

Research Article

Housing Modification and Occupants' Satisfaction in Ikorodu, Lagos: Home Renters' Perspective

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Abstract

This study investigates the experiences of home renters amid ongoing waves of housing modifications in Ikorodu, Lagos, focusing on the drivers of these changes and their implications for residents' satisfaction. A convenience sampling method was used to select renters living in modified dwellings. Data were analyzed using Weighted Mean Score (WMS), Analysis of Variance (ANOVA), and a stepwise regression model. Four key findings emerged. First, the most frequently altered interior spaces were bedrooms, living rooms, and kitchens-modifications often associated with converting blocks of flats into more compact, shared arrangements such as roomy apartments. Second, renters reported varying degrees of dissatisfaction with the modifications, primarily due to the prioritization of economic gains over safety, comfort, and convenience. Third, economic pressures and property/neighborhood characteristics were identified as the primary drivers of these changes, while institutional and political factors played a comparatively minor role, revealing a regulatory gap. Lastly, regression analysis confirmed the strong influence of economic and property-related variables on occupant satisfaction, enhancing the explanatory power of the model. The study highlights the need to prioritize renters' interests as key stakeholders in the housing modification process. Strengthening institutional frameworks and regulatory oversight is essential to ensure that housing adaptations align economic objectives with resident well-being.

Keywords

Housing, Modifications, Home Renters, Satisfaction, Influencing Factors

1. Introduction

The growing demand for rental housing, particularly in megacities such as Lagos, has emerged as both a critical policy concern and an attractive opportunity for private investment. As the most populous state in Nigeria, Lagos is home to over 23 million residents-a figure that continues to rise at an alarming rate. This population growth is largely driven by the state's strategic geographic location and its status as Ni-

geria's economic hub [1, 2]. However, accommodating this rapidly expanding population poses a significant challenge for public authorities. Despite numerous housing policies and regulatory frameworks, progress has been undermined by weak institutional capacity and ineffective implementation mechanisms [3-5]. From a socio-political perspective, scholars such as [6] argue that the government's capacity to ad-

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dress the escalating housing needs is constrained by insufficient funding, bureaucratic inefficiencies, and a lack of strategic long-term planning.

Importantly, these housing challenges are not confined to Lagos alone but are characteristic of major urban centers across Nigeria [2, 7-9]. In this context of chronic housing shortages, private investors have capitalized on the situation, viewing it as an opportunity to achieve substantial returns on residential property investments. The imbalance between housing demand and supply has contributed to rising property values, making the sector increasingly lucrative [10]. In response to market pressures, many residential buildings—often aging and in poor physical condition—are being repurposed to meet evolving housing demands and trends [11, 12]. These modifications typically aim to increase property utility and marketability, driven by the dual motivations of enhancing investment value and satisfying current consumer preferences. However, in regions characterized by lax regulatory enforcement, such market-driven interventions frequently occur at the expense of other stakeholders, particularly tenants and occupants, who may face compromised living conditions and limited agency in the process.

The interests of occupants in modified residential properties are equally critical, as reflected in their levels of satisfaction or dissatisfaction with such alterations [13]. In many instances, property modifications are undertaken primarily to serve the interests of property owners, often with minimal regard for the safety, comfort, and convenience of residents. These modifications may involve reconfiguring interior spaces, constructing new extensions, or altering the original architectural design to support alternative uses—such as converting portions of the property for commercial purposes [14, 15]. This trend is especially prevalent in central business districts, where high land value incentivizes the maximization of rentable or usable space.

Many of these alterations are profit-driven and frequently executed without adequate planning or regulatory oversight, sometimes compromising the quality of living for occupants. This tension between economic motives and occupant well-being has drawn increasing attention from housing scholars and practitioners, particularly concerning the implications of such changes on resident satisfaction and quality of life. This study addresses the lived experiences and specific concerns of occupants residing in modified residential properties in Ikorodu, Lagos, with a focus on how these changes affect their day-to-day well-being and housing satisfaction.

The case of Ikorodu is particularly noteworthy. Over the past two decades, the area has experienced a significant influx of people from both within and outside Lagos State. This demographic expansion is largely attributed to improvements in public infrastructure—especially in transportation systems, including road networks, rail lines, and water-based transit. These infrastructural advancements have enhanced regional connectivity and facilitated broader economic growth, thereby increasing the area's attractiveness for

residential settlement.

As a result, Ikorodu's property market has become increasingly dynamic. In response to rising housing demand, many private property owners have initiated modifications or alterations to their existing residential structures. These interventions are typically aimed at expanding housing capacity, meeting shifting tenant expectations, and capitalizing on the economic opportunities presented by a rapidly growing population.

2. Literature Review

The relationship between housing modifications and residents' satisfaction remains a compelling area of inquiry within the housing literature. Resident satisfaction is a complex and subjective measure, shaped by diverse individual experiences, property types, and socio-spatial contexts. Housing modification, in this context, refers to the physical alteration of dwellings to achieve improved environmental, functional, or socio-economic living conditions [16]. These modifications can range from minor internal adjustments to large-scale structural renovations [17, 18], driven by a combination of demographic, economic, cultural, and institutional factors.

Socioeconomic characteristics—such as age, income level, family composition, and lifestyle preferences—play a critical role in influencing both the necessity and the outcomes of housing modifications. For instance, [19] explored housing adaptations among older adults in Europe and found a marked preference for age-appropriate modifications. The timing and execution of these adaptations were found to significantly affect occupant satisfaction. Similarly, [13] examined housing alterations among Filipino households and emphasized their impact on livelihood quality and well-being. The study highlighted the importance of flexible housing designs that adapt to evolving needs, underscoring how user-centered design contributes to satisfaction.

Other studies have drawn attention to post-occupancy evaluations as a useful framework for understanding why housing modifications occur. These evaluations often reveal a wide array of user-driven motivations [11, 12, 20-28]. In India, [20] investigated post-liberalization housing trends in Delhi's Vasant Kunj and Dwarka neighborhoods. The study found that rapid population growth and family expansion drove many residents to alter their homes, despite regulatory constraints. Planning byelaws and zoning codes were frequently cited as deterrents to desirable modifications, indicating a need for more flexible regulatory systems that accommodate urban demographic changes.

Housing modifications have also been examined through the lens of accessibility and disability inclusion. Lee and Lee [25], for example, evaluated renovation efforts targeting individuals with disabilities. Their research stressed the importance of improving access routes, modifying internal layouts, and enhancing usability of domestic spaces. These interventions were found to significantly improve satisfaction

and overall quality of life, reinforcing the need for adaptable living environments.

In post-disaster settings, housing reconstruction efforts often face criticism for overlooking cultural and individual preferences. [29] assessed donor-led reconstruction projects in Bagerhat District, Bangladesh, following Cyclone SIDR. Although the homes were rebuilt promptly, many failed to meet the expectations of their intended occupants. The study found that over half of the beneficiaries either modified or abandoned their reconstructed homes, citing poor alignment with local needs, customs, and spatial practices. These findings underscore the importance of participatory design and beneficiary involvement in post-crisis housing interventions.

In Nigeria, several studies have investigated housing modifications and occupant satisfaction across various cities [21-23, 27, 30-32]. [30] evaluated resettled communities in Abuja using modification indicators to assess satisfaction. [31] focused on public housing estates in Lagos, questioning the extent to which user needs are addressed in modification decisions. In Owerri, [23, 27] analyzed post-occupancy changes to residential units, revealing that residents often modify their homes to better match their preferences and living standards. Similarly, [21] studied middle-income housing estates in Enugu, linking modifications to improved resident satisfaction and increased functional value.

These studies collectively affirm that housing modifications play a vital role in aligning living spaces with user expectations and in enhancing perceived residential quality. However, a key gap in the literature lies in the limited attention given to home renters—as opposed to homeowners or public housing beneficiaries. Most empirical research focuses on ownership-driven alterations, yet renters in rapidly urbanizing cities often experience significant and imposed housing changes, especially in modified buildings. This underexplored tenant perspective is particularly relevant in informal or under-regulated contexts such as Ikorodu, Lagos, where renters face both the consequences and constraints of housing transformations driven largely by landlord or investor interests. Addressing this gap is essential to understanding the full impact of housing modifications on urban residents and to developing more inclusive housing policies.

3. Research Method

3.1. Data Source and Sampling Procedure

This study adopts a quantitative survey approach, utilizing a multi-stage sampling strategy to collect data from home renters in Ikorodu, Lagos. Two Local Council Development Areas (LCDAs)—Ikorodu North and Ikorodu West—were purposively selected from the five LCDAs within Ikorodu Local Government Area. These two were chosen because they represent the largest residential neighborhoods in the region and

display a high concentration of housing modifications.

The target respondents were home renters residing in modified residential units, identified during a pilot survey conducted with the assistance of two trained research assistants. In addition to convenience sampling, the study employed referral sampling techniques to improve coverage. Individuals with in-depth local knowledge were consulted to recommend areas where housing modifications were prevalent, thereby enhancing the accuracy of the sampling process.

Questionnaires were administered to respondents based on their willingness and informed consent to participate in the study. In total, 120 residents were carefully selected to reflect a diverse range of experiences with housing modifications. Furthermore, three modified residential apartments were chosen from each of the 40 political wards within Ikorodu North and Ikorodu West LCDAs, ensuring broad geographic representation across the study area.

3.2. Methods of Data Analyses

The study employs both descriptive and inferential statistical tools to analyze the data collected from the survey. Descriptive statistics—such as frequency distributions, percentages, and mean scores—were used to examine the socio-economic characteristics of the respondents, including variables such as age, gender, marital status, income level, and occupation. These tools were also applied to assess the types and features of the modified residential apartments. Respondents' perceptions of the extent of housing modifications and their levels of satisfaction were measured using a five-point Likert scale, ranging from 1 (very dissatisfied) to 5 (very satisfied). To analyze this ordinal data, the study employed the Weighted Mean Score (WMS) method. The WMS aggregates respondents' scores to produce a composite measure of satisfaction, offering a more nuanced understanding of emerging patterns and tendencies across different categories.

The mathematical expression for calculating the WMS is presented as follows:

$$WMS = \frac{\sum (w \cdot f)}{\sum f} \quad (1)$$

In this study, the weight assigned to each Likert scale category represents the degree of satisfaction, while the frequency corresponds to the number of respondents who selected each category. The assigned weights are as follows: a score of 1 indicates “very dissatisfied,” 2 represents “dissatisfied,” 3 corresponds to “neutral,” 4 signifies “satisfied,” and 5 indicates “very satisfied.” These values reflect the ordinal structure of the Likert scale, where higher scores denote greater levels of satisfaction. By aggregating these responses using a weighted average, the study derives a composite measure of residents' satisfaction with housing modifications. This method provides a more nuanced understand-

ing of satisfaction patterns across respondent groups. Beyond descriptive analysis, the study also employs inferential statistical tools to examine the relationships between housing modifications and satisfaction levels. Specifically, Analysis of Variance (ANOVA) is used to test for statistically significant differences in satisfaction levels across different categories of modifications and resident characteristics. Additionally, a multivariable stepwise regression model is applied to identify the direction and strength of the influence of key factors on resident satisfaction.

In this context, occupant satisfaction serves as the dependent variable, while the explanatory variables are grouped into four major categories. These include socio-demographic factors, such as age, gender, income, and household size; property and neighborhood characteristics, such as location, infrastructure, and security; economic factors, including rental prices, housing demand and supply, and occupant preferences; and institutional or political factors, such as changes in land use policies, planning regulations, and governance structures. The regression analysis allows the study to esti-

mate the relative contribution of each category of variables in explaining variations in satisfaction, thereby offering empirical insights into the dynamics of housing modification from the renter's perspective.

$$\gamma = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n + \epsilon \quad (2)$$

Where γ represents the dependent variable (occupant's satisfaction), β_0 is the intercept, $\beta_1, \beta_2, \beta_3, \dots, \beta_n$ are the coefficients of the independent variables (predictors) measuring their effects on occupant satisfaction, $X_1, X_2, X_3, \dots, X_n$ are the independent variables such as socio-demographic (SC), property/neighborhood characteristics (P/N), economic (Eco), and institutional/political (IP) factors, while ϵ denotes the error term. For example, when socioeconomic characteristics are used as predictors, the regression equation is adapted to fit the study context. The mathematical representation is modified accordingly and expressed as shown in Eq. (3) below:

$$Occp.Sat = \beta_0 + \beta_1 SD_1 + \beta_2 P/N_2 + \beta_3 Eco_3 + \beta_3 IP_3 \dots + \epsilon \quad (3)$$

In addition, the ANOVA statistics was deployed to know the statistically significant of the model estimates, its contribution to the estimate variation and precision, and 5% level of significant ($p < 0.05$) was adopted.

4. Result and Discussion

The distribution of socio-economic characteristics, including gender, income, marital status, and education, is presented in Table 1. A significant proportion of the residents were male (75.8%), within the age brackets of 46-55 years (29.2%) and 36-45 years (24.2%), and married (61.7%). These results are not surprising as key household heads were targeted during the survey to gain insights from critical decision-makers within family settings on the issues addressed. Additionally, less than 5% of the residents were unemployed, indicating that approximately 95% are part of the labor force. Among them, government workers dominated (61.7%), while about 15.8% were retirees collecting pensions and engaging in business activities. Approximately 75% of the sampled residents earned a minimum monthly salary of ₦100,000.00, classifying 3 out of 4 residents as middle-income earners, which highlights their stronger financial stability.

Table 1. Socio-economic characteristics of residents in Ikorodu, Lagos State.

Parameters	Frequency	Percent
Gender:		

Parameters	Frequency	Percent
Male	91	75.8
Female	29	24.2
Age in years:		
18 - 25	17	14.2
26 - 35	20	16.7
36 - 45	29	24.2
46 - 55	35	29.2
56 years & above	19	15.8
Marital status:		
Single	27	22.5
Married	74	61.7
Divorced	4	3.3
Separated	15	12.5
Average monthly income:		
₦10,000 - ₦50,000	5	4.2
₦50,000 - ₦100,000	26	21.7
₦100,000 - ₦150,000	22	18.3
₦150,000 - ₦200,000	20	16.7
₦200,000 - ₦250,000	25	20.8
>₦250,000	22	18.3
Occupation:		

Parameters	Frequency	Percent
Unemployed	5	4.1
Civil servant	74	61.7
Private employee	22	18.3
Retired	19	15.8
Religion:		
Christianity	85	70.8
Islam	35	29.2
Level of Education:		
Secondary education	43	35.8
Tertiary	77	64.2
Major Ethnicity:		
Yoruba	92	76.7
Igbo	23	19.2
Hausa/Fulani	5	4.2
Total	120	100.0

Source: Authors' Field Survey (2024)

The survey captured a higher proportion of Christian residents (70.8%), with the majority belonging to the Yoruba ethnic group (76.7%). This result highlights that, despite Lagos evolving into a cosmopolitan city enriched with cultural diversity and characterized by its inclusiveness of various ethnic and linguistic groups, this particular neighborhood remains predominantly occupied by a Christian community and has a significant Yoruba ethnic presence. However, the uneven distribution of religion and ethnicity is unlikely to significantly impact the study's findings. Previous research suggests that motivations for housing modifications are strongly influenced by factors such as residents' age, personal needs, and preferences [19, 13]. These factors often outweigh cultural or religious considerations in driving decisions about residential alterations.

In Table 2, the study presents the types of residences and residency status of modified apartments in the study area, focusing on factors such as residency duration, ownership status, and neighborhood characteristics-key influencers of housing modification [24, 28]. The findings reveal that the neighborhood comprises a mix of housing types, with a predominance of roomy apartments (37.5%), single-story buildings (23.3%), and semi-detached bungalows (20.8%). Detached bungalows (10.8%) and duplexes (7.5%) were less common.

Residents with longer occupancy histories, particularly those with at least three years of residency, constituted approximately 85% of the population, with 50.8% having lived in their residences for 3-5 years. This extended duration of residency suggests a greater familiarity with and understand-

ing of housing modification trends in the area, enriching the study's insights. The home renters in the neighborhood comprised the majority of the sampled residents (95.83%), while only a small proportion of owner-occupiers (4.17%) were included. This result is unsurprising, as the study prioritizes the experiences of home renters in addressing the issues at hand. Renters often bear the brunt of challenges arising from poorly planned housing modifications carried out by property owners. Almost half (48%) of the respondents claimed that the modifications were done just before they moved into the building and a little above 30% claimed that the modifications were done after they have moved into the residence.

While housing modifications are typically the prerogative of property owners, renters may undertake changes with the owner's consent. However, modifications driven primarily by economic motives-frequently executed without consideration for tenant interests-can lead to dissatisfaction. This is especially true when such changes are poorly planned and fail to address the practical needs or preferences of the occupants.

Table 2. Typology and residency status in Ikorodu, Lagos State.

Parameters	Frequency	Percent
<i>Type of house:</i>		
Detached bungalow	13	10.8
Semi-detached bungalow	25	20.8
Single storey building	28	23.3
Duplex	9	7.5
Roomy apartment	45	37.5
<i>Duration of residency:</i>		
1 - 2 years	19	15.8
3 - 5 years	61	50.8
>5 years	40	33.3
<i>Property ownership status:</i>		
Owner-occupied	5	4.17
Rented	115	95.83
<i>Security level:</i>		
Crime is rampant	10	8.3
Crime is occasional	28	23.3
Crime is less frequent	69	57.5
No crime	13	10.8
<i>Period of modification</i>		
Long before I moved in	24	20.0
Just before I moved in	58	48.3
After I moved in	38	31.7

Parameters	Frequency	Percent
Total	120	100.0

Source: Authors' Field Survey (2024)

The results of the neighborhood security analysis reveal a relatively low security threat in the area. A majority of residents (57.5%) reported less infrequent occurrences of crime, while 23.3% mentioned occasional crime incidents. A small proportion (8.3%) expressed concerns about security breaches, and 10.8% reported no crime at all in their neighborhood. This suggests that the area is relatively secure, which likely contributes to its growing influx of residents and businesses. Furthermore, the findings indicate that most residential modifications in the area are not driven by security concerns,

reinforcing the view that safety is not a predominant issue for residents in this neighborhood.

The key features of modified residential buildings, such as gates, fences, walls, floors, and roofs, were examined, and the results are summarized in Table 3. Findings reveal that a majority of residential buildings were gated (60.0%), while over half were fenced (55.8%), leaving 44.2% unfenced. Regarding constructional wall details, 42.5% of the buildings were painted, with a noticeable 20.0% having tiles for wall finishes. For flooring, the majority (66.7%) of the modified apartments used ceramic tiles, while others had either cement screed (16.7%) or terrazzo (8.3%) finishes. Roofing materials predominantly included long-span roofing sheets (52.5%), followed by tiled shingle roofing (24.2%), with the remainder using corrugated roofing sheets. These findings indicate that the buildings exhibit modern architectural features, reflecting the relatively strong financial status of their occupants.

Table 3. Features of Modified residential Properties in Ikorodu, Lagos State.

Parameters	Frequency	Percent
<i>Gate:</i>		
Gated	72	60.0
Without Gate	48	40.0
<i>Fence:</i>		
With Fence	67	55.8
Without Fence	53	44.2
<i>Wall:</i>		
Brick	15	12.5
Plastered only	5	4.2
Painted	51	42.5
Wallpaper	10	8.3
Tiles	24	20.0
Cladding	10	8.3
Pebbles finishes	5	4.2
<i>Floor:</i>		
Cement Screed	20	16.7
PVC tiles	10	8.3
Ceramics tiles	80	66.7
Terrazzo	10	8.3
<i>Roof:</i>		
Corrugated Roofing Sheet	28	23.3
Long Span Roofing Sheet	63	52.5
Tile Shingle	29	24.2

Parameters	Frequency	Percent
Total	120	100.0

Source: Authors' Field Survey (2024)

Further investigation into the spaces (both internal and external) frequently modified in residential buildings and the result is presented in Table 4. For internal spaces, the bedroom (3.975) and living room (3.641) were ranked 1st and 2nd, respectively. Following these are the kitchen (3.633), bathroom (3.450), and toilet (3.333), ranked 3rd, 4th, and 5th. The results indicate that bedroom spaces are the most susceptible to modifications. Physical observations during the survey showed that many affected properties had their bedrooms altered. Common changes included adding en-suite toilets/bathrooms, adjusting layouts to include additional facilities, or converting four-bedroom bungalows into roomy shared apartments.

Living room spaces are frequently modified, often to enhance their aesthetic appeal or to partition them for additional rooms or shared facilities. Kitchens are also frequently altered, especially in shared residential apartments, where

privacy is a significant concern. Similarly, modifications to bathrooms and toilets often prioritize privacy, convenience, and personal security. Housing with flexible designs is particularly amenable to such modifications, as they allow for re-alignment of internal spaces to improve privacy, comfort, and rental potential, thereby enhancing returns.

The least modified internal spaces include store rooms, laundry areas, and study rooms. However, these spaces are often repurposed during modifications, such as converting laundry or storage rooms into additional toilets or bathrooms for roomy apartments.

For external spaces, the most prevalent modifications include additional buildings (mean score 3.301), alterations to shops (3.225), boy's quarters (3.075), and gatehouses (3.000). These modifications are primarily driven by economic motives, with less consideration given to their social implications.

Table 4. Residential Space Modification in Ikorodu, Lagos.

Space Modification	Frequency of Modification (w. f)					TWF	WMS	Mean Rank
	Rare	Occ	Stms	Often	Mtms			
Internal								
Bedroom	7	24	48	108	290	477	3.9750	1
Living room	6	38	102	148	120	414	3.6417	2
Kitchen	13	38	87	136	125	399	3.6333	3
Bathroom	5	36	78	148	170	437	3.4500	4
Toilet	11	42	96	116	135	400	3.3333	5
Ante Room	6	22	99	164	145	436	3.3250	6
Study	16	70	93	92	75	346	3.2167	7
Laundry Room	13	46	87	140	100	386	3.1000	8
Dining	12	72	69	104	115	372	3.0833	9
Store	17	62	72	84	135	370	2.8833	10
External								
Another building	11	62	72	112	130	387	3.2250	1
Shops	10	54	114	96	105	379	3.1583	2
Boy's quarter	17	52	90	100	110	369	3.0750	3
Gate house	16	58	108	68	110	360	3.0000	4
Fence	21	56	87	84	105	353	2.9417	5

Space Modification	Frequency of Modification (w. f)					TWF	WMS	Mean Rank
	Rare	Occ	Stms	Often	Mtms			
Generator house	21	58	99	84	80	342	2.8500	6
Gate	20	74	84	112	35	325	2.7083	7

Note: The weight scales are 1-Rare, 2-Occasionally (Occ.), 3-Sometimes (Stms.), 4-Often, 5-Mostimes (Mtms); Total weighted frequency ($\Sigma(w.f)$), Weighted Mean Score (WMS- $\frac{\Sigma(w.f)}{\Sigma f}$)

Source: Authors' Field Survey (2024)

The satisfaction of residents regarding residential space modifications was analyzed, and the results are presented in Table 5. The findings indicate that home renters were dissatisfied with all modified internal and external spaces, although the levels of dissatisfaction varied ($1.0 < \text{WMS} < 3.0$). Among internal spaces, residents reported relatively lower levels of dissatisfaction with modifications to less frequently altered areas, such as the study room (2.975), store (2.917), dining area (2.750), and laundry room (2.633). However, significant dissatisfaction was observed for commonly modified spaces, including the living room (2.192), toilet and bathroom (2.192 each), and kitchen (2.125). These results suggest that while less-used spaces are more tolerable to residents, modifications to high-use areas fail to meet their expectations, likely due to poor planning or execution.

For external spaces, the levels of satisfaction were similarly low. Residents dissatisfied with modifications made to the gate (2.858), generator house (2.842), and gatehouse (2.783). The least satisfaction was recorded for shop modifications (2.417) and the construction of additional buildings (2.392). These findings highlight significant flaws in the approach to housing modifications, which appear to disregard the functional and aesthetic needs of occupants. The overall dissatisfaction with modifications to residential properties poses a threat to the neighborhood layout and undermines the potential for cohesive urban planning. These results emphasize the need for a more resident-focused approach to housing alterations that prioritizes occupant needs and integrates modifications into the broader neighbourhood structure.

Table 5. Occupants' Satisfaction on Housing Modification in Ikorodu, Lagos.

Space Modification	Level of Satisfaction (w. f)					TWF	WMS	Mean Rank
	VDs	Ds	Neu	Sat	V. Sat			
Internal								
Study Room	28	38	75	96	120	357	2.975	1
Store	29	42	69	100	110	350	2.917	2
Dining	29	58	66	92	85	330	2.750	3
Laundry Room	31	54	81	100	50	316	2.633	4
Ante Room	34	62	39	116	65	316	2.633	5
Ante Room	36	70	63	40	90	299	2.492	6
Living room	34	80	69	56	45	284	2.367	7
Bathroom	42	90	30	56	45	263	2.192	8
Toilet	42	90	30	56	45	263	2.192	8
Kitchen	49	66	54	56	30	255	2.125	10
External								
Gate	32	68	90	68	85	343	2.858	1

Space Modification	Level of Satisfaction (w. f)					TWF	WMS	Mean Rank
	VDs	Ds	Neu	Sat	V. Sat			
Generator house	25	62	78	56	120	341	2.842	2
Gate house	28	46	99	76	85	334	2.783	3
Boy's quarter	30	46	102	56	95	329	2.742	4
Fence	32	52	93	40	105	322	2.683	5
Shops	31	74	93	52	40	290	2.417	6
Another building	31	52	111	28	65	287	2.392	7

Note: The weight scales are 1-Very Dissatisfied (V.Ds.), 2- Dissatisfied (Ds.), 3-Nuetral (Nue), 4-Modeate Satisfied (M. Sat.), 5-Very Satisfied (V Sat.); Total weighted frequency ($\Sigma(w. f)$), Weighted Mean Score ($\text{WMS} = \frac{\Sigma(w. f)}{\Sigma f}$)

Source: Authors' Field Survey (2024)

Housing modifications are triggered by various factors. This study groups the influencing factors into five broad categories: socio-demographic, property/neighborhood charac-

teristics, economic, institutional, and political factors. The perception of home renters regarding the prominence of these influencing factors is presented in Table 6.

Table 6. Influencing Factors for Housing Modification in Ikorodu, Lagos.

Influencing Factors	Level of Influence					TWF	WMS	Mean Rank
	N Inf.	Indif.	L Inf.	M Inf	H Inf.			
Socio-Demographic								
Age	13	32	96	152	105	398	3.317	1
Income	17	42	78	116	135	388	3.233	2
Occupation/Profession	13	52	87	104	130	386	3.217	3
Education	16	52	72	124	115	379	3.158	4
Marital Status	17	54	87	80	135	373	3.108	5
Gender	19	50	69	128	105	371	3.092	6
Disability	18	58	87	84	115	362	3.017	7
Culture/Ethnicity	22	70	63	104	80	339	2.825	8
Average							3.121	
Property/ Neighborhood Characteristics								
Location	9	36	117	104	140	406	3.383	1
Migrations	15	42	81	116	140	394	3.283	2
Infrastructure	17	46	78	96	150	387	3.225	3
Property Design	11	56	93	108	115	383	3.192	4
Neighborhood Security	13	54	87	108	120	382	3.183	5
Property Types	15	50	87	116	110	378	3.150	6
Neighborhood Layout plan	14	50	96	112	105	377	3.141	7

Influencing Factors	Level of Influence					TWF	WMS	Mean Rank
	N Inf.	Indif.	L Inf.	M Inf.	H Inf.			
Ownership status	17	56	75	112	110	370	3.083	8
<i>Average</i>							3.205	
<i>Economic</i>								
Needs and preferences of property owners	14	36	66	124	175	415	3.458	1
Market price of property	7	42	99	120	145	413	3.442	2
Property market trend	13	38	81	116	160	408	3.401	3
Change in demand for residential properties	11	38	87	148	120	404	3.367	4
Change in supply of residential	11	54	72	128	130	395	3.292	5
Change in taste and fashion	13	46	84	124	125	392	3.267	6
Increase in wages and salaries	16	50	54	144	125	389	3.242	7
Needs and preference of home renters	17	46	78	112	130	383	3.192	8
<i>Average</i>							3.333	
<i>Institution/Political</i>								
Change in the approved neighborhood plan	14	56	81	116	110	377	3.142	1
Change in the approved property plan	22	40	102	84	115	363	3.025	2
Change in government land policies and regulations	23	42	87	100	110	362	3.017	3
Change in bylaws and local polices	22	50	84	80	125	361	3.008	4
Instability in political power	22	52	99	84	90	347	2.8917	5
<i>Average</i>							3.016	

Note: The weight scales are 1-No Influence (N Inf.), 2-Indifferent (Indif.), 3-Low Influence (L Inf.), 4-Moderate Influence (M. Inf.), 5-High Influence (H. Inf.); Total weighted frequency ($\sum(w.f)$), Weighted Mean Score ($\text{WMS} = \frac{\sum(w.f)}{\sum f}$)

Source: Authors' Field Survey (2024)

For socio-demographic factors, the influence of age (3.317) and income (3.233) were the most prevalent, ranked 1st and 2nd, respectively. These results can be linked to the following reasons: Younger property investors (owners) are often more ambitious and motivated to modify their investment properties to align with dynamic investment goals and objectives. Conversely, older property investors, having achieved their investment goals, might show less interest in housing modifications. Financial stability (income) also plays a dynamic role in housing modifications. Investors with stable financial conditions may consider little or no modifications, as their properties already meet their needs. However, property investors experiencing financial challenges are more likely to alter their property's design to enhance their financial objectives.

Additionally, occupation/profession (3.222) and education (3.192) of property investors are critical to investment deci-

sion-making. The level of education of a property owner is directly linked to their exposure and knowledge. A well-educated investor, particularly one with a professional background in the built environment, is more likely to influence dynamic housing redesigns, aligning properties with current design trends and preferences. However, the study observed relatively lower consideration for disability (3.017) and culture/ethnicity (2.825), indicating that these factors exert the least influence on housing modifications within the socio-demographic category.

In the property/neighborhood category, the dominant factors are location (3.383), migration (3.283), and infrastructure (3.225), ranked 1st, 2nd, and 3rd, respectively. Location is a critical determinant of property returns. In many cases, most modified properties are strategically located in areas with comparative advantages. For instance, locations experiencing a continuous influx of people and businesses (migra-

tion) due to socio-economic and infrastructure developments often face increased property demand. This motivates property owners to alter the design of residential properties to meet these evolving demands.

Residents also highlighted the prominence of property design (3.192) and neighborhood security (3.183). Flexibility in property design facilitates housing modifications, especially in adapting to the dynamic needs and preferences of occupants. For example, altering common spaces in a building, such as bedrooms and kitchens, becomes easier when the design is flexible and accommodating. Additionally, security concerns often necessitate housing modifications, particularly external space alterations, to reinforce the property's security structures within the neighborhood. However, the influence of neighborhood layout (3.141) and ownership status (3.083) ranked 7th and 8th at the bottom, respectively. This indicates that most housing modifications in the area are driven more by economic gains, with less consideration given to compliance with local authorities.

The findings from the category of economic influencing factors reveal that the needs and preferences of property owners (3.548) have the highest mean score and are ranked 1st. Next are the market price of the property (3.442) and property market trends (3.401), ranked 2nd and 3rd, respectively. The significance of property needs and preferences as a driver for housing modifications has been emphasized in previous studies including [25, 29]. However, in this context, and in many cases, the alterations are primarily driven by economic benefits rather than social considerations, particularly with investment properties.

The upward trend in market prices for certain rental properties, such as roomy or self-contained apartments, driven by high demand, influences property owners to modify existing housing designs to align with market needs. Additionally, the

pattern of demand (3.367) and the supply of residential property (3.392), ranked 4th and 5th respectively, are significant contributing factors. The relatively high demand for specific residential property types, coupled with the introduction of modern housing designs, often prompts property owners to adjust older housing stock to match current market tastes.

However, the needs and preferences of home renters are the least considered factors in housing modifications. Engagements with home renters revealed that, in many cases, property owners evict tenants to renovate properties and prefer new tenants who can afford higher rents, even if the previous tenants are willing to pay the revised rates. These findings suggest that tenant interests are inadequately protected, highlighting the need to strengthen existing laws and regulations to better prioritize the concerns of home renters.

For the institutional/political category, the most prominent influencing factors include changes in approved neighborhood plans (3.142) and changes in approved housing plans (3.025), ranked 1st and 2nd. The least influencing factor is the instability of political power, with a mean score of 2.892, ranked 5th at the bottom of the table. Compliance with approved changes to property and neighborhood structures often drives housing modifications. However, the weaker enforcement of national and local laws and regulations remains a challenge, potentially undermining well-planned housing modifications in residential neighborhoods.

On average (see Figure 1), economic factors emerged as the strongest influencing factors, which is closely tied to the economic vibrancy and the thriving real estate market in Lagos, a prominent investment destination. Ikorodu, a relatively new entrant in the real estate market, exhibits significant economic potential, serving as a pull factor for population growth in the area.

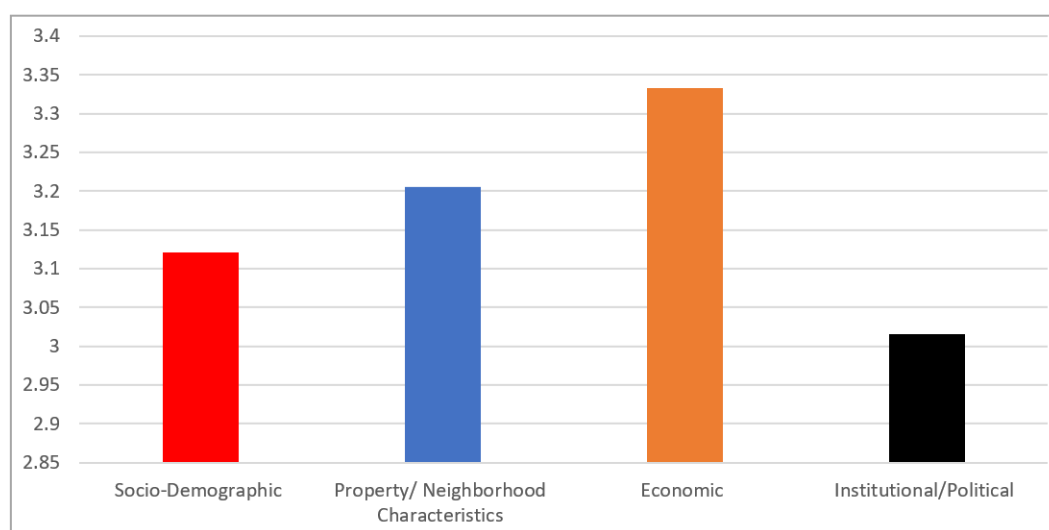


Figure 1. Presents the summary statistics (averages) of the housing modification factors. The mean scores on the y-axis are plotted against the x-axis, which represents the influencing factors, namely socio-demographic, property/neighborhood characteristics, economic, and institutional/political factors.

The evolving property market, coupled with expanding infrastructure-particularly in transportation-has made Ikorodu an attractive choice for residents. This has transformed the home rental market into a lucrative business due to high demand and increasing rental prices. Consequently, older housing stock in the area is experiencing a wave of modifications to align with dynamic market needs and preferences, driven by prevailing market trends.

Additionally, the influence of property/neighborhood characteristics ranks higher than that of socio-demographic factors. Properties located in prime or transitional real estate zones are more likely to undergo modifications to meet the unsaturated market demand. However, the relatively lower influence of institutional/political factors raises concerns that need to be urgently addressed to ensure that housing modifications strike a balance between economic gains and social benefits.

To capture the individual and combined effects of factors influencing housing modification on occupants' levels of satisfaction, the study deployed a stepwise regression model, with results presented in Table 7. The analysis produced four (4) models, and standardized coefficient estimates were used for interpretation.

In Model 1, socio-demographic influencing factors were regressed on occupants' satisfaction. The results showed a positive but statistically insignificant effect (0.89; p-value > 0.05). However, the model contributed 11.72% to the overall level of precision. In Model 2, property/neighborhood characteristics were added. The effect of this addition was statistically significant, as indicated by the R-change statistics (0.027; p-value < 0.05). The inclusion of these additional factors significantly improved the model, contributing 32.65% to the explained variation.

Table 7. Effects of the Influencing Factors on Occupants' Satisfaction in Ikorodu, Lagos.

Model	Influencing Factors	Unstandardized Coefficients		Standardized Coefficients			Model Summary (ANOVA)		
		β Coef.	Std. Error	β Coef.	t-Stat	Sig.	F-stat Sig.	R-Change Sig	R2 (%)
1	(Constant)	14.321	4.462		3.209	0.001	0.0612	0.128	11.72
	Socio-demographic	0.297	0.172	0.254	1.727	0.089			
2	(Constant)	12.152	3.926		3.095	0.000	0.032	0.027	32.65
	Socio-demographic	0.336	0.232	0.295	1.448	0.145			
	Property/Neighborhood Characteristics	0.297	0.116	0.253	2.561	0.001			
3	(Constant)	17.443	3.859		4.520	0.000	0.025	0.011	63.37
	Socio-demographic	0.299	0.175	0.253	1.708	0.109			
	Property/Neighborhood Characteristics	0.517	0.216	0.484	2.394	0.003			
	Economic Factors	0.442	0.142	0.415	3.113	0.024			
4	(Constant)	13.443	4.638		3.145	0.000	0.001	0.129	79.46
	Socio-demographic	0.461	0.325	0.383	1.418	0.155			
	Property/Neighborhood Characteristics	0.325	0.124	0.303	2.621	0.031			
	Economic Factors	0.488	0.217	0.391	2.249	0.006			
	Institutional/Political	-0.264	0.145	-0.262	-1.796	0.135			

Note: Dependent variable- Occupants' Satisfaction; Significant Level @ 5%

Source: Authors' Field Survey (2024)

In Model 3, economic factors were incorporated, increasing the independent variables to three. The addition of eco-

nomics factors to the model was statistically significant (R-change sig: 0.011; p-value < 0.05). However, socio-

demographic factors remained statistically insignificant (0.109; p -value > 0.05), whereas property/neighborhood characteristics and economic factors both had significant contributions (p -value < 0.05). The combined effects of the independent variables were statistically significant (ANOVA F-sig: 0.025; p -value < 0.05), with the model explaining 63.37% of the variation in precision.

In Model 4, institutional/political factors were added, incorporating all independent variables. However, the newly added institutional/political factors showed a negative effect (-0.262) and were statistically insignificant (0.135; p -value > 0.05), with a statistically non-significant R-change (0.129; p -value > 0.05). Among the variables, only two-property/neighborhood characteristics (0.031; p -value < 0.05) and economic factors (0.006; p -value < 0.05)-exhibited statistically significant effects. The socio-demographic factors remained less significant (0.155; p -value > 0.05). Despite this, the overall model summary indicated that the combined effects of all influencing factors were statistically significant (ANOVA F-sig: 0.001; p -value < 0.05), explaining 79.46% of the variation in model precision.

From the regression analysis, the critical influence of property/neighborhood characteristics and economic factors on occupants' satisfaction was evident. This suggests that satisfaction with housing modifications is strongly tied to the level of detail and attention given to property features, neighborhood structure, and economic conditions that directly impact alterations to residential properties in the study area.

5. Conclusion and Practical Implications

The study examines the dynamics of housing modifications in Ikorodu, Lagos, focusing on their types, drivers, and impacts on residents' satisfaction. It identifies frequent modifications to internal spaces, such as bedrooms, living rooms, and kitchens, often driven by economic motives rather than tenant-centric considerations. These changes typically enhance the rental potential of properties but compromise occupant comfort and satisfaction. External modifications, including additional structures and alterations to shops and gatehouses, further highlight the economic focus of housing alterations. Residents express significant dissatisfaction with poorly executed modifications, especially in high-use areas, citing a lack of consideration for occupant safety, comfort, and convenience.

Key influencing factors behind these modifications are categorized as socio-demographic, property/neighborhood characteristics, economic, and institutional/political drivers. Among these, economic and property/neighborhood factors exert the strongest influence, with socio-demographic and institutional/political factors playing lesser roles. Regression analysis underscores the dominant role of economic and neighborhood characteristics in shaping resident satisfaction. While socio-demographic factors, such as age and income,

and institutional considerations, like compliance with housing plans, are relevant, their impact remains statistically less significant. This highlights a critical gap in regulatory oversight and planning.

The findings advocate for a shift towards a more resident-focused approach to housing modifications. Policymakers and property owners must prioritize tenant needs, ensuring that alterations are thoughtfully planned and executed to balance economic benefits with social and functional outcomes. Strengthened regulatory frameworks are essential to enforce compliance and guide modifications in alignment with broader urban planning objectives. By addressing these concerns, housing modifications can enhance both resident satisfaction, social and economic benefits.

6. Limitations

While this study provides valuable insights into the experiences of home renters living in modified residential buildings in Ikorodu, Lagos, several limitations must be acknowledged. First, the use of a convenience and referral sampling technique-though practical and contextually appropriate-limits the generalizability of the findings. The perspectives captured may not fully represent the diversity of renter experiences across the entire Lagos metropolitan area or other Nigerian cities facing similar housing pressures. Second, the study relies primarily on self-reported data, which may be influenced by personal bias, recall errors, or the tendency of respondents to answer in a socially desirable manner. Although efforts were made to ensure accuracy through structured questionnaires and field validation, the possibility of subjective distortion remains. Third, the study focuses specifically on modified housing units, without offering comparative analysis against unmodified or formally regulated housing types. As such, it does not fully capture how the absence of modifications may influence satisfaction or how formal housing policy frameworks impact tenant experiences differently.

7. Future Research Directions

Comparative studies across multiple urban and peri-urban locations in Nigeria would help assess whether the findings in Ikorodu reflect broader national trends. Further research could also explore the perspectives of other stakeholders, including landlords, developers, and regulatory authorities, to gain a holistic view of the forces shaping housing modifications. Finally, longitudinal studies tracking residents' satisfaction over time-before and after modifications-would offer deeper insight into the temporal effects of housing interventions.

Abbreviations

LCDA Local Council Development Area

LGA	Local Government Area
WMS	Weighted Mean Score
ANOVA	Analysis of Variance
CBD	Central Business District
SPSS	Statistical Package for the Social Sciences (if Mentioned Later for Analysis)
SD	Standard Deviation (if Statistics Are Reported Later)
R ²	Coefficient of Determination (Used in Regression Analysis)

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Ethics Statement

This study does not involve any ethical concerns. Ethical approval was waived by the Ethics Committee of Obafemi Awolowo University. The research was conducted in accordance with the ethical standards set by the committee, which align with internationally accepted protocols.

Consent to Participate

All participants in this study were adults who voluntarily agreed to participate. The objectives of the research were clearly explained to them before the questionnaire was administered, and informed consent was obtained from each participant.

Data Availability Statement

The data supporting this study are available on request from the corresponding author.

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Mariam, O. O., Adike, F. U., Folake, O. R., Sodiq, S. K., Chukwu, B. N., Animasahun, T. A., & Chinonyerem, C. A. (2024). Environmental risk assessment of transportation infrastructure development using GIS in Lagos State. *International Journal of Earth Design and Innovation Research*.
- [2] Yeye, O., Onyemere, I., Ale, A. S., Okowa, M. I., & Agu, F. N. (2024). Financial record keeping and performance of small and medium enterprises in Lagos Metropolis, Nigeria: Account receivables and account payables in perspective. *African Banking and Finance Review Journal*, 18(18), 86-97.
- [3] Ogundipe, K. E., Owolabi, J. D., Ogunbayo, B. F., & Aigbavboa, C. O. (2024). Exploring inhibiting factors to affordable housing provision in Lagos Metropolitan City, Nigeria. *Frontiers in Built Environment*, 10, 1408776.
- [4] Umana, A. U., Garba, B. M. P., Ologun, A., Olu, J. S., & Umar, M. O. (2024). The role of government policies in promoting social housing: A comparative study between Nigeria and other developing nations. *World Journal of Advanced Research and Reviews*, 23(3), 371-382.
- [5] Garba, B. M. P., Umar, M. O., Umana, A. U., Olu, J. S., & Ologun, A. (2024). Sustainable architectural solutions for affordable housing in Nigeria: A case study approach. *World Journal of Advanced Research and Reviews*, 23(3), 434-445.
- [6] Ezeanah, U. (2021). Housing challenges in Nigeria. *Sustainable Housing*.
- [7] Abe, F. S., Fasakin, J. O., & Owioye, J. O. (2024). Significant demographic factors fuelling housing deficit in Ado-Ekiti, Nigeria. *British Journal of Environmental Sciences*, 12(4), 36-55.
- [8] Dauda, S. (2024). Access to land: Effects on housing affordability in Abuja, Nigeria. *International Journal of Civil Engineering, Construction and Estate Management*, 12(1), 19-40.
- [9] Aliyu, A. A., & Zubair, M. S. (2024). Culturally-inspired low-cost housing solutions: An Afrocentric approach for Kano, Nigeria. *BIMA Journal of Science and Technology*, 8(3A), 298-316.
- [10] Bradley, Q. (2023). Artificial scarcity in housebuilding and the impact on affordability: The return of absolute rent. *Antipode*, 55(4), 1110-1127.
- [11] Peek, G., Green, L. E., Carswell, A. T., & Emerson, K. G. (2022). The influence of length of residence and home modifications on housing unit satisfaction: Implications for the aging population. *Housing and Society*, 49(3), 251-270.
- [12] Liu, S. Y., & Lapane, K. L. (2009). Residential modifications and decline in physical function among community-dwelling older adults. *The Gerontologist*, 49(3), 344-354.
- [13] Carrasco, S., Ochiai, C., & Okazaki, K. (2017). Residential satisfaction and housing modifications: A study in disaster-induced resettlement sites in Cagayan de Oro, Philippines. *International Journal of Disaster Resilience in the Built Environment*, 8(2), 175-189.

- [14] Isnin, Z., Ramli, R., Hashim, A. E., & Ali, I. M. (2012). Sustainable issues in low-cost housing alteration projects. *Procedia-Social and Behavioral Sciences*, 36, 393-401.
- [15] Isnin, Z., Ramli, R., Hashim, A. E., & Ali, I. M. (2018). Are house alterations sustainable? *Journal of Asian Behavioural Studies*, 3(6), 29-38.
- [16] Alagbe, O. A., & Aduwo, E. B. (2014). The impact of housing transformation on residents' quality of life: A case study of low-income housing estate, Ipaja, Lagos. *Covenant Journal of Research in the Built Environment (CJRBE)*, 2(2).
- [17] Carnemolla, P., & Bridge, C. (2020). A scoping review of home modification interventions-Mapping the evidence base. *Indoor and built environment*, 29(3), 299-310.
- [18] Bailey, C., Hodgson, P., Aitken, D., & Wilson, G. (2018). Primary research with practitioners and people with lived experience-to understand the role of home adaptations in improving later life.
- [19] Wu, S., Fu, Y., & Yang, Z. (2022). Housing condition, health status, and age-friendly housing modification in Europe: The last resort?. *Building and Environment*, 215, 108956.
- [20] Chawla, A., & Gupta, I. (2023). Understanding post-occupancy modifications to residential building designs: A case study of government MIG housing in Delhi NCR. In *Future is Urban: Livability, Resilience & Resource Conservation* (pp. 630-640). Routledge.
- [21] Obi, N. I., Chukwuali, C. B., Nwachukwu, M. U., Nwalusi, D. M., & Okosun, A. E. (2023). Analysis of residents' satisfaction with post-occupancy modifications and re-adaptations of outdoor spaces in middle-income residential public housing estates in Enugu, Nigeria. *Journal of Housing and the Built Environment*, 38(4), 2501-2524.
- [22] Chukwuma-Uchegbu, M. I., & Aliero, M. S. (2022). The nature of post-occupancy modifications of selected low-income housing estates in Nigeria. *Journal of Civil Engineering and Environmental Sciences*, 8(1), 12-17.
- [23] Chukwuma-Uchegbu, M. I. (2020). Post-occupancy modification and the effect on the aesthetic layout of low-income housing estates in Owerri Metropolis. *International Journal of Architecture, Arts and Applications*, 12(1), 23-26.
- [24] Sheppard, C. L., Gould, S., Austen, A., & Hitzig, S. L. (2022). Perceptions of risk: Perspectives on crime and safety in public housing for older adults. *The Gerontologist*, 62(6), 900-910.
- [25] Lee, K. I., & Lee, Y. H. (2018). A study on the post-occupancy evaluation in support of residential renovation for the disabled. *International Journal of Social Science and Humanity*, 8(2).
- [26] Kwon, O. J., Kim, J., & Lee, O. K. (2016). Demand for residential modification in accordance with mobility disability and difficulty in performing daily activities of the elderly. *Journal of the Architectural Institute of Korea Planning & Design*, 32(12), 109-117.
- [27] Nwankwo, S. I., Diogu, J. O., Nwankwo, C. V., & Okonkwo, M. M. (2014). Post-occupancy evaluation of modification of residential buildings for effective mass housing delivery: Case study of Owerri Urban, South-Eastern Nigeria. *Journal of Engineering Research and Applications*, 4(2/4), 5-26.
- [28] Hashim, A. H., & Rahim, Z. A. (2010). Privacy and housing modifications among Malay urban dwellers in Selangor. *Pertanika Journal of Social Science and Humanities*, 18(2), 259-269.
- [29] Kamruzzaman, M., Harun-Or-Rashid, G. M., Chakrabartty, M., & Castro, J. J. (2024). Post-occupancy evaluation of housing reconstruction after Cyclone Sidr. *Natural Hazards*.
- [30] Okopi, U. M. (2022). Housing modification as predictors for residential satisfaction in Apo Resettlement, Abuja, Nigeria. *International Journal of Architecture, Arts and Applications*, 8(3), 130-142.
- [31] Arimah, B. C. (2018). User modifications in public housing estates: Some findings from the Nigerian scene. In *Housing provision and bottom-up approaches* (pp. 39-54). Routledge.
- [32] Yahaya, A. M., Anugwo, I. C., & Oladiran, O. J. (2025). Associated investment risk management challenges in housing financing in Kaduna Metropolis, Nigeria. In *Development and investment in infrastructure in developing countries: A 10-year reflection* (pp. 291-299). CRC Press.