Hedonic Modelling of Residential Rental Values in Ilorin Metropolis

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Abstract: **The study used a hedonic pricing model to examine the effect of location and neighborhood characteristics on residential rental income in Ilorin metropolis, to develop a model that analyzes the impact of location and neighbourhood on housing rental income in Ilorin metropolis. It collected field data using a standardized closed-ended questionnaire that was distributed across the Ilorin metropolis using stratified simple random. The data were examined using a descriptive statistics table and simple random sampling utilizing a statistical tool for sciences (SPSS 22). A total of 200 surveys were distributed, with 126 valid questionnaires used for the study. According to the study results, the neighbourhood features (market, educational facilities, access road, and communication facilities) are in good shape. The results also suggest that residential rental properties are positioned quite close to places of worship, markets, transit facilities, access roads, and workplaces in terms of locational qualities. According to the data, most of the physical features of residential rental properties (floor, room size, ceiling, roofing, ventilation, doors, walls, toilet facilities, electric appliances, finishing, and kitchen) are in excellent condition. According to the findings, the Taiwo neighbourhood commands the highest rent, followed by Muritata, Unity Road, and G R A. The research region's rental value variance was influenced by neighbourhood amenity and proximity to the economic area, and physical features (internal). According to the findings, neighbourhood facilities should be supplied, and existing ones should be upgraded. Investors should concentrate their efforts in areas near economic hubs. Finally, property investors should consider physical attributes critical when investing.**

Keywords**: Residential, Rental Value, Hedonic Price Model, Ilorin, Nigeria.**

I. INTRODUCTION

Residential property is commonly recognized as a basic human need, second only to food and clothes. Housing, in all of its forms, is more than just a place to live since it encompasses all of the social services and facilities that make a city or neighbourhood a pleasant environment, enhances people's welfare, and is a vital economic asset to any nation (Roseland, 2012). Residential property rental prices are determined by various building attributes connected to the area, location, and housing qualities (Won & Lee, 2018). It is a complicated goods that include many different aspects such as structures, including all of the dwelling's physical characteristics, accessibility and facilities, which make up a bundle of housing-related services, and neighbouring characteristics, which include the environment in which the residence exists.

Housing was regarded as an essential factor in one's health and quality of life, as well as a source of personal happiness (Kayode, Muhammad, & Bello, 2021). One of humanity's three fundamental needs is housing. Its efficiency ought to be up to par in terms of technical and general user expectations. The function of home in giving human comfort through humans and nature is crucial since it has such a considerable influence on people's lives and the lives of the country (Musa, Bello, & Kayode, 2021). Affordability means ensuring that certain housing needs or other needs are met at a cost or rent that does not put people under excessive economic difficulties (Sakariyau, Uwaezuoke, Olaoye& Sani, 2021). Residents' impressions of their area and living surroundings impact their housing satisfaction. This demonstrates a low level of discontent and a high level of agreement between planned and actual conditions, and the satisfaction of tenants' basic housing needs (Alabi, Kayode, Misbahu, & Olaifa, 2021).

In many nations, the first and possibly most essential attribute of a house is that it represents a significant amount of an ordinary household's assets across the life-cycle of the household (Doling & Ronald, 2010). As a result, deciding to purchase a home is not a simple undertaking for the ordinary family. Before acquiring a home, the family must decide on the sort of home and its funding. The second quality that distinguishes housing from many other things is its long-lasting, heterogeneous, and stable location. Finally, families differ in terms of their choices as possible home buyers. As a result, each potential home buyer assigns different values to various aspects of homes accessible within a given period. As a result, property buyers are likely to be heterogeneous. The last property of homes that distinguishes them from many other items is that they are available in various ages and places within the same market segment at the same time. These characteristics of houses as a whole make each and

every one of them quite distinctive in terms of worth, and determining housing prices is not a simple process because of them (Doling & Ronald, 2010).

House prices are influenced by various structural, community, and locational factors (Teck-Heng, 2011). Purpose-built, size of living space or dining area, number of bedrooms or bathrooms in a home, vehicle porch, and internal or external construction of a house are the most typical structural qualities considered in measuring property costs (Teck-Heng, 2011). The quality of public schools, proximity to an excellent location, and a view of the garden, sea, lake, or mountain are typical neighbourhood features. Locational factors include the distance to employment, schools, retail outlets, and public transit stations (Redfearn, 2009). Residential property values or rental prices have long been recognized to depend on current levels of residential amenities or local public goods.This dependency may be used to gauge households' willingness to pay for such amenities or public goods in specific conditions. It is also well recognized that the qualities of the house in issue, as well as those of the surrounding area, impact housing values (Teck-Heng, 2011)

Different methods are used to determine the value of a home. The cost strategy, sales comparison approach, income approach, profit method, and residual approach have all been popular in the past (Mooya, 2016). However, these methods fall short when dealing with heterogeneity and a large number of attributes. As a result, hedonic modelling attempts to get around this constraint (Wu, Wei, & Li, 2020). Housing is a diverse good that varies widely in three key dimensions: relative location, neighbourhood, and structural qualities, according to the hedonic approach (Panduro & Veie, 2013). Using hedonic language, one may say that various dwellings have distinct characteristics. According to the hedonic theory, the overall price of a property is determined by the number of these traits and the implicit price of each attribute (Panduro & Veie, 2013). This is because purchasers' appraisals of a housing unit's bundle of intrinsic features, such as locational, structural, or neighbourhood attributes, may determine the market price of a housing unit (Song, & Zenou, 2012). The value of a property is called implicit because it could be seen directly on the market but can only be seen indirectly through the building's overall price (Panduro & Veie, 2013). Since the 1920s, hedonic price regression models have been created and frequently utilized to allow researchers to account for the various factors that influence house prices (Bennett, & Loomis, 2015).

Today in Ilorin, it is unclear how the different housing qualities stated above impact the rental value of residential units. Similarly, the amount that property tenants are ready to pay for home features is unknown. Such ambiguity might have a negative impact on property investors' decisions in the Ilorin city. This large population generates a housing shortage in the area and chances for real estate developers to profit from rising house prices. This study uses hedonic price modelling to model residential rental values in the Ilorin metropolis in order to determine the specific influences of housing attributes on rental value and the amount renters are willing to pay for changes in housing attributes in order to assist property investors in making sound, viable, and rational property investment decisions.

Wickramaarachchi (2015) noted that as the population and urbanization grow so does the need for owner-occupied and rented homes. Since the middle of the twentieth century, House owners, investors, and users have attempted to define the main elements that impact residential property values in the global housing market (Musa, 2016). Researchers, real estate surveyors, and other important parties concerned with housing construction, investment, and management have keenly interested this issue. For example, rental values of residential properties in one residential neighbourhood vary greatly from rental values of identical residential properties in another residential neighbourhood within the same city in the vast majority of situations. Similarly, the rental value of identical residences in the same residential area varies for various causes that go unnoticed. According to certain research, residential location characteristics are important determinants of property values (Manaugh, Miranda-Moreno, & El-Geneidy, 2010).Others believe that structural factors such as the number of bedrooms, living rooms, bathrooms, toilets, and structural quality are essential predictors of property pricing (Musa, Zahari, & Yusoff, 2009). However, no research has been done in Ilorin on the impact of locational factors, neighbourhood features, and building attributes on residential rental value. Using the hedonic pricing model, this study will examine the impact of location, neighbourhood, and property attributes on residential rental values. The Research Objectives are:

1. To determine the geographic features of residential properties in Ilorin.
2. To identify the physical characteristics of rental homes in the study area.
3. To see how property attributes in the study area can be used to simulate residential rental value.

II. LITERATURE REVIEW

2.1 Residential Value Determination

The real estate market is inherently complex and challenging. Each piece of real estate is a one-of-a-kind, multi-dimensional product with various features that vary in quantity and quality (Amenyah, & Fletcher, 2013). As a result, the orthodox economist's theory that rent is entirely controlled by supply and demand appears inadequate and sociologically naïve, as rents are set by landlords whose decisions are influenced by several social and economic variables (Amenyah, & Fletcher, 2013). Economists and financial analysts have therefore invested a tremendous

amount of energy and effort in an attempt to explain what determines residential sale and rental prices (Amenyah, & Fletcher, 2013).

At the very least, the variables that influence rent can be divided into economic and non-economic categories. Interest rates and income levels are two economic aspects to consider. In the near term, population growth leads to an excess of demand for housing, which causes rents to rise. The location of an apartment can sometimes have a considerable influence on the amount of rent a family will pay (Ezennia, & Hoskara, 2019). The demand for a particular residential property is dictated by its location, which substantially impacts its value. Property in a decent location rents for much money; property on the outskirts of a city rents for much money (Sakariyau, Ajibade, Muhammad, Hafsatu, Joab, & Yusuf, 2020). If all other factors are equal, the larger the rental value of these commercial properties located near these producing resources (Yusuf, Muhammad, Otunola, & Kayode, 2021).

Xiao (2017) argued that an item's total price can be considered as a sum of the prices of each relatively homogenous attribute and that each character has a distinctive underlying price in a comparable; in this case, an item's total price can be considered as a sum of the prices of each homogeneous attribute, and each attribute has a unique implicit price in an equilibrium market. This means that the price of an item may be regressed against the attributes to see how each contributes to the overall composite unit pricing in a unique way (Xiao, 2017). Abidoye and Chan (2016) maintain that Environmental, neighbourhood, accessible (location), and asset characteristics were pooled together to determine real estate values. Further identified factors, on the other hand, determine property prices as follows:

a) Structural characteristics, such as the number of bedrooms, bathrooms, fireplaces, garages, square footage of the home, lot size, building age, and presence of a pool
b) Neighborhood factors, such as nearby inhabitants' socioeconomic qualities, the quality of neighbouring structures, ownership/rental, and ethnic makeup.
c) Community characteristics, such as school districts and tax districts
d) Geographical factors such as proximity and accessibility to various (dis)amenities such as landfills, electricity lines, highways, shopping malls, churches, schools, cultural opportunities, airports, and public transportation.
e) Environmental factors, such as the property's view, noise levels, pollution levels, and stormwater runoff
f) Time-related qualities, such as the month and year of the sale and the number of days to assess.

2.2 Hedonic Pricing Model Origin

It has been noticed that there are primarily four ways in the building of home price indexes in property literature. Hedonic regression, repeat sales, hybrid, and the sale price appraisal ratio are the most common (SPAR). Out of the four approaches, Hedonic regression dominates the literature due to its capacity to dissect home values according to individual dwelling qualities (Zhang & Yi, 2018). Griliches pioneered the approach, which Rosen later formalized in 1974. According to Rosen (1974), the hedonic hypothesis states that products or items are valued based on their distinctive features. Hedonic pricing models may be used to estimate transaction prices and evaluate each feature's intrinsic worth. This is especially useful when typical discounted cash flow models fail due to a lack of a market similar buildings, and non-income-generating structures (Monson, 2009).

Because housing is diverse by nature, using hedonic regression to calculate prices for each feature is suitable, as the hedonic price is also defined as an implicit price for housing attributes (Chau, & Chin, 2003). Court (1939) used the word "hedonic" for the first time to estimate the hedonic pricing index of autos. Thanasi (2016) introduced the idea of product utility as the value of a product's unique traits, assuming a linear connection. His research is founded on the consumption theory, which states that the demand for a diverse commodity like real estate is determined by the customer's traits (Thanasi, 2016). Thanasi (2012) Hedonic pricing models should be nonlinear since properties are heterogeneous, and the overall value is made of the sum of each property characteristic value. According to Thanasi, the benefits are a collection of traits that cannot be separated and are chosen based on a mix of customer preferences.

2.3 Hedonic Pricing Model Application In Property Appraisal

HPM was initially been used in property price evaluation in the early 1920s. Although there is no consensus on the exact year of introduction, Colwell & Dilmore (1999) said that Haas (1922) was the first study to use HPM in property price assessment research, using it to evaluate farmland in Minnesota (United States). In a similar vein, Bruce and Sundell (1977) claimed that the HPM method was first used in real estate price research in 1924. In addition, Wallace (1926) used the HPM method to appraise farms in the United States. Ridker and Henning (1967) used HPM to estimate the influence of air quality on residential property prices, implying that this is the first time HPM has been used in property valuation studies.

Freeman (1979), on the other hand, offered a theoretical foundation for using HPM in property pricing assessment research (Chin & Chau, 2003). Court (1939) is often regarded as the father of HPM. Court (1939) devised a price index for vehicles, demonstrating that the demand for autos can be explained by various factors, including the car's wheelbase,

dry weight, and horsepower. Additional researchers (for example, Muth, 1966; Oates, 1969) applied HPM to real estate research. Rosen (1974) then created the theoretical foundation for the use of HPM in property value evaluation. Scholars in various real estate markets across the world have been using the HPM approach for real estate evaluation since Rosen's research in 1974.

2.4 The Benefits of the Hedonic Pricing Model (Hpm)

Hedonic price models try to estimate implicit prices for each of a good's features, and an asset may be thought of as a collection of attributes or services classified into structural, neighbourhood, accessibility, and other categories. Individual purchasers and renters, for example, want to maximize their expected utility, which is constrained by a variety of factors such as time and money (Andersson, 2010).

Nigeria is Africa's largest economy and the world's 26th, according to a rebasing of the country's gross domestic product (GDP), which was previously believed to be US$ 510 billion (National Bureau of Statistics, 2014). As a result, it is critical for real estate researchers, investors, and stakeholders to learn everything they can about the Nigerian real estate industry. This would be accomplished by evaluating published studies in Nigeria that used HPM in property value research. To compare the submarket price for a conventional property, the functions of hedonic house pricing are first assessed for each probable market group. Second, a chow test is performed to see whether there are substantial pricing disparities amongst submarkets. Finally, a weighted standard error is generated for the submarket model, which serves as a second common-sense evaluation of the importance of pricing disparities for standard houses in various submarkets. This technique also allows us to assess the influence of alternative submarket definitions and stratification systems on the accuracy of home price models.

2.5 Shortcomings Of Hedonic Pricing Model (Hpm)

The assumption of perfect equilibrium is one of the essential assumptions to be challenged. Perfect information and zero transaction costs are required for this hypothesis to remain (Bardhan, 1999). Because there is no a priori reason to believe that the degree of instability in any location is connected with the levels of certain amenities contributing to the hedonic house price, the implied prices produced from the hedonic analysis are biased if the new equilibrium does not hold. Andersson (2010) argued that the negligible price inferred from the hedonic function does not accurately reflect the willingness of a particular household to pay for a unit of a particular characteristic. Instead, it is a market-wide valuation resulting from demand and supply interactions. The real estate market can be viewed as a stock-flow model, with the flow being a function form and the price is decided only by the stock at any one time. This raises questions about the price information's accuracy. The statistics may not correlate to actual market price because it is based on assessments, appraisals, or self-reporting.

Some authors critique regression technology for several macroeconomic issues that might contribute to estimating bias, including function specification, spatial heterogeneity, spatial autocorrelation, housing quality change, multicollinearity, and heteroscedasticity (Monson, 2009; Andersson, 2010). Another drawback of using the hedonic model is that it is based on the assumption that the market runs in ideal, unrealistic conditions, with many buyers and sellers, none of whom affect demand and supply independently, and knowledge is spread equally (Thanasi, 2012). On hedonic specifications models, purposeful sampling is a critical issue. The central conflict in hedonic price appraisal, according to Bourassa et al. (2003) and Thanasi (2012), is related to segment size; the smaller the sections, the more racially homogenous they are, but on the other hand, the estimate error increases, while there is an inverse correlation between sample size and standard error.

III. METHODOLOGY

Quantitative research methods were applied in this study. The respondents were given a questionnaire to fill out. The participants in this study are tenants in the Ilorin metropolis. As a result, the study's population comprises all renters in the Ilorin metropolitan. As a result, the study's sample frame consists of 200 renters in the study area. A total of 200 renters in the study area make up the sample frame. A sample size of 291 was selected for distribution to ensure suitable responses. Following comprehensive data collection, descriptive, mean ranking, and multiple linear regression were utilized to evaluate the data acquired from the field using SPSS Version 22.

3.1 The Study Area

Ilorin was founded by an itinerant hunter named Ojo-Isekuse (1600-1700AD). Ojo-compound Isekuse's gave rise to the term "Ilorin" (now Okelele area of Ilorin). Ojo-Isekuse sharpened his hunting equipment like cutlass and arrow on the stone, hence the name "Lorin," which means "iron shaping." Ilorin is primarily a Yoruba city, but it is home to various ethnic groups, including Hausa, Fulani, Yoruba, Nupe, Kanuri, and Bariba, who have all mingled to create a distinct cultural hub. They are all proud of their own Ilorin heritage at the very same time. Although the Royal House had been extensively Yorubanized, the city's monarch and its environs (the Ilorin Emirate) is of Fulani descent. Ilorin is located at 8030'N, 4035'E latitude and longitude. It is located in the plains of Nigeria's south-western region. The city, located along the Lagos-Kaduna route, is 306 kilometers from Lagos, 600 kilometres from Kaduna, and approximately 500 kilometres from Abuja. The Asa River is the primary river. It flows in a south-north direction and occupies a rather extensive valley. The river separates Ilorin into two parts: the

western part, which represents the centre of Ilorin's indigenous territory, and the eastern section, which represents the Government Reservation Area (GRA). A solitary hill known as Sobi hill may be found to the north of the Western portion. The hill rises to a height of around 394 feet above sea level. Ilorin has a tropical climate with both wet and dry seasons. It receives about 1318mm of rain annually, with the rainy season beginning in April and ending in November.

Presentation and Discussion of Results

IV. RESULT AND DISCUSSIONS

Table1: Demographic Data of the Respondents

Gender		
Male	96	76.2%
Female	30	23.8%
Age		
Less than30 years	58	46%
between 31-40 years	30	23.8%
between 41-50 years	24	19%
above 50 years	14	11.2%
Marital status		
Single	51	40.5%
Married	75	59.5%
Education		
Primary school	24	19%
O level	39	31%
OND/NCE	42	33.3%
HND	12	9.5%
BSC	7	5.6%
MSC	1	0.8%
PHD	1	0.8%
Occupation		
Farming	26	20.6%
Retired	36	28.6%
Artisan	18	14.3%
Private Sector	22	17.5%
Public Sector	24	19%
Tenure ship		
Occupier	31	24.6%
Renting	95	75.4%

Source: Field Survey, 2021

The demographic data of the respondents is shown in the table above. The bulk of the households are male and married couples, accounting for 76.2 percent and 59.5 percent of the responses, respectively. In addition, most of them are between the ages of 30 and 40. Furthermore, most are farmers/retired employees who have completed their NCE/OND. Finally, most of them are renters, accounting for 75.4 percent of the responses.

Table 2: Type properties renting by the respondents

Type of property	Frequency	Percent
Tenement	26	20.6
Self-contained	36	28.6
One bedroom	15	11.9
Two-bedroom	20	15.9
Above two bedroom	29	23.0
Total	126	100.0

Source: Field Survey, 2021

The type of property rented by respondents in the research area is shown in Table 2. 26 respondents, or 20.6 percent, are renting tenement property (face me, face you), 36 respondents, or 28.6 percent, are renting self-contained, 15 respondents, or 11.9 percent, are renting one-bedroom, 15 respondents, or 11.9% are renting two bedrooms and 29 respondents, are renting three bedrooms or more. This found that the majority of respondents rent self-contained residences.

Table 3: Locational characteristics in the Study Area

Locational characteristics	Very close		Close		Moderately close		Far		Very far			
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**M**	**R**
Fire services	10	5.6	26	14.4	41	22.8	42	23.3	61	33.9	3.66	**1st**
Recreational facilities	15	8.3	35	19.4	41	22.8	50	27.8	39	21.7	3.35	**2nd**
Security facilities	17	9.4	31	17.2	51	28.3	54	30.0	27	15.0	3.24	**3rd**
Waste disposal facilities	18	10.0	38	21.1	42	23.3	48	26.7	34	18.9	3.23	**4th**
Health facilities	32	17.8	33	18.3	44	24.4	49	27.2	22	12.2	2.98	**5th**
Working place	19	10.6	50	27.8	49	27.2	40	22.2	22	12.2	2.98	**6th**

Transportation facilities	17	9.4	60	33.3	48	26.7	35	19.4	20	11.1	2.89	**7th**
Market	23	12.8	62	34.4	45	25.0	25	13.9	25	13.9	2.82	**8th**
Access roads	33	18.3	58	32.2	36	20.0	28	15.6	25	13.9	2.74	**9th**
Educational facilities	39	21.7	55	30.6	59	32.8	18	10.0	9	5.0	2.46	**10th**

Source: Field Survey, 2021

Table 3 shows that the majority of the respondents, 72 out of a total of 40.0 percent, rent highly close to their place of worship. The market, transit facilities, access roads, and work place are all quite close to residential rental units, with 34.4 percent, 33.3 percent, 32.2 percent, and 27.8 percent of respondents in each case. Fifty-nine respondents, or 32.8 percent, rent in moderately proximity to educational facilities. However, renters in the study region are renting far away from security, recreational, health, and trash disposal services, with 54, 50, 49, and 48 respondents, respectively, representing 30.0 percent, 27.8%, 27.2 percent, and 26.7 percent. In contrast, 33.9 percent of respondents (61 respondents) live far away from fire stations.

Table 4: Condition of building/physical characteristic

Items	N	Mean	Std. Deviation	Remark
Ranking electric condition in the area	126	3.80	.762	1
Ranking water conditions in the area	126	3.75	.973	2
The ranking drainage condition in the area	126	3.41	1.277	3
Ranking recreational facilities conditions in the area	126	2.95	1.396	4
Ranking accessibility/road condition in the area	126	2.94	1.220	5
Ranking sanitary service conditions in the area	126	2.85	1.251	6
Ranking schools conditions in the area	126	2.83	1.366	7
Ranking economic activities condition in the area	126	2.71	.974	8
Ranking hospitals condition in the area	126	2.60	1.225	9
Ranking neighbourhood security conditions in the area	126	2.43	1.080	10

Source: Field Survey, 2021

The neighbourhood condition is shown in table 4 based on their mean rating. It shows that the power situation is good, with a mean of 3.80, which ranks first, and that the water situation is similarly good, with a means of 3.75, which ranks second. While both healthcare facilities and the neighbourhood were determined to be fairly ranked.

Regression analysis of locational and neighbourhood characteristics with rent

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.456[a]	.208	.175	44508.072

Source: Field Survey, 2021

The R-Square value measures a model's ability to predict outcomes (i.e., independent variables concerning the dependent variable). The R-Square value can range from 0 to 1, with 1 indicating a perfect correlation between the independent and dependent variables (Corsini, 2009). Physical characteristics (external), physical characteristics (external), physical characteristics (external) explain 20.8 percent of the changes (Variation) on the dependent variable rental value (internal). This suggests that 79.2 percent of the dependent variable rental value variation is due to external factors. According to the R-Squared statistic, the model is fitted to explain 20.8 percent of the variation in rent paid within the study area.

Table 6: Analysis of Variance

ANOVA[a]						
Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	Regression	89329088200.841	7	12761298314.405	6.442	.000[b]
	Residual	340726572910.270	172	1980968447.152		
	Total	430055661111.111	177			
a. Dependent Variable: Rent						
b. Predictors: (Constant), Proximity To Economic Area, Neighborhood Noise, Physical Characteristics (External), Waste Disposal, Toilet, Neighborhood Amenities, Physical Characteristics (Internal)						

Source: Field Survey, 2018

Table 6 has a P-value of.001, which is less than 0.05. Because the P-value is less than 0.05, it means that despite the apparent lack of other variables, a statistically significant relationship exists between rental value and proximity to an economic area, neighbourhood noise, physical characteristics (external), waste disposal, toilet, neighbourhood amenities, and physical characteristics (internal).

Table 7: Regression Coefficient

2		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	115283.888	18280.362		6.306	.000
	Physical characteristics (internal)	13133.297	4742.804	-.237	-2.769	.006
	Physical characteristics (external)	6994.495	3954.653	.146	1.769	.079
	Toilet	-5663.185	3337.607	-.139	-1.697	.092
	Neighborhood amenities	15096.905	4491.417	-.264	-3.361	.001
	Waste disposal	-2056.744	3694.590	-.042	-.557	.578
	Neighborhood noise	-2711.423	2673.914	-.070	-1.014	.312
	Proximity to economic area	10804.915	3841.003	.199	2.813	.005

Source: Field Survey, 2018

Table 7 reveals that amenities in the area, closeness to an economy, security, and interior and exterior physical qualities can account for at least 20.8 percent of the variance in rental value (Adjusted Square =.175).The p values for the toilet, waste disposal system and neighbourhood noise were all greater than 0.05, indicating a statistically insignificant relationship with the dependent variable. In contrast, the p values for proximity to the economic area and neighbourhood amenities were both less than 0.05, indicating a statistically significant relationship. Physical Characteristics (Internal) and Physical Characteristics (External) have p values close to 0.05, demonstrating a vanishingly small relationship with the dependent variable.

The model of residential rental values from property characteristics Multiple regression analysis models

Multiple Regression Analysis is built on a foundation of correlation test (MRA). Multivariate analysis on tiny amounts can be done using correlation and regression in general (Chatfield & Collins, 2018). "Multiple regressions" is a technique that allows for the inclusion of extra elements to the study to measure their impact. MRA is a flexible data analysis approach that can be applied whenever a quantitative variable (the dependent or criterion variable) needs to be examined with other parameters (expressed as independent or predictor variables). There can be complex correlations, independent variables can be quantitative or qualitative, and the effects of a single variable or multiple variables can be explored with or without many other factors (Maxwell, 2004).

$$y = \beta 0 + \beta 1X1 + \beta 2X2 \cdots + \beta nxn + \varepsilon$$

The model that analyzes the influence of location, neighbourhood and building/physical characteristics on residential rental value in Ilorin metropolis:

$$Y = \text{Constant} + \beta 1X1) + \beta 2X2 + \beta 3X3 + \ldots\ldots\ldots + \beta nXn + e \quad \ldots\ldots\ldots\ldots\ldots \text{(I)}$$

Where

Y is the dependent variable

X1, X2……..Xnar is the independent variables.

$\beta 1$, $\beta 2$ …n are multiple regression coefficients for the independent variables

"""e"""Std. Error of the Estimate

However, the application of the model to our case study shows that

$$\mathbf{RV} = \text{Constant} + \beta_1(X_1) + \beta_2(X_2) + \beta_3(X_3) + \beta_4(X_4) + \beta_5(X_5) + \beta_6(X_6) + \beta_7 W(X_7) + e \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(II)}$$

$$\mathbf{RV} = 115{,}283 - 133133(X_1) + 6994(X_2) - 5663(X_3) - 15{,}097(X_4) - 2{,}057(X_5) - 2{,}771(X_6) + 10{,}805(X_7) \ldots\ldots\ldots\ldots \text{(III)}$$

Where:

RV = ₦ Rental Value
X_1 = Physical Characteristics (Internal)
X_2 = Physical Characteristics (External)
X_3 = Toilet
X_4 =Neighborhoods Amenities
X_5 = Waste Disposal System
X_6 = Proximity to Economic Area
X_7 = Neighborhoods Noise

The residential rental value may be predicted by proximity to the economic region (pvalue 0.005), neighbourhood amenities (p-value 0.001), and interior physical qualities (p-value 0.006), according to the findings, which statistically influence rental value in the research area. However, neighbouring noise (p-value 0.312), waste disposal (p-value 0.578), toilet (p-value 0.092), and external physical qualities (p-value 0.079) did not have a significant impact on rental value in the research region.This is because the majority of tenants in the study region are students who do not see neighbourhood noise, waste disposal, toilets, or physical attributes (external) as requirements that must be addressed before they are willing to pay rent. This is illustrated thus:

$$\mathbf{RV} = \text{Constant} + \beta_1(X_1) + \beta_2(X_2) + \beta_3(X_3) + \beta_4(X_4) + \beta_5(X_5) + \beta_6(X_6) + \beta_7 W(X_7) + e \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(II)}$$

$$\mathbf{RV} = 115{,}283 - 133133(X_1) + 6994(X_2) - 5663(X_3) - 15{,}097(X_4) - 2{,}057(X_5) - 2{,}771(X_6) + 10{,}805(X_7) \ldots\ldots \text{(III)}$$

Where:

RV = ₦ Rental Value, X_1 = Physical Characteristics (Internal), X_2 = Physical Characteristics (External), X_3 = Toilet, X_4 =Neighborhoods Amenities, X_5 = Waste Disposal System, X_6 = Proximity to Economic Area and X_7 = Neighborhoods Noise

V. DISCUSSION OF FINDINGS

The findings on locational characteristics are limited to eleven (10) attributes public health facilities, public educational facilities, access roads, security facilities, neighbourhood recreational facilities, solid waste disposal, fire service facilities, market, workplace, and public transportation. According to the findings, residential rental homes in the research area were found to be reasonably close to educational facilities. The market, transportation facilities, access roads, and employment places are all quite close to residential rental homes in the research region. Different locational variables, neighbourhood characteristics, and building/physical qualities in the study region contribute to the difference in rent within the study area.

VI. CONCLUSION

This study aims to use a hedonic pricing model to examine residential rental value in the Ilorin city. To create a model that examines the impact of location and neighbourhood characteristics on residential rental value in Ilorin. The study concludes that there are significant differences in the state or condition of the locational, neighbourhood, and building features across the study region, resulting in rent differentials within the Ilorin Metropolis. The study also concludes that closeness to the study area's economic area, neighbourhood amenities, and physical qualities (interior) have statistically significant effects on home rental value. As a result, before they are willing to pay, renters examine proximity to an economic community, community facilities, and physical characteristics (interior) factors.

VII. RECOMMENDATIONS

The government should provide these communities with facilities throughout the Ilorin metropolis, and improve and upgrade current amenities. Investors should be encouraged to invest in residential properties in areas with adequate community amenities because this will allow them to optimize their return on investment in rack-rent. The government should create policies that are easy to implement, as and a housing quality standard and a regulatory organization to oversee conformity.

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