

## **Analysis of Trends in Capital Value of Residential Properties in Government Reserved Area, Enugu Urban**

Nzekwe, Justina U<sup>1,\*</sup>. Oladejo, Esther I<sup>2</sup>. Ajah, Janefrances N<sup>1</sup>

<sup>1</sup> Department of Estate Management, Enugu State University of Science and Technology, Enugu State, Nigeria

<sup>2</sup> Department of Estate Management, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria

\*Corresponding author: Nzekwe Justina U

Department of Estate Management, Enugu State University of Science and Technology, Enugu State, Nigeria

---

### **Abstract**

Capital value of a property is the amount the property is sold for in an open market at a given point in time. It is the monetary worth of a property at a particular location. The study aimed at determining the trends in capital value of residential properties in GRA, Enugu Urban. The following objectives were pursued; to determine annual returns on residential properties in GRA, Enugu; to ascertain the rate of residential property appreciation in GRA, Enugu and to examine the trends of capital value of residential properties in GRA, Enugu. The research design adopted for this work was survey research while the population of the study is made up of registered estate surveyors and valuers in Enugu Metropolis. Taro Yamane model was adopted in determining the sample size from a population of 145. Instruments used for data collection were; field observation, interview and questionnaires. A total of 106 questionnaires were administered, out of which 100 were correctly filled, returned and analyzed. Data collected were presented in tables while descriptive statistics was used in analyzing the data obtained, hence the use of frequencies, percentages, returns, capital models and trend analysis (trend ratios). The findings include a consistent rise in property values in GRA, Enugu, which was influenced by the constant rise in annual returns on residential properties. The major factors that affect capital values of residential properties in GRA, Enugu are cost of constructing the properties, location, the level of depreciation of the buildings, the quality of materials used in construction, accessibility to the building and market demand for residential properties in GRA. The study concluded that residential properties in GRA, Enugu experience high rate of appreciation in capital value. It further recommended that provision of major infrastructural provisions such as pipe-borne water and good access roads as well as security provisions (CCTVs) should be made a priority for continued appreciation in capital values in GRA, Enugu.

**Keywords:** capital value, rental, residential, Enugu, GRA

---

Date of Submission: 06-04-2023

Date of acceptance: 18-04-2023

---

### **I. INTRODUCTION**

The history of Enugu dates back to 1909 during the discovery of coal by some British geological explorations team. The very first coal mine commenced in Udi valley in 1915, while the second was in Iva Valley in 1917, it was from this coal activities that the name Coal City was derived. According to Ikejiofor who was cited by Chukwu, Aniagolu & Obodo [1] construction work for residential quarters of native coal miners kicked off at Ugbo-Alfred and Coal Camp which marked the beginning of residential settlements for coal miners. Subsequently, construction of European quarters commenced, the quarters were built for the colonial masters who were at the helm of affairs at that time. The European quarters was laid out in 1916 and is currently known as Government Reserved Area (GRA).

In recent times, the Enugu GRA has experienced unprecedented growth due to population upsurge in the state; high and middle density areas of Enugu are fast becoming clustered due to human influx from various part of the state caused by rural urban migration. The relocation of prominent citizens into GRA coupled with the high demand for accommodation in the area and expansion of recreational and tourist centers culminated into persistent rise of property value. Lately, the most expensive developments are sited in GRA followed by rapid appreciation of landed property value in the area [2].

The consistent rise of capital value has defined the need to delve into trends of capital values of residential properties in GRA, Enugu metropolis.

Valuation is the estimation of the amount (price) for which a property should exchange on the date of valuation between a willing buyer and a willing seller in arm's length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently and without compulsion [2]

### **1.1 Concept of Residential Property**

Residential property is a type of property-use with main purpose of providing shelter and accommodation for users. Residential properties may be let to tenants, sold off after construction or owner-occupied. Ownership of residential properties do not confer any restriction, hence, private investors and public or government investors can own residential buildings [3].

### **1.2 Types of Residential Properties**

Residential properties can be grouped as single-family homes or they can belong to multi-family residences. Single family home is identified as detached houses, semi-detached houses or duplexes. Both categories can be in the form of bungalows or story buildings. Multi-family homes are developed in the form of block of flats and tenement buildings. Single family homes are the most popular form of residential properties anywhere in the world even though lately it impacts on the demand of building couple with the rising cost of land and cost of construction which has led to a shift of emphasis to multi-family units especially the high-rise ones. Economics appear to preach in favor of the multi-family residence as leading to lower per family housing cost of construction [4].

### **1.3 Residential Properties and Value Indicators**

The International Valuation Standards defined valuation as the estimated amount (price) for which a property should exchange on the date of valuation between a willing buyer and a willing seller in arm's length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently and without compulsion. Oluseyi, Bioye & Bolanle [5] their study opined that accuracy of a value figure is a measure of the contrast between value determination as it relates with subsequent realization of eventual sale price.

According to Ekpo & Udoh [6] value indicators for residential properties can be a combination of Art and Science. Art in that the physical characteristics of the property such as the beauty, design and concept while scientific approach like data collection from the property, application of the data to improve on the property could improve on the property value and attract better capital values. In like manner, Abidoye & Chan (7) are of the view that location advantage is the main factor influencing the market value of residential properties, in addition, property aesthetic and building quality also provide indication of appreciating value. They therefore affirmed that value is in the mind of users (property owners and tenants) and does not lie on the physical feature of the property. In same light, Bello et al [8] and Ekpo & Udoh [6] opined that physical characteristics of a property is major booster of value, they said that the qualitative factors of a property provides better value indicator compared to quantitative factors.

This was supported by Adegoke [9] and Babawale & Adewumi [10] who in their various studies agreed to Abidoye & Chan [7] opinion on location being a veritable value indicator for residential properties especially for low density areas. On the contrary, Ilesanmi [11] disagreed with these, he asserted that building quality appears the most compelling value indicator as against the opinion of the former authors, meanwhile from Olajide's [12] view, he seemed not to be in coherence with Ilesanmi's assertion, he reiterated the opinions of the former scholar's theories on location. However, a study by Nuhu [13] raises an argument on the real cause of property appreciation, according to him high cost of building materials contributes greatly in residential property values (Open Market Value), this he saw as an aftermath of hyper or jumping inflation.

From above argument and theories and the overall literature review, none of the authors or materials mentioned the rate of residential property appreciation in GRA, Enugu neither did any give any hint on the current trend of capital value of residential properties in GRA Enugu. This study however intends to provide valid trend of capital values for residential properties in GRA, Enugu for a period of 10years as a contribution to the body of knowledge and a material for further research.

## **II. II METHODOLOGY**

### **2.1 Research Design**

The research design adopted for this work is the survey research. According to Nwachukwu [14], survey research design as generally conceived is one in which a group of people or items are studied by collecting and analyzing data from a few people or items considered to be representative of the entire group. The survey research design specifies how much will be collected and analyzed.

### **2.2 Population of the Study**

The population of the study is made up of registered Estate Surveyors and Valuers in Enugu Metropolis, this is because Estate Surveyors and Valuers are the only professionals backed by law to determine the value of land. According to the Enugu State NIESV Directory [15] there are a total of 145 registered estate surveyors and valuers, this comprises Associates and Fellows practicing in Enugu metropolis.

### 2.3 Sample Size and Sampling Technique

Stratified random sampling technique was used to determine the sample population; sample size was determined using Taro Yamani's formula:

$$n = \frac{N}{1 + N(e)^2}$$

Where n= sample space

N = total population

e = level of significance

1 = constant value

Considering 5% or 0.05 as margin of error in order to arrive at accurate result.

a. Estate Surveyors and Valuers - 145

145

$$1 + 145(0.0025)^2$$

$$= \frac{145}{1.3625}$$

$$= 106$$

### 2.4 Data collection

Data used in this work included both primary (questionnaires, one-on-one interviews and personal observations) and secondary data (second hand materials, information or data collected from published or written materials by other authors in form of textbooks, newspapers, reports, magazines, publications and journals)

The questionnaire comprised close ended questions relating to the study, which allowed respondents to provide easy answers to structured questions. The questionnaires were administered face-to-face during survey to ensure correct data collection.

### 2.5 Data analysis

Descriptive statistics was used in data analyses

### 2.6 Scope of Study

The study was confined to Government Reserved Area (GRA), Enugu North Local Government Area. It focuses on the capital values of residential properties consisting of block of flats, bungalows, duplexes and mansions in the last 11 years (2012 - 2022) representing the trends of residential properties disposal within the neighborhood.

## III. III RESULTS AND DISCUSSION

### 3.1 Respondents characteristics

A total of 106 questionnaires were administered, out of which 100 were correctly filled, returned and analyzed. The returned questionnaire represents 94.34% while the unreturned questionnaire represents 5.66%. The returned questionnaires of 94.33% formed the basis for the analysis.

The distributions of the respondents in accordance relevant some parameters are shown in Tables 1 to 8

Table 1: Gender of Respondents

Gender	Frequency	%Frequency
Male	75	75.00%
Female	25	25.00%
Total	100	100

Table 2: Age distribution of respondents

Age	Frequency	%Frequency
35years and below	17	17.00%
36-45years	35	35.00%
46-60years	41	41.00%
61years and above	7	7.00%
Total	100	100.00%

Table 3: Marital status of respondents

Gender	Frequency	%Frequency
Single	34	34.00%
Married	51	51.00%
Widowed	15	15.00%
Total	100	100.00%

**Table 5: Academic qualification of respondents**

Academic Qualification	Frequency	%Frequency
OND	-	-
HND	35	35.00%
BSc	49	49.00%
MSc	13	13.00%
PhD	3	3.00%
Total	100	100.00%

**Table 6: Category of membership of respondents**

Category of membership	Frequency	%Frequency
Probationer	26	26.00%
Associate	41	41.00%
Associate +	29	29.00%
Fellow	4	4.00%
Total	100	100.00%

**Table 7: Respondents duration of practice**

Duration of practice	Frequency	%Frequency
3-10years	21	21.00%
11-20years	40	40.00%
21-30years	27	27.00%
31years and above	12	12.00%
Total	100	100.00%

**Table 8: Respondents Familiarity with Trend of Capital Values in GRA, Enugu**

Gender	Frequency	%Frequency
Definitely	68	68.00%
To an extent	29	29.00%
Undecided	3	3.00%
Total	100	100.00%

Table 8 revealed that out of 100 respondents who were administered questionnaires; 68 of them said they are familiar with the trend of capital values in GRA, 29 of them opined that their knowledge of the trend is only to an extent while 3 respondents were undecided on their level of familiarity with trend of capital values in GRA, Enugu. Over 60% of the respondents are familiar with the trend of capital values in GRA, this is sufficient to carry on with the study.

### 3.2 Data on Annual Returns on Residential Properties in GRA, Enugu

In order to determine the annual returns on residential properties in GRA, Enugu there was a need to administer questionnaires. Results on rent are presented in Tables 9 and 10.

**Table 9: Response on the annual returns on residential properties in GRA, Enugu**

	Annual returns	Frequency	% Frequency	Rank
2bedroom flat	700,000-750,000	21	21.00%	3 <sup>rd</sup>
	750,000-850,000	41	41.00%	1 <sup>st</sup>
	850,000-950,000	38	38.00%	2 <sup>nd</sup>
<b>Total</b>		<b>100</b>	<b>100.00%</b>	
3bedroom flat	700,000-800,000	3	3.00%	4 <sup>th</sup>
	800,000-900,000	18	18.00%	3 <sup>rd</sup>
	900,000-1,000,000	49	49.00%	1 <sup>st</sup>
	1,000,000-1,500,000	30	30.00%	2 <sup>nd</sup>
<b>Total</b>		<b>100</b>	<b>100.00%</b>	
4bedroom Bungalow	1,000,000-2,500,000	28	28.00%	2 <sup>nd</sup>
	2,600,000-3,500,000	55	55.00%	1 <sup>st</sup>
	3,600,000-4,500,000	17	17.00%	3 <sup>rd</sup>
<b>Total</b>		<b>100</b>	<b>100.00%</b>	
4bedroom Duplex	1,000,000-2,000,000	2	2.00%	4 <sup>th</sup>
	2,000,000-3,000,000	18	18.00%	3 <sup>rd</sup>
	3,000,000-4,000,000	38	38.00%	2 <sup>nd</sup>
	4,000,000 above	42	42.00%	1 <sup>st</sup>
<b>Total</b>		<b>100</b>	<b>100.00%</b>	
5bedroom Detached House	1,000,000-2,000,000	-	0%	-
	2,000,000-3,000,000	9	9.00%	3 <sup>rd</sup>
	3,000,000-4,000,000	43	43.00%	2 <sup>nd</sup>
	Above 4,000,000	48	48.00%	1 <sup>st</sup>
<b>Total</b>		<b>100</b>	<b>100.00%</b>	

Table 9 shows response on the annual returns on residential properties in GRA. Data on 2bedroom flats indicate that 21 respondents are of the view that annual returns per flat is in the range of 700,000-750,000. 41 respondents are of the opinion that the annual returns fall between 750,000-850,000 while 38 said that the annual return on 2bedroom flat is between 850,000-950,000; the outcome were ranked 3<sup>rd</sup>, 1<sup>st</sup> and 2<sup>nd</sup> respectively.

Data on 3bedroom flat showed that 3 respondents viewed the annual returns to be between 700,000-800,000, 18 think it is between 800,000-900,000, 49 respondents gave opinion between 900,000-1,000,000 while 30 respondents said the annual returns fall between 1,000,000-1,500,000 this was ranked 4<sup>th</sup>, 3<sup>rd</sup>, 1<sup>st</sup> and 2<sup>nd</sup> respectively.

Data on 4bedroom bungalow revealed that out of 100 responses on annual returns on residential properties in GRA, 28 respondents said the returns range between 1,000,000-2,500,000, 55 respondents chose between 2,600,000-3,500,000 and 17 respondents were of the opinion that the annual returns is between 3,600,000-4,500,000 it was ranked 2<sup>nd</sup>, 1<sup>st</sup> and 3<sup>rd</sup> respectively.

Data on 4bedroom duplex shows that 2 respondents opted for annual returns between the range of 1,000,000-2,000,000; 18 respondents said its between 2,000,000-3,000,000; 38 of them went for 3,000,000-4,000,000 while 42 others said that the annual returns for residential properties in GRA is 4,000,000 and above. It was ranked 4<sup>th</sup>, 3<sup>rd</sup>, 2<sup>nd</sup> and 1<sup>st</sup> respectively.

Data on 5bedroom detached house revealed that 9 respondents chose the range of 2,000,000-3,000,000 as annual returns, 43 respondents went for 3,000,000-4,000,000 and 48 respondents are of the opinion that the annual returns on residential properties in GRA is above 4,000,000. The responses were ranked 3<sup>rd</sup>, 2<sup>nd</sup> and 1<sup>st</sup> respectively.

**Table 10: Rent Passing on Residential Properties in GRA, Enugu**

Type of Residential Property	Rent Passing	Average Rent Passing	Say
2bedroom flat	750,000-850,000	800,000.00	800,000.00
3bedroom flat	900,000-1,000,000	950,000.00	950,000.00
4bedroom Bungalow	2,600,000-3,500,000	3,050,000.00	3,000,000.00
4bedroom Duplex	3,000,000 - 4,000,000	3,500,000.00	3,500,000.00
5bedroom Detached House	4,000,000 -5,000,000	4,500,000.00	4,500,000.00

Table 10 gives details of rent passing on 2bedroom flats, 3bedroom flats, 4bedroom bungalow, 4bedroom duplex and 5bedroom detached house in GRA, Enugu. The average rent passing as of today on above categories are N800,000.00, N950,000.00, N3,000,000.00, N3,500,000.00 and N4,500,000.00 respectively.

### 3.3 Annual returns

Data on whether annual returns on residential properties have an effect on capital values as presented in Table 11 revealed that 53 respondents representing 53% opined those annual returns most definitely has an effect on capital value. 47% said that capital value of residential properties in GRA is definitely affected by annual returns. This implies that annual returns have an effect on capital value.

**Table 11: Response on whether annual returns on residential properties have an effect on capital values**

Response	Frequency	% Frequency	Rank
Most definitely	53	53.00%	1 <sup>st</sup>
Definitely	47	43.00%	2 <sup>nd</sup>
Not always	-	-	-
Undecided	-	-	-
Total	100	100.00%	

### 3.4 Residential property appreciation in GRA, Enugu

The outcome from administered questionnaires on the rate of residential property appreciation in GRA, Enugu is presented in Table 12 below.

**Table 12: Response on the rate of residential property appreciation in GRA, Enugu**

Rate of residential property appreciation	SA	A	U	D	SD	Mean	Decision
Property value appreciates at a very fast rate	29	39	14	13	5	3.74	Accept
Low rate of residential property appreciation	8	7	8	43	34	2.12	Reject
Residential properties appreciation is unstable	6	17	7	44	26	2.33	Reject
Residential properties in GRA does not appreciate	0	0	0	26	74	1.26	Reject

Data collected on the rate of residential property appreciation in GRA, Enugu is presented in table 4.12 where the mean response on the opinion that property value appreciate at a very fast rate is 3.74 which is above the minimum benchmark of 3.00. this response was accepted. The mean response for low rate of residential property appreciation is 2.12 which falls below the minimum benchmark of 3.00. respondents' opinion that residential properties appreciation is unstable and residential properties in GRA does not appreciate both have a mean response of 2.33 and 1.26 which also falls below the minimum benchmark. The last three response were rejected since the outcome did not meet up with expected benchmark. From above data it is apparent that residential properties in GRA appreciates at a fast rate.

### 3.5 Hypothesis decision

**H<sub>0</sub>:** Residential properties in GRA experiences low rate of appreciation in capital value

**H<sub>1</sub>:** Residential properties in GRA experiences high rate of appreciation in capital value

#### Decision Rule

Alpha level ( $\alpha$ ) = 0.05

If p-value  $\leq$  0.05, the test is significant. However, if p-value  $\geq$  0.05, then the test is not significant

Case Processing Summary						
	Cases Valid N	Percent	Missing N	Percent	Total N	Percent
Factors affecting capital values * Rate of Residential Properties appreciation in GRA	41	35.3%	75	64.7%	116	100.0%

Chi-Square Tests			
	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	101.329 <sup>a</sup>	40	.000
Likelihood Ratio	69.903	40	.002
Linear-by-Linear Association	13.644	1	.000
N of Valid Cases	41		
a. 55 cells (100.0%) have expected count less than 5. The minimum expected count is .15.			

From the above Pearson chi-square value of 101.329 at 40 degree of freedom (df), P-value of 0.000 is less than the alpha level of 0.05 (i.e.,  $0.000 \leq 0.05$ ) hence, H<sub>0</sub> (Null hypothesis) is rejected.

There is enough evidence to accept the Alternate Hypothesis; it is therefore safe to state that residential properties in GRA experiences high rate of appreciation in capital value.

### 3.6 Factors that Affect Capital Values of Residential Properties

Data presented in table 4.13 revealed the factors that affect capital values of residential properties in GRA, Enugu. A benchmark of 3.00 was set to either accept or reject responses on above question. Responses below benchmark is rejected while responses that meets benchmark are accepted. Among the responses on factors that affect capital values; cost of construction has a mean response of 3.37, facilities provided has a mean response of 2.24, this is followed by average number of rooms with 2.91, title of property with mean response of 3.55; location with mean of 4.3; level of depreciation with 3.89; quality of building with 4.24; age of building with 3.89; accessibility with 4.43; rate of inflation and market demand of property type have mean responses of 1.94 and 4.54 respectively. Above data shows that the accepted factors which affects capital values of residential properties in GRA, Enugu are the cost of constructing the property, the title of the property, location of the property, the level of depreciation, the quality of building, the age of the building, accessibility to the building and market demand of property.

**Table 13: Response on the Factors that Affect Capital Values of Residential Properties in GRA, Enugu**

Factors affecting capital values	SA	A	U	D	SD	Mean	Decision
Cost of construction	24	34	10	19	13	3.37	Accept
Facilities provided	3	23	5	31	38	2.24	Reject
Average number of rooms	19	21	13	26	21	2.91	Reject
Title of property	55	45	0	0	0	3.55	Accept
location	30	70	0	0	0	4.3	Accept
Level of depreciation	29	53	3	8	7	3.89	Accept
Quality of building	32	63	2	3	0	4.24	Accept
Age of building	33	42	8	15	2	3.89	Accept
Accessibility	43	57	0	0	0	4.43	Accept



Rate of inflation	1	5	11	53	30	1.94	Reject
Market demand of property type	54	46	0	0	0	4.54	Accept

### 3.7 Trends of capital value

The results from data collected on trends of capital value of residential properties in GRA, Enugu between 2012 to 2022 have been presented and analyzed in Tables 14 and 15

**Table 14: Capital Values of Residential Properties in GRA between 2012 to 2017**

Accommodation	Comparable	2012	2013	2014	2015	2016	2017
Block of 4No. 3bedroom flats	A	45,000,000	45,000,000	50,000,000	50,000,000	52,000,000	60,000,000
	B	40,000,000	48,000,000	50,000,000	55,000,000	43,000,000	65,000,000
	C	32,000,000	39,000,000	41,000,000	50,000,000	50,000,000	51,000,000
3bedroom Detached Bungalow	A	35,000,000	32,500,000	32,000,000	35,000,000	35,000,000	38,000,000
	B	28,000,000	30,000,000	29,000,000	30,000,000	37,000,000	35,000,000
	C	31,000,000	39,000,000	27,000,000	30,000,000	37,000,000	35,000,000
4bedroom Duplex	A	50,000,000	52,000,000	80,000,000	72,000,000	80,000,000	80,000,000
	B	43,000,000	65,000,000	79,000,000	75,000,000	72,000,000	85,000,000
	C	47,000,000	49,000,000	68,000,000	86,000,000	82,000,000	98,000,000
5bedroom Detached House	A	40,000,000	46,000,000	59,000,000	71,000,000	48,000,000	70,000,000
	B	40,000,000	55,000,000	50,000,000	40,000,000	65,000,000	73,000,000
	C	59,000,000	62,000,000	60,000,000	51,000,000	62,000,000	65,000,000

Tables 14 presents the capital values of residential properties in GRA between 2013-2017. Data from 3 properties on recent sales of block of 4No. 3bedroom flats, 3bedroom detached bungalow, 4bedroom duplex and 5bedroom detached house were collected from some selected estate surveyors and valuers for 2013, 2014, 2015, 2016 and 2017 respectively. The capital values of first comparable for block of 4No. 3bedroom flats were 45,000,000, 50,000,000, 50,000,000, 52,000,000 and 60,000,000; second comparable had capital values of 48,000,000, 50,000,000, 55,000,000, 43,000,000 and 65,000,000 while capital values on third comparable comprised 39,000,000, 41,000,000, 50,000,000, 50,000,000 and 51,000,000 for period 2013, 2014, 2015, 2016 and 2017 respectively.

The capital values of first comparable for 3bedroom detached bungalow were 32,000,000, 32,000,000, 35,000,000, 35,000,000 and 38,000,000 second comparable had capital values of 30,000,000, 29,000,000, 30,000,000, 37,000,000 and 35,000,000 while capital values on third comparable comprised 39,000,000, 27,000,000, 30,000,000, 37,000,000 and 35,000,000 for 2013, 2014, 2015, 2016 and 2017 respectively.

The capital values of first comparable for 4bedroom duplex were 52,000,000, 80,000,000, 72,000,000, 80,000,000 and 80,000,000; second comparable had capital values of 65,000,000, 79,000,000, 75,000,000, 72,000,000 and 85,000,000 while the capital values on third comparable comprised 49,000,000, 68,000,000, 86,000,000, 82,000,000 and 98,000,000 between 2013 to 2017 respectively.

The capital values of first comparable for 5bedroom detached house were 46,000,000, 59,000,000, 71,000,000, 48,000,000 and 70,000,000; second comparable had capital values of 55,000,000, 50,000,000, 40,000,000, 65,000,000 and 73,000,000 while capital values on third comparable comprised 62,000,000, 60,000,000, 51,000,000, 62,000,000 and 65,000,000 respectively between 2013 to 2017.

Table 15 presents the capital values of residential properties in GRA between 2018-2022. Data from 3 properties on recent sales of block of 4No. 3bedroom flats, 3bedroom detached bungalow, 4bedroom duplex and 5bedroom detached house were collected from some selected estate surveyors and valuers for 2018, 2019, 2020, 2021 and 2023 respectively. The capital values of first comparable for block of 4No. 3bedroom flats were 60,000,000, 80,000,000, 81,000,000, 95,000,000 and 100,000,000; second comparable had capital values of 58,000,000, 70,000,000, 75,000,000, 80,000,000 and 85,000,000 while capital values on third comparable comprised 73,000,000, 67,000,000, 71,000,000, 79,000,000 and 96,000,000 for period 2018, 2019, 2020, 2021 and 2022 respectively.

The capital values of first comparable for 3bedroom detached bungalow were 37,000,000, 40,000,000, 41,000,000, 35,000,000 and 50,000,000 second comparable had capital values of 35,000,000, 35,000,000, 40,000,000, 47,000,000 and 45,000,000 while capital values on third comparable comprised 29,000,000, 33,000,000, 30,000,000, 40,000,000 and 43,000,000 for 2018,2019,2020,2021 and 2022 respectively.

The capital values of first comparable for 4bedroom duplex were 76,000,000, 98,000,000, 111,000,000, 100,000,000 and 120,000,000; second comparable had capital values of 85,000,000, 89,000,000, 105,000,000, 112,000,000 and 150,000,000 while the capital values on third comparable comprised 63,000,000, 96,000,000, 121,000,000, 131,000,000 and 138,000,000 between 2018 to 2022 respectively.

The capital values of first comparable for 5bedroom detached house were 57,000,000, 77,000,000, 80,000,000, 76,000,000 and 120,000,000; second comparable had capital values of 67,000,000, 70,000,000, 70,000,000,

85,000,000 and 120,000,000 while capital values on third comparable comprised 73,000,000, 67,000,000, 81,000,000, 82,000,000 and 78,000,000 respectively between 2018 to 2022.

**Table 15: Capital Values of Residential Properties in GRA between 2018 to 2022**

Accommodation	Comparable	2018	2019	2020	2021	2022	2023
Block of 4No. 3bedroom flats	A	60,000,000	80,000,000	81,000,000	95,000,000	100,000,000	-
	B	58,000,000	70,000,000	75,000,000	80,000,000	85,000,000	-
	C	73,000,000	67,000,000	71,000,000	79,000,000	96,000,000	-
3bedroom Detached Bungalow	A	37,000,000	40,000,000	41,000,000	35,000,000	50,000,000	-
	B	35,000,000	35,000,000	40,000,000	47,000,000	45,000,000	-
	C	29,000,000	33,000,000	30,000,000	40,000,000	43,000,000	-
4bedroom Duplex	A	76,000,000	98,000,000	111,000,000	100,000,000	120,000,000	-
	B	85,000,000	89,000,000	105,000,000	112,000,000	150,000,000	-
	C	63,000,000	96,000,000	121,000,000	131,000,000	138,000,000	-
5bedroom Detached House	A	57,000,000	77,000,000	80,000,000	76,000,000	120,000,000	-
	B	67,000,000	70,000,000	70,000,000	85,000,000	120,000,000	-
	C	73,000,000	67,000,000	81,000,000	82,000,000	78,000,000	-

Table 16 shows data on average capital value for residential properties in GRA between 2012 to 2017. Block of 4No. 3bedroom flats had average capital values of 39,000,000, 44,000,000, 47,000,000, 51,600,000, 48,000,000 and 58,000,000 for 2012, 2013, 2014, 2015, 2016 and 2017 respectively. 3bedroom detached bungalow had average capital values of 31,300,000, 33,833,000, 29,300,000, 31,600,000, 36,300,000 and 36,000,000 for 2012, 2013, 2014, 2015, 2016 and 2017 respectively. 4bedroom duplex had average capital value of 46,600,000, 55,300,000, 75,600,000, 77,600,000, 78,000,000 and 87,600,000 between 2012 to 2017 respectively. And 5bedroom house had average capital value of 46,300,000, 54,300,000, 56,300,000, 54,000,000, 58,300,000 and 69,300,000 for 2012, 2013, 2014, 2015, 2016 and 2017 respectively.

**Table 16: Average Capital Value for Residential Properties in GRA between 2012 to 2017**

Accommodation	2012	2013	2014	2015	2016	2017
Block of 4No. 3bedroom flats	39,000,000	44,000,000	47,000,000	51,600,000	48,300,000	58,600,000
3bedroom Detached Bungalow	31,300,000	33,833,000	29,300,000	31,600,000	36,300,000	36,000,000
4bedroom Duplex	46,600,000	55,300,000	75,600,000	77,600,000	78,000,000	87,600,000
5bedroom House	46,300,000	54,300,000	56,300,000	54,000,000	58,300,000	69,300,000

Table 17 shows data on average capital value for residential properties in GRA between 2018 to 2022. Block of 4No. 3bedroom flats had average capital values of 64,000,000, 72,000,000, 76,000,000, 85,000,000 and 94,000,000 for 2018,2019,2020,2021 and 2022 respectively. 3bedroom detached bungalow had average capital values of 34,000,000, 36,000,000, 37,000,000, 41,000,000 and 46,000,000 for 2018, 2019, 2020, 2021 and 2022 respectively. 4bedroom duplex had average capital value of 75,000,000, 94,000,000, 112,000,000, 114,000,000 and 136,000,000 between 2018 to 2022 respectively. And 5bedroom house had average capital value of 66,000,000, 71,000,000, 77,000,000, 81,000,000 and 106,000,000 for 2018, 2019, 2020, 2021 and 2022 respectively.

Table 16 and 17 showed an appreciation of capital values of residential properties in GRA, Enugu in the last 11years (2012-2022). This connects with the fact that GRA is a high brow neighborhood with high demands for residential properties. It is expected that properties in this neighborhood will continue to appreciate, however this study intends to statistically calculate estimated trend of capital value for the year 2023 for the various types of properties under investigation in GRA, Enugu.

**Table 17: Average Capital Value for Residential Properties in GRA between 2018 to 2022**

Accommodation	2018	2019	2020	2021	2022	2023
Block of 4No. 3bedroom flats	64,000,000	72,000,000	76,000,000	85,000,000	94,000,000	?
3bedroom Detached Bungalow	34,000,000	36,000,000	37,000,000	41,000,000	46,000,000	?
4bedroom Duplex	75,000,000	94,000,000	112,000,000	114,000,000	136,000,000	?
5bedroom House	66,000,000	71,000,000	77,000,000	81,000,000	106,000,000	?

**Table 18 Average Capital Value and Trend Values of Block of 4No. 3bedroom flats in GRA, Enugu**

Year (x)	Average Capital Value (y)	X = x-2017	X <sup>2</sup>	Xy	Trend values Y <sub>c</sub> = 61,772,727.3+5,295,454.5x
2012	39,000,000	-5	25	-195,000,000	35,295,454.8
2013	44,000,000	-4	16	-176,000,000	40,590,909.3
2014	47,000,000	-3	9	-141,000,000	45,886,363.8



*Analysis of Trends in Capital Value of Residential Properties in Government Reserved ..*

2015	51,600,000	-2	4	-103,200,000	51,181,818.3
2016	48,300,000	-1	1	-48,300,000	56,477,272.8
2017	58,600,000	0	0	0	61,772,727.3
2018	64,000,000	1	1	64,000,000	67,068,181.8
2019	72,000,000	2	4	144,000,000	72,363,636.3
2020	76,000,000	3	9	228,000,000	77,659,090.8
2021	85,000,000	4	16	340,000,000	82,954,545.3
2022	94,000,000	5	25	470,000,000	88,249,999.8
	$\sum y = 679,500,000$	$\sum x = 0$	$\sum x^2 = 110$	$\sum xy = 582,500,000$	$\sum Y_c = 679,500,000$

N=5

a.  $\sum y/N = 679,500,000/11 = 61,772,727.3$

b.  $\sum xy/\sum x^2 = 582,500,000/110 = 5,295,454.5$

$Y_c = a + bx$

$Y_c = 61,772,727.3 + 5,295,454.5x$

Estimation of trends for 2023 capital value

X=2023

$X = 2023 - 2017 = 6$

Substituting x for 6 in equation 2

$Y_c = 61,772,727.3 + 5,295,454.5(6)$

$Y_c = 61,772,727.3 + 31,772,727$

$Y_c = 93,545,454.3$

**Table 19: Average Capital Value and Trend Values of 3bedroom Detached Bungalow in GRA, Enugu**

Year (x)	Average Capital Value (y)	X = x-2017	X <sup>2</sup>	Xy	Trend values $Y_c = 35,666,636.4 + 1,197,890.9x$
2012	31,300,000	-5	25	-156,500,000	29,677,181.5
2013	33,833,000	-4	16	-135,332,000	30,875,072.4
2014	29,300,000	-3	9	-87,900,000	32,072,963.7
2015	31,600,000	-2	4	-63,200,000	33,270,854.2
2016	36,300,000	-1	1	-36,300,000	34,468,745.5
2017	36,000,000	0	0	0	35,666,636.4
2018	34,000,000	1	1	34,000,000	36,864,527.3
2019	36,000,000	2	4	72,000,000	38,062,418.2
2020	37,000,000	3	9	111,000,000	39,260,309.1
2021	41,000,000	4	16	164,000,000	40,458,200
2022	46,000,000	5	25	230,000,000	41,656,090.9
	$\sum y = 392,333,000$	$\sum x = 0$	$\sum x^2 = 110$	$\sum xy = 131,768,000$	$\sum Y_c = 392,332,999.2$

N=5

a.  $\sum y/N = 392,333,000/11 = 35,666,636.4$

b.  $\sum xy/\sum x^2 = 131,768,000/110 = 1,197,890.9$

$Y_c = a + bx$

$Y_c = 35,666,636.4 + 1,197,890.9x$

Estimation of trends for 2023 capital value

X=2023

$X = 2023 - 2017 = 6$

Substituting x for 6 in equation 2

$Y_c = 35,666,636 + 1,197,890.9(6)$

$Y_c = 35,666,636 + 7,187,345.4$

$Y_c = 42,853,981.4$

**Table 20: Average Capital Value and Trend Values of 4bedroom Duplex in GRA, Enugu**

Year (x)	Average Capital Value (y)	X = x-2017	X <sup>2</sup>	Xy	Trend values $Y_c = 86,518,181.8 + 7,461,818.2x$
2012	46,600,000	-5	25	-233,000,000	49,209,090.8
2013	55,300,000	-4	16	-221,200,000	56,670,909
2014	75,600,000	-3	9	-226,800,000	64,132,727.2
2015	77,600,000	-2	4	-155,200,000	71,594,545.4
2016	78,000,000	-1	1	-78,000,000	79,056,363.6
2017	87,600,000	0	0	0	86,518,181.8
2018	75,000,000	1	1	75,000,000	93,980,000
2019	94,000,000	2	4	188,000,000	101,441,818.2

2020	112,000,000	3	9	336,000,000	108,903,636.4
2021	114,000,000	4	16	456,000,000	116,365,454.6
2022	136,000,000	5	25	680,000,000	123,827,272.8
	$\Sigma y = 951,700,000$	$\Sigma x = 0$	$\Sigma x^2 = 110$	$\Sigma xy = 820,800,000$	$\Sigma Y_c = 951,699,999.8$

N=5

c.  $\Sigma y/N = 951,700,000/11 = 86,518,181.8$

d.  $\Sigma xy/\Sigma x^2 = 820,800,000/110 = 7,461,818.2$

$Y_c = a + bx$

$Y_c = 86,518,181.8 + 7,461,818.2x$

Estimation of trends for 2023 capital value

$X = 2023$

$X = 2023 - 2017 = 6$

Substituting x for 6 in equation 2

$Y_c = 86,518,181.8 + 7,461,818.2(6)$

$Y_c = 86,518,181.8 + 44,770,909.2$

$Y_c = 131,289,091$

**Table 21: Average Capital Value and Trend Values of 5bedroom House in GRA, Enugu**

Year (x)	Average Capital Value (y)	$X = x - 2017$	$X^2$	$XY$	Trend values $Y_c = 67,227,272.73 + 4,619,090.9x$
2012	46,300,000	-5	25	-231,500,000	44,131,818.23
2013	54,300,000	-4	16	-217,200,000	48,750,909.13
2014	56,300,000	-3	9	-168,900,000	53,370,000.03
2015	54,000,000	-2	4	-108,000,000	57,989,090.93
2016	58,300,000	-1	1	-58,300,000	62,608,181.83
2017	69,300,000	0	0	0	67,227,272.73
2018	66,000,000	1	1	66,000,000	71,846,363.63
2019	71,000,000	2	4	142,000,000	76,465,454.53
2020	77,000,000	3	9	231,000,000	81,084,545.43
2021	81,000,000	4	16	324,000,000	85,703,636.33
2022	106,000,000	5	25	530,000,000	90,322,727.23
	$\Sigma y = 739,500,000$	$\Sigma x = 0$	$\Sigma x^2 = 110$	$\Sigma xy = 508,100,000$	$\Sigma Y_c = 1,098,731,818$

N=5

e.  $\Sigma y/N = 739,500,000/11 = 67,227,272.73$

f.  $\Sigma xy/\Sigma x^2 = 508,100,000/110 = 4,619,090.9$

$Y_c = a + bx$

$Y_c = 67,227,272.73 + 4,619,090.9x$

Estimation of trends for 2023 capital value

$X = 2023$

$X = 2023 - 2017 = 6$

Substituting x for 6 in equation 2

$Y_c = 67,227,272.73 + 4,619,090.9(6)$

$Y_c = 67,227,272.73 + 27,714,545.4$

$Y_c = 94,941,818.13$

### 3.8 Trends analysis

Table 21 and 22 gives a breakdown of the trend analysis on block of 4No. 3bedroom flats, 3bedroom detached bungalow (table 4.21), 4bedroom duplex and 5bedroom house (Table 22) in GRA, Enugu respectively.

**Table 22 Trend Analysis of 4No. 3bedroom flats and 3bedroom detached bungalow.**

Year	Capital value (a)	Trend ratio	Capital value (b)	Trend ratio
2012	39,000,000	100	31,300,000	100
2013	44,000,000	112.8	33,833,000	108.1
2014	47,000,000	120.5	29,300,000	-93.6
2015	51,600,000	132.3	31,600,000	101.0
2016	48,300,000	-123.8	36,300,000	116
2017	58,600,000	150.3	36,000,000	-115
2018	64,000,000	164.1	34,000,000	108.6
2019	72,000,000	184.6	36,000,000	115
2020	76,000,000	194.9	37,000,000	118.2
2021	85,000,000	217.9	41,000,000	131
2022	94,000,000	241.0	46,000,000	147

The above table analyzed the general percentage change that occurred from 2012 to 2022. The analysis is on block of 4No. 3bedroom flats and 3bedroom detached bungalow in GRA, Enugu represented as (a) and (b) respectively.

**Block of 4No. 3Bedroom Flat:** The capital values for the period 2012 to 2022 were 39,000,000, 44,000,000, 47,000,000, 51,000,000, 48,300,000, 58,600,000, 64,000,000, 72,000,000, 76,000,000, 85,000,000 and 94,000,000. The trend ratio showed changes that occurred between 2012 to 2022; between 2012 to 2015, the trend ratio was 100%, 112.8%, 120.5% and 132.3%; 2016 experienced a slight drop of -123.8%, after which it increased to 150.3%, 164.1%, 184.6%, 194.9%, 217.9% and 241% respectively.

**3bedroom Detached Bungalow:** The trend ratio of 3bedroom detached bungalow in GRA, Enugu took the following order; 100%, 108.1%, -93.6%, 101%, 116%, 115%, 108.6%, -115%, 118.2%, 131% and 147%. The trend ratio experienced a drop in 2014 (-93.6%) and a small change in 2017 (-115%).

**Table 23: Trend analysis of 4Bedroom duplex and 5Bedroom house**

Year	Capital value (c)	Trend ratio	Capital value (d)	Trend ratio
2012	46,600,000	100	46,300,000	100
2013	55,300,000	118.7	54,300,000	117.3
2014	75,600,000	162.2	56,300,000	121.6
2015	77,600,000	166.5	54,000,000	-116.6
2016	78,000,000	167.4	58,300,000	125.9
2017	87,600,000	188	69,300,000	149.7
2018	75,000,000	-160.9	66,000,000	142.5
2019	94,000,000	201.7	71,000,000	153.3
2020	112,000,000	240.3	77,000,000	166.3
2021	114,000,000	244.6	81,000,000	174.9
2022	136,000,000	291.8	106,000,000	228.9

The above table analyzed the general percentage change which occurred between 2012 to 2022. The analysis is on 4bedroom duplex and 5bedroom house in GRA, Enugu represented as (c) and (d) respectively.

In Table 23, the trend ratio of 4bedroom duplex for the period 2012 to 2022 (11years) grew from 100% to 118.7%, 162.2%, 166.5%, 167.4%, 188%, it dropped by 160.9% and took a huge up-scale of 201.7%, 240.3%, 244.6% and 291.8%. changes in the capital values at various period influenced the increase or decline in trend ratio. While trend ratio of 5bedroom house for same period (2012 - 2022) improved reasonably, capital values rose from 100% to 117.3%, 121.6%; the trend ratio dropped by 116.6% in 2015, increased to 125.9%, 149.7%, 142.5%, 153.3%, 166.3%, 174.9% and 228.9%. Between 2015 to 2022 the growth margin was over100%.

#### IV. CONCLUSION

Majority of the respondents have an idea of what the trend of capital value in GRA, Enugu is, hence provided relevant data for the study. The annual returns on residential properties in GRA for 2bedroom flat is between 750,000 to 850,000, while 3bedroom flats, 4bedroom bungalow, 4bedroom duplex and 4bedroom detached house attracts annual returns of between N900,000-N1,000,000; N2,600,000-N3,500,000; N4,000,000 and above and above N4,000,000 respectively which has impact on the capital value that properties in GRA command. Residential properties in GRA, Enugu consistently experience huge rise in property values. The major factors that affect capital values of residential properties in GRA, Enugu are cost of constructing the properties, location of the properties, the level of depreciation of buildings, the quality of materials used in construction of buildings, accessibility to the building and market demand for residential properties in GRA. The study shows that there has been a massive growth in residential property value in GRA given by data on recent sales from various comparable.

Data analysis on the estimation of trends for average capital value in the coming year 2023 indicates an envisaged growth of average capital value of block of 4No. 3bedroom flat to a tune of N93,545,454.3. The estimated anticipated growth in average capital value of 3bedroom detached bungalow, 4bedroom duplex and 5bedroom house in GRA is N42,853,981.4, N131,289,091 and N94,941,818.13 respectively. Furthermore, the trend ratio for changes in capital value showed a ratio of increment in percentages between 2012 – 2022.

Results from test of analysis revealed that residential properties in GRA, Enugu experience high rate of appreciation in capital value; there is also enough data to indicate that annual rents of residential properties in GRA are consistently rising from time to time.

#### REFERENCES

- [1]. Chukwu A.C., Aniagolu C.O. and Obodoh C.M. (2016). Trends in rental value of residential properties in Enugu, Nigeria; a comparative study between New Haven and Achara Layouts. *Journal of Multidisciplinary Engineering Science and Technology* Vol. 3(2), pp. 4037-4047
- [2]. IVSC (2017). International Valuation Standards Council.

- [3]. Odumodu, A. (2016). *Advanced Property Management*. Unpublished Lecture note. Department of Estate Management. Enugu State University of Science and Technology, Enugu
- [4]. Lekan, S. (2017, November 14). *An insight into the concept and practice of corporate property management*. A paper presented during National workshop on Property Management organized by Nigerian Institution of Estate Surveyors and Valuers, Lagos Branch, Nigeria.
- [5]. Oluseyi, J.A., Bioye, T.A. and Bolanle, F.A. (2017). Determinants of market value of residential properties in Ibadan metropolis, Nigeria. Estate Management Department, Obafemi Awolowo University, Ile Ife, Nigeria. *Journal of Economics and Sustainable Development*, Vol. 8(4), pp. 178-185.
- [6]. Ekpo, M.E. and Udeh U.E. (2021). Trends in commercial property values in an emerging real estate market. Case study of Uyo, Akwa Ibom State, Nigeria: *PM World Journal*, Vol. 5(7), Pp. 2
- [7]. Abidoeye, R. b., and Chan, A.P.C. (2016). Critical determinants of residential property values: professionals' perspective. *Journal of Facilities Management*, Vol. 14(3), pg. 283-300.
- [8]. Bello N.A., Aluko, B.T., and Alimi, R.K. (2020). Examination of tenancy details and physical characteristics of investment properties in Abuja, Nigeria. *Journal of Real Estate Finance*, Vol. 37(1), pp. 63-76.
- [9]. Adegoke O.J. (2014). *Critical factors determining rental value of residential property in Lagos metropolis*. An unpublished M.Sc. Thesis submitted to Obafemi Awolowo University, Ile Ife
- [10]. Babawale, G. K. and Adewunmi, Y. (2011), "The Impact of Neighbourhood Churches on House Prices," *Journal of Sustainable Development*, vol. 4, no. 1, pp. 246-253.
- [11]. Ilesanmi, A.O. (2012). Housing, neighborhood quality and quality of life in public housing in Lagos, Nigeria. *International Journal for Housing Science*, Vol. 36(4), pp. 231-240.
- [12]. Olajide, S.O. (2018). Determinants of residential property values with special reference to residential neighborhood crime in South-Western Nigeria. *Journal of the Nigerian Institution of Estate Surveyors and Valuers*, Vol. 41(1), pp. 18-32
- [13]. Nuhu M.B. (2008). The impact of rental trends on property letting and investment in Tunga-Minna, Nigeria. *Journal of Nigerian Institution of Estate Surveyors and Valuers*, Vol. 31(1), pp. 41-49.
- [14]. Nwachukwu, P. (2004). *Research Methodology*. Unpublished lecture note. Department of Statistics, Federal University of Technology Owerri, Imo.
- [15]. Niesv. (2010). *Niesv business directory: Enugu state branch*. Retrieved from <https://www.firms.niesv.org.ng/niesva-zfirm/>