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Spatial Variation in Housing Rents in Calabar Metropolis, Cross River State, Nigeria

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ABSTRACT

This study aimed to investigate the spatial variation in housing rent in the Calabar metropolis of Cross River State Nigeria. Five specific objectives were stated and broken into five research questions with a null and alternate hypothesis. Related literature was collected and adopted for the study. The population of the study comprised 371,022 in the study. The instruments for data collection were a questionnaire and an oral interview. The data obtained after the survey was analyzed using the Analysis of Variance (ANOVA). The result revealed that there is a significant difference between rental values in the Calabar metropolis, which is affected by certain factors such as security, infrastructural facilities, social amenities, road accessibility and location amongst others. Accordingly, it was recommended that the government should ensure that land developers have more interest in building medium and low-cost housing with high levels of quality and quantity.

Keywords: ANOVA, housing, spatial, variation, rental, metropolis, ward, respondents, developers

1. INTRODUCTION

Housing is a basic necessity in life and it can be achieved by either renting another person's property or occupying one's own house or property. As population increases fewer people are availed of basic needs such as adequate sanitation, improved water supply, durable

and affordable housing, and adequate living space. The absence of these basic conditions has direct consequences on the physical and psychological well-being of urban populations.

Globally urbanization is increasing; the increase rate in Nigeria has been high within the last two decades. Census in the early fifties showed that there were about 56 cities in the country and about 10.6% of the total population lived in these cities. This rose dramatically to 19.1% in 1963 and 24.5% in 1985. Today the national population is estimated to be more than 150 million with the urban population constituting more than 30% [1]. With the emergence of urban centers, many people are no longer able to own property because of the difficulty in the acquisition of land and the high cost of building materials. Therefore, they are left with the alternative of renting other people's properties to satisfy their need for shelter. The urban areas have a landlord who is given a certain amount of money to be granted full access to the landlord's house or property. This amount of money paid to the landlord is popularly known as RENT.

All over the world, one of the major problems facing all mankind is that of housing. Housing is a multidimensional goods differentiated into a bundle of attributes that vary in both quantity and quality [2]. It is the largest single asset of most households and links the value to represent the wealth. The behavior of housing rent therefore influences not only business cycle dynamics but also the performance of the financial system [4].

In housing literature, the concept of housing encompasses more than shelter, it includes access to social infrastructure that enhances livability indices in and around individual homes, shops, schools, open spaces, and physical infrastructure such as roads, water, electricity, security, waste disposal, and telecommunication. Hence in the design of a dwelling unit to achieve optimum satisfaction, the environmental quality should strike a balance with the three cardinal elements that ensure sustainability, balancing ecological and environmental protection for the rich and poor alike. In Calabar, there is increasing population growth and migration to the city prompted by job opportunities and the widening gap between urban and rural wages.

In Calabar Metropolis, the housing problems have no doubt increased with land developers having less interest in building medium and low-cost housing. A preliminary survey in Calabar shows that housing developers control most of the lands in Calabar and are interested in developing high-cost housing for a bigger profit margin, making housing unaffordable for the urban poor, hence the segregation and spatial variation of housing rents. [7] The problem of inadequate supply of residential housing and rising rental costs seems to be exceptionally serious in the Calabar metropolis. In urban areas due to the location advantage which some properties offer above others for commercial and residential uses, rents tend to vary on account of the type of use which a property can offer. Also, age, size, and the facilities provided in a house affect the rental variation which also affects the spatial distribution of population in the city. There are several factors responsible for the spatial variation in housing rent in the Calabar metropolis ranging from physical elements to environmental elements, behavioral elements, economic elements, and timing elements.

The quality of a house presents a spatial difference in rent. Differentials in house rents are demand-based. Housing rent varies from one nation to another and within a particular country. Also, the market forces of demand and supply interact strongly to bring about differentials in house rent. The higher the demand for houses in a location, the higher the rent for such houses, and vice versa.

In economic theory, the cost of any input is the amount of money a firm can acquire the input. Also, the total cost is the cost of producing a certain level of output [6]. In real estate development, the total development cost comprises the cost of land and the cost of constructing

the structure. Since market forces determine market price, rising rents indicate that demand is stronger than supply, and even if the government attempts to control the rent, open market rent will still be charged where the controlled rent is out of tune with the prevailing market situation [18-24].

The increase in rent in rental housing has been attributed to demand pressure, shortage of housing supply, and high cost of construction. The worrisome high acquisition of housing, whether development cost, purchase price, or rental values of developed real property is provoking academics into more research.

The housing market in Calabar Metropolis

The products of the housing market in Calabar Metropolis comprise multi-tenanted or tenement buildings with shared services and amenities; detached single-family bungalows; semi-detached bungalows, blocks of flats, blocks of bed sitting rooms or self-contained bedrooms, detached or semi-detached maisonettes(duplexes), shopping plaza, open spaces, twin shops, garages etc. The housing products are developed in planned and unplanned districts and high, medium, and low-density areas. The districts are of varying standards and qualities in terms of road development, building types, public utilities, sanitation, and other basic infrastructure. The quality in the neighborhoods is lowest in most high-density areas and highest in medium to low densities [10]. In the overall land development in Calabar, housing or residential real estate occupies the highest land area as compared to commercial estate, yet the housing supply in the town is low and the demand high. The rental values are considered high by consumers Vis-a-Vis the economy Of the State. But Landlords (investors) consider them low because of high development costs. [8] discussed a model that explains that rent should need specific characteristics and neighborhood characteristics. [17] gave one explanation for the affordability crisis as supply not matching up to the demand. The debate over how to increase the supply of affordable housing however stands unresolved.

A similar view is added by [13] where he discussed whether these factors may be intrinsic or extrinsic. The extrinsic factors include an increase in demand for lettable space, location, condition of adjoining properties, nearness to parks and leisure, and local and national economic conditions. External factors are due to natural characteristics of the property which affect the city where the property is located. [17] observed that many metropolitan areas have experienced increase in housing prices and decrease in new construction over the past 25years.

Factors influencing housing rent

Without standardization, each property is considered to be unique and thus is priced differently [15]. Because each piece of property is unique, be it a residential house or a commercial house. It is often difficult to identify the appropriate variable that will explain the rental prices. According to [11] assessing the rental value of residential properties is a complex and challenging process for both practitioners and academicians because it involves analyzing the rental property, neighborhood characteristics, and market conditions. [20] also identified flexibility, design, accessibility, size of space, quality of construction, state of repairs, expected capital growth and proximity to volatile areas as influential to price prediction for rental properties. The following factors can be considered influential in rental price variation for commercial and residential properties; location and neighborhood, availability of necessities and amenities, size and layout, affordability, and recent nearby transactions

Aims and objectives of the study

The major aim of this research is to critically examine the reasons for rental variation in commercial and residential properties to discuss issues related to rent on these properties in the Calabar metropolis.

Also, the objectives of the study are:

- ✓ To identify the level of rents for commercial properties and residential properties in the study area.
- ✓ To determine whether the income of any prospective tenant affects their decision to acquire properties.
- ✓ To examine and ascertain the factors influencing the rents being demanded for these properties.
- ✓ To ascertain if there is a disparity in rental values for residential and commercial properties in the study area.
- ✓ To find out the rate of demand between commercial and residential properties.

Research questions

- What is the level of rent for commercial and residential properties in Calabar metropolis (Calabar South and Calabar Municipal)?
- What are the factors influencing rents charged on those commercial and residential properties?
- Does the income of prospective buyers/tenants affect their decision to acquire properties?
- Is there any disparity in the rental value for rents charged on residential and commercial properties in the study area?
- Amongst properties put for commercial and residential use, which is on a higher rate of

2. MATERIALS AND METHOD

2. 1. Study area

The research setting is Calabar Metropolis (also referred to as Canaan land) a city in Cross River State in south-southern Nigeria. The original name for Calabar was Akwa Akpa, coined from the Efik language. The city is watered by the Calabar and Great Kwa rivers and creeks of the cross river (from its inland delta). Calabar metropolis lies between long 8°18'00"E to 8°24'00"E and lat 4°54'00"N to 5°04'00"N. It covers a land area of 406 km and has a population of 371,022 as of the 2006 census. Administratively, the city is divided into Calabar Municipal and Calabar South local government areas. Cross River State is made up of eighteen local government areas which include Abi, Ikom, Akamkpa, Akpabuyo, Bakassi, Bekwarra, Biase, Boki, Etung, Obanliku, Obubra, Obudu, Odukpani, Ogoja, Yakurr, Yala, Calabar south and Calabar municipality. Calabar metropolis is a large city today with several towns like Akim, Ikot Ansa, Ikot Ishie, Duke Town, Henshaw Town, Ikot Omin, Obutong, Ikot Ekpo etc.

The study Scope covers the Calabar metropolis which includes Calabar South and Calabar municipality local government areas. From Anantigha, Jebs, Marina, Ekpo abasi, Goldie Street, Mount Zion in Calabar south local government area, and also covers parliamentary, Marian,

MCC, Ikot Effa, Murtala Muhammed Highway, etc. in Calabar municipality local government area. All of which is in Cross River State, Nigeria.

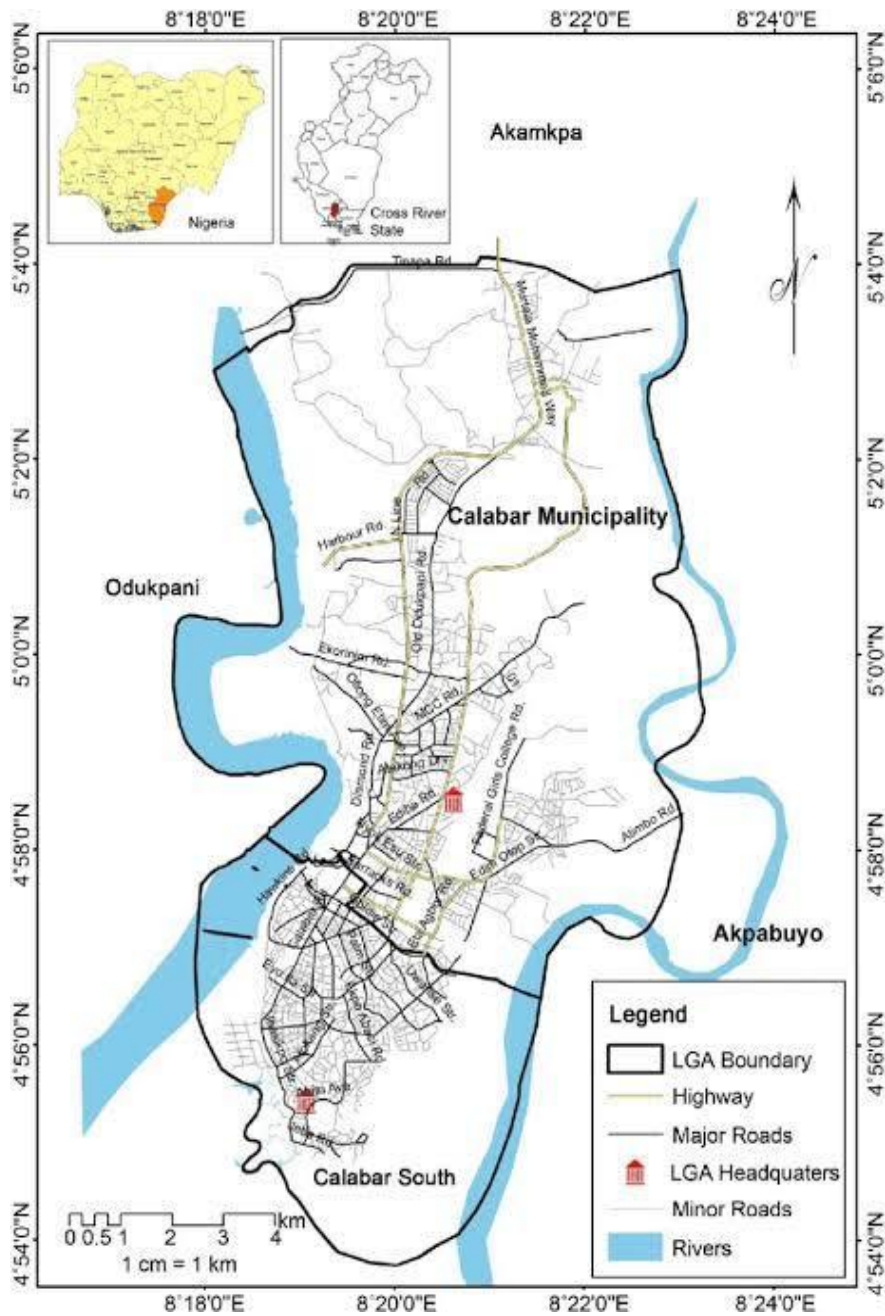


Figure1. Map of Calabar Metropolis (Calabar South and Calabar Municipality)

Under Koppen's climate classification, Calabar features a tropical monsoon climate (Koppen Am) with a lengthy wet season spanning ten months and a short dry season covering the remaining two months. The vegetation of the study area is the tropical rainforest and it is characterized by layer canopies with emergent trees. It is a closed canopy forest [5]. The

drainage of the Calabar metropolis is deep; having been designed originally with six drainage outlets. The study area is a highly undulating, rugged topography comprising dissected, regular terrain of weathered ridges and deep troughs. The Agricultural produce for export in Calabar Metropolis includes fish, Cassava, banana, palm oil, and palm kernel. Consumable crops such as yam, cocoyam, and maize are produced in the study area. The city boasts of an international museum including the slave history museum, a botanical garden, a free trade zone, an international airport and seaport, an integrated sports stadium, several historical and cultural landmarks, standard hotels, resorts, and amusement parks

2. 2. Research Design

The research design utilized for this study is purely descriptive and survey in nature. A descriptive research method describes systematically a situation or area of interest accurately. [12] states that a survey is any procedure in which data is systematically collected from a population or sample through three major methods such as a questionnaire, an interview, and telephone calls. [9] see a survey design as one in which a group of people or items are studied by collecting and analyzing data from only a few people or items considered to be representative of the entire group.

2. 3. Types/ Source of Data

The type of data used is primary and secondary data:

- Primary source of data: The primary source was obtained by direct field survey using a questionnaire
- The secondary source of data: The secondary source was obtained from journals, the internet, and pre-existing literature.

2. 4. Population

The population of this research work includes all the residents of the Calabar metropolis. Based on the 2006 census the estimated population of Calabar south is 191,630 while the estimated population of Calabar municipality is 179,392, giving the total population of Calabar metropolis at 371,022.

2. 5. Sampling Size

The sample size for this work was determined using the Taro Yamane formula which is given as

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

where n = corrected sample size

N = Population

e = margin of error (MOE) e=0.05

n = corrected sample size

$$N = 371,022$$

$$e = 0.05$$

$$n = \frac{371,022}{1 + 371,022(0.05)^2}$$

$$n = 400$$

2. 6. Sampling Technique

According to [19], sampling is the process of selecting people, objects, or sources from a study population to make generalizations about the population based on the sample. This study makes use of probability sampling and simple random sampling techniques. To get an adequate sample size for the study 10 wards were selected from the 22 wards in Calabar South and Calabar metropolis, 6 wards from Calabar South, and 4 wards from Calabar Municipality.

Table 1. Wards sample size selected randomly from 22 wards for Calabar Municipal area, Cross River State, Nigeria.

S/N	Wards	Population density	Population
1	Ward 11	High	42,923
2	Ward 12	High	31,850
3	Ward 5	Medium	17,131
4	Ward 6	Medium	16,320
5	Ward 4	Low	7,959
6	Ward 3	Low	5,066

Table 2. Wards sample size selected randomly from 22 wards for Calabar South area, Cross River State, Nigeria.

S/N	Wards	Population density	Population
1	Ward 1	High	62,391
2	Ward 4	Low	15,806
3	Ward 5	Low	10,231
4	Ward 8	Medium	30,599

2. 7. Method of Data Collection

The research used both primary and secondary sources of data. The primary source of data was obtained from oral interviews, and questionnaire, while the secondary source of data were mostly from journals and pre-existing records, making use of simple random sampling.

2. 8. Techniques in Data Analysis

Data obtained for this work was analyzed using the analysis of variance (ANOVA) using the statistical package for sciences. The following hypothesis was formulated for this work:

H₀: There is no significant difference between rental values in the Calabar metropolis.

H₁: There is a significant difference in rental values in the Calabar metropolis.

3. DATA PRESENTATION, DATA ANALYSIS, DISCUSSION OF FINDINGS

3. 1. Data presentation /Discussion of result

From Table 1 and 2 above, data was obtained for this work and presented in the following tables below

Table 3. Distribution of respondents according to gender

Gender	Frequency	Percentage (%)
Male	240	63.2
Female	140	36.8
Total	380	1.00

Source: Fieldwork of Onyemaobi Adaobi Thelma.

Table 3 shows the distribution of respondents according to gender in simple percentages in which 240 respondents (63.2%) were male and 140 respondents (36.8%) were female.

Table 4. Distribution of respondents according to Age

Age (years)	Frequency	Percentage (%)
15-25	42	11.05
26-36	84	22.11
36-45	96	25.26
Above 45	158	41.58
Total	380	100

Source: Fieldwork of Onyemaobi Adaobi Thelma

Table 4: The table shows the distribution of respondents according to age in simple percentages in which those between ages 15-25 years were 42 (11%), 26-35 years of age were 84 (22%), 36-45 years of age were 96 (25%), above 45 years were 158 (42%).

Table 5. Distribution of respondents according to occupation

Occupation	Frequency	Percentage (%)
Trader	113	29.74
Self-employed	110	28.94
Government/Private	83	21.84
Others	74	19.6
Total	380	100

Table 5: The table shows the distribution of respondents by occupation in simple percentages in which 113 (29.74%) were traders, 110 (28.94%) were self-employed, 83 (21.84%) were government/private employed, 74 (19.6%) were involved in other occupations.

Table 6. Distribution of respondents based on their marital status

Marital Status	Frequency	Percentage
Married	197	51.8
Single	156	41.1
Divorce	16	4.21
Separated	11	2.90
Others	-	-
Total	380	100

Table 6: The table shows the distribution of respondents based on marital status in simple percentages in which 197 (51.8%) are married, 156 (41.1%) are single, 16 (4.2%) are divorced, and 11 (2.9%) are separated.

Table 7. Distribution of respondents based on the number of years lived in an area

No of years	Frequency	Percentage (%)
0-10	205	53.9
10-20	111	29.2

21-30	34	8.9
31-40	20	5.3
Above 40	10	2.6
Others	380	100

Table 7: The table shows the distribution of respondents based on the number of years lived in an area in simple percentages in which 205 (53.9%) lived within 0-10 years, 34 (8.9%) lived within 21-30 years, 20 (5.3%) lived within 31-40 years, 10 (2.6%) lived above 40 years in an area.

Table 8. Distribution of respondents based on the type of house lived

Type of house	Frequency	Percentage
One (1) Room	88	23.2
Self-contained	62	16.3
One (1) bedroom flat	121	31.8
2-bedroom flat	62	16.3
3–4-bedroom flat	47	12.4
Total	380	100

Table 8: The table shows the distribution of respondents based on the type of house lived in simple percentage where 88 (23.2%) lived in one (1) room, 62 (16.3%) lived in self-contained houses, 121 (31.8%) lived in One (1) bedroom flat, 62 (16.3%) lived in 2-bedroom flat, 47 (12.4%) lived in a 3–4-bedroom flat.

Table 9. Distribution of respondents based on affordability

Affordability	Frequency	Percentage
Less than 50,000	101	26.6
50,000-100,000	119	31.3
101,000-200,00	83	21.8
201,000-300,000	56	14.7
Above 300,000	21	5.5
Total	380	100

Table 9: The table shows the distribution of respondents based on affordability in simple percentages where 101 (26.6%) can afford less than 50,000, 119 (31.3%) can afford 50,000-100,000, 83 (21.8%) can afford 101,000-300,000, 56 (14.7%) can afford 201.000-300,000. 21 (5.5%) can afford above 300,000.

Table 10. Distribution of respondents based on their determinant of house choice

Determinant of house choice	Frequency	Percentage (%)
Location	100	26.3
Accessibility to infrastructure	95	25.0
Price of house	106	27.9
Security	58	15.3
Others	21	5.5
Total	380	100

Table 10: The table shows the distribution of respondents based on their determinant house choice in simple percentages where 100 (26.3%) was based on location, 95 (25.0%) was based on accessibility to infrastructure, 106 (27.9%) was based on the price of a house, 58 (15.3%) was based on security reasons while 21 (5.5%) was based on other reasons.

Table 11. Distribution of respondents based on the part of the metropolis preferred

Most preferred part	Frequency	Percentage (%)
Calabar South	177	46.6
Calabar Municipal	203	53.4
Total	380	100

Table 11: The table shows the distribution of respondents based on the most preferred part of the metropolis to rent a house in simple percentages where 177 (46.6%) preferred Calabar South while 203 (53.4%) preferred Calabar Metropolis.

Table 12. Distribution of respondents who own or rent a house

Question	Frequency	Percentage (%)
Own a house	81	21.3
Rent a house	299	78.7
Total	380	100

Table 12: The table shows the distribution of respondents based on who owns and rents a house in simple percentages where 81 (21.3%) owned a house, and 299 (78.7%) rented a house.

Table 13. Distribution of respondents based on the relationship between tenants and landowners

Relationship between Tenants and landowners	Frequency	Percentage (%)
Friendly	319	83.9
Unfriendly	61	16.1
Total	380	100

Table 13: The table shows the distribution of respondents based on the relationship between tenants and landowners in simple percentages where 319 (83.9%) were friendly and 61 (16.1) were unfriendly.

Table 14. Distribution of respondents based on the total household income spent on rent

Spent on rent	Frequency	Percentage
20% or less	96	25.3
21-30%	132	34.7
31-35%	77	20.3
36-40%	49	12.9
Above 40%	26	6.8
Total	380	100

Table 14: The table shows the distribution of respondents based on the total household income spent on rent in simple percentages where 96 (25.3%) spent 20% or less on rent, 132 (34.7%) spent 21-30% on rent, 77 (20.3%) spent 31-35% on rent, 49 (12.9%) spent 36. 40% on rent and 26 (6.8%) spent above 40% on rent.

Table 15. Distribution of respondents in the simple percentages of the highest price a person is willing to pay for a house.

Highest price willing to pay	Frequency	Percentage (%)
100,000-150,000	179	47.1
150,000-200,000	106	27.9

200,000-250,000	53	13.9
Above 250,000	42	11.1
Total	380	100

Table 15: The table shows the distribution of the respondents based on the highest price a person is willing to pay for a house in simple percentages where 179 (47.1%) were willing to pay 100,000-150,000 for a house, 106 (27.9%) were willing to pay the highest of 150,000-200,000, 53 (13.9%) pay 200,000-250,000 and 42 (11.1%) can pay a highest above 250,000.

3. 2. Data analysis

Using ANOVA (Analysis of Variance) the data was analyzed. The formula for calculation using ANOVA

$$F = MST/MSE$$

where F is the ANOVA coefficient

MST is the mean sum square of the treatment

MSE is the mean sum of the square error.

Table 16. Data Analysed using ANOVA (Analysis of variance)

Housing rent	Sum of squares	Df	Mean square	F	Sig
Between groups	262.136	1	262.136	743.799	0.000
Within groups	133.222	378	0.352		
Total	395.358	379			

$$P = 0.000$$

3. 3. Interpretation of result

The result of one-way analysis of variance is shown in the table above. The result shows that there is a significant variance (since $F = 743.799$ and $DF = 379$), $P < 0.05$ where $P =$ probability value. Therefore, we reject the H_0 (Null hypothesis) and accept H_1 (Alternate hypothesis). This means that there is a significant variation in housing rent between Calabar Municipality and Calabar South.

3. 4. Discussion of findings

Using the objectives of the study, factors influencing the rents being demanded for properties are majorly location and price of house. People living in the Calabar metropolis tend to go for houses situated in a conducive environment that is close to basic social amenities and

infrastructure and also the price demanded as rent. People in the metropolis seek houses with minimal rental prices as compared to higher rental prices.

Also, commercial properties within a conducive environment and location attract higher rent than others located in other places. The income of prospective tenants affects their decision to acquire properties therefore causing the disparity in choice of housing in Calabar South and municipality.

The study shows that males dominate the survey which perhaps is expected as they are heads of families in their respective homes. The ages of respondents reveal that the majority of tenants are adults. Information on the occupation shows that the workforce in Calabar metropolis and its tenants are dominated by students, traders, civil servants, and the self-employed. The study indicates that the commonly rented apartment is a single room followed by a one-bedroom flat.

In a related study, [3] identified infrastructure as a major challenge affecting rental prices is the lack of primary infrastructure such as roads, water, electricity, etc. which accounts for about 30% of housing cost. In most cases, developers have to provide the infrastructure which invariably increases the cost of the houses they produce thus making the Calabar metropolis unaffordable or attracting higher rental values than others. The Calabar region has tenants who are predominantly civil servants, government employees, and big business owners who desire high taste and can afford houses with higher rental prices and adequate infrastructure whereas the tenants residing in the Calabar South region are mostly traders, students, and self-employed persons.

This finding is consistent with those [16] who observed that neighbourhood density and level of infrastructure development play vital roles in the gaps observed in rental values and suggested the need for the major urban renewal, investment in physical and economic infrastructure via partnership with private sectors and property owners in the communities. This finding is also consistent with those of [14] who pointed out that urbanization and industrialization are the main factors that pushed up the demand for housing in urban areas.

They argued further that housing problems can also arise when the developers in the urban areas have less interest in building medium and low-cost housing.

4. CONCLUSION

The main purpose of this study is to investigate the variation in rental values in the Calabar metropolis of Cross River State Nigeria. The objectives of the study were coined into the hypothesis

H_1 - There is a significant difference between rental values in the Calabar metropolis.

H_0 - There is no significant difference between rental values in the Calabar metropolis.

Literature related to this study was reviewed. The study area is in the Calabar metropolis with a population size of 371,022 as of the 2016 population census. The sampling technique adopted for the study is probability sampling and simple random sampling techniques. The sample size using the Taro Yamane formula is 400. Questionnaires and oral interviews were used as major instruments for data collection. The data collected was analyzed using the Analysis of variance (ANOVA). The result of the analysis shows that there is a significant difference between rental values in the Calabar metropolis. Spatial variation in rental values in

the metropolis is a function of age, gender, marital status, income, and occupational status. The study shows that the spatial variation in housing rent is based on the availability of adequate infrastructure, security, and location which the Calabar municipal region provides as compared to Calabar South resulting in higher rental prices for houses in the Calabar municipality to Calabar south.

From the findings of the study, there is a significant relationship in the rental value placed on housing in the Calabar metropolis ranging from several factors of location, infrastructure, security, income, etc. among others.

Based on the findings of this study, the study suggest that agencies should be set up by the state government to monitor rental value charged on commercial and residential properties by landlord/landladies across the Calabar metropolis are well and more housing schemes should be instituted by the government to reduce the monopoly of private land developers as well; as meet the housing demand of its populace.

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