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Developing a Model of Housing Demand Determinants in the Urbanizing City of Owerri, Southeastern Nigeria

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Abstract

This study investigates the determinants of residential housing demand in Owerri, an urbanizing metropolitan area in southeastern Nigeria. While previous studies have emphasized factors such as income, distance to work, family preferences, and gender, this research reveals alternative drivers specific to the Owerri context. Using a purposive sampling technique, 252 questionnaires were administered, with 174 valid responses analyzed using chi-square (χ^2) tests. Findings indicate that traditional variables such as income and gender were statistically significant determinants ($p < 0.05$), whereas factors like distance to work, safety, and proximity to services emerged as key influencers. Based on these insights, a conceptual framework of housing demand incorporating seven core variables was developed. The study recommends the implementation of an Open Registration System to enhance transparency and responsiveness in housing in Owerri. As supported by Sustainable Development Goal 11. This open registration system will enable the stakeholders to provide sustainable housing according to the demand factors of their housing applicants as registered in the system.

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1. Introduction

The majority of the human population on Earth now lives in urban settlements. Phenomenally, this has significantly changed the image of urban areas from the symbol of modernity and the center of prosperity to unsafe overcrowded urban spaces and areas of slump growth [4, 2, 6, 3, 15, 20], inducing variations in housing demand to different classes living in the world especially in the global south [6, 14, 22].

Housing is one of the necessities of man, secondary to only food and water [1, 24], and a vital component of human existence, and a major indicator of the quality of life, as underscored in the evolution of the Millennium Development Goals (MDGs) by the United Nations in 2000 [18, 23, 12]. [16] Found that housing, as a fundamental component of all human wants, gives protection from external aggression, discomfort, harsh weather elements, and insecurity, and has become a multi-dimensional bundle of services, equipment, and devices needed for the physical, health, and social well-being of the family and individuals [40]. Housing demand is a broad function of many stakeholders [5, 10] in the housing market seeking to provide shelter for the masses, which is controlled by the interplay of supply and demand theory [13, 14]

[16, 26] found that demands for housing are primarily responsible for levels and distribution of consumers' income, rents, tastes, and consumers' preferences includes proximity to work, worship centers, Parking facilities, and children's schools, demographic influences, and household composition, etc. These factors listed above seem to determine the main housing choices and indifferent climates of the world [38, 11, 42, 25].

Also, more importantly, the cost that people are willing to effectively pay for a dwelling unit is fundamentally dependent on the population dynamics, the effective demand, and the function of the locale as revealed [20, 23] in their study of Asaba city as an emerging city in Southern Nigeria. The demand for housing at a certain rent value is placed on a housing satisfaction derived from such a house [42, 43, 29, 26] opined that despite housing being a needful commodity for effective living,

there are preferences and variations considered by the consumers that cannot be overlooked. The reasons best known to urban settlers could be income status, health issues, housing price, nearness to place of job and worship^[38], distances, family preferences, and age^[25, 26, 24], gender, location, security, and accessibility to urban sanitation infrastructure^[41] play significant factors determining the choice of residents^[21, 38].

The demand factors vary from urban-to-urban according to individual selection and designs about the choice of where to abode^[27, 41]. The variation in the demand pattern of housing in Owerri urban may also seem to be due to income differences, whereby there are various income classes. The high, medium, and low-income earners, in which low-income earners account for nearly 70% of the urban population^[26]. Also, this research considers the residential housing demand in Owerri Urban of Imo state, Nigeria. Against this background, the study explained the reasons for determining the residential housing demand pattern, filling the void of the knowledge gap, assist policymakers in planning residential housing delivery.

However, the study deviated from the above-revealed literature by positing that demand for residential housing is directly proportional to the disposable income, gender, location, security, and accessibility. This study aims to formulate a model of residential housing demand determinants in Owerri Urban by evaluate the effect of income on residential housing demand determinants, examine the relationship between distance on residential housing demand, determine the effect of family preference on residential housing demand variance, identify the effects of gender on residential housing demand patterns, ascertain the age of consumers to residential housing demand in Owerri Urban.

To achieve the above objectives of the study, the following questions were set: What is the effects of income in housing demand pattern, what is the association between distances and housing demand patterns, what is the outcome of family preferences on housing demand variance, what are the influence of gender on housing demand patterns, what is the relationship between the ages of house consumers to housing demand, what model of housing demand determinants could be developed in Owerri urban?

Also, the study formulated and tested the following hypotheses to achieve its results and conclusion.

H₀₁: The Residential Housing demand pattern in Owerri Urban is not directly associated with income.

H₀₂: There is no significant relationship between distance and residential housing demand in Owerri Urban.

H₀₃: Family preferences do not significantly impact residential housing demand in Owerri Urban.

H₀₄: Gender has no importance to residential housing demand patterns in Owerri Urban.

H₀₅: There is no significant relationship between the age of consumers and residential housing demand patterns in Owerri Urban.

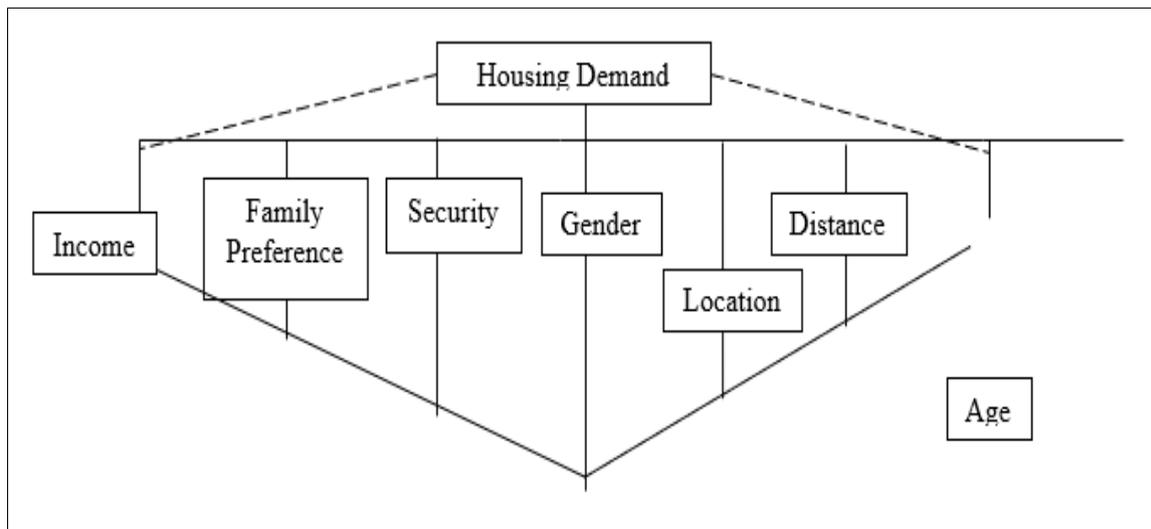
2. Literature Review

Despite extensive studies in Lagos and Asaba^[14, 24], there is a dearth of research on housing demand dynamics in Owerri, a city with distinct socio-political and educational characteristics. There abound many literatures reviewed on the housing demand determinants in Nigeria. Many reviewers examined some ubiquitous factors such as income level, government policies, urbanization, land and mortgage, availability, population, infrastructure development, family preferences, etc.^[11, 26, 27]. Also, other literature highlighted the socio-economic factors determining residential choice in Lagos. The study utilized cross-sectional data. Nevertheless, this research revealed the desired understanding of housing dynamics in a global context; there is a deep lack of specific research focusing on Owerri Urban. For example,^[2] evaluated the key factors of housing choice in Lagos, Nigeria. The study aimed to examine the plausible conditions affecting residential housing choice in Lagos State, Nigeria. Cross-sectional data were used for the study, and a random selection of 4433 across the 20 local areas in Lagos. A multinomial logit was used to model the neoclassical conceptual framework supported by the hedonic pricing approach, were used to determine the housing demand factors – income, housing price, household size, marital status, ethnicity, gender, and age. The result of the analysis was in tandem with a study done in Lagos by other researchers.^[38] Strategically highlighted the crucial factors that determine the demands and residential rent costs in the emerging city of Asaba in Southern Nigeria. In their study, the ex-post facto and survey designs were deployed using primary and archival data types structured into high, medium, and low-income areas. The study deployed the Analysis of Variance and the correlation coefficient for data analysis. Their analysis indicated the key determinants of residential housing demand and costs were ease of access to public transport and nearness to security formations, but their method failed to recognize the social factors like gender, location, and accessibility that are dominant in Owerri urban housing demand.

^[36, 35] Assessed the factors of housing demand in the Erzurum Province of Turkey and Kenya. The study aims to determine possible factors influencing housing demand in Erzurum. The study deployed a cross-sectional research design. Binary logistic regression analysis (RA) was adopted for analysis. The researchers discovered factors causing housing demands of the respondents in the region included household heads and spouses' occupations, monthly income, family sizes, and car ownership.^[13] Their study investigated the fundamental determinants of housing prices that affect housing demand and supply, which are the most common in developed countries: income, family size, and car ownership, etc. The study deployed mixed method approach. Data was analyzed by using Regression analysis. Analysis shows no causal determinant in the region; unemployment has a smaller but significant effect on housing demand. In the study, we deviated from the above-reviewed literature by positing that the effective demand determinant for residential

is a function of disposable income, gender, location, security, and access to work in effective housing supply components, all things being equal. The conceptual framework (Fig. 1) illustrates how key variables—income, gender, security, etc.—interact to influence housing demand in Owerri. Yet, the research did not include how supply can affect demand; therefore, the studies lack knowledge and evidence. Owerri Urban has unique characteristics which include its administrative functions as the state capital of Imo state, a recreational and tourist town, resulting in its being a heartland of Southeastern Nigeria,

home of more than seven tertiary institutions, and its state of insecurity in recent times has raised the quest for a breed of unique residential housing demand in the area. The paucity of research looks into the unique link between the nature of city dwellers and the key factors that form their residential housing demand determinants, irrespective of the city function(s). In spite of other research that have immensely impact on housing demand dynamics in Nigeria. There was an absence of studies focusing on Owerri-Urban, Imo State; thus, this prompted this study in Owerri, urban



Sources: Author's conceptualization, 2024.

Fig 1: The Housing Demand Determinant Factors.

3. Materials and Methods

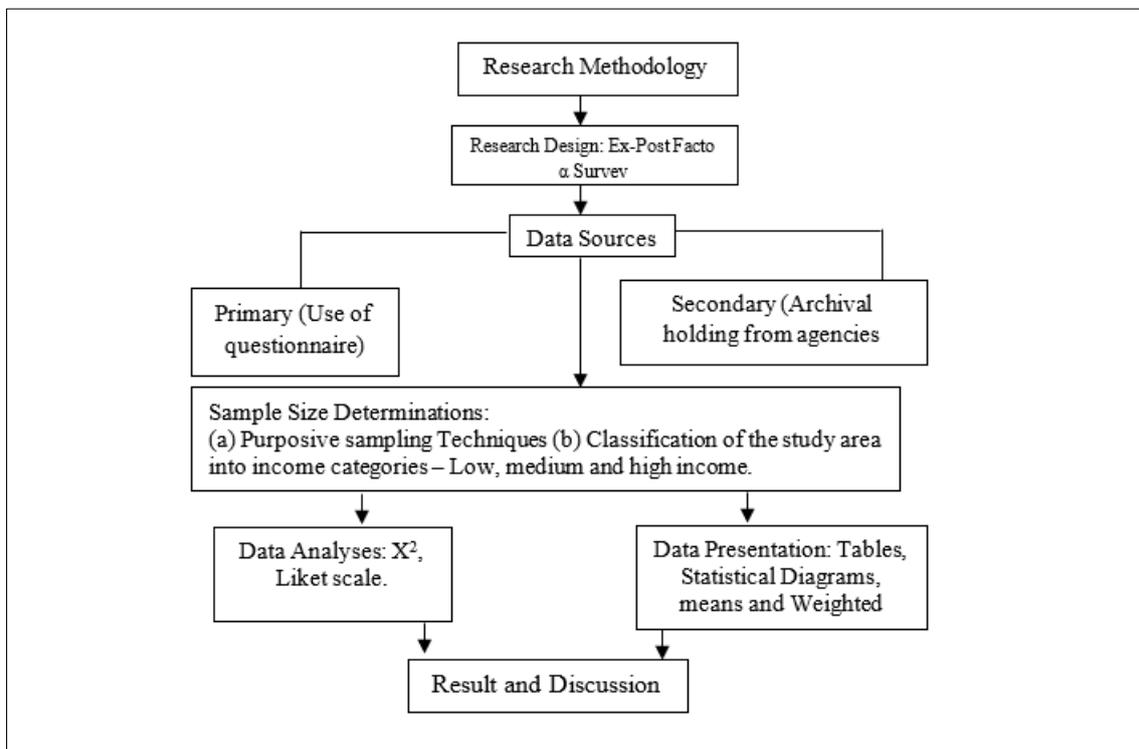
3.1. Study Area

Owerri Urban is located between latitude 50 29' 1.07"N and longitude 70 01' 59.70"N and is the capital of Imo state [34]. Owerri Urban comprises three Local Government Areas—Owerri Municipal, Owerri North, and Owerri West. Owerri Urban is dominated by two seasons in the year, namely the rainy season and the dry season. The rainy season is characterized by heavy winds, lightning, and thunderstorms accompanied by heavy rainfall. The dry season is associated with dry weather, intense heat, sunshine, and harmattan. The soil of Owerri Urban falls within the Benin formation of friable sands with intercalations of clay and shale [7]. The study area lies within the rainforest belt of South-Eastern Nigeria, characterized by lowland tropical rainforest, which has virtually given way to secondary re-growth of trees and shrubs due to incessant urbanization, encroachment, and farming. According to [30], Owerri Urban had a population of 325,337 in the 2006 census, now projected to be 553,864 in 2024. The economy of Owerri Urban is majorly based on

civil service, and service industries, due to the presence of five (5) tertiary institutions resident in the study area —, Owerri, Alvan ikoku university of Education, Owerri, Federal Poly Technic, Nekede, Federal College of Land and Agricultural Resources Technology, University of Agricultural Technology Owerri, Skeletal commerce and light industries and subsistence agriculture. Owerri Urban, being a state capital, has many government and non-government (private) housing estates built in Owerri Urban.

3.2. Research Design

The study adopted an ex-post factor, and Survey designs see Fig² below. The ex-post facto designs were deployed because they allow the use of existing data [11], while the survey design allows the researcher to explain determinant factors of housing demand in Owerri [2]. The research used both primary and secondary data. The questionnaire method was used to collect data. The procedure followed is in tandem with the study conducted by [32] in similar research. Also, the study used archival sources.



Source: Modified from [37].

Fig 2: Research Methodology Breakdown Components.

3.3. Population and Sampling

The Study population was determined by classifying Owerri Urban into Class income neighborhoods- Ikenegbu Housing Estate, Aladinma Housing, World Bank Housing Estate, Oparanozie Street (West End), Obinze, and Nekede, and the sample population was derived by a purposive sampling method. This is because it will be strenuous to study all the households of the population of 175,109 persons in Owerri urban. The developed questionnaire was distributed purposively in the neighborhoods selected. A total of 252 questionnaire was distributed among the selected neighborhoods above, a total of 174 were retrieved, representing 69.05% of the total questionnaires distributed, while 30.95% questionnaire were not retrieved.

3.4. Instrument Design and Validation

Questions bordering on determinants of residential housing demand were asked in the questionnaire. The specific questions were: Income of the applicant, House location, distance to employment, proximity to communal and social facilities, Age and gender, rent, house quality, accessibility, family preferences, and security formation. These questions were rated in a five-point-rating Likert scale questionnaire where 5 is rated Strongly agree, 4 is Agree, 3 is Undecided, 2 is Charged and 1 is Strongly Disagree. The instrument of data collection (questionnaire) was validated and also tested for validity. The Retest method was deployed to test the same respondents to affirm the reliability of the instrument used the second time for two weeks. This method of study was deployed by [39], and we were able to achieve a meaningful result. The results of these surveys were subjected to Pearson's Product-Moment Correlation Coefficient (PPMC)

and an r value of 0.89 was obtained. This gave the researchers the trust to deploy the instrument in the field. Also, a service of a psychometrician was deployed to look at and validate the questions against the objectives of the study [9].

3.5. Data Analysis and Techniques

Tables and data were presented as descriptive tests, which were deployed in the research in means, weighted averages, and percentages.

For data analysis, X^2 (chi-square) was used to compare observed results with expected results. This is to determine if there is a difference between observed data and expected data is due to chance or if it is due to a relationship between the variables of studies. $X^2 = \sum \frac{(O-E)^2}{E}$ Where O is observed, E is expected.

Similarly, the 5-point Likert data analysis scale, with 5 = Strongly Agree, 4 = Agree, 3 = Undecided, 2 = Disagree, 1 = Strongly Disagree, was also used. Binary Logistic model using zero-order coefficient between residents' demand determinants to residential housing in Owerri: $Y = a + b_1X_1 + b_2X_2 + b_3X_3 + e$ whereby Y= income, a= accessibility, X_1 = proximity to work, X_2 = family preference, X_3 = gender +...e= age etc.

4. Results

Table1: Total Number of Respondents According to Sex

Respondents	Frequency	Percentage
Male	101	58.05
Female	73	41.95
Total	174	100

Table 1 reveals the population of respondents in the Owerri urban. The outcome indicates that 58.05% of the respondents are male, while 41.95% accounted for females. The result reveals the reality of culture in the study area since the large populations were heads of households. Heads of Households

are inclusive of 'man' (whether married or unmarried), with an insignificant number of women rarely renting apartments as household heads since culture forbids that for women due to attachments to family life (Marriage) ^[32].

Table 2: Questionnaire Distribution

S/N	Total Questionnaire Distributed	Frequency	Percentage
1	Returned	174	69.05
2	Void	29	11.51
3	Others (Not returned)	49	19.44
	Total	252	100

Table 2 reveals the questionnaire distribution in the study area. 69.05% of the copies of the questionnaire distributed were filled in correctly and returned, while 11.51% of questionnaire returned were void. Then 19.44% of the 252

copies of the questionnaire were not returned, which might simply mean that not every respondent in the population likes what is taking place in the neighborhood.

Table 3: Classification of Owerri Urban Based on Categorized Income Class of Neighborhood and Its Questionnaire Distribution.

S/N	Areas/Neighborhood	Class	Number of questionnaires distributed
1	Ikenegbu Layout Estate	High Income	31
2	Aladinma Housing Estate	Medium Income	31
3	World Bank Housing Estate	High Income	40
4	Oparanozie Street (West End)	Medium Income	40
5	Obinze	Low Income	55
6	Nekede	Low Income	55
	Total	6	252

Table 3 above shows the classification of Owerri urban based on categorized income class: Low-income Neighborhood, Obinze, and Nekede received 55 copies of the questionnaire each, while (World Bank Housing Estate) high income and

(Oparanozie Street) low income received 40 copies of the questionnaire each. (Aladinma Housing Estate) Medium income and (Ikenegbu Layout Estate) High income received 31 copies of the questionnaire each.

Table 4: Demographic Characteristics of the Respondents.

Characteristic	Options	Frequency	Percentage (%)
Sex	Male	101	58.05
	Female	73	41.95
	Total	174	100
Age Group	18–24	18	10.34
	25–34	71	40.80
	35–49	50	28.74
	50–64	24	13.79
	65+	11	6.32
Income Categories	Total	174	100
	High	49	28.16
	Medium	55	31.60
	Low	70	40.23
Monthly Income Range (₦)	< 10,000	18	10.34
	10,000 – 34,999	37	21.26
	35,000 – 54,999	31	17.82
	55,000 – 74,999	44	25.29
	75,000 – 99,999	21	12.07
	100,000+	23	13.22
	Total	174	100

According to Table 4 above, a preponderance of respondents was within the age bracket of 18 - 65. 40.80% of the respondents represent the age range of 25 - 34 years, followed

by 28.74% representing the 35 - 49 years range, 13.79% (50 - 64) years, 10.34% (18 - 24) years, and 6.32% (65 and above) respectively. Furthermore, the income category of

Owerri urban was stratified into high, medium, and low-income earners. In this regard, 40.23% of the respondents were low-income earners, 31.60% of the respondents accounted for medium income, and 28.16% of the respondents represented high-income earners in the Owerri urban area. This reveals that many Urban folks are poor, and it has become a serious issue in Nigerian Urban Centers. ^[17] as a result of partial changes in economic policies, which induced hyperinflation, unemployment, austerity measures, and other associated economic and societal meltdown, insecurity in the country as challenges. However, the monthly income range of the study area shows ₦10,000 – ₦100,000. 25.28% of the respondents earn between ₦55,000 – ₦74,000

per month, 21.26% of the respondents earn within the income category of ₦10,000 – ₦34,999, while 17.82 and 13.21% of the respondents indicate that their income level fall within the range of ₦35,000 – ₦54,999 and ₦100,000 and above respectively, 10.34% of the respondents earn less than ₦10,000 per a month. Generally, the data indicate that the respondents are low-income earners, signifying that many residents of Owerri Urban are urban poor. Summarily, the findings of the perceptions of the sampled population using X2 revealed that $H_0 = 80.153$; $H_{02} = 55.460$; $H_{03} = 54.374$; $H_{04} = 52.208$, and $H_{05} = 39.343$ were all accepted at the 0.05 significance level.

Table 5: Types of Housing Living by the Respondents.

House Types	Number of Respondents	Percentage
Self-con	18	10.34
Block of flats	15	8.62
Bungalow (Detached)	29	16.66
Bungalow (Semi-Detached)	26	14.94
Roomy	39	22.41
Face-me Apartment	4	2.30
Others	3	1.72
Total	174	100

Table 5 presents the house types of respondents living in the study area. 25.28% of the sample population live in face-me apartments, while 22.4%, 16.66%, and 14.94% of the population stay in roomy and bungalow (detached and semi-detached) respectively. 10.34% lived in self-contained

apartments, 8.62% of the entire sampled population lives in blocks of flats, while only 1.72% represents other population who could not reveal their housing type, due partly in part to horrifying experiences of insecurity and fear of taxation.

Table 6: Occupation of Respondents in Owerri Urban.

Occupation	Number of Respondents	Percentage
Civil Servants	54	31.03
Traders	46	26.43
Artisans	33	18.96
Professionals	12	6.89
Retirees	23	13.21
Others	6	3.44
Total	174	100

Table 6 above shows the respondents' occupations in the sampled neighbourhoods of Owerri Urban-Ikenegbu Layout, Aladinma, World Bank Housing Estate, Oparanozie Estate (West End), Obinze, and Nekede. Civil Servants are in the majority, representing 31.03% of the entire sampled population. Traders and Artisans were 26.43% and 18.96% respectively. Retirees and Professionals (Accountants,

Surveyors, Architects, etc.) represented 13.21% and 6.89%, while Others - Students, Apprentices, and Corpers living in the sampled population represented 3.44%. By implication of the analysis, a majority of the residents of Owerri are civil servants, being that Owerri Urban is the hub of administration in Imo State.

Table 7: Respondents on Housing Demand Determinants in Owerri Urban.

Attributes	Number of Respondents	Percentages
Rent	47	27.01
House Quality	16	9.19
House Location	47	27.01
Accessibility	29	16.66
Security	28	16.09
Others' preferences, proximity to communal and social facilities, and age.	7	4.02
Total	174	100

Table 7 above reveals the opinions of Heads of households on demand in the study area. 27.01% of the sampled population indicated that rent and house location were the major determinants for them, while 16.66% and 16.09% of the sampled population of the heads of households revealed that accessibility and security were their determining factor for their consideration on housing demand respectively, 9.19% of the sampled heads of households responded to house quality. Only 4.02% of the respondents represent Others – personal preference/tastes, proximity to communal and social facilities, and age. The research was conducted by [38,36,14,42] in different Global chimes – Asaba (Nigeria),

Erzurum (Turkey), India, and Egypt. This goes a long way to suggest that residents of the study area give serious consideration to house rent and house location as a civil service town showing that residents in the study area consider immensely their income level and abode within their employment zones and stay to live where there are maximum securities, due to low living wage paid to the civil servants and insecurity in the study area. Therefore, income determines the rent a tenant can afford to pay, and the location of a house is a function of security and proximity to the area of work or secular activity that enhances the input-output and productivity index, and vice versa.

Table 8: Income and Housing Demand.

Neighborhood	SA	A	UD	DA	SD	Total
Ikenegbu	22	4	0	2	1	29
Aladinma	17	8	1	2	1	29
World Bank	1	3	0	9	16	29
Oparanozie	10	12	4	1	2	29
Obinze	10	12	4	1	2	29
Nekede	10	12	4	1	2	29
Total	71	51	13	16	24	174

Note: SA= Strongly Agreed, A= Agreed, UD= Undecided, DA= Disagreed, SD= Strongly Disagreed

Table 8 above reviews that 33.07% of the respondents strongly disagreed on income as a housing demand determinant in the study area, 23.28% and 20.36% review strongly agreed and disagreed, respectively, on income as a determinant for housing demand. While 12.19% respondents

agreed that income determines housing demand in Owerri urban. And 11.10% only represent the population of the respondent that shows undecided. This shows that income does not have a major contribution to housing demand, as seen in other cities in Nigeria.

Table 9: Distance and Housing Demand

Neighborhood	SA	A	UD	DA	SD	Total
Ikenegbu	5	10	4	10	0	29
Aladinma	10	12	3	2	2	29
World Bank	11	12	3	3	0	29
Oparanozie	1	1	4	15	8	29
Obinze	8	8	6	5	2	29
Nekede	11	12	3	3	0	29
Total	46	55	23	38	12	174

Note: SA= Strongly Agreed, A= Agreed, UD= Undecided, DA= Disagreed, SD= Strongly Disagreed

Table 9 shows the analysis of the distance influence on housing demand in Owerri urban. 20.4% of the respondents strongly disagreed (SA) that distance is not the major factor for determining housing demand by residents, 19.14% disagreed (DA) with distance, while 11.72% and 11.02%

respectively represent strongly agree and agree respondents of the sampled population. 1.7% of the sampled population replied undecided. This implies that distance does not have much influence on the housing demand determinant in Owerri urban.

Table 10: Family Preferences and Housing Demand.

Neighborhood	SA	A	UD	DA	SD	Total
Ikenegbu	4	11	4	9	1	29
Aladinma	2	2	5	15	5	29
World Bank	11	7	6	3	2	29
Oparanozie	13	12	2	2	0	29
Obinze	11	13	2	1	2	29
Nekede	1	1	4	15	8	29
Total	42	46	23	45	18	174

Note: SA= Strongly Agreed, A= Agreed, UD= Undecided, DA= Disagreed, SD= Strongly Disagreed

Table 10 above shows the analysis of family preference on housing demand in Owerri urban. 34.48% disagreed that family preferences are not a contributing factor in housing demand of resident while 20.07% strongly disagreed that family preferences do not command residents' housing demand in Owerri urban. While 61.70% and 15.83%

respectively represent strongly agree and agree. 2.52% shows undecided, showing that family preference may not strongly influence choice. This implies that the residents of Owerri urban do not strongly tie their housing needs to family preferences

Table 11: Gender and Housing Demand.

Neighborhood	SA	A	UD	DA	SD	Total
Ikenegbu	4	13	3	6	3	29
Aladinma	7	4	6	5	7	29
World Bank	11	15	1	2	0	29
Oparanozie	13	9	2	3	2	29
Obinze	2	6	3	6	12	29
Nekede	4	13	3	6	3	29
Total	41	60	18	28	27	174

Note: SA= Strongly Agreed, A= Agreed, UD= Undecided, DA= Disagreed, SD= Strongly Disagreed

Table 11 above shows the analysis of gender and housing demand in Owerri urban. 20.77% of the sample population shows strongly disagreed, 13.88% indicates strong agreement, while 9.60% and 4.67% shows agreed and

undecided respectively. Then 3.29% disagreed on gender as a factor on resident's housing demand. By implication, this shows that gender does not play any role in housing demand determinants in Owerri urban

Table 12: Age and Housing Demand.

Neighborhood	SA	A	UD	DA	SD	Total
Ikenegbu	7	11	1	8	2	29
Aladinma	6	10	2	8	3	29
World Bank	4	5	5	9	5	29
Oparanozie	4	6	5	10	4	29
Obinze	13	15	0	1	0	29
Nekede	7	11	1	8	2	29
Total	41	58	14	44	17	174

Note: SA= Strongly Agreed, A= Agreed, UD= Undecided, DA= Disagreed, SD= Strongly Disagreed

Table 12 above shows the analysis of age and housing demand. 20.01% of the entire population sample disagreed that age contributes to the housing determinant of Owerri urban. 15.25% and 14.85% respectively show agreed and

strongly agreed while 9.94% and 9.23% reviews strongly agree and undecided. This implies that age can never be a determining factor for resident housing demand.

Table 13: Summary of Findings.

Hypothesis	X ²	DF	P-value	α Level	Remarks
H ₀₁	8.015	12	0.05	0.05	Rejected
H ₀₂	5.546	16	0.05	0.05	Rejected
H ₀₃	5.437	16	0.05	0.05	Rejected
H ₀₄	5.221	20	0.05	0.05	Rejected
H ₀₅	3.934	20	0.05	0.05	Rejected

Table 13 above reveals the summary of findings based on Chi-Squared analysis, under $p < 0.05$ is statistically significant, in which case the H₀₁, H₀₂, H₀₃, H₀₄, and H₀₅ are rejected, signifying that the observed data is likely to have occurred by random chance alone, indicating a real effect or

difference. Based on this threshold, the study concludes that the observed difference is not likely due to random error and is considered a meaningful finding. Therefore, there is no relationship between the variables being studied, and the null hypothesis is rejected.

Table 14: Decision Rule Based on Hypothesis Testing of the objectives

Objective	Hypothesis	Calculated X ²	Tabulated Value X ²	Degree of Freedom	P-Value	α Level	Decision Rule	Remarks
1	H ₀₁	8.015	21.0226	12	0.05	0.05	Rejected	Income has an insignificant Association with Housing Demand.
2	H ₀₂	5.546	26.296	16	0.05	0.05	Rejected	There is no relationship between the distance and housing demand in Owerri.
3	H ₀₃	5.437	26.296	16	0.05	0.05	Rejected	Family preference has an insignificant Impact on housing demand.
4	H ₀₄	5.221	31.410	20	0.05	0.05	Rejected	Gender has no sign. Relevant on housing demand in Owerri.
5	H ₀₅	3.934	31.410	20	0.05	0.05	Rejected	There is no relationship between the age of consumers and housing patterns in Owerri.

Table 14 above indicates the decision rule based on hypothesis testing of the study objectives 1-5 using the X² test, revealing that the H₀₁-H₀₅ under p < 0.05 were all rejected, showing that the observed data is unlikely to have occurred by random chance, indicating a real effect or difference. Based on these thresholds, we conclude that the observed difference is not likely due to random error and is considered a meaningful finding. Therefore, income, distance, family preference, gender, and age do not have a significant relationship to housing demand.

Proposed Conceptual Framework for Housing Demand Determinants for Owerri Urban

Hence, the seven (7) variables derived from the core factor determinants of people's housing demand and choice of Owerri Urban, being an ancient administrative town has passed through many housing transitions through many political and government transitional systems by search and research, with conclusions with the following proposed conceptual framework of Residential Housing Demand Determinant of Owerri Urban. The tenets of the proposed conceptual framework were borne out of the study. Though

some of these variables may be subject to relocations, some are irrevocable due to the interplay of socio-economic and personal perceptions and preferences within a specific function (f) of the period culminating in the following equations;

$$\begin{aligned}
 HD_{k-1} &= f\{g, l, y, a, e\} \\
 HD_{k-2} &= f\{y, d, p, s, e\} \\
 HD_{k-3} &= f\{y, p, e, l, s\}
 \end{aligned}$$

Where: g = gender, y = Income, d = distance, a = accessibility, e = age, p = family preferences, s = security. Where H_{k-1} = Housing demand with a specific function of time period with effective demand.

$$\begin{aligned}
 HD_{k-1} &= f\{g, l, y, a, e\} \\
 HD_{k-2} &= f\{y, d, p, a, e\} \\
 HD_{k-3} &= f\{y, p, e, l, a\} \\
 HD_{k-4} &= f\{y, d, p, g, a, e, l\}
 \end{aligned}$$

Where: y = Income, d = distance, p = family preferences, g = gender, a = accessibility, e = age, l = location

Table 15: Proposed conceptual framework of Housing Demand Determinants in Owerri Urban, Imo State, Nigeria.

Variable	Param.	SA	A	UD	D	SD	TNO	SMV
Income (y)	1	51	32	29	24	38	174	2.50
		(21.670)	(11.837)	(16.463)	(13.001)	(35.180)		
Distance (d)	2	46	55	23	38	12	174	2.50
		(11.698)	(11.018)	(1.750)	(19.123)	(20.401)		
Family Preferences (P)	3	45	56	23	39	11	174	2.50
		(11.672)	(9.554)	(5.321)	(14.774)	(10.500)		
Gender (g)	4	41	60	18	28	27	174	2.50
		(13.879)	(9.600)	(4.666)	(3.276)	(7.352)		
Age (e)	5	41	58	14	44	17	174	2.50
		(8.020)	(6.966)	(9.991)	(7.002)	(7.352)		
Accessibility (a)	6	38	32	24	51	29	174	2.50
		(35.180)	(11.837)	(13.001)	(21.670)	(16.463)		
Location (L)	7	39	11	56	23	45	174	2.50
		(14.774)	(10.500)	(9.554)	(5.321)	(11.672)		

Identifying restriction @ 5% α with five parameters.

Notes: Expected values are in brackets and parentheses.

This is structured into unrestricted and Restricted Parameters. Unrestricted Parameters contain housing demand variances (1 – 7), and Restricted Parameters are X² statistic tests for independence. The total number of observed frequencies is

174. The subjective Mean Value of 2.50 was imposed. (See Table 14 above).

Sample population in the Owerri urban revealed that income, distance, family preferences (proximity to the health facility,

children's school, and work and security), and gender are not the major housing demand determinants in the study area because as [4, 5, 37, 35] discovered in their studies because the p-value of all the determinant factors are 0.000 less than α level of 0.05. Therefore, H0 is rejected. While age has a p-value of 0.006 less than α level of 0.05, is nevertheless positive, but H0 is accepted with some reservations, signifying that not all the respondents consider age as the major determinant, especially in these neighborhoods that harbor Low-income populations, but because a serious factor for others living in the high medium-income zones of the neighborhood. This study reveals that the age factor is dependent on income class and vice versa (See Table 12). Also, accessibility, security, and location of the house trigger quenchless demand determinants to choice and demand as revealed in the study. These two variables (security to community facilities) were captured under "Others" in the research questionnaire by the respondents' answers. Interpretatively, the analysis revealed that most family preferences were dependent on the security of the area and the availability of communal facilities – Health facilities, schools, etc.

Generalization

1. The proposed conceptual framework posits the reality of seven (7) variables as determinant factors for housing demands in the Owerri urban area and beyond

$$HD_{k-1} = f\{y_x + d_x + P_x + g_x + e_x + l + \dots K_n\}$$

2. The proposed conceptual framework supports the major stakeholders, public and private housing providers to seasonally review their policies according to determinant variables (factors) in the housing market.
3. Also, the proposed conceptual framework will help housing providers determine current trends in housing needs and their effective demand in a particular $HD_{k-1} \dots \dots HD_{k-n}$
4. Gives both Stakeholders the position of picking the best in case of investment and benefits of both housing providers and demand choices.
5. Maximize wastes of housing resources, and work on fixed housing budgets.
6. Finally, the model regulates unwanted supply and encourages steady, effective housing demand since housing developers follow demand trends.

Conclusion

The study explained the demand factors for housing seekers in Owerri Urban. The study deployed the questionnaire methods to collect data from the study population, archives of housing agents, and government agencies. Descriptive tests were deployed in the research using means, weighted averages, and percentages. For data analysis, Chi-square (X^2), 5point Likert data analysis was used for the data analysis. Similarly, a model using zero-order was also used for modeling the conceptual framework for the housing demand determinant in the study area. The main thrusts of the research included evaluating the impact of income on housing demand determinants in Owerri Urban, examining

the association of distance and housing demand pattern in Owerri Urban, determining how family preferences affect demand in Owerri Urban; identifying the influence of gender on housing demand pattern in Owerri Urban, determine age of consumers to residential area in Owerri Urban and propose a conceptual framework for housing demand determinants in Owerri Urban.

The research discovered that housing demand determinants (factors) of Owerri Urban present characteristic features not too extreme from other areas studied, but with a few distinct factors. We discovered that income, distance, and family preferences do not have much influence on demand; however, gender, location, security, and accessibility were observed to be major determining factors. Interpretatively, this could be as a result of economic policy in the nation and insecurity of Owerri Urban and its environment, which has periled the peaceful interactions in Owerri Urban, and socio-economic uncertainty of the prospective housing seekers in Owerri Urban in recent times.

Recommendations

Based on these findings, the government, private housing providers, and the Urban community at large have a lot to bridge the knowledge and evidence gap in Owerri Urban.

1. Development of Joint Special Residential Housing Schemes, where the government should partner with willing private sectors and non-governmental organizations to provide residential houses that will have a sphere of influence on gender, location, security, and accessibility.
2. User-friendly residential estates should be developed for the public common interest. This should be the policy of "point" and "group" housing systems that categorize the residents according to their income strata. This should go a long way to avoiding socio-economic insecurity among residents in Owerri Urban.
3. The government and private developers should establish an Open Registration System to capture the peculiar housing demands, personality codes, and security index of tenants that will give ideas of the moral character of such individuals. as being implemented in Malaysia. This is in tandem with the study of [31] Open Registration System is a computerized system device that will go a long way to secure the security of residents in their neighborhoods by revealing the lifestyle and behavior of the prospective tenant.
4. The government should put a formidable security apparatus in conjunction with public relations to fight insecurity in Owerri Urban. The government should install modern-day security devices – CCTV around the Owerri Urban boundaries and the hoodlum flashpoints. The government can achieve these by working through its security agents and the vigilante groups of the Urban neighborhoods.
5. The government should introduce housing loans and subsidies in Owerri Urban to help Owerri Urban folks select the right house choice at any point in time. This will go a long way to solve the socio-economic class conflict in the study area, hindering the low-income from living in the choicest

zone of security and a serene environment with adequate community facilities.

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