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An Examination of the Influence of Housing Attributes on Residential Property Rental Value in South-western Nigeria Using the Hedonic Pricing Model

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Abstract

This study adopts the hedonic pricing model to examine the influence of housing attributes on residential property rental value in south-western, Nigeria. This is to provide information on the housing attributes that could increase residential property rental values based on the current market situation. The study used primary data and employed quantitative data analysis. The data obtained were analysed using descriptive and inferential statistics. The study revealed the significant factors that influence rental value across different residential property types in south-western Nigeria. The paper is significant because it provides the necessary information on the influence of housing attributes in the study area. Hence, it enhances increasing knowledge in profitability, which could shape both local and foreign investors' investment decisions.

Keywords: Housing market, housing attributes, hedonic pricing model, rental values, residential properties

1.0 INTRODUCTION

Housing is one of the three basic needs of man and is very essential for the productivity of citizens of any nation. Be that as it may, everyone seeks to have a decent residential dwelling place for himself and his family. Consequently, this purpose of providing shelter for individuals and families makes residential property to be in higher demand than other property types like commercial and industrial properties. The increasing demand for residential properties especially in urban areas which is being amplified by rural-urban migration, industrialisation, presence of higher institutions of learning, and various job opportunities led to increasing rental value of residential properties than other property types. However, there have been cases, especially in a developed property market of the variant in rental value increase of similar properties in the same neighbourhood and same city during the same period (McCord et al., 2014). This seems that the housing market is likely to continue to face the double affordability constraints of high home prices and eminent interest rates in the coming years, hence the need for the present study.

Literature such as Khan et al. (2023), opined that structural attributes such as the number of bedrooms, living rooms, bathrooms, toilets and structural condition among others are major determinants of house prices. Famuyiwa and Babawale (2014) and De and Vupru (2017) focused on neighbourhood attributes that influenced house prices, particularly between different residential neighbourhoods. While Famuyiwa and Babawale (2014) and De and Vupru (2017) in their studies also found that neighbourhood attributes are also germane to determining residential property rental value. For instance, Famuyiwa and Babawale (2014) opined that physical infrastructure such as the presence of electricity and good road networks play a major role in determining the premium a rental house commands in the market through the use of the hedonic pricing model.

It is noteworthy that the developed rental market accentuates fluctuation in housing prices (Czerniak & Rubaszek 2018) due to the rent-controlled market. Nevertheless, the developing rental market is still emerging coupled with the uncontrolled rental market exacerbating different housing attributes in determining rental values. However, most of these studies were done in countries with more advance economies than Nigeria, hence; their findings may not be suitable for generalised opinion in Nigeria. Moreover, the local studies under review are narrow in their scope in terms of geographical coverage, sample size and number of attributes examined. In addition, home rental prices over the years have astronomically increased which could be attributable to different factors. Consequently, this study's focus is directed towards examining the influence of housing attributes on residential property rental value from the regional outlook in

Nigeria. This is to provide information on the housing attributes that could increase residential property rental values thereby increasing profitability for both local and foreign investors.

2.0 LITERATURE REVIEW

2.1 Review of Previous Studies

The increasing rate of variations of rental values of properties among residential neighbourhoods in many towns and cities initiated the present discourse. McCord et al. (2014) in their research, understanding rental prices, emphasised the local variation and spatial heterogeneity in residential rental prices in a large urban market in the UK. Similarly, Dabara and Oyewole (2015), and Ayedun et al. (2020) evaluated upward movement trends in property values and profitable assets. These studies found that there was a steady and continuous increase in both the rental and capital values of the selected property types. Furthermore, Uwaezuoke et al. (2022) investigated the effect of location and neighbourhood features on the residential rental income using a hedonic pricing model in the Ilorin Metropolis. The finding showed that there is a variance in the housing rental value due to the presence of neighbourhood amenities and proximity to the economic areas in the region. These studies have also been largely focused on developed economies and some selected states in Nigeria. None of these studies considered a regional analysis that cuts across two or more states in developing economies like Nigeria where there is a growing demand for rental accommodation.

Abidoye and Chan (2016) in their examination of determinants of residential property value based on professionals' perspective observed that location, neighbourhood characteristics, property state of repair, size of property, availability of neighbourhood security and age of property are the most highly significant variables that are influential on the property value in the Lagos metropolis. Hartono et al. (2022) opined that the socio-economic characteristics of the household in greater Jarkata supersede the structural attributes, especially in the locations where the prices of houses are relatively high. These studies concluded that much of the residential district choice decisions in the city owe much to sorting, as individuals and families sort out the districts that best suit their social and or economic class. Hence, broad generalisations for the whole city could be erroneous.

A study conducted by De and Vupru (2017) identified location and neighbourhood conditions for housing choice and its rental value in India. Also, the study inferred that family size, income, education of the head of the family, water availability, security, convenience to access the workplace, and road conditions, among others, have significant positive impacts on the monthly rent. Meanwhile, Ekemode (2020) revealed that upgrading physical urban infrastructure such as roads, drainages; water supply and waste disposal has a significant impact on increasing yearly rental value in Osogbo, Osun State, Nigeria. In addition, Chiwuize et al. (2020) revealed that housing-related attributes such as a larger bedroom, a larger kitchen, a larger storage room, a fully tiled floor and a perimeter fence were the five top prioritised housing attributes that might influence house consumers' preferences in making renting decision across residential property in Ede, Osun State, which might invariably affect the property values.

The study conducted by Bamiteko and Adebiyi (2020) used stratified sampling to obtain information from 3 groups of respondents totalling 751 using a multistage sampling technique. The data was analysed with the aid of descriptive statistics. The findings of the study revealed that the intermediaries play a game in fixing prices by giving asymmetry information to the buyer and persuading them to pay the asking price. Their objective is to increase the price of housing for them to obtain higher profit via increased agency fees. The study opined that Lagos residential property market price is influenced by intermediaries' asymmetrical information that makes consumers pay more than the actual price of the property. This is at variance with the existing study that focused on the influence of housing attributes on residential property rental value in the south-western region of Nigeria using the hedonic pricing model.

On the other hand, the spectrum revealed that Usman et al. (2020) reviewed previous hedonic pricing model studies and summarised the influence of property attributes on real estate property prices. The review revealed that the magnitude and directionality of the property attributes influence on prices varies depending on the property type, situations and consumer preference and it is especially common in the physical attributes and location attributes. However, the findings on neighbourhood attributes are relatively more uniform because most of the neighbourhood attributes are both positive or negative externalities and deal with the overall society rather than a single property. The paper is just a review of previous studies and it is not empirical hence, it did not examine the influence of housing attributes on residential property rental value that the present study focuses on.

Similarly, Ahmed et al. (2020) examined key determinants of residential property types in Karachi with the use of a hedonic approach. This study attempted to understand the key price determinants of residential properties in Karachi by using the hedonic approach. Samples of 500 residential properties that were available for sale for the last three months, in 2019 were obtained online via web portal. The findings of the study revealed that structural attributes, new houses, covered areas, the number of bedrooms and proximity to industrial areas have a significant impact on housing prices. However, among the locational attributes that were examined, the number of schools and proximity were negatively significant. The study was conducted in Pakistan which comprises different socio-economic, legal and political backgrounds compared to Nigeria hence, the result can not be generalised in the Nigeria context.

Conversely, Oyeleke et al. (2021) analysed military housing provision and Soldiers' housing preferences at Shadawanka Barrack Bauchi, Nigeria. Primary data was collected via questionnaire instrument from 160 respondents using descriptive and exploratory research design. The findings revealed that factors such as security, wall condition, and floor condition are in satisfactory condition while sewage and road networks are in deplorable condition. Oyeleke et al. (2022) examined the effect of military housing conditions on housing preference and adequacy. The study did not examine the influence of housing attributes on rental value but the condition of housing that determines the preference and adequacy of housing at the military barracks. The housing in the barracks is not even in the open market, hence, the effect of the housing condition on rental value could not be examined. Whereas, the present study is focused on the influence of housing attributes on residential property rental value in south-western Nigeria.

Furthermore, Musa (2016) studied the impact of housing attributes on the rental values of residential properties in Minna, Nigeria. The study revealed that the condition of building components is the major predictor of rental values of residential properties in the study area, while, neighbourhood attributes, location and adequacy of building facilities also have significant influence on rental value. Nor et al. (2019) investigated the modelling of residential property rents in Somalia using two-stage modelling to examine the determinants of residential property rents as well as investigate whether residential property rents are fairly valued. The study established that the size, location and security of a residential property have a significant influence on its monthly rents.

The existing literature established different housing attributes from different perspectives such as property use, level of developments, effect of internal and external factors, condition of the building components, neighbourhood features, location attributes, dwelling units, thermal comforts, accessibility and affordability, among others. However, the current study focuses on an examination of influencing housing attributes to rental values of residential properties in more than one region to provide a comprehensive guide on the validity of the housing attributes influencing the selected residential properties across the selected cities.

■3.0 METHODOLOGY

A structured close-ended questionnaire was designed to elicit information on residential property rental value and housing attributes in Southern western regions to proffer answers to increasing rental variations across different residential properties. The study used primary data and employed a quantitative method of data analysis. The respondents are practising Estate Surveyors in estate surveying firms based in Abeokuta, Akure and Ibadan. A multi-stage sampling technique was adopted for this study. The state capitals in Ogun, Ondo and Oyo states that is; Abeokuta, Akure and Ibadan are purposely selected to represent the south-western region of Nigeria.

The study surveyed all the registered estate firms in Ogun State and Ondo State, while 38 estate firms (representing 40% of the firms) were selected randomly in Oyo State, giving a total of 88 Estate (ESV) firms that is 24, 26 and 38 respectively. Odebode (2011) and Ayedun (2008) opined that a minimum sample size of 40% where the population is large is adequate representative of the entire study population. Three property types purposefully sampled from each estate firm were 1 Bedroom, 2 Bedroom and 3 Bedroom flats giving a total of 264 questionnaires (88 x 3 = 264 copies) administered for this research. The firms were found to be suitable for this research because of the volume of transactions in their portfolio and the records they maintain. Detailed information obtained includes the rental values of various residential properties in each state capital and significant housing attributes. The data obtained were measured on a nominal scale. The Hedonic Pricing Model was used for the analysis.

The Hedonic Pricing Model is used to estimate the effect of each independent factor that directly affects the increasing residential rental values of properties specified within different property markets. This was achieved through the use of a property value equation based on various evidence identified from the existing literature concerning classification like air and water pollution, hazards like noise and hazardous waste. The property valuation model adopted in this study is structured below:

$$\dot{Y} = \beta_0 + \beta_1 + \beta_2 NOB + \beta_3 AAA + \beta_4 COB + B_5 PWS + \beta_6 FCN + \beta_7 ISF + \beta_8 PTC + \beta_9 ECA + \beta_{10} SNP \quad (1)$$

Where $\dot{Y}$, is the dependent variable which represents the rental value of residential property and. β_0 is the constant value, meanwhile, $\beta_1 - \beta_6$ are the regression coefficient of independent variables. The independent variables are: NOB which is the Number of Bedrooms and Toilets, AAA is the Aesthetical Appeal (Architectural design, style finishing of the building etc.), COB is the condition of the building (to determine the level of obsolescence), the Presence of Waste Management system (PWS), FCN is the Friendliness and community spirit in the neighbourhood, ISF is the Installation of security facilities like Fencing, Burglar to Windows, alarm systems (ISF), PTC represents the Prevalence of Traffic congestion en-route, ECA symbolises the Environmental conditions e.g. atmospheric pollution, Noise level etc., and PSN is the Presence of Security Network Patrols in the area.

In this study, the densities were added in the first place to determine the independent explanatory variable that is the key determinant of the residential property rental value. In addition, the validity of the model was tested for different statistical tests. The stepwise regression approach involves the production of several models for a set of data for which the final model to be accepted is based on the value of R^2 and the Standard Of Error Estimated (SEE). The R-square shows what proportion of the property value is 'explained' by the regression model. While the SEE tells the difference between the observed property value and the predicted property value. Also, the adjusted R-square provided an estimation of how well the model would fit different datasets from the same population having values that correspond to different property features (Rey-Blanco et al., 2024). Summarily, the SEE describes the predictive power of a model, the R-square analyses the general explanatory power of a model and the adjusted R-square provides the best measure of the model's goodness of fit.

■4.0 DISCUSSION OF FINDINGS

4.1 Influence of Housing Attributes on Residential Property Rental Values

Table 1 presents 1 Bedroom apartment in low-density areas, with R^2 of 0.912 and SEE of 38696.923 only two variables are included (The presence of a waste management system and installation of security facilities like fencing, burglar window and alarm systems) and the adjusted R^2 = 0.810 as displayed in Table 1. This indicates that the model has a larger explanatory power in low-density areas producing a positive sign on the property values as indicated by the adjusted R^2 value of 0.810 in one-bedroom apartments in low-density areas. Meanwhile, the presence of a waste management system has a negative relationship in 2-bedroom apartments in a medium-density and 3-bedroom apartments in a high-density area. This might be attributed to the fact that the occupiers of the two-bedroom apartment are yet to understand the effect of having to provide a proper waste management system and secure measures for a residential property. Conversely,

Odubiyi et al. (2021) developed a logistic regression model to predict that the presence of security measures has the least significant effect on rental prices of residential property in Cape Town, South Africa. On the other hand, Abhyankar et al. (2023) determined with the use of Ordinary Logistic Regression (OLS) to predict that there is a negative relationship between the proximity of a residential property, waste management and its offer value in Pune, India. This implies that a waste management system if not properly handled might reduce the value of a property. The hedonic regression model in the present study reveals that having a proper waste management system and the effect of perceived level of security could contribute to increasing one-bedroom residential property rental prices in Ibadan.

The model is given thus:

$$Y = 112{,}500.00 + 4{,}595.19PWS + 16{,}739.5ISF \quad (2)$$
$$Y = 141{,}100.00 + 6{,}513.91PTC – 4{,}457.54ECA \quad (3)$$
$$Y = 205{,}000.00 + 9{,}628AAA -10{,}843FCN – 5{,}562.65SNP \quad (4)$$

In addition, the model predicts that there is a negative relationship between the influence of environmental conditions such as noise levels, atmospheric pollution etc. and rental prices for 1-bedroom apartments (medium density) and 2-bedroom apartments (low density). This implies that residential occupants of 1 bedroom in medium-density areas would prioritise environmental well-being in their choice of residential apartment. The impact of these attributes on the rental values is as shown in the model.

Meanwhile, in the medium-density areas, the model revealed the Prevalence of traffic congestion (PTC) en route for 1-bedroom and 2-bedroom apartments having R^2 values of 0.903, 0.452 and adjusted R^2 values of 1.000 and 1.312 respectively. It seems this is a key determinant housing attribute on the residential property rental prices particularly when considering the distance of the property to the central business district in Ibadan and its environs. Aliyu et al. (2015) found that traffic congestion has a significant impact on the rental values of commercial properties. However, this present model revealed that there is a relationship between the presence of traffic congestion en-route and residential property rental prices resulting in a positive influence on the property values.

Furthermore, in high-density areas with an R^2 value of 0.603 and SEE value of 0.000, three variables are formed (Aesthetical appeal in terms of architectural design, style finishing of the building, Friendliness and community spirit in the neighbourhood, Security Network patrol) with an adjusted R^2 value of 0.461. There is a negative influence of security network patrol in the 3-bedroom apartments and a positive influence of the said attribute in 2 bedrooms situated in low-density areas. However, the model was only positive as it relates to the Aesthetical appeal of the building, which exerts a positive impact on the residential property values of 1 bedroom apartments in the study area. The friendliness and community spirit in the neighbourhood area exert a negative influence on the rental values of 1-bedroom apartments.

This may indicate that respondents in Ibadan high-density areas that are occupying 1 bedroom apartments attach much importance to community spirit in the neighbourhood in addition to the level of security before making residential decisions. This is contrary to the findings of Famuyiwa and Babawale (2014) which considered the structural quality of houses sampled and opined that the factor exerted a positive impact on the property values rather than social factors like community spirit and level of security. Consequently, it is evident from Table 1 that the significant factors that influence the rental value across housing strata i.e. low, medium and high density vary across different residential property types. For instance, in low-density areas, proper waste management systems and adequate security are significant factors that influence residential property rental value. In addition, the study opined that there is a negative relationship between the influence of environmental conditions such as noise levels, atmospheric pollution etc. and rental prices for 1 bedroom apartments (medium density) and 2 bedroom apartments (low density). This implies that prospective occupants take cognisance of these factors in their decisions in the area studied.

In the medium-density areas, the study suggested that the key determinant of housing attributes on the residential property rental prices is the Prevalence of traffic congestion (PTC) en route for 1-bedroom and 2-bedroom apartments especially regarding the distance of the property to the central business district in Ibadan and its environs. Finally, respondents in Ibadan high-density areas that are occupying 1 bedroom apartments attach much importance to community spirit in the neighbourhood and adequate security in making residential decisions.

Table 2 depicts the 1 Bedroom apartments in low-density areas of Abeokuta, Nigeria, having R^2 of 0.385, adjusted R^2 of 0.51 which indicates a fair explanatory power of the model and SEE of 2.11499 has three variables included in the rental value model (Number of bedroom and toilets, Aesthetical Appeal and the Presence of Waste Management Systems) as displayed in Table 2. It is observed that across the residential properties, the model predicts a high explanatory power of the independent variables on rental prices except for 2 bedrooms in the low-density area of Abeokuta. The result of the finding conveyed an R^2 value of 0.093, representing a low explanatory power of the independent variables such as the aesthetical appeal of the building, nature of the neighbourhood, statutory regulations and prevalence of traffic congestion in the model, given the adjusted R^2 as -0.029. In the medium-density areas, 2-bedroom flats have the rental models formed in physical attributes like the installation of security facilities in the house, environmental condition of the property in terms of noise and air pollution, prevalence of security patrol network with an R^2 value of 0.563 and an Adjusted R^2 value of 0.417 which indicated a fair explanatory power. This implies that the social and structural safety of the property is a contributing factor to the rental value. The model thus reveals that these housing attributes exert influence on the residential property rental property values in Abeokuta City of Ogun State. This may indicate that the occupiers prefer 2-bedroom apartments in medium-density areas relatively due to the peace and serenity in the area. This is in agreement with the summation of Dabara, Anthony, and Omotoso et al. (2016) which posited that infrastructural facilities and immediate surroundings of a residential property can adversely affect the rental value. The model is given thus:

$$Y = 240{,}000.00 + 8036.98NAB + 4{,}682.398AAF + 1{,}458PWS \quad (5)$$

Furthermore, an examination of the high-density area of Abeokuta with the use of the hedonic rental model as presented in Table 2 shows that friendliness and community spirit, prevalence of traffic congestion and environmental condition of the area exert influence on the rental values of residential developments as given by the R^2 value of 0.442 and adjusted R^2 value of 0.311. This implies that the neighbourhood attributes exert a level of influence on the rental values of 1-bedroom apartments in the high-density area of Abeokuta. This is in line with Singla and Bedigiri (2019) which surmised that the presence of security outfits and policing has a positive influence on the rental values of household apartments in India. This is against the common norm that occupants of high-density areas are less concerned about the aesthetical appeal of their residence. Also, the R^2 value given as 0.711 and the adjusted R^2 value recorded as 0.581 may explain at least 61.7% of the result returned by the model. This finding may be contrary to Song et al. (2022) which posited that locational factors pose a stronger influence on property values rather than physical characteristics.

It is evident in Table 3, that the low, medium and high-density areas have varying influencing attributes. 12,748.227 was attributed to the condition of the building (COB), (-827.829) to Aesthetic appeal and (7,755.321) to the Security Patrol Networks in the area for low-density areas. Meanwhile, in the medium-density areas influencing factors include the friendliness and community spirit in the neighbourhood, traffic congestion and environmental conditions in the area. Meanwhile, in high-density areas, the age of the building, the presence of waste management systems and the installation of security facilities exert influence on the rental values of residential developments. It can therefore be deduced that most occupants of 1 bedroom apartments consider varying factors in the selection of their apartment depending on their taste, individual preference and probably level of income. This implies that there is a relationship between the physical, environmental and social housing attributes and the rental values in Akure, Nigeria. This indicated that the model is a good fit as 52% of the variables can be explained from the observations in the low-density areas. The rental model is given as:

$$Y = 127{,}618.64 + 12{,}748.227COB - 827.829AAS + 7{,}755.321SNP \quad (6)$$

For 2 Bedroom Apartments in Akure, the rental value model was formed in the low-density area with three variables (Condition of the building, Age of the building, Aesthetic Appeal of the building and prevalence of traffic congestion in the area). The R^2 value and adjusted R are given as 0.077 and 0.064 respectively which indicates that the explanatory power is low for low-density areas. This implies that the structural attributes and neighbourhood factors affect the rental value in a negative stance which implies that the higher the chances of traffic congestion in the low-density area, the lower the rental values of the residential property in the area. The rental model in the medium-density area was only formed in the Waste Management System and Friendliness and Community Spirit of the area with values of 2,685.929 and -36,699.876 respectively. Consequently, for 3 bedrooms in a high-density area, environmental conditions of the building indicate a negative effect on the rental values. This implies that environmental factors like the level of pollution (air and noise) as well as atmospheric conditions can exert a negative influence on residential property values in Akure, Nigeria. The above-mentioned findings imply that the neighbourhood factors are higher determining factors in the residential density area of Akure than other housing attributes. This is in tandem with the findings of De and Vupru (2017) and Oshodi et al. (2019) which found that neighbourhood and structural-related factors exert a positive influence on the rental values of residential developments.

Table 1 Rental value models from ESV records of residential properties of different types in Ibadan, Nigeria

Factors	1 Bedroom Apartment			2 Bedroom Flats			3 Bedroom Flats		
	Low-density Areas	**Medium-density Areas**	**High-density Areas**	**Low-density Areas**	**Medium-density Areas**	**High-density Areas**	**Low-density Areas**	**Medium Areas**	**High-density Areas**
Constant	112,500.00 (0.00)	141,100.00 (0.00)	205,000.00 (0.00)	685,000.00 (0.00)	425,000.00 ()	250,000.00	1,050, 000.00	575,000.00	410,000.00
Number of bedrooms and toilets (NOB)	-			-	(48,389.31)0.04				-0.212
Aesthetic appeal – Architectural design, style finishing of the building (AAA)			9,628.97 (0.092)	-	0.36				1.568
Condition of the building (COB)	-			-	-0.078			(58,448.08) 0.577	
Presence of waste management system (PWS)	4,595.198 (1.017)	-	-	-	-	-23,133.07 (-1.516)			-1,463.31 (-0.054)
Friendliness and community spirit in the neighbourhood (FCN)			-10,843.71 (-1.80)	2,609.57 (0.13)					32,724.384 (0.82)
Installation of security facilities like fencing, burglar to windows, alarm systems (ISF)	16,739.5 (1.89)		-	-	(50,789.36) 0.606	-	(-10,436.24) -0.32		1.74
Prevalence of traffic congestions en-route (PTC)		6,513.91 (1.44)	-	-	30,052.92 (1.97)	-			-8,728.54
Environmental conditions e.g. atmospheric pollution, noise level etc. (ECA)		-4,457.54 (-0.67)	-	-31,907.91 (-1.42)			17,872.66 (0.449)		
Security network patrols in the area (SNP)			-5562.65 (-0.67)	4,042.57 (0.21)	-	-	-12,103.61 (-0.35)		
R-squared	0.912	0.903	0.603	0.900	0.452	1.000	0.851	0.800	0.780
Adjusted R-squared	0.810	1.000	0.461	-0.048	0.132	1.000	0.627	0.611	0.459
SEE	38,696.923				136,174.0670		221,061.64		
F	4 .042			.781				.954	

Table 2 Rental value models from ESV records of residential properties of different types in Abeokuta, Nigeria

	ABEOKUTA								
	1 Bedroom Apartment			2 Bedroom Flats			3 Bedroom Flats		
Factors	**Low-density Areas**	**Medium-density Areas**	**High-density Areas**	**Low-density Areas**	**Medium-density Areas**	**High-density Areas**	**Low-density Areas**	**Medium Areas**	**High-density Areas**
Constant	240,000 (4.31)	157,500 (.)	165,00.00	325,000.00	527,000.00	765,000.00	1,010,000.00	-850 000.00	-786,00.00
Number of bedrooms and toilets	8,036.983	-	-	-	-	167,473.147	5,830.882		-
Aesthetic appeal – Architectural design, style finishing of the building	4,682.398	-9,201.724	-	-16,039.172	-	-	121,312.824	-23,881.779	-63,301.152
Nature of the neighbourhood under statutory regulations like planning laws, socio-cultural issues		-42,444.910	-	-246,275.96		-	77,644.096	-	-
Presence of waste management system	1,458.135					16,560.094			-91,269.315
Friendliness and community spirit in the neighbourhood			-10,905.699			-68,537.993	-25,642.999		
Installation of security facilities like fencing, burglar to windows, alarm systems		-65,141.853	-		504,492.214	84,590.042	49,508.843	-149,037.461	-
Prevalence of traffic congestion en-route			-3,493.895	-51,107.204					-25,642.999
Environmental conditions e.g. atmospheric pollution, noise level etc.			4,313.742		-34,274.376		-	-53,225.217	-
Security network patrols in the area		1,667.578	-		-3,001.572		40,061.663	-	21,450.966
R-squared	.385	0.193	0.442	0.093	0.563	0.712	0.842	1.00	0.711
Adjusted R-squared	.051	0.037	0.311	-0.029	0.417	0.493	0.617	1.00	0.581
SEE	21149.989	9,374.235	26,324.882	81,612.905	218,231.179	65,026.968	232,635.862	0.00	74,005.81
F									

Table 3 Rental value models from ESV records of residential properties of different types in Akure, Nigeria

AKURE									
	1 Bedroom Apartment			2 Bedroom Flats			3 Bedroom Flats		
Factors	**Low-density Areas**	**Medium-density Areas**	**High-density Areas**	**Low-density Areas**	**Medium-density Areas**	**High-density Areas**	**Low-density Areas**	**Medium Areas**	**High-density Areas**
Constant	127,618.64 (0.00)	-157500.00 (-4.1631)	165 000.00 (3.311111)	377,021.313 (-5.1342)	527,000.00 (0.333)	765,000.00 (1.278)	-850,000.00 (-5.1723)	786,000.00 (3.1123)	674,432.642 (3.621)
Number of toilets and bedrooms	-	-	15,073.594	-	-	-272,70.011	-93,105.585	-	-
Condition of buildings	12,748.227	-	-	-35,671.105	-	-	-	-	-78,331.768
Age of building		-	-2,491.377	-24,393.448	-	0.146	2,010.897		-93,105.585
Aesthetic appeal – Architectural design, style finishing of the building	-827.829 (-1.10)			-999.902			-9756.711		
Presence of waste management system			6,937.65		2,685.929			6,141.371	
Friendliness and community spirit in the neighbourhood		-13,085.935			-36,699.876				-3,6194.244
Installation of security facilities like fencing, burglar to windows, alarm systems	-	-	-528.554		-	-	58,217.989		
Prevalence of traffic congestion en-route		8,150.676		-23,073.365			-15476.132		
Environmental conditions e.g. atmospheric pollution, noise level etc.		-13,582.553				-12,058.750		53,520.295	
Security network patrols in the area	7,755.321							-13,707.861	
R-squared	0.72	1.000	0.44	0.077	-	1.00	0.95	-	0.04
Adjusted R-squared	0.52	1.000	0.35	0.064	-	1.00	0.68	-	-0.033
SEE	44,784.263	0.000	210,033.32	33.1456	83,858.761	0.0000332	-	-	145,639.694
F									

■5.0 CONCLUSION

The study examined the influence of housing attributes on residential property rental value in southwestern Nigeria. A structured questionnaire is being used to elicit data purposively from 88 practising Estate Surveyors and Valuers in the study area of Abeokuta, Akure and Ibadan to develop a regional analysis that will guide housing investment decisions. The data is analysed with the use of hedonic regression analysis and the outcome of the findings revealed that a similar property type such as 1 bedroom in Ibadan has influencing attributes to rental value that are not significant to the increase or decrease in rental value of similar property types in Abeokuta and Akure. Furthermore, the study shows attributes of high interest such as Aesthetic appeals exert a significantly low influence for 1bedrooms and 2bedrooms rental values situated in Akure and Abeokuta and high interest in the condition of buildings for 3 bedrooms apartments in medium density area of Abeokuta. Also, in the medium-density areas of Abeokuta, 2 bedroom flats have the housing attributes like the installation of security facilities in the house, environmental condition of the property in terms of noise and air pollution, prevalence of security patrol network has a significant influence on the property rental prices.

The study gives insights into attributes of interest in a particular area which may provide a useful guide to investors to ensure the inherent attributes align with the norm in the neighbourhood to ensure the property commands the appropriate rack rental value within the context of present real estate market conditions. In addition, knowledge of the supporting neighbourhood attributes which appear to be a determinant housing attribute aside from the inherent locational factors across the three regions will guide the investors on the property types suitable for a particular neighbourhood to recoup return on investment.

The study will be useful for academia for teaching both neighbourhood and the determinant housing attributes that could be relevant in determining residential property rental value. It will also be useful to appraisals on the preparation of feasibility and viability studies and also help valuers in giving opinions of value. However, the paper used the Hedonic Pricing Model to determine the influence of housing attributes on residential property rental value in southwestern, Nigeria with the indication that locational factors could not be the only factor to consider in determining residential property rental value and prices in a rent-controlled market. A similar study that includes other regions may be conducted to reveal the direct impact on the rental value and to predict housing attributes that might be germane to determining selected properties' rental value and price in the foreseeable future. In conclusion, the study suggests the need to take cognisance of significant inherent housing attributes and neighbourhood attributes in residential property investment decisions.

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