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ANALYSIS OF TREND IN RENTAL VALUE OF RESIDENTIAL PROPERTIES IN ABUJA

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Abstract
The study analysed the trend in rental value of residential property in Abuja. The study utilized systematic random sampling to relevant rental data from registered estate surveyors and valuers. the study sampled 2401 residential transactions across the selected areas in Abuja. The study utilized both trend analysis and analysis of variance (ANOVA). The result of trend analysis revealed that average rental values in Wuse and Maitama exhibited upward and steady movement showing a stable market and overlapped other areas. The result of analysis of variance revealed there is statistically significant difference in rental values across the study area. Further analysis of HSD revealed that bulk of rental difference can be found in Wuse and Maitama. The study concludes that the value of environmental amenity should be captured in the price of residential properties close to it. The study recommends that government, developers and prospective investors should consider investing in residential property types specifically two and three bedroom as it promised good returns on capital invested.

Keywords: Trend, Rental Value, Residential, Properties, Abuja.

INTRODUCTION
Property value is a function of environmental quality, and determines the viability of property investment (Bourassa *et al*., 2007). When a household chooses a house or apartment, it is choosing much more than a dwelling but also a set of local public goods (Sullivian, 2012). Therefore, man's attitude towards the surrounding environment is not neutral but to search for locations that

deliver a high quality of life. Those expectations particularly concern man's daily surroundings especially the residential areas. The decisions made on the real estate market is largely dependent on the quality of an environment (Cellmer *et al*., 2012).

Residential property has long been recognised as an important component in a household's overall wealth. According to a study in the US, residential properties represent roughly two-thirds of the household's overall assets (Davis & Heathcote, 2007). It is therefore, one of the basic needs of man and it is the most important for the physical survival of man after the provision of food (Campbell *et al*., 2007). Residential property is an enclosed shelter where people live in. In addition to it, local public facilities are also necessary to create a good living environment. Property is a multi-dimensional product and the number and nature of factors that influence its value are equally of different kinds (Paz, 2006). Property and land values tend to increase in areas with expanding transportation networks, and increase less rapidly in areas without such improvements (Oloke *et al*., 2013).

Real property has no value if it has no utility or being effectively demanded for. The utility derived is not from the brick and mortar alone but in some unique characteristics packaged in its location, neighbourhood and infrastructure which are equally desired by the consumers (Oloke *et al.,* 2013). According to Ge and Du (2007), property value is an essential aspect of property markets worldwide and determined by a variety of factors and the determination of those factors is a significant part of property valuation. Various studies have examined factors affecting property values and have identified the following as environmental attributes such as structural characteristics (age, location, size) neighbourhood characteristics, economic activity, population, and transport among other environmental attributes that dictate or affect property value in a particular neighbourhood (Wilhelinsson, 2008; Yusof & Ismail, 2012; Samy, 2015). Kamali *et al.* (2008) further grouped the variables determining property values into; environmental variables, neighbourhood variables, accessibility (location) variables and property variables. This study addresses the environmental attributes affecting residential property.

LITERATURE REVIEW

Residential Property Value and Trends in Rental Value

Residential properties according to Lyndall and Chris, (2014) are properties providing housing accommodation. They are generally constructed to mean

properties primarily acquired for residence. It has the attribute of giving shelter, security, comfort, privacy, investment and personal identity. There are different types of residential properties namely - tenement Buildings (Face-me-i-face-you), block of flat, bungalows, duplex (detached houses), semi - detached house and mansionette. Cheshire and Sheppard (2008), classified the form in which residential property can be owned into multi-tenanted, owner occupied and single tenant property. Property value is defined as the highest price in terms of money which a particular property will fetch in the open market under a free market condition (Fan, 2009). In the word of Linneman (2011), property value is the amount of money which can be obtained for the interest on a property at a particular time from persons able and willing to purchase it. There are only two well-known forms of property value such as capital value and rental value.

Chukwu *et al* (2012) determined the trends in rental values of residential properties in the town using New-Haven and Achara Layouts. The study also tries to compare the trends in New-Haven with that of Achara Layouts both of which has similar infrastructural characteristics using the survey research method and the hypothesis developed was tested using ANOVA. It was observed that there has been a steady increase in rental value of residential properties in Enugu in the past decade. However, the rate of increase in New-Haven was higher than that of Achara Layout between 2005 and 2009. The difference in the rate reduced significantly between 2010 and 2014 due to massive infrastructural development embarked on by the government. The study also indicated a strong rental growth potential in the layouts in the future. However, the study also reveals that there is a significant difference in rental values of residential accommodations in New Haven and Achara Layouts. It was recommended interalia, that the government should reduce the pressure on existing layouts by opening up new layouts, increase the minimum wage level of workers and encourage private partnership developers. Another is the study carried out by Ankeli *et al.* (2016), which examined the available infrastructural facilities in residential properties in Osogbo with the aim of evaluating their impact on the rental values of residential properties in the study area using systematic random sampling technique and collated data were further analysed with the aid of both descriptive and inferential analytical techniques. The study among other things revealed that, properties with better conditions in terms of infrastructures and physical soundness command higher rental values. It recommends the need for the provision of essential basic infrastructure by government and its agencies and schedule sustainable maintenance programmes for the infrastructure facilities

provided. The study therefore concludes that developers should ensure that all basic infrastructural facilities that will attract higher values to their property be provided, government should make implementable policies and established housing quality standard and supervisory agency that will be responsible for monitoring of housing standards.

Iroham *et al.* (2014), conducted a study to assess the trends in rental values of the properties between 2006 and 2011 in order to discover the property with the highest trend. This study which is a cross-sectional research that entailed the survey of the entire 22 Estate Surveying Firms in the study area. The study implored the use of both descriptive and inferential statistical techniques such as the frequency distribution table and the simple linear regression, and Analysis of Variance (ANOVA) were adopted in analysing data. From the study it was discovered that the converted office space is mostly predominant (53%) while the shopping complex is the most professionally managed property (46%) respectively. However, the purpose built office space with the highest R^2 of 0.9 and having the highest trend in rental values will result to the fastest recoup of investment. The use of (ANOVA) coupled with Tukey post-hoc test reveal that the rental values of three properties at the 95% confidence level are significantly different (p=0.000). Based on the study findings, it is recommended that the purpose built office space with the highest rent and trend should be the focus of both investors and professional managing agents in order to maximize returns.

Daniel *et al.* (2018) focused on trends in the Rental Values of Residential Properties Proximate to Tertiary Institutions: The Case of Federal Polytechnic Ede, Nigeria. Both descriptive statistical tools such as percentages, weighted mean scores and averages as well as inferential statistical tools such as correlation and regressions models were used in analysis of the data obtained. The study found that there was a steady and consistent increase in students' enrolment from 2007 to 2016. Similarly there was a significant increase in the rental values of residential properties in the neighborhoods around the institution. Both the correlation and regression analysis showed a significant positive relationship between students' enrolment and the rental values of residential properties in the study area.

Mark and Charles (2016) examined the rental trend of commercial properties in kampala city: The Case Study of Nakasero Area. This is a cross-sectional research paper that uses property rental information (values) gathered from different Property Management and Valuation firms in the study area to study the trend of rent of commercial properties in Nakasero Area of Kampala Capital City against

the frequently used market indicators of the Economy that are the inflation rate, interest rate and the Gross Domestic Product (GDP) as the variables for a period of 10 years that is between 2004 and 2014. The study therefore disentangles the complexities of the Kampala Capital City Property market and provides a clear structure to understand the relationship between the rental trend and the key market indicators. The results showed a steady increase in the rents from an average of 12.2 USD per square metre in 2004 to 15.9 in 2014 and that the interest rates and the GDP had a negative effect on the trend while the inflation rates had a positive effect on the rental trend during the time under study.

METHODOLOGY

The study adopted systematic random sampling to select 93 registered estate firms which represent 75% of the total registered surveyors in the study area were sampled to obtain trend in rental values of residential property. In the month of November, 2019, a total number of 93 questionnaire were administered to 93 practising Estate firms out of the 124 listed in the Nigerian Institution of Estate Surveyors and Valuers Directory 2017. The primary data was obtained through questionnaire instrument. Data on the current rental value (2008-2019) was obtained from Estate Surveyors and Valuers in the study area through the use of questionnaires. The sample frame for this study is represented by 104,166 rented residential properties. The sampling frame for the selected study area is represented in Table 3.6: To calculate the sample size, Adams, Hafiz, Raeside and White (2007) simplified formula for calculating sample sizes was adopted for the study:

$$n_0 = \mathrm{Z}^2 \frac{\alpha}{2} \times \frac{\mathrm{P}(1-\mathrm{P})}{\mathrm{d}^2} \quad \text{Equation (3.1)}$$

Where;

n_o= sample size

Z = standardized normal value (1.96)

α = level of significance (95%)

p = estimate rate expressed as decimal (50%=0.5)

d = precision rate expressed as decimal = $\sqrt{p} \times (1-p)/N \times 10$ N = population size

n_o= $(1.96)^2$ x 0.5(1-0.5)/$(0.02)^2$

Sample size = 2401 Residential Properties

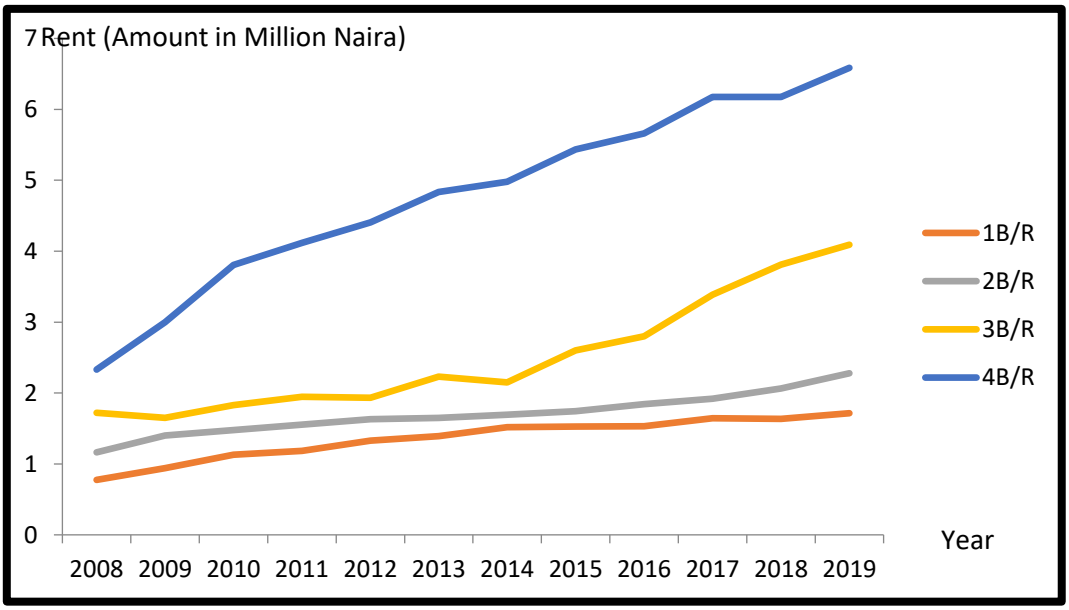
Sample Sizes for the Selected Neighbourhoods

Neighbourhoods	No of Rented Residential Properties	Sample Size
Wuse II	9438	218 (9%)
Maitama	12976	299 (12.5%)
Gwarinpa	18126	418 (17.4%)
Utako	19523	450 (18.7%)
Kubwa	24685	568 (23.7%)
Lugbe	19418	448 (18.7%)
Total	**104166***	**2401 (100%)**

RESULT AND INTRETATION

The trend in average rental value of residential property in Maitama is presented in Figure 1. The rental value of 4B/R and 3B/R showed a fluctuated upward movement indicating that there were instability in rental prices of 4 B/R and 3B/R residential properties. The rental value of 1B/R and 2B/R had gentle and steady upward movement over a given period. This indicates that the rental market of two bedroom and one bedroom were more stable than 3B/R and 4B/R. This further indicates that there is more demand for 2B/R and 1B/R than 3B/R and 4B/R.

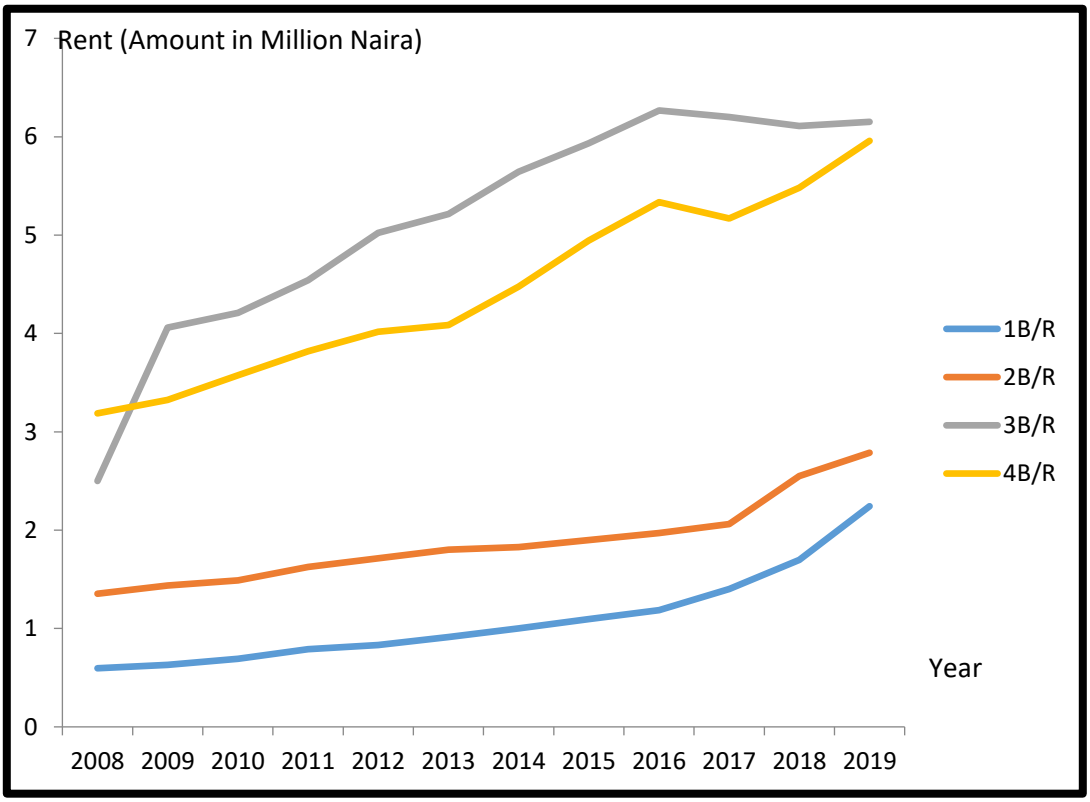
Table 1 Analysis of trend in average rental value in Maitama



Source: Author, 2020

The average rental trend in Wuse is presented in Table 2. Rental value of 3B/R properties in Wuse showed a sharp rise from 2008 to 2009 as it might be attributed to high demand for 3B/R. There was a continuous rising in rental value from 2009 to 2016 after which there is gradual falling till 2019. Rental value of 4B/R maintained steady movement from 2008 to 2016 and after which there was sharp fall in 2017, after which there was a rise till 2019. Rental value of 2B/R and 1B/R maintained steady trend in from 2008 till 2017 after which there was continue increase in rental value till 2019. This rise and fall in rental values is associated with changes in economic situation in the country.

Table 2 Analysis of trend in average rental value in Wuse

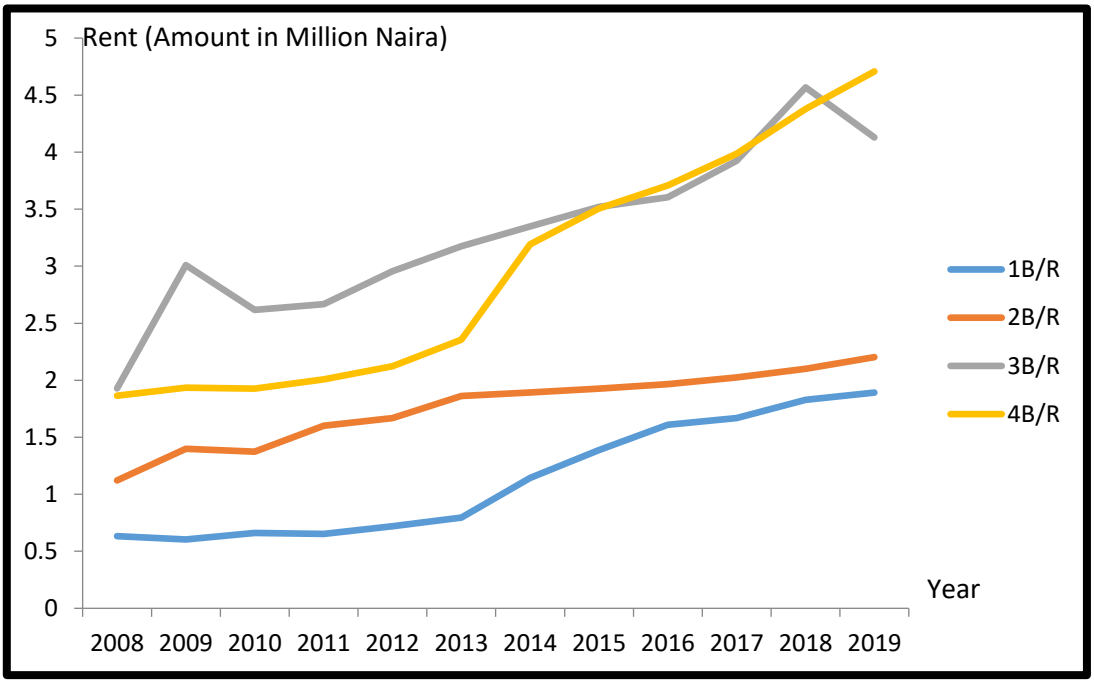


Source: Author, 2020

The trend in rental value in Gwarinpa is presented Table 3. The rental value of 3B/R experienced sudden rise from 2008 to 2009 and fall in 2010 due to market fluctuation, and after which there is gentle upward movement up till 2018 and after which there was sudden fall in 2019. This was as a result of low demand for 3B/R as rentals preferred going for 4B/R instead because of comparable rental

values between 3B/R and 4B/R**.** Rental value of 4B/R is maintained gentle upward movement from 2008 to 2013, and after which there are sudden rise up till 2019, this rise and fall is due to change in economy activities. Rental value of 2B/R maintained gentle and upward movement indicating stability in the rent and the market, but rental value of 1B/R first maintained steady movement from 2008 to 2013, after which there was upsurge in demand that resulted to increase rental value. This rise and fall in rental value is linked to changes economic condition in the study areas.

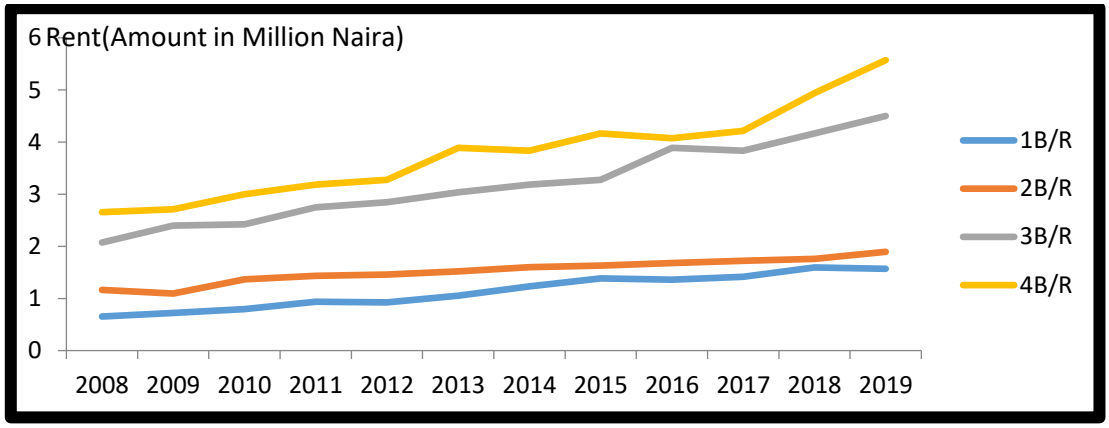
Table 3 Analysis of trend in average rental value in Gwarinpa



Source: Author, 2020

Table 4 reveals trends in rental value of residential properties in Utako.3B/R and 4B/R rental values maintained the same pattern of rental movement over the period under study but both are not steady. This therefore indicates that there is instability in rental movement in the market and also indicate fluctuation in the transaction in the market. The rental values 2B/R and 1B/R experienced steady movement in trend without fluctuation; this indicates that there is market stability in 2B/R and 1B/R property market in Utako District. The trend further indicates there is steady and stable market transaction of 1B/R and 2B/R, and more better and stable than 3B/R and 4B/R markets.

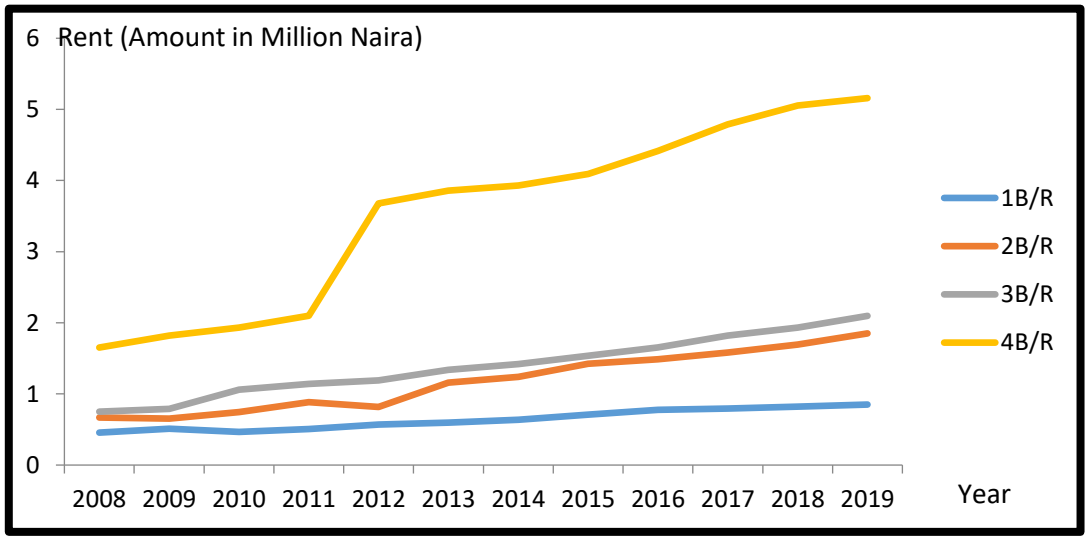
Table 4 **Analysis of trend in average rental value in Utako**



Source: Author, 2020

The trend in rental movement residential properties in Kubwa is presented in Figure 5. The trend revealed that the rental value of 4B/R experienced unstable and instability in movement over a period. This indicates that the market of 4B/R property is not frequent and inconsistent in the transaction over the period under study. There is a close movement in rental values of 2B/R and 3B/R over a given period, this indicates that the rental value of 2B/R and 3B/R are not too different from each other in the study area, but the trend in 3B/R slightly overlapped that of 2B/R, though they were both steady and stable over the period. The rental value of 1B/R is stable and maintained gentle movement over the period.

Table 5 Analysis of trend in average rental value in Kubwa



Source: Author, 2020

The trend in rental values of residential properties in Lugbe is presented in Table 6. The result of trend revealed that sharp rise in rental value of 4B/R from 2010 to 2019. The rental value of 3B/R maintained steady rise between 2008 and 2010, after which the rent fall flat between 2011 and 2017, and after which there was a sudden rise from 2017 to 2019. 2B/R properties maintained steady movement from 2008 to 2018, and after which there was sudden rise in 2019 while 1B/R also maintained the same movement with 2B/R, there was steady movement from 2008 to 2017 and which caused sudden rise. 2B/R and 3B/R property markets moved simulteiously from 2012 to 2017 after which 3/B/R overlapped 2B/R. This sudden rise is attributed to positive change in demand for 3B/R over 2B/R due to no difference in rental values between 2B/R and 3B/R properties.

Analysis of Trend in Average Rental Value in Lugbe

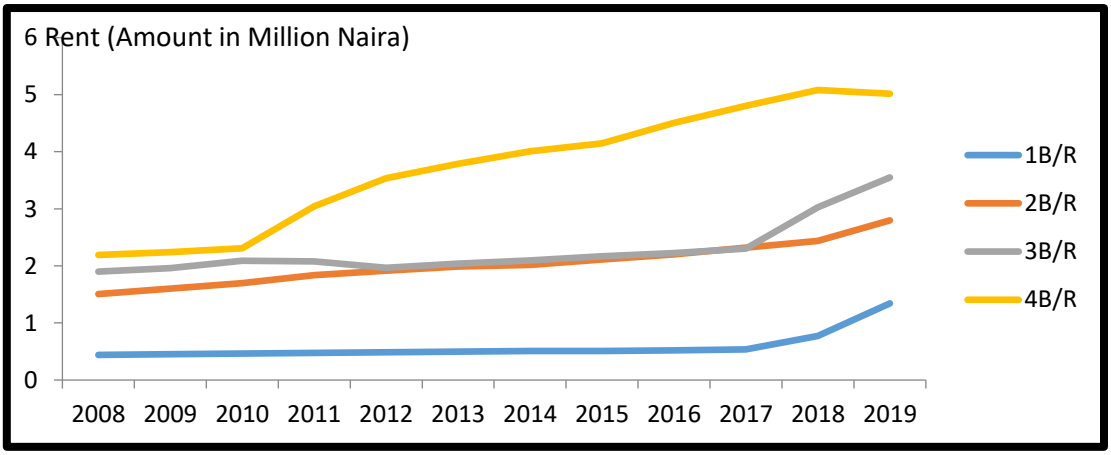


Figure 4.6: Trend in Average Rental Value in Lugbe
Source: Author, 2020

The trend in aggregated rental values across the selected areas is presented in Figure 4.7. The trend revealed that aggregated rental values in Wuse overlapped that of other areas, and there is a gentle upward movement in rental values over a given period. The aggregated rental value in Maitama is to have slightly overlapped other areas and the rent trending upwardly in gentle movement. The aggregated rental values in Gwarinpa and Utako were intertwine in the movement such that Utako overlapped the Gwarinpa from 2008 to 2016, after which Gwarinpa took lead over Utako with the short period from 2017 to 2019. Aggregated rental value in Lugbe overlapped that of Kubwa. The gaps in aggregated rental values across the selected areas is attributed to different

environmental factors such as location, neighbourhood infrastructure and relative accessibility.

Analysis of Trend in Aggregated Average Rental Value in Abuja

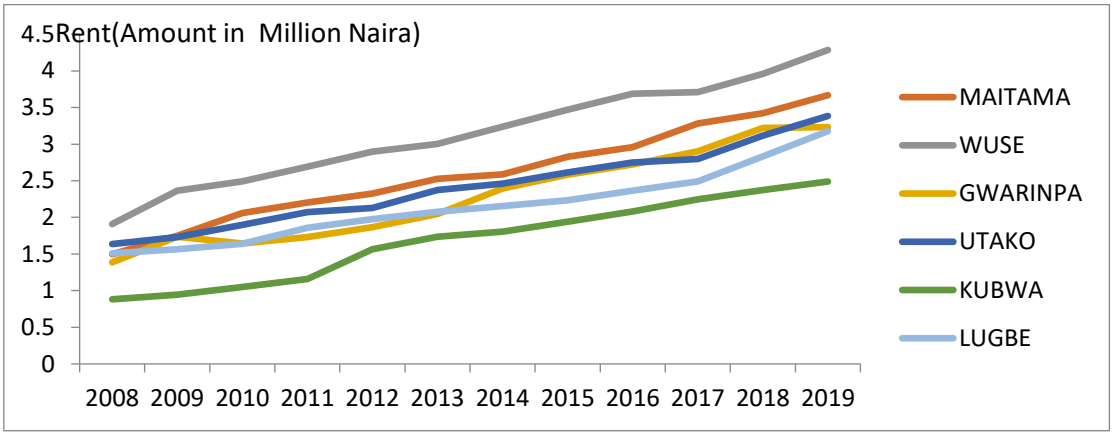


Figure 4.7: Aggregated Trend in Average Rental Value in the Study areas
Source: Author, 2020

Test of significance variance in aggregated rental values

The test of analysis of variance carried out revealed that rental values across the selected areas maintained significance variance as presented in Table 4.6a. The result of statistics provided that the f-ratio at 7.5468 at p-value (0.000) less than 0.05 level of significance is statistically significant. Therefore, there is statistical significant difference in rental values across the selected areas; this significant difference is associated with difference in geographical distribution of environmental qualities.

Table 4.6a: Analysis of Variance in Aggregated Rental Values

Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	38385.16	5	7677.032	7.5468	0.000	2.3538
Within Groups	67138.93	66	1017.257			
Total	105524.1	71				

Source: Author, 2020

Result of significance difference in average rental values in Abuja

The result of post hoc test presented in Table 4.6b revealed that the mean significant difference was significant in some areas while in some areas it is not

significant. The mean different in rental value is as a result of difference in environmental attributes. The significance of the mean difference was tested using p-values in the statistics, the result revealed that Maitama, Wuse, Utako and Gwarinpa had p-values greater than 0.05 level of significance; therefore, the result found that there is no significant difference in rental values due to the same quality of environmental attributes. Furthermore, Maitama, Wuse, Utako and Gwarinpa maintained a significant difference in rental values with Kubwa and Lugbe as p-values is less than 0.05 levels, this therefore is as a result of difference in quality of environmental attributes. There is no significance different in rental values between Kubwa and Lugbe as p-value is less than 0.05level of significance, this is therefore attributed to the same quality of environmental attributes. Therefore, Maitama, Wuse, Utako and Gwarimpa were found to have better quality of environmental attributes than Kubwa and Lugbe.

Table 4.6b: Honesty Significant Difference in Rental Value across Selected Area

(I) FACTOR	(J) FACTOR	Mean Difference (I-J)	Std.Error	Sig.	Implication of this finding on the areas
MAITAMA	WUSE	.27045	.14776	.454	Equality environmental attributes
	GWARINPA	.22792	.14776	.638	Equality environmental attributes
	UTAKO	.22394	.14776	.656	Equality environmental attributes
	KUBWA	.71895*	.14776	.000	Different quality of environmental attributes
	LUGBE	.77632*	.14776	.000	Different quality of environmental attributes
WUSE	MAITAMA	-.27045	.14776	.454	Equality environmental attributes

	GWARINPA	-.04253	.14776	1.00	Equality environmental attributes
	UTAKO	-.04651	.14776	1.00	Equality environmental attributes
	KUBWA	.44850*	.14776	.039	Different quality of environmental attributes
	LUGBE	.50587*	.14776	.013	Different quality of environmental attributes
GWARINPA	MAITAMA	-.22792	.14776	.638	Equality environmental attributes
	WUSE	.04253	.14776	1.000	Equality environmental attributes
	UTAKO	-.00398	.14776	1.000	Equality environmental attributes
	KUBWA	.49103*	.14776	.017	Different quality of environmental attributes
	LUGBE	.54840*	.14776	.005	Different quality of environmental attributes
UTAKO	MAITAMA	-.22394	.14776	.656	Equality environmental attributes
	WUSE	.04651	.14776	1.000	Equality environmental attributes
	GWARINPA	.00398	.14776	1.000	Equality environmental attributes
	KUBWA	.49501*	.14776	.016	Different quality of environmental attributes
	LUGBE	.55238*	.14776	.005	Different quality of environmental attributes

KUBWA	MAITAMA	-.71895*	.14776	.000	Different quality of environmental attributes
	WUSE	-.44850*	.14776	.039	Different quality of environmental attributes
	GWARINPA	-.49103*	.14776	.017	Different quality of environmental attributes
	UTAKO	-.49501*	.14776	.016	Different quality of environmental attributes
	LUGBE	.05737	.14776	.999	Equality environmental attributes
LUGBE	MAITAMA	-.77632*	.14776	.000	Different quality of environmental attributes
	WUSE	-.50587*	.14776	.013	Different quality of environmental attributes
	GWARINPA	-.54840*	.14776	.005	Different quality of environmental attributes
	UTAKO	-.55238*	.14776	.005	Different quality of environmental attributes
	KUBWA	-.05737	.14776	.999	Equality environmental attributes

Source: Author, 2020

IMPLICATION OF FINDING AND CONCLUSION

Analysis revealed that trend in property market value is not siginificantly different across Maitama, Wuse, Utako and Gwarinpa property markets. This fact is attributed to the same quality of environmental attributes present in each of the neighbourhoods mentioned. But contrarily, Maitama, Wuse, Utako and Gwarinpa property market maintained significant difference in rental values with Kubwa and Lugbe as p-values is less than 0.05 levels, this is therefore attributed to difference in quality of environmental attributes. Therefore, the

value of environmental amenity should be captured in the price of residential properties close to it. The study revealed the relative importance of each of the environmental attributes in the rental values of residential properties. It is observed from the results across the study areas that the structural attributes (like, quality of fence, burglary proof, wall quality, floor quality, landscaping, unit of bedroom, toilet and bathroom) of the residential houses have strong statistical significance for the amount of house rents charged by house owners. The proportion of the attribute variables that is significant in the model occurred at a 23.3%, 29.6%, 53.0%, 32.8%, 31.6%, 46.1%, 26.0% and 43.3% of the rental value respectively. The study revealed growth in rental value of residential properties over the last 12 years in Abuja. The study recommends that government, developers and prospective investors should consider investing in residential property types specifically two and three bedroom as it promised good returns on capital invested.

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