



Variation in the choice of commercial land use location-policy and legal implication for the planning of Calabar South, Nigeria

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Abstract

This study was based on the analysis of the variation in choice of commercial land use location in Calabar South. A hypothesis was formulated to ascertain the variation in the choice of commercial land use location in the study area. Data were collected, using a Survey Research Design. SPSS version 11.0 was used to run the ANOVA at a level of significance of 0.05. The result of the ANOVA shows that at a degree of freedom of 55, a calculated F value of 1.006 estimated was greater than the critical value of 0.480. The resulting judgment was that there is a significant variation in factors that determine choice of commercial land use location across commercial land use sectors in Calabar South. It was recommended that, satellite commercial land use should be distributed adequately in all the sectors, so as to manage large scale influx of migrants from other sectors. The policy and legal implication is that this will equitably distribute development as provision of necessary infrastructural facilities is equitably distributed. The developments in satellite towns stimulate development in the rural areas by offering new economic opportunities, markets, supermarkets, and specialized goods market will create job opportunities for the unemployed youths. This will go a long way in reducing the high rate of migrants into the study area and on the other hand, crime rate will reduce, lives and property safer. Furthermore, a comprehensive master plan for the area should be prepared and implemented to guide future course of actions or development in the area. A well-revised master plan will identify inherent problems for the improvement of the already built up area in future.

Keywords: Commercial Land Use; Location Pattern; Location Analysis; Rate of Migration; Policy and Legal Implication; Master Plan

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1. Introduction

Land and people are the foundation of every nation, while in urban areas, rapid economic and social development is exerting sustained pressured on land for commercial purpose (Zhou et'a 2017). The relevance of Commercial Land use in any human settlement is indisputable, due to its social and economic viability in improving life style and enhancing economic developments. According to Yang et'al (2016), the ease of commercial service, has a positive impact on residential property value by promoting convenience and reducing travel cost. These aggregate positive effects are referred to as "proximity effect". This has resulted in the establishment of several markets and supermarkets across residential sectors in most cities of Nigeria, with most of them failing to comply with the Land use plan of their respective State. Here, choice of location of market is no longer based on the extant master plan but a natural pull from the peripheries to the centre where infrastructure abounds. Adeniyi, (1997) defines commercial land use to embrace general market, special market, banks, filling stations, supermarket, and hotels among others. Whilst, Tucker (2017), views commercial land use as a plot of land assigned for commercial purposes. According to Tucker "commercial" means the land is used for businesses, manufacturing plants, warehouses, parking lots and even profit generating residence.

One of the goals of commercial land use, is to encourage investment in new and existing commercial development that is compatible in size, architectural design, intensity, and signage with the surrounding land uses in established areas. In Nigeria, as in many African Countries in spite of increasing awareness of the importance of land use and modern planning and maintaining orderliness in the city environmental aesthetics, the problem of physical disorder and its attendant issues of unsustainable urban areas are obvious manifestation of the failure of land use planning, Obot, (2004). Hence, the need for urban planners in every nook and cranny of the states in the country especially Cross River State and Calabar South in particular. This would entail initiative if Government tourism is to thrive, recognizing and incorporating certain aspects of urban development into the land use distribution process and designing specific tools of administering or managing them. Strassman (1986), Onyebyeke (1987) and Okeke (2000) among others, noted that the incidence of commercial Land use pattern is related to neighbourhood Land use characteristics. The basis of the problem of commercial Land use pattern location in the study area include the involvement of inadequate consideration of relevant intra urban location decisions that are determined by the relative desirability of locations of commercial Land use units to all sectors of neighbourhood areas. Colin C. (1951). More so, a number of problems and issues affecting choice of locating commercial land use, has been on the increase in Calabar South, as the locational pattern has contributed to traffic congestion in areas where this land use are located, as most of the areas have little or no parking space for their customers . Example of these place include; the shopping centres in watt market, Mbukpa market, Goldie market, Bed well, Victor Akan street, Edibe –Edibe, Lagos street etc.

This problem has remained a serious challenge and is traceable to improper land use zoning or classification. The proliferation of commercial land use pattern in residential areas had been observed to

pose a serious threat on land use classification pattern and planning Udom, (2003). Besides, it is a persistent problem that seems to defy solutions.

Based on this circumstance, this study was conducted to analyse the variation in the choice of commercial land use, in the hope that solutions which are policy oriented when suggested would appeal to the Authorities sense of duty to not only ensure the protection of lives and properties but also to ensure a liveable and safer environment.

2. Material and method

2.1. Study area

The study area is Calabar South Local Government Area in Cross River State of Nigeria, as shown in figure 1. Calabar is located in the Southern Senatorial district, with its Headquarters in Anantigha. The study area has a population of 299,657 (NPC, 2015). Calabar south lies between latitude $4^{\circ} 46'$ and $4^{\circ} 58'$ North of the equator and longitudes $8^{\circ} 15'$ and $8^{\circ} 26'$ East of the Greenwich meridian with an approximate land mass of 264 km². It is bounded by Calabar Municipality in the north; its southern shores are bounded by the Atlantic Ocean, Akpabuyo Local Government Area in the east and in the west by Odukpani Local Government Area and Akwa Ibom State as evident in the Map depicted in figure 2. The Study Area, according to the Koppen classification has a semi-equatorial (monsoonal) climate with normal heavy down pours, with two seasonal periods, which are: the rainy and dry seasons. It has an annual rainfall ranges from 2500mm to 300mm. The variation in the intensity and reliability of rainfall coupled with high temperature throughout the year affect the influx of visitors to the area with the consequence for overcrowding due to concentration of infrastructure in the urban centres. The temperature varies between 26 °c to 33 °c. Making it attractive for first time visitors to want to return and possibly settle in the city centres. The reason for choosing Calabar South for the study is that Calabar South portends more challenging planning problems, being an old town, compared to the more recently developed Calabar Municipality. It was Calabar south the colonial masters first arrived in the early 16th century and without any question the town is overdue for urban renewal.

2.2. Research design

The use of survey research design was employed in order to enhance the effective realization of the set goal. The researchers had employed the survey research because it involved the collection of data to accurately and objectively analyse the existing commercial land use as well as their location patterns in the study area. Besides, the survey research design was selected because the study involved both larger and small population, the distribution and interrelation between variables under investigation (commercial land use location pattern and rental value of commercial land use). The survey research depended basically on the questionnaires, site observation, checklist and oral interview as instruments for data collection.

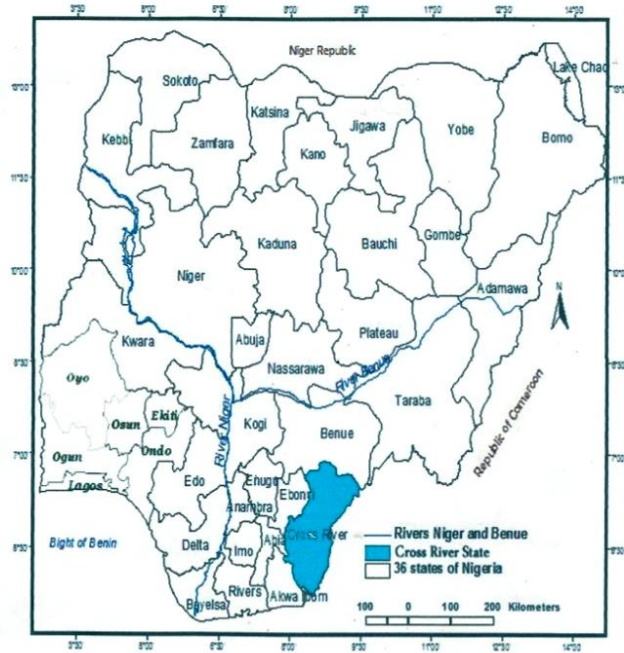


Figure 1. Map of Nigeria Showing Cross River State (Source: Office of Surveyor- General Ministry of Lands & Housing)

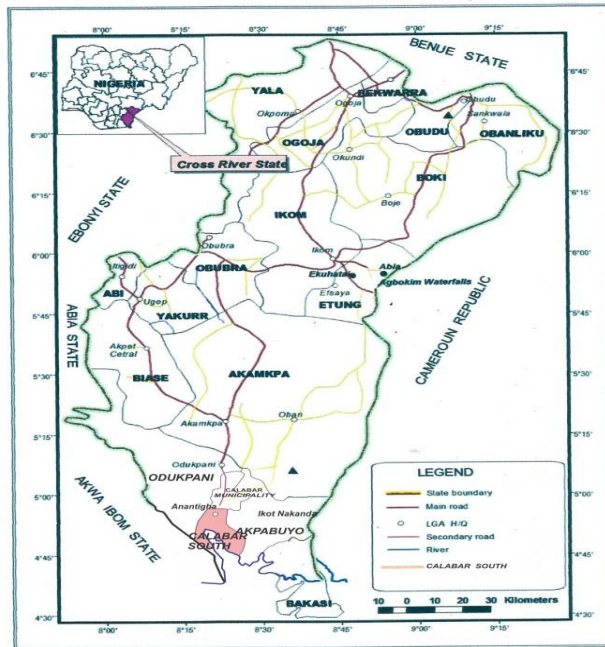


Figure 2. Map of Cross River State showing Calabar South LGA (Source: Office of Surveyor- General Ministry of Lands & Housing, Calabar).

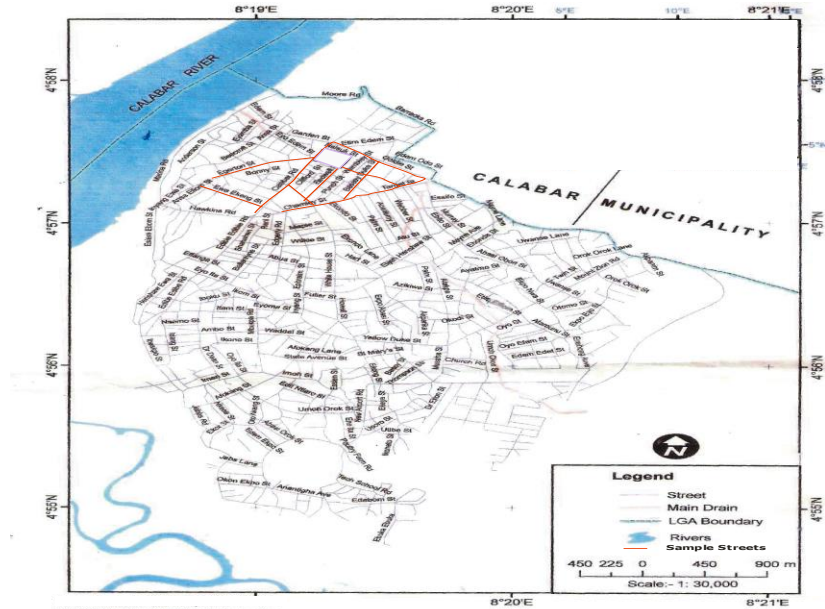


Figure 3. Map of Calabar South Local Government Area (Source: Office of Surveyor- General Ministry of Lands & Housing, Calabar).

2.3. Sample technique

To verify the hypotheses for this research, the study area was divided into eight (8) sectors; that is sector I to VIII for convenience of researchers operations. After which, he employed random sampling technique was employed in questionnaire administration in residential areas where these retail outlets are situated while the stratified sampling technique was adopted with checklist to interview the management of the existing commercial outlets as well as officials in the ministry of internal revenue in the study area. However, based on the quality principle, four hundred (400) copies of questionnaire were administered, to customers and operators in across the eight (8) sectors of the study area as demarcated by the researchers.

2.4. Types and sources of data

The researchers employed both primary and secondary data in this study. The primary data include; oral interview, site observation and questionnaire while the secondary data employed in the study were acquired from textbooks materials, internet like journals, magazines, newspapers, the population of the study area was obtained from the national population commission (NPC) and the hard copy maps were obtained from the Office of the Surveyor-General ministry of Lands and Housing Calabar Cross River State.

2.5. Procedures for data collection

The researchers used questionnaire survey method in data collection. Meanwhile; the questionnaire was in four (4) sections. "A, B, C and D" information on the bio data, such as their, sex, marital status among others were captured in section "A" of the questionnaire. Also, information on the socio-economic status of the people such as level of income per month, education qualification, occupation etc. were captured in section "B" of the questionnaire. Furthermore, information such as location of land use commercial patterns and others were captured in section "C" and "D" of the questionnaire. Also, information with regards to the location of activity, commercial land use sectors such as financial institution, supermarket, Restaurant/Eateries, Open/general market, lock-up shops, office, special market, factors that determine choice of commercial land use location pattern with commercial land use sectors among others were equally captured on the checklist as source from the management of commercial land use and ministry of internal revenue Calabar Cross River State. Oral interview was conducted in the cause of data collection. This enabled the researchers to have a face to face interaction with the management working in the various existing commercial land use outlets. A total of 400 questionnaires were administered to 400 respondents in the study area. Using location analysis data obtained was analysed to draw inference as to the spatial distribution of commercial land uses.

2.6. Statistical techniques

In order to have reliable findings, result and conclusion, statistical measures such as tables, put in chart and percentages were analysed, summarised and interpreted from the primary data collected from the field. Graphs are equally employed to demonstrate the various rents paid per year, sales in the commercial land use sector of Southern Calabar.

To this effect, the analysis of variance (ANOVA) using the statistical package for social sciences (SPSS) version 11.0 was used to test the null hypothesis (Ho) which states that There is no significant difference in the location pattern of commercial land use with rental value of commercial land use sector in Calabar south. The equation below is an ANOVA formula for computing;

$$F = \frac{\text{Between Group Variance}}{\text{Within Group Variance}}$$

$$K = \sum 1 = 0(x-xGM)^{2:(k-1)}$$

$$\sqrt{\sum k (X - X) \div N - k}$$

$$1=0 \quad 1=0$$

where; the upper equation is called between group variance, the lower equation is called within group variance

GM= Group mean

K=Number of group (column)

N=product of group in row and column

3. Discussion of result

Table 1. Market Location According To Sector In Southern Calabar

S/N	NAMES	LOCATION	SECTOR	SEASON	TYPE
1.	Uwanse market	Uwanse Road	I	Daily	Petty market
2.	St.Mary's market	Howell street	I	Daily	Petty market
3.	Udua-Itak Eto	Palmstreet extension	II	Weekly	Big market
4.	Timber market	Ibesikpo	II	Daily	Big market
5.	Udua-mbakara	Poultry farm road	II	Weekly	Petty market
6.	NIL	Afokang Street	III	NIL	No market
7.	Mbukpa market	Mbukpa road	IV	Daily	Big market
8.	Okop-Adi market	Umoh-Orok	IV	Weekly	Petty market
9.	Watt market	Bedwell	V	Daily	Big market
10.	Goldie market	Goldie road	V	Daily	Big market
11.	NIL	Ekpo Edem Street	VI	NIL	No market
12.	Beach market	Hawkin's Road	VII	Daily	Big market
13.	Crutech market	Ekpo- Abasi	VII	Daily	Petty market
14.	Slaughter market	Anantigha	VIII	weekly	Petty market
15.	Ebuka-Ebuka main market	Effio-awan	VIII	Daily	Petty market

Source; Field Survey August, 2015

Table 1 above depict the spatial distribution of market in the eight sectors of the study area as design by the researcher. It was discovered that the study area, Calabar south have a total of 13 existing markets as at the time this study was conducted. Furthermore, it was also indicated in Table 1 that Sector (I) has 2 markets and the markets are petty trade markets with a daily operation of sales while Sector (II) has 3 markets of

which two (2) of them are big market ranging from a timber market, general market and 1 petty market. Sector (III) has no market; sector (IV) equally has 2 markets, 1 daily market but a petty market and 1 weekly and big market. Sector (v) has 2 daily markets, the two are big markets. Sector (VI) has no market. Sector (VII) has 2 daily markets, 1 petty market and the other big market. Sector (VIII) has a total of 2 markets, 1 daily but petty market and the other weekly but petty market. In the distribution we can see that sector III and VI lacks market.

Table 2. The Markets and Supermarkets in the Study Area

Sector	Markets	No OF SUPER MARKETS	Total	%
I	2	5	7	6.9
II	3	22	25	24.7
III	0	15	15	14.9
VI	2	9	11	10.9
V	2	7	9	8.9
VI	0	7	7	6.9
VII	2	9	11	10.9
VIII	2	14	16	15.8
Total	13	88	101	100

Source: Field Survey August, 2015

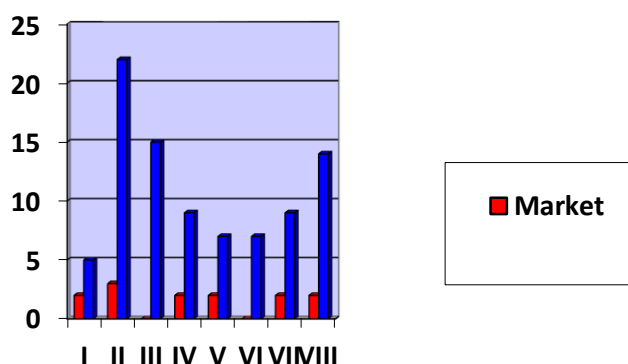


Figure 4. The Markets and Supermarkets in The Study Area

The supermarkets and markets in the study area as presented in Table 2 showed that 6.9% of the market and supermarkets in the study area are situated in sector (I), 24.7% of the market and supermarkets are located in sector (II) of the study area. Meanwhile, 14.9% of the total markets and supermarkets are found in

sector (III) of the study area. However, sector IV, V, VI, VII, received the percentage value of 10.9%, 8.9%, 6.9%, 10.9% respectively. Table 2 also explain that 15.8% of the markets and supermarkets are operating in sector VIII of the study area. To affirm the number of Market and supermarkets in Calabar south, the researcher employed a bar chart in figure 6 to show the sectorial availability of supermarkets.

Table 3. Factors that determine choice of commercial land use location pattern with the commercial land use sector

Sector	Factors							Total	%
	Telecom	Accessibility	security	Close to CBD	Electricity	Nearest to residential neighbourhood	others		
I	5	20	15	10	5	5	9	69	10
II	6	31	17	12	5	7	9	87	12.6
III	9	26	15	11	10	7	11	94	13.6
		26	14	12	17	7	9	86	12.5
IV	1	28	2	1	1	1	10	45	6.5
	2	23	16	2	6	6	19	81	11.7
V	9	17	13	14	13	7	23	97	14
	10	36	28	12	14	11	10	131	18.9
VI	20								
VII									
VIII									
TOTAL	62	207	120	75	73	53	100	690	100

The factor that determined choice of commercial land use location pattern with commercial land use sectors as evident in Table 3 described that 10% of sampled population were of the opinion in sector I that they considered all the above factors before locating their businesses in the study area while sector II, III, IV received percentage values of 12.6%, 13.6%, 12.5% as their factors responsible for the choice of commercial land use location pattern in the study area. Table 3 also showed that in sector V, VI, VII and VIII percentage values of 6.5%, 11.7%, 14.0% and 18.9% respectively as factors that determine choice commercial land use location pattern in the study area. The bar chart below in figure 5 shows the factors that determine choice of commercial land use the location pattern with commercial land use sectors.

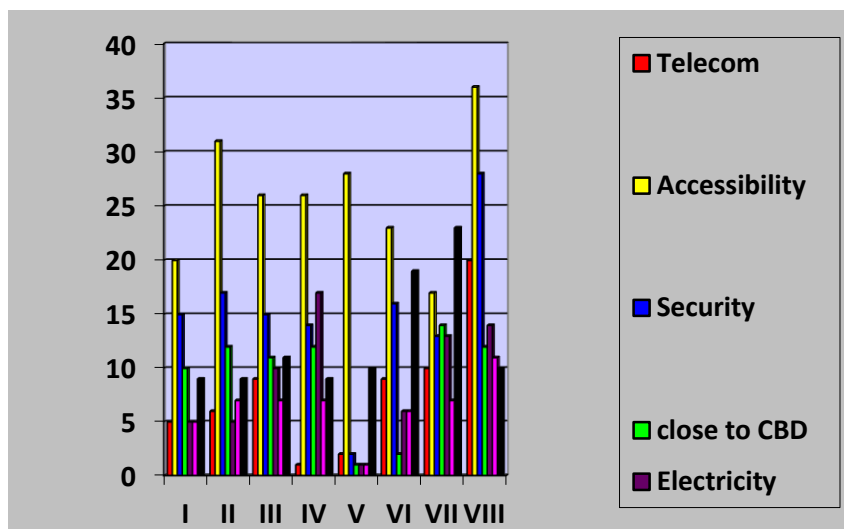


Figure 5. The Factors That Determined Choices Of Commercial Land Use The Location Pattern With Commercial Land Use Sector

Table 4. Radius Distances of Respondent to Their Preferred Commercial Land Use (Retail And Wholesale Outlet)

Sector	0-1KM	1-2KM	2-3KM	3-4KM+	Total	%
I	28	10	4	2	44	11.0
II	35	15	8	4	62	15.5
III	31	14	5	2	52	13.1
IV	26	15	5	2	46	11.5
V	27	13	4	2	46	11.5
VI	26	15	3	2	46	11.5
VII	27	15	4	2	46	11.5
VIII	30	16	4	2	52	13.1
Total	230	113	39	18	400	100
%	57.5	28.3	9.8	4.5		

Source: Field Survey August, 2015

Table 4, explains the radius distance of respondents to their preferred commercial land use outlet in the study area with the indication that 57.5% of the respondents reported that the radius distance to their preferred outlet is between 0-1km radius distance, while 28.3% of the participants are of the opinion that, the radius distance to their preferred retail and wholesale outlet is between 1-2km. It is also shown in table

10 that 9.8% and 4.5% of the responses were received from participants whose radius distances to their preferred commercial activities area (retail and wholesale outlet) are between 2-3km and 3-4km plus respectively. The bar chart below in Figure 6 shows the Radius distance of respondent to their preferred commercial land use (retail and wholesale outlet)

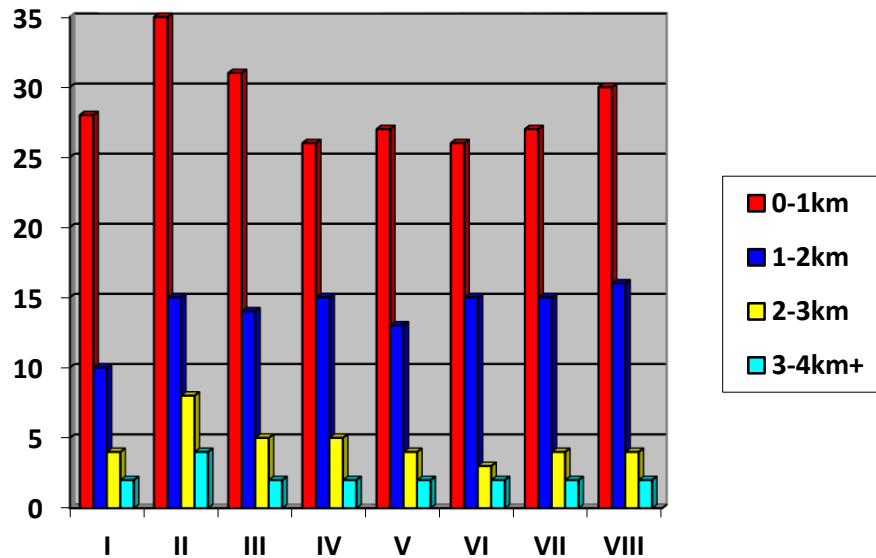


Figure 6. The Radius Distance of Respondent To Their Preferred Commercial Land Use (Retail And Wholesale Outlet)

Table 5. Sizes of Shops in the Study Area

Size (M)	I	II	III	IV	V	VI	VII	VIII	Total	%
3.6by3.6	11	1	4	11	5	2	3	2	39	28.9
3.6by7.2	6	3	11	5	4	6	3	1	39	28.9
7.2by7.2	4	2	1	3	3	3	1	2	19	14.0
7.2by10.8	2	11	1	2	1	3	1	1	22	16.3
10.8by10.8	2	1	4	3	1	2	1	1	15	11.1
Total	25	18	21	24	14	16	9	7	135	100

Source: field Survey August, 2015

The sizes of shops in the study area as presented in Table 5 showed that 28.9% of sample population were of the opinion that, the sizes of their shops are 3.6 by 3.6m; also 28.9% of the same participants were of the opinion that their shops sizes are 3.6 by 7.2m. The table above also explained that 14.0% of the respondents

were of the view that, the sizes of their shops are 7.2 by 7.2m. Meanwhile, 7.2 by 108m and received percentage values of 16.1% and 11.1%. The bar chart below in figure 7 shows the sizes of shops in the study area according to their sectors.

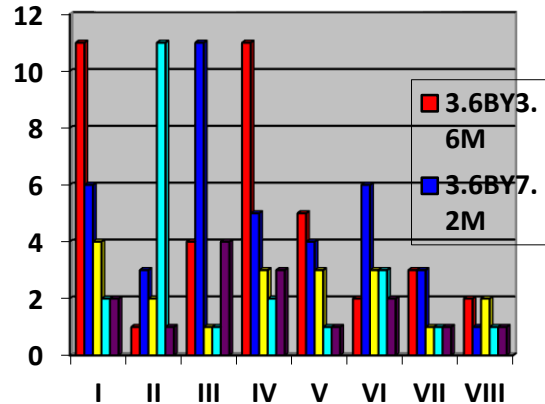


Figure 7. The sizes of shops in the study area

Table 6 present the distribution of commercial land use sector and their sectorial location of which 6.8% of the commercial activities are located in sector I, 10.5% of sample population commercial activities are situated in sector II. More so, commercial activities located in sector III, IV, V received the percentage values of 14.3%, 11.8%, 7% respectively. The evidence in Table 6 shows that over 13.1 % of commercial activities are established in sector VI. Meanwhile, the percentage values 19.3% and 17% of commercial activities are found in sector VII and VIII of the study area. The result implies that within the range of sector III, VI, VII and VIII there is high concentration of commercial activities and the places frequently experience traffic congestion. The bar chart below in figure 8 shows the sectorial location and number of commercial land use in the study area.

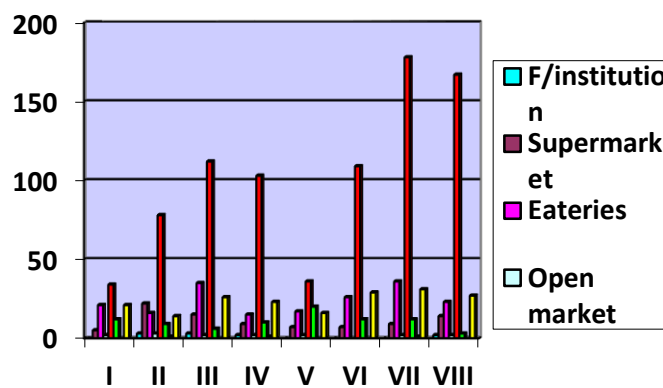


Figure 8. The Sectorial Location and Number of Commercial Land Use in the Study Area

Table 6. The Distribution of Commercial Land Use Sector and Their Sectorial Location

Sector	Locations of Activities	Commercial Land use Sector								Total	%
		Financial institutions	Super market	Eateries	Open Market	Lock Up shops	Office	Special Market	Others		
I	Uwase Street	0	5	21	2	34	12	0	21	95	6.8
	Edibe-Edibe				3	78	9	1	14	146	
II		3	22	16							10.5
	Ekpo Abasi	3			2	112	6	0	26	199	
		2		35	2	103	10	1	23	165	14.3
III	Mbukpa Road		15	15							11.8
		0			2	36	20	0	16	98	
	Howell Street	0	9	17							7
IV					0	109	12	0	29	183	
	NewAirport	0	7	26	2	178	12	1	31	269	13.1
		2		36	2	167	3	0	27	238	19.3
V	Goldie St			23							17
	Bed well Rd		7								
VI											
VII			9								
VIII			14								
TOTAL		10	88	189	15	817	84	3	187	1393	100

Source: Field Survey August, 2015

The accessibility index as presented in Table 7 revealed that 6.9% of the commercial activities have the accessibility index in sector I of the study area, while 24.8% of sample population commercial activities have this accessibility index in sector II. More so, commercial activities in sector III, IV, V received the percentage values of accessibility index of 14.8%, 10.9%, 8.9% respectively. Table 7 also indicate that over 6.9% of commercial activities have this accessibility index in sector VI. Meanwhile, the percentage values 10.9 and 15.8% of commercial activities have accessibility index in sector VII and VIII of the study area.

Table 8, explains the number of customers per day in the selected commercial land use sector, as 12.9% of the owners of businesses said they experience 1-10 customers per day while 15.8% of the respondents (Business owners) said they experience 10-20, 21-50, 51-100 customers per day. It is also presented in Table

8 that 16.8% and 22.8% of the business owners were of the view that they witness about 101-150 and 200.

Table 7. Accessibility index

Sector	Index 1	Index 2	Index 3	Total	%
I	5	1	1	7	6.9
II	15	8	2	25	24.8
III	9	5	1	15	14.8
IV	6	4	1	11	10.9
V	6	2	1	9	8.9
VI	4	2	1	7	6.9
VII	7	3	1	11	10.9
VIII	10	5	1	16	15.8
Total	62	30	9	101	100

Source: Field survey August, 2015

Table 8. Number of customers visit per day

Sector	I	II	III	IV	V	VI	VII	VIII	Total	%
1-10	1	1	2	3	2	1	1	2	13	12.9
10-20	2	2	1	4	2	2	1	2	16	15.8
21-50	3	3	1	1	1	4	1	2	16	15.8
51-100	4	1	3	1	1	2	2	2	16	15.8
101-150	5	1	2	2	2	1	3	1	17	16.8
160-200	6	2	1	5	2	2	2	3	23	22.8
TOTAL	21	10	10	16	10	12	10	12	101	100

Source; Field Survey August, 2015

The frequency of operation as presented in Table 9 revealed that 6.9% of the market operate both daily and seasonal in sector I of the study area, while 24.8% of sample population market are daily with no value for seasonal operation in sector II. More so, markets in sector III, IV, V received the percentage values of operations of 14.8%, 10.9%, 8.9% respectively with specific reference of no seasonal market in sector III V. Table 9 also indicate that over 6.9% of market are daily in sector VI. Meanwhile, the percentage values 10.9% and 15.8% of the market are daily in sector VII, both daily and seasonal market operate in VIII of the study area.

Table 9. The frequency of operation

Sector	Daily Operation	Seasonal Operation	Respondent	%
I	6	1	7	6.9
II	25	-	25	24.8
III	15	-	15	14.9
IV	10	1	11	10.9
V	9	-	9	8.9
VI	7	-	7	6.9
VII	11	-	11	10.9
VIII	15	1	16	15.8
Total	98	3	101	100

Source: Field survey August, 2015

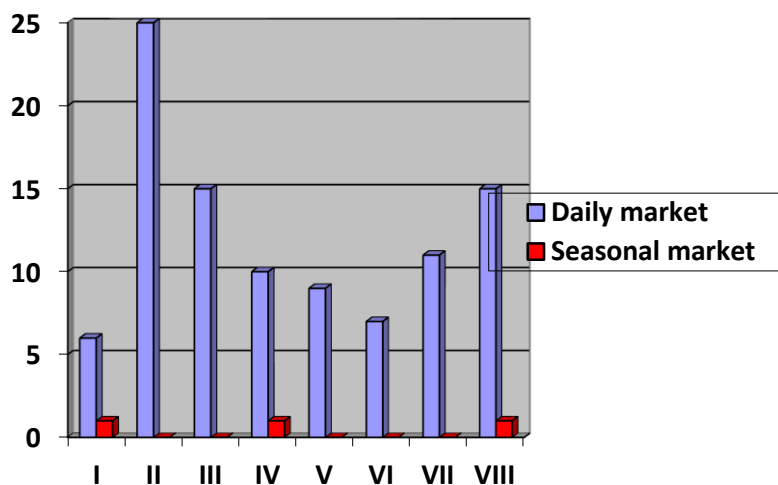


Figure 9. the frequency of operation of market

The Coverage area from the CBD to respondent home as presented in Table 10 revealed that 6.9% of the coverage area are in sector I of the study area, while 24.8% of the coverage area are in sector II. More so, the coverage area in sector III, IV, V received the percentage values of 14.8%, 10.9%, 8.9% respectively in sector III and V. Table 10 also indicate that over 6.9% of the coverage area in sector VI. Meanwhile, the percentage values 10.9% and 15.8% of the coverage area are in sector VII and VIII of the study area.

Table 10. Coverage Area from the CBD to Respondent Residential Homes

Sector	0-500 (m)	500-1000(m)	1000-1500(m)	1500-2000(m)	2000-3000(m)	Total	%
I	2	2	1	1	1	7	6.9
II	10	6	5	4	1	26	24.8
III	8	3	2	1	1	15	14.9
IV	7	1	1	1	1	11	10.9
V	4	2	1	1	1	9	8.9
VI	3	1	1	1	11	17	6.9
VII	5	3	1	1	1	11	10.9
VIII	7	5	2	1	1	16	15.8
Total	47	23	14	11	6	101	100

Source: Field Survey August, 2015

To test for the significance of the variation in the choice of commercial land use in Calabar South, an ANOVA analysis was adopted. Table 11 shows the result of the ANOVA, from the analysis it is obvious that the calculated value of 1.006 is higher than critical value of 0.480 at degree of freedom 55 which was tested at 0.05 level of significant. Therefore it can be concluded, with statistical evidence that the choice of commercial land use varies across the location in the study area.

Table 11. The ANOVA summary table for the Hypothesis

Source of variance	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	81.750	20	4.088	1.006	.480
Within Groups	142.250	35	4.064		
Total	224.000	55			

Source; SPSS Data Analysis August, 2015

4. Conclusion and recommendation

The factors that determine choice of commercial land use location pattern do vary significantly across commercial land use sectors in Southern Calabar " These differences in the location pattern of commercial

land use and the factors that determine choice of commercial land use location pattern are due to lack of urban spatial structure of commercial land use.

The adequate location of retail outlets in some sector in the study area brings a direct result of increase in population in highly located area of commercial land use. This causes high rate of urbanization in some sectors than other sectors. The population influx has infiltration of commercial land use on advert effect to residential land use. A comprehensive master plan for the area should be prepared and implemented to guide future course of actions or development in the area. A well-prepared master plan will identify inherent problems and formulate proposals to the improvement of the already built up area in the foreseeable future.

If well planned for future use, the study area will develop into a model city with set out broad categories of commercial land uses and density gradient relation in respect of transportation networks and infrastructural amenities thereby solving the problem of population in migration commercial area and traffic congestion in most parts of the Town.

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