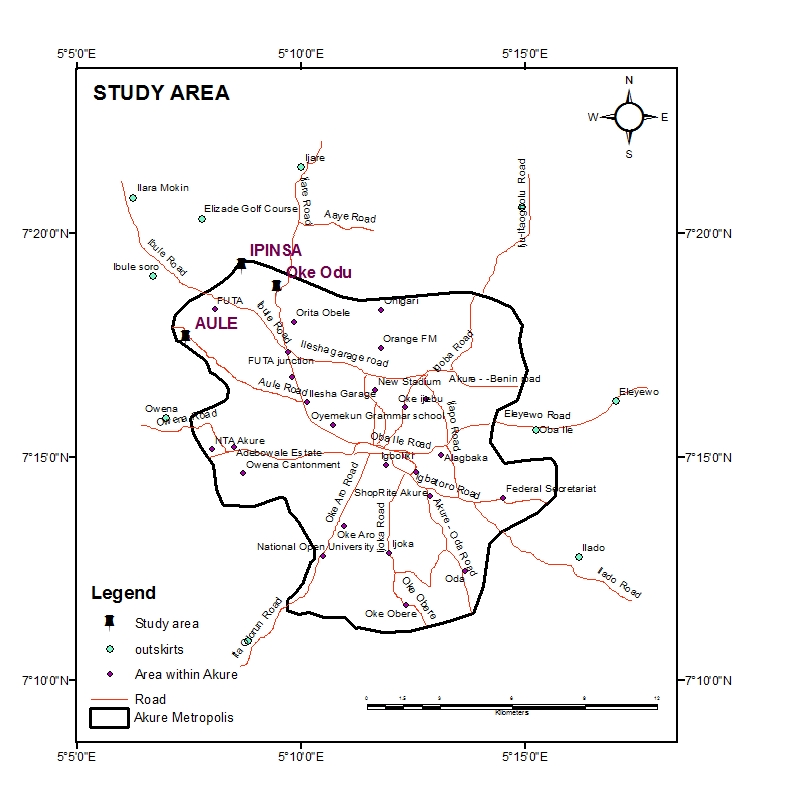
Research undertaken in several locations, such as Kumasi in Ghana and Lagos in Nigeria, has identified characteristics that influence households' choices to live in peri-urban areas. These factors include lower land prices, affordable housing rents, and closeness to employers [36]. The environmental issues encountered by peri-urban settlements in Lagos Megacity highlight the intricate interaction between socio-economic attributes, housing conditions, and rural-urban connections [30]. Economic factors, such as the availability of inexpensive land, speculation, and the development of infrastructure, are important drivers of urban expansion in peri-urban areas [22,40]. The variables that contribute to urban expansion in the Great Cairo Metropolitan region are accessibility and economic reasons, as demonstrated by Salem [40]. Research conducted in Ogun State, Nigeria, indicates that the availability and affordability of land, economic advantages, closeness to urban centres, population increase, and strategic location are the main factors that contribute to the development of land in peri-urban areas [41]

Residential housing, especially influenced by the housing choices of the middle and upper-middle classes for affordable and roomy homes, plays a major role in driving peri-urbanization [42]. The increase of land value, influenced by variables such as improvements in transportation infrastructure, leads to the dispersal of metropolitan centres towards peri-urban regions [43]. The dispersion of retail activity and the attractiveness of favourable environmental conditions additionally promote the growth of peri-urban areas [44,45].

The rationale for public policies that favour peri-urbanization is in their alignment with regional development goals, which seek to distribute economic opportunities and enhance the quality of urban life [46]. Public investments in peri-urban areas entail substantial infrastructure development, frequently funded through foreign borrowing [47]. The labour dynamics in peri-urban zones are influenced by the presence of inexpensive labour and the movement of people from rural to urban areas or smaller towns [48,49]. Peri-urbanization is also influenced by the availability of affordable and spacious housing, which leads to the development of residential areas [50].

**3. STUDY AREA**

Akure, the capital of Ondo State in Nigeria, has experienced significant urban growth over the past 25 years and has emerged as a rapidly developing urban center in the southwest region. [51]. Since 1976, when the Western Region was reorganised, Akure has grown in Akure South Local Government and Ondo State. Built-up regions, immigration, transportation networks, and commercial activity have grown in the city. From 1990 to 2023, Akure's population grew from 157,947 to 744,000 [52]. This demographic growth emphasises the city's growing economic and social importance. Akure attracts people and businesses with its strategic position and favourable environment. Akure has a tropical climate with 1500 mm of yearly precipitation and warm temperatures and high humidity [51,52]. Akure, Western Nigeria, has an average yearly temperature of 21.4–31.1 degrees Celsius and 77.1% relative humidity (data from 1980–2007). Akure's tropical rainforest foliage creates a unique natural habitat on a flat plain 250 metres above sea level [51,52].

The region's environment has changed significantly. According to [52], deforestation, land degradation, agricultural activities, and construction encroachment have reduced Akure's forest cover by 33.8%. This environmental change threatens the city's ecological equilibrium and requires a closer look at peri-urban areas, where urbanisation pressures are highest. Figure 1 shows Akure's peri-urban areas, the focus of this study. Recent rapid growth and development in the city make studying peri-urban zones important. These peri-urban regions are dynamic due to population growth, urbanisation, and environmental changes. Understanding Akure's peri-urban residential land demand is crucial for urban planning and sustainable development in the face of urbanisation. Akure's demographic increase, environmental changes, and economic development as an important urban centre in southwestern Nigeria need a thorough investigation of its peri-urban surroundings. This aim of this study is to investigate the factors driving demand for residential land in peri-urban areas of Akure with a view to help urban planners, policymakers, and researchers navigate the city's growing periphery.

**Fig 1: Map showing the three Selected Peri-urban areas of Akure Metropolis.**

**4. METHODOLOGY**

The research employed a quantitative methodology to investigate the factors driving demand for residential land in peri-urban areas of Akure. The hypothesis tested is to ascertain if there is significant difference in the perceived factors driving demand for residential land. The study involved landowners in three peri-urban areas (Oke-Odu, Ipinsa, and Aule) and estate surveyors and valuers in Akure. Google Earth was utilized to quantify the number of residential properties in peri-urban areas using buffering techniques, which was subsequently verified through ground truthing, a method previously demonstrated by Samat [27].The respective quantities of residential properties in Oke-Odu, Ipinsa, and Aule, which are 972, 592, and 749, respectively, furthermore, the sample sizes for residential properties in the selected communities were determined using Kothari's [53] formula for sample size calculation with a 5% margin of error which resulted to 283, 238 and 260 respectively. Additionally, the NIESV Directory for 2021 lists a total of 27 registered firms specialising in Estate Surveying and Valuation in Akure, the whole population was adopted as suggested by Isreal [54] that a complete census is appropriate for populations of less than 200 individuals. The Sample size formula considers the sample population, sample proportion (taken at 0.5), standard variate at a given confidence level (95%), and the error margin at 5%. **This is as shown in Table 5.** The data collected from the landowners were analyzed through both descriptive and inferential statistics via Special Package for Social Sciences (SPSS) Software [62]. Descriptive statistics such as frequency and percentage table, Weighted Mean Score (WMS) were used to present and summarize the collected data. WMS was employed to provide an overview of the landowners' perceptions of the factors driving demand for residential land in the selected communities, detailing the mean responses, ranks, and sums for each factor in the three peri-urban areas. On the other hand, the inferential Statistical analysis included the Kruskal-Wallis H test to test the level of difference in the responses of landowners in Oke-Odu, Ipinsa, and Aule on factors driving residential land in the selected communities. Furthermore, a post hoc test using the Mann-Whitney U test of difference was further conducted to determine where the differences lie.

**5. FINDINGS**

This session presents result of analysis on the factors which drive demand for residential land in peri-urban areas of Akure. It details result of data collected from the two respondents for this study which are the Land Owners in the selected communities as well as the professional who are the Estate Surveyors and Valuers in Akure, Nigeria

**Table 1:** **Questionnaire Administered and Retrieved in the selected communities**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No** | **Peri-Urban Area** | **Questionnaire**  **Administered** | **Questionnaire**  **Retrieved** | **Response Rate** |
| 1. | Oke-Odu | 283 | 246 | 86.92 |
| 2. | Ipinsa | 238 | 202 | 84.87 |
| 3. | Aule | 260 | 226 | 86.92 |
|  | Total | 781 | 674 | 88.29 |

Table 1 displays the questionnaire distribution and response rates in three peri-urban areas of Akure: Oke-Odu (86.92%), Ipinsa (84.87%), and Aule (86.92%). The collective response rate is 88.29%. Achieving high response rates, as emphasized by Groves et al. [55], enhances survey accuracy by mitigating nonresponse.

**Table 2:** **Questionnaire Administration and Retrieval for Estate Surveyors and Valuers**

|  |  |  |
| --- | --- | --- |
| **Questionnaire** | **Frequency** | **Percentage** |
| Number Distributed | 27 | 100.00% |
| Number Retrieved | 27 | 100.00% |
| Number Unretrieved | 0 | 0.00% |

Table 2 shows the number of questionnaires distributed to Estate Surveyors and Valuers in Akure, as well as the number retrieved and analyzed. A total of 27 questionnaires were distributed from the table to Estate Surveyors and Valuers in the study area. The table also shows that all questionnaires were returned, indicating a 100% response rate, implying a high level of participation and response rate from the respondents.

**Table 3**: **Socio-Economic characteristics of respondents in Oke-Odu, Ipinsa, and Aule**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Characteristics** | **Oke-Odu** |  | **Ipinsa** |  | **Aule** |  |
|  | **Freq** | **Percent (%)** | **Freq** | **Percent (%)** | **Freq** | **Percent (%)** |
| **Gender** |  |  |  |  |  |  |
| Male | 136 | 55.28 | 122 | 60.40 | 121 | 53.54 |
| Female | 110 | 44.72 | 80 | 39.60 | 105 | 46.46 |
| **Total** | **246** | **100.00** | **202** | **100.00** | **226** | **100.00** |
| **Age of Respondent** |  |  |  |  |  |  |
| 18-24 | 27 | 10.98 | 37 | 18.32 | 25 | 11.06 |
| 30-36 | 22 | 8.94 | 24 | 11.88 | 40 | 17.70 |
| 36-42 | 91 | 36.99 | 37 | 18.32 | 59 | 26.11 |
| 42-48 | 46 | 18.70 | 41 | 20.30 | 34 | 15.04 |
| 48-54 | 25 | 10.16 | 29 | 14.36 | 22 | 9.73 |
| 54-60 | 22 | 8.94 | 18 | 8.91 | 17 | 7.52 |
| 60 years and above | 13 | 5.28 | 16 | 7.92 | 29 | 12.83 |
| **Total** | **246** | **100.00** | **202** | **100.00** | **226** | **100.00** |
| **Monthly Income** |  |  |  |  |  |  |
| Less than 30,000 | 7 | 2.85 | 11 | 5.45 | 9 | 3.98 |
| 30,000-60,000 | 12 | 4.88 | 12 | 5.94 | 7 | 3.10 |
| 60,000-90,000 | 12 | 4.88 | 9 | 4.46 | 16 | 7.08 |
| 90,000-120,000 | 20 | 8.13 | 13 | 6.44 | 6 | 2.65 |
| 120,000-150,000 | 16 | 6.50 | 9 | 4.46 | 10 | 4.42 |
| 150,000-180,000 | 85 | 34.55 | 14 | 6.93 | 21 | 9.29 |
| 180,000-210,000 | 50 | 20.33 | 81 | 40.10 | 22 | 9.73 |
| 240,000-270,000 | 14 | 5.69 | 21 | 10.40 | 41 | 18.14 |
| 270,000-300,000 | 20 | 8.13 | 13 | 6.44 | 65 | 28.76 |
| Above 300,000 | 10 | 4.07 | 19 | 9.41 | 29 | 12.83 |
| **Total** | **246** | **100.00** | **202** | **100.00** | **226** | **100.00** |
| **Type of Building** |  |  |  |  |  |  |
| Flat | 62 | 25.20 | 72 | 35.64 | 56 | 24.78 |
| Tenement | 21 | 8.54 | 15 | 7.43 | 24 | 10.62 |
| Bungalow | 97 | 39.43 | 44 | 21.78 | 42 | 18.58 |
| Duplex | 19 | 7.72 | 23 | 11.39 | 39 | 17.26 |
| Self Contain | 27 | 10.98 | 21 | 10.40 | 40 | 17.70 |
| Single Family (Detached) | 20 | 8.13 | 27 | 13.37 | 25 | 11.06 |
| **Total** | **246** | **100.00** | **202** | **100.00** | **226** | **100.00** |
| **Employement Status** |  |  |  |  |  |  |
| Student | 26 | 10.57 | 31 | 15.35 | 45 | 19.91 |
| Civil Servant | 139 | 56.50 | 80 | 39.60 | 109 | 48.23 |
| Self-Employed | 49 | 19.92 | 53 | 26.24 | 30 | 13.27 |
| Artisans | 15 | 6.10 | 29 | 14.36 | 31 | 13.72 |
| Unemployed | 17 | 6.91 | 9 | 4.46 | 11 | 4.87 |
| **Total** | **246** | **100.00** | **202** | **100.00** | **226** | **100.00** |
| **Level of Education** |  |  |  |  |  |  |
| Primary | 6 | 2.44 | 11 | 5.45 | 8 | 3.54 |
| SSCE | 22 | 8.94 | 20 | 9.90 | 18 | 7.96 |
| ND | 32 | 13.01 | 14 | 6.93 | 21 | 9.29 |
| HND | 49 | 19.92 | 26 | 12.87 | 36 | 15.93 |
| B.Tech / B.Sc | 98 | 39.84 | 102 | 50.50 | 111 | 49.12 |
| M.Tech / M.Sc | 39 | 15.85 | 29 | 14.36 | 32 | 14.16 |
| **Total** | **246** | **100.00** | **202** | **100.00** | **226** | **100.00** |
| **Length of time living in the Property** |  |  |  |  |  |  |
| Less than 1 year | 10 | 4.07 | 16 | 7.92 | 3 | 1.33 |
| 1-2 years | 17 | 6.91 | 22 | 10.89 | 15 | 6.64 |
| 2-3 years | 21 | 8.54 | 48 | 23.76 | 12 | 5.31 |
| 3-4 years | 11 | 4.47 | 31 | 15.35 | 17 | 7.52 |
| 4-5 years | 65 | 26.42 | 28 | 13.86 | 11 | 4.87 |
| 5-6 years | 68 | 27.64 | 17 | 8.42 | 75 | 33.19 |
| 7-8 years | 12 | 4.88 | 12 | 5.94 | 9 | 3.98 |
| 8-9 years | 14 | 5.69 | 11 | 5.45 | 19 | 8.41 |
| 9-10 years | 15 | 6.10 | 12 | 5.94 | 40 | 17.70 |
| 10 years and Above | 13 | 5.28 | 5 | 2.48 | 25 | 11.06 |
| **Total** | **246** | **100.00** | **202** | **100.00** | **226** | **100.00** |
| **Type of Ownership** |  |  |  |  |  |  |
| Owner-Occupier | 148 | 60.16 | 98 | 48.51 | 124 | 54.87 |
| Tenant | 98 | 39.84 | 104 | 51.49 | 102 | 45.13 |
| **Total** | **246** | 100.00 | **202** | 100.00 | **226** | **100.00** |

Table 3 reveals the demographic characteristics of respondents in Oke-Odu, Ipinsa, and Aule peri-urban areas of Akure, Nigeria, Gender distribution among landowners in Oke-Odu reflects 55.28% male and 44.72% female, while Ipinsa and Aule exhibit gender ratios of 60.40% and 39.60%, and 53.54% and 46.46%, respectively. Age-wise, Oke-Odu sees the age range of 36-42 dominate at 36.99%, Ipinsa observes 42-48 as the peak at 20.30%, and Aule highlights 36-42 at 26.11%. Affordability, housing options, and generational property ownership trends may influence such age distributions. Income variations are notable, with Oke-Odu (34.55%) reporting 150,000 to 180,000 monthly, Ipinsa (40.11%) falling in the 180,000 to 210,000 range, and Aule (28.76%) showing 270,000 to 300,000.

Architecturally, Oke-Odu has more bungalows properties (39.43%), Ipinsa leans towards flat buildings (35.64%), and Aule shows a prevalence of flat structures (24.78%). Employment-wise, civil servants dominate in Oke-Odu (56.50%), Ipinsa (39.60%), and Aule (48.23%). Educational attainment is predominantly B.Tech/B.Sc in Oke-Odu (39.84%), Ipinsa (50.50%), and Aule (49.12%), possibly influenced by proximity to educational institutions and local skill demands. Residential tenure in Oke-Odu (26.42%) spans 4-5 years, Ipinsa (23.76%) indicates 2-3 years, and Aule (26.42%) sees 9-10 years. Ownership types differ, with Oke-Odu having 60.16% proprietors and 39.84% lessees, Ipinsa showing 51.59% tenants and 48.51% owner-occupiers, and Aule reflecting 54.87% owner-occupiers and 45.13% tenants.

**Table 4:** **Demographic Characteristics of Estate Surveyors and Valuers in the study area**

|  |  |  |
| --- | --- | --- |
|  | | |
| **Distribution** | **Frequency** | **Percentage (%)** |
| **Length of Years in Practice** |  |  |
| 1-5 years | 3 | 11.11 |
| 6-10 years | 4 | 14.81 |
| 11-15 years | 11 | 40.74 |
| 16-20 years | 8 | 29.63 |
| 21 years and Above | 1 | 3.70 |
| **Total** | **27** | **100.00** |
| **Qualification** |  |  |
| Probationers | 2 | 7.41 |
| Graduate | 4 | 14.81 |
| Associaate | 14 | 51.85 |
| Fellow | 7 | 25.93 |
| **Total** | 27 | **100.00** |
| **Experience in Akure Residential Land Market** |  |  |
| 1-10 years | 13 | 48.15 |
| 11-20 years | 10 | 37.04 |
| 21-30 years | 2 | 7.41 |
| 31-40 years | 2 | 7.41 |
| **Total** | **27** | **100.00** |

**Source: Author’s Field Survey (2023)**

Table 4 shows the socio-economic characteristics of estate surveyors and valuers in Akure, emphasizing their years in practice, qualifications, and experience in the residential land market. The majority, 4.47%, have been practicing for 11 years or more, showcasing a pool of highly experienced professionals. Smaller proportions, ranging from 1.22% to 3.25%, represent varying experience levels from 1-20 years, adding diversity to the surveyed group. Qualification-wise, associates constitute the largest category (5.69%), indicating a significant number of well-qualified professionals. Probationers are minimal (0.81%), affirming the predominance of fully qualified estate surveyors and valuers. Regarding experience in the Akure residential land market, 48.15% have 1-10 years, while 37.04% have 11-20 years, signifying a blend of both seasoned and relatively newer professional.

**Table 5: Sample Frame and Size of the target population in the study area**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Study Area** | **Peri-Urban Areas** |  | **Estate Surveying and Valuation Firms** | |
|  | **Sample Frame** | **Sample Size (%)** | **Sample Frame** | **Sample Size** |
| Oke-Odu | 972 | 283(36.24%) | 27 | 27(100.00) |
| Ipinsa | 592 | 238(30.47%) |  |  |
| Aule | 749 | 260(33.29%) |  |  |
| Total | **2313** | **781(100.00%)** | **27** | **27(100.00)** |

**Source: Author’s Computation (2023)**

**Table 6:** **Perception of Land Owners in the Selected Communities**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Over all** | | | **Oke Odu** | | | **Ipinsa** | | **Aule** |
| **Factors** | **WMS** | **Rank** | **Sum** | **WMS** | **Rank** | **Sum** | **WMS** | **Rank** | **Sum** | **WMS** | **Rank** |
| Market potential | 4.18 | **1** | 246 | 4.00 | **2** | 202 | 4.56 | **1** | 226 | 3.97 | **2** |
| Land Affordability in the area | 4.11 | **2** | 246 | 4.25 | **1** | 202 | 4.33 | **2** | 226 | 3.74 | 5 |
| Nearness to Workplace | 3.98 | **3** | 246 | 3.95 | **3** | 202 | 3.79 | 6 | 226 | 4.20 | **1** |
| Land Speculation | 3.85 | **4** | 246 | 3.75 | 6 | 202 | 4.15 | **3** | 226 | 3.64 | 6 |
| Gainful benefits from Agricultural Land | 3.81 | 5 | 246 | 3.93 | **4** | 202 | 3.66 | 8 | 226 | 3.84 | **4** |
| High rate of Population Growth | 3.78 | 6 | 246 | 3.67 | 7 | 202 | 4.12 | **4** | 226 | 3.55 | 7 |
| Low Traffic Congestion | 3.73 | 7 | 246 | 3.65 | 8 | 202 | 4.00 | 5 | 226 | 3.53 | 8 |
| Locational Preference | 3.57 | 8 | 246 | 3.84 | 5 | 202 | 3.02 | 10 | 226 | 3.86 | **3** |
| Degenerating Housing Condition in the City Core | 3.53 | 9 | 246 | 3.52 | 9 | 202 | 3.68 | 7 | 226 | 3.39 | 9 |
| Presence of healthy and Serene Environment | 2.98 | 10 | 246 | 3.07 | 11 | 202 |  | 11 | 226 | 2.90 | 11 |
| Destitute and Pollution in the city core | 2.97 | 11 | 246 | 3.12 | 10 | 202 | 2.84 | 12 | 226 | 2.95 | 10 |
| Rural-Urban Migration | 2.87 | 12 | 246 | 2.88 | 13 | 202 | 3.05 | 9 | 226 | 2.69 | 13 |
| Topographical Features | 2.79 | 13 | 246 | 3.03 | 12 | 202 | 2.50 | 13 | 226 | 2.85 | 12 |
| Presence of Raw Materials | 2.28 | 14 | 246 | 2.75 | 14 | 202 | 1.54 | 14 | 226 | 2.55 | 14 |
| More Space to accommodate waste | 2.18 | 15 | 246 | 2.63 | 15 | 202 | 1.50 | 15 | 226 | 2.42 | 15 |
| Experience of Eviction from dwelling | 1.53 | 16 | 246 | 1.73 | 16 | 202 | 1.40 | 16 | 226 | 1.45 | 16 |

**Source: Field Survey (2023).**

Table 6 presents the responses of landowners in Oke-Odu, Ipinsa, and Aule peri-urban areas of Akure regarding factors influencing demand for residential land. In Oke-Odu, land affordability ranked highest (4.25), followed by market potential (4.00). Ipinsa emphasized market potential (4.56) and land affordability (4.33), while Aule prioritized nearness to workplace (4.20) and economic gain/market potential (3.97). Overall, market potential topped (4.18), followed by land affordability (4.11) and nearness to workplace (3.98). Moreover, Kruskall Wallis H test in Table 7 evaluates differences in responses among Oke-Odu, Ipinsa, and Aule landowners.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | |
| **Code** | **Demand Factors** | **Mean Rank** | | | **Chi Square** | **Assump.**  **Sig** | **Decision** |
|  |  | **Oke-Odu** | **Ipinsa** | **Aule** |  |  |  |
| DF1 | Land Affordability in the area | 376.71 | 384.42 | 252.88 | 75.23 | .000 | Reject H0 |
| DF2 | Market potential | 322.28 | 386.4 | 310.36 | 25.635 | .000 | Reject H0 |
| DF3 | Nearness to Workplace | 341.19 | 300.18 | 366.84 | 14.476 | .001 | Reject H0 |
| DF4 | Gainful benefits from Agricultural Land | 364.48 | 292.17 | 348.64 | 17.978 | .000 | Reject H0 |
| DF5 | Locational Preference | 365.61 | 246.97 | 387.82 | 69.664 | .000 | Reject H0 |
| DF6 | Land Speculation | 326.13 | 382.62 | 309.55 | 18.576 | .000 | Reject H0 |
| DF7 | High rate of Population Growth | 317.11 | 413.79 | 291.5 | 57.217 | .000 | Reject H0 |
| DF8 | Low Traffic Congestion | 322.69 | 400.15 | 297.62 | 38.129 | .000 | Reject H0 |
| DF9 | Degenerating Housing Condition in the City Core | 341.14 | 356.9 | 316.22 | 5.709 | .058 | Accept H0 |
| DF10 | Destitute and Pollution in the city core | 356.28 | 319.12 | 331.31 | 4.407 | .110 | Accept H0 |
| DF11 | Presence of healthy and Serene Environment | 350.23 | 335.9 | 325.07 | 2.104 | .349 | Reject H0 |
| DF12 | Topographical Features | 368.46 | 292.83 | 343.73 | 18.254 | .000 | Reject H0 |
| DF13 | Rural-Urban Migration | 340.09 | 359.51 | 315.01 | 5.921 | .052 | Accept H0 |
| DF14 | Presence of Raw Materials | 395.05 | 227.23 | 373.42 | 101.891 | .000 | Reject H0 |
| DF15 | More Space to accommodate waste | 393.64 | 230.51 | 372.02 | 97.526 | .000 | Reject H0 |
| DF16 | Experience of Eviction from dwelling | 358.28 | 319.12 | 331.31 | 9.27 | .010 | Reject H0 |

**Table 7: Kruskal Wallis H test of difference of the perception of Land Owners’**

**Source: Field Survey (2023)**

Table 7 demonstrates a statistically significant disparity in the view of Land Owners in the three chosen peri-urban areas of Akure, Ondo State, Nigeria regarding eleven (11) elements that influence the demand for residential land examined in this study. Furthermore, there is no statistically significant difference, at a significance level of 0.05, in the perception of land owners regarding four specific factors: Deteriorating Housing Condition in the City Core, Presence of Destitution and Pollution in the City Core, Presence of Healthy and Serene Environment, and Rural-Urban Migration. These four criteria have universally been shown to not influence the demand for residential land in the three selected peri-urban zones of Akure in this research. To accurately identify the specific areas of divergence and the impact they have, a post hoc analysis was performed using the Mann Whitney U test to compare the perception of Land Owners with the corresponding amount of measured effect. The results are displayed in tables 8, 9, and 10.

**Table 8:** **Table: Mann Whitney U test of Difference on Factors driving demand for residential Land in Oke-Odu and Aule**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Demand Factors** | **Mann-Whitney U** | **Wilcoxon W** | **Z** | **Asymp.Sig (2-tailed)** | **r** | **Decision** |
| DF1 | Land Affordabilty in the area | 17707.000 | 43358.000 | -7.327 | **.000** | .337 | Agree/U |
| DF2 | Market potential | 26828.000 | 52479.000 | -0.737 | .461 | .034 | Agree |
| DF3 | Nearness to Workplace | 25888.000 | 56269.000 | -1.406 | .229 | .065 | Agree |
| DF4 | Gainful benefits from Agricultural Land | 26618.000 | -0.857 | 0.391 | **.000** | .018 | Agree/U |
| DF5 | Locational Preference | 25340.000 | 55721.000 | -1.742 | .081 | .080 | Agree |
| DF6 | Land Speculation | 26448.000 | 52099.000 | -0.959 | .338 | .044 | Agree |
| DF7 | High rate of Population Growth | 25648.000 | 51299.000 | -1.739 | .082 | .080 | Agree |
| DF8 | Low Traffic Congestion | 25688.000 | 51339.000 | -1.646 | .100 | .076 | Agree |
| DF9 | Degenarating Housing Condition in the City Core | 25828.000 | 51529.000 | -1.421 | .155 | .065 | Agree |
| DF10 | Destitute and Pollution in the city core | 25878.000 | 51529.000 | -1.336 | .241 | .061 | Agree / U |
| DF11 | Presence of healthy and Serene Environment | 25748.000 | 51399.000 | -1.423 | .155 | .065 | Agree |
| DF12 | Topographical Features | 25688.000 | 51339.000 | -1.489 | .137 | .069 | Agree |
| DF13 | Rural-Urban Migration | 25908.000 | 51599.000 | -1.308 | .191 | .060 | Agree |
| DF14 | Presence of Raw Materials | 25788.000 | 51439.000 | -1.397 | .162 | .064 | Agree |
| DF15 | More Space to accommodate waste | 25778.000 | 51429.000 | -1.411 | .158 | .065 | Agree |
| DF16 | Experience of Eviction from dwelling | 25538.000 | 51189.000 | -2.036 | **.044** | .094 | Agree |

**Source: Field Survey (2023).**

Table 8 shows that there is no statistically significant difference in the opinion of land owners / occupier in Oke-Odu and Aule Peri-urban areas of Akure on the factors that drives demand for residential land except in three (3) of the considered factors in this research such as Land Affordability, gainful benefit of agricultural land and experience of eviction from dwelling in the city core. Considering the effect (r) of these differences using Cohen (1988) criteria of 0.1 for small effect, 0.3 for medium effect and 0.5 for large effect. It is observed that land availability and affordability factor has a medium effect of 0.337, while factors such as gainful benefits of agricultural land and experience of eviction from dwelling in the city core have small effects of 0.018 and 0.044 respectively. This implies that the perception of the Land Owners in Oke-Odu and Aule on factors that drive demand for residential land in peri-urban areas are relatively the same (that is, without much differences and can be classified as such as those factors they agreed with as probability.

**Table** 9: **Mann Whitney U test of Difference on Factors driving demand for residential Land in Ipinsa and Aule**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Demand Factors** | **Mann-Whitney U** | **Wilcoxon W** | **Z** | **Asymp.Sig (2-tailed)** | **r** | **Decision** |
| DF1 | Land Affordability in the area | 13793.000 | 39444.000 | -7.654 | **.000** | .370 | **SA/A** |
| DF2 | Market potential | 17662.500 | 43313.500 | -4.839 | **.000** | .234 | **SA/A** |
| DF3 | Nearness to Workplace | 18104.500 | 38607.500 | -3.964 | **.000** | .192 | **SA/A** |
| DF4 | Gainful benefits from Agricultural Land | 19128.000 | 39631.000 | -3.03 | **.002** | .146 | **Agree/U** |
| DF5 | Locational Preference | 13911.500 | 34414.500 | -7.193 | **.000** | .348 | **SA/A** |
| DF6 | Land Speculation | 17858.500 | 43509.500 | -4.169 | **.000** | .202 | **SA/A** |
| DF7 | High rate of Population Growth | 14580.500 | 40231.500 | -7.034 | **.000** | .340 | **SA/A** |
| DF8 | Low Traffic Congestion | 15923.000 | 41574.000 | -5.83 | **.000** | .282 | **SA/A** |
| DF9 | Degenarating Housing Condition in the City Core | 19981.500 | 45632.500 | -2.482 | **.013** | .120 | **Agree** |
| DF10 | Destitute and Pollution in the city core | 21885.000 | 42388.000 | -0.763 | .441 | .037 | **Agree** |
| DF11 | Presence of healthy and Serene Environment | 22067.500 | 47718.500 | -0.613 | .545 | .030 | **Agree** |
| DF12 | Topographical Features | 19289.000 | 39792.200 | -2.872 | **.004** | .139 | **Agree** |
| DF13 | Rural-Urban Migration | 19632.500 | 45283.500 | -2.576 | **.011** | .125 | **Agree** |
| DF14 | Presence of Raw Materials | 12698.500 | 33021.500 | -8.387 | **.000** | .405 | **SA/A** |
| DF15 | More Space to accommodate waste | 13005.500 | 33508.500 | -8.229 | **.000** | .398 | **SA/A** |
| DF16 | Experience of Eviction from dwelling | 21964.500 | 42467.500 | -0.993 | .321 | .048 | **Agree** |

**Source: Field Survey (2023).**

From table 9, Mann Whitney U test was conducted on the opinions of the Land Owners in Ipinsa and Aule to know the level of difference in their opinion concerning factors that drive demand for residential land in the two peri-urban area on twelve (12) of the considered demand factors in this research. For the twelve (12) factors, there is small effect on market potential (P = 0.000, r = .234), nearness to workplace (P = 0.000, r = .192), gainful benefit of agricultural land (P = 0.002, r = .146), Land Speculation (P = 0.000, r= .202), low traffic congestion (P = 0.000, r = .282), degenerating housing condition in the city core (P = 0.013, r = .120), topographical features (P = 0.004, r = .139) and medium effect of factors such as more space to accommodate waste (P = 0.000, r = .398), presence of raw materials (P = 0.000, r = .405), high rate of population growth (P = 0.000, r = .340), locational preference (P = 0.000, r = .348), and land affordability (P = 0.000, r = .370). Their difference in opinions are of small effect as indicated by “r”. However, there is no statistical difference of opinion on the other seven factors being considered while the other are of medium effect. The implication of this result is that the two peri-urban areas (Ipinsa and Aule) exhibit some level of difference in the factors that drive demand for residential land in their area.

**Table** 10**:** **Mann Whitney U test of Difference on Factors driving demand for residential Land in Oke-Odu and Ipinsa**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Demand Factors** | **Mann-Whitney U** | **Wilcoxon W** | **Z** | **Assump.Sig (2-tailed)** | **r** | **Decision** |
| DF1 | Land Affordabilty in the area | 24401.500 | 54782.500 | -3.64 | 0.716 | .172 | A |
| DF2 | Market potential | 20132.500 | 50513.500 | -4.198 | **.000** | .198 | SA/A |
| DF3 | Nearness to Workplace | 22028.500 | 42531.500 | -2.186 | **.029** | .103 | A |
| DF4 | Gainful benefits from Agricultural Land | 19388.000 | 39891.000 | -4.196 | **.000** | .198 | SA/A |
| DF5 | Locational Preference | 15474.000 | 35977.000 | -7.434 | **.000** | .351 | SA/A |
| DF6 | Land Speculation | 20698.500 | 51079.500 | -3.292 | **.001** | .156 | A/SA |
| DF7 | High rate of Population Growth | 17680.500 | 48061.500 | -5.688 | **.000** | .269 | SA/A |
| DF8 | Low Traffic Congestion | 19093.000 | 49474.000 | -4.527 | **.000** | .214 | SA/A |
| DF9 | Degenarating Housing Condition in the City Core | 23771.500 | 54152.500 | -0.866 | .386 | .041 | A |
| DF10 | Destitute and Pollution in the city core | 22145.000 | 42648.000 | -2.047 | **.041** | .097 | A |
| DF11 | Presence of healthy and Serene Environment | 23764.500 | 44267.500 | -0.816 | .414 | .039 | A |
| DF12 | Topographical Features | 19359.000 | 39862.000 | -4.527 | **.000** | .214 | SA/A |
| DF13 | Rural-Urban Migration | 23592.500 | 53973.500 | -0.945 | .345 | .045 | A |
| DF14 | Presence of Raw Materials | 12698.500 | 33201.500 | -9.358 | **.000** | .442 | SA/A |
| DF15 | More Space to accommodate waste | 13055.500 | 33558.500 | -9.177 | **.000** | .434 | SA/A |
| DF16 | Experience of Eviction from dwelling | 21994.500 | 42497.500 | -2.871 | **.004** | .136 | A/SA |

**Source: Field Survey (2023).**

From Table 10, Mann Whitney U test was conducted on the opinions of land owners/occupier in Oke-odu and Ipinsa to know the level of difference in their opinion concerning the factors that drives demand for residential land in the two location, and the effect size. The result shows that there is statistical difference in the response of Land Owners in the two location on twelve (12) of the factors considered. For the twelve (12) factors, there is small effect size in factors such as market potential (P = 0.000, r = .198), Nearness to Workplace (P = 0.029, r = .103), gainful benefits of agricultural land (P = 0.000, r = .198), Land Speculation (P = 0.001, r = .156), high rate of population growth (P = 0.000, r = .269), low traffic congestion (P = 0.000, r = .214), Destitute and Pollution in the city core (P = 0.041, r = .097), Topographical Features (P = 0.000, r = .214) and experience of eviction from dwelling in the city core (P = 0.041, r = .136). However, medium effect on demand factors such as more space to accommodate waste (P = 0.000, r = .434), presence of raw materials (P = 0.000, r = .442) and Locational Preference (P= 0.000, r = .351). their difference of opinion is also of small effect as indicated by “r” similar to the effect in Ipinsa and Aule. However, there is no statistical difference of opinion on the other nine (9) demand factors being considered. Similarly, the implication of this result is that the two peri-urban areas (Oke-Odu and Ipinsa) exhibit some level of difference proving that factors which drives demand for residential land may be specific to particular location.

**6. DISCUSSION**

In the Oke-Odu peri-urban area, respondents overwhelmingly agreed that land availability and affordability drive residential land demand, followed by economic gain or market potential, closeness to the workplace, agricultural land gains, and locational preference. This matches previous Nigerian investigations. Dekolo, Nwokoro, and Oduwaye [56] found that land availability, affordability, and economic prospects drove residential land demand in Lagos' peri-urban districts. Similarly, Ipinsa peri-urban respondents highlighted economic benefit, market potential, land availability, and affordability as driving residential land demand. This result matches other African research. Economic factors and affordability boost peri-urban land demand, according to Mwaura et al. [57]. Access to the workplace was the biggest factor driving residential land demand in the Aule peri-urban area, followed by economic gain or market potential, profitable agricultural land, and land availability and cost. This supports prior research on location and economic prospects affecting peri-urban land demand. Brown et al. [58] stressed the importance of economic and employment factors in peri-urban residential land demand. The data indicate that economic benefit or market potential drives residential land demand in Akure's three peri-urban districts. The importance of economic concerns and opportunities in land investment decisions is highlighted. Song, Merlin, and Rodriguez [59] found that economic factors such future financial gains drive residential land demand.

The Kruskal-Wallis H test shows that land owners and occupiers in Akure, Ondo State, Nigeria, see eleven factors that drive residential land demand differently. This reveals that these factors greatly affect residential land demand in the studied area. Like the current research, Adedayo [60] found a consistent pattern of factors driving residential land demand in peri-urban areas. The study found no statistically significant difference at the 0.05 alpha level in land owners' and occupiers' perceptions of four factors: deteriorating housing conditions in the city core, destitution and pollution, a healthy and serene environment, and rural-urban migration. These factors have little effect on residential land demand in Akure's three peri-urban zones. Ige and Ohiro [61] found that bad housing conditions, destitution, pollution, and rural-urban migration did not affect residential land demand in Akure, Ondo State's peri-urban areas. This supports the current study and shows that these factors are not driving residential land demand in Akure's selected peri-urban districts.

The post hoc test employing the Mann Whitney U test showed that land owners and occupiers in different peri-urban Akure districts have diverse opinions of the elements that drive residential property demand. In Oke-Odu and Aule peri-urban areas, land owners and occupiers have similar opinions except for three factors: land availability and affordability, the gainful benefit of agricultural land, and eviction from city core dwellings. These differences have medium effect sizes (r) for land availability and affordability (0.337) and moderate effects for agricultural land gainful benefit (0.018) and eviction experience (0.044). Except for these three characteristics, land owners and occupiers' assessments of residential land demand in Oke-Odu and Aule are similar. According to Dekolo et al. [56], land availability and affordability influenced residential land demand in peri-urban areas. This matches the current study's medium effect.

A Mann-Whitney U test compared land owners and occupiers' perspectives on twelve demand determinants in Ipinsa and Aule peri-urban areas. Economic gain or market potential, closeness to the job, profitable agricultural property, land speculation, low traffic congestion, degenerating city core housing conditions, and geographical elements may have a minimal impact. Medium effects were also caused by increased waste capacity, raw materials, population growth, locational preference, and land availability and affordability. The data suggest that opinions varied between the two peri-urban locations, with some factors having minor and others medium effects. To support these findings, Fateye [41[ highlighted how economic benefit, locational desire, and land availability affect peri-urban residential land demand. This matches this study's opinion gaps. The investigation concludes by comparing land owners and occupants in Oke-Odu and Ipinsa peri-urban areas. Economic gain or market potential, proximity to the workplace, gainful benefit of agricultural land, land speculation, high population growth, low traffic congestion, destitution and pollution in the city core, and topographical features had small effect sizes. Twelve factors showed a statistically significant difference in opinions. More waste space, raw materials, and locational preference had medium effects. These data show that residential land demand differs in the two peri-urban areas. [41] further noted that economic advantage, locational desire, and land availability drive residential land demand in peri-urban locations. This supports Oke-Odu and Ipinsa's disagreements in this study. This study revealed that landowners and occupants in various peri-urban areas of Akure hold divergent opinions regarding the factors that influence the demand for residential land. [61]

**7. CONCLUSION**

This study has investigated Peri-Urban Residential Land Demand factors in order to inform sustainable urban planning and development. The findings show that, while certain variables driving residential land demand are broadly acknowledged, there are considerable differences amongst peri-urban locations. Market Potential, Economic factors, land affordability, and locational choices all play important roles. Therefore, this study recommends that tailored urban planning strategies to address specific factors influencing demand in each area, promoting sustainable development, and ensuring housing affordability and availability.

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