CSCanada
Canadian Social Science
Vol. 19, No. 5, 2023, pp. 6-14
DOI:10.3968/13131

ISSN 1712-8056[Print]
ISSN 1923-6697[Online]
www.cscanada.net
www.cscanada.org

Analysis of Land Value Trends in Southern Kaduna Metropolis, Nigeria

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Received 31 August 2023; accepted 30 September 2023
Published online 26 October 2023

Abstract

The paper examines the trends of land value in the southern Kaduna metropolis, Kaduna State, Nigeria. The paper specifically examines the trends of land value between 1988 and 2018 as well as the factors influencing land value in the study area. Multistage technique was used in the selection of 387 property land owners and 70 registered estate firms through the use of questionnaire administration. Data were collected and analysed using line graph, mean, and ANOVA. The study revealed an overall increase in land value with mean land value from ₦14,425 to ₦3600,000 between 1988 and 2018. Through the use of ANOVA test, it was established that there was significant variation in the trends of land value over the years and across the districts. Furthermore, the use of a five-point Likert Scale revealed that security, high demand for residential land use, general inflation, high population density, nearness to major roads, nearness to educational facilities, quality of houses, presence of healthcare facilities, and condition of infrastructure were significant to influence land value in the study area. The study recommended that Estate surveyors and valuers should develop a centralised land/property data bank within Kaduna State for all firms and it should be updated regularly with changing market conditions, Kaduna state Government should invest in the provision of adequate urban infrastructure as well as the establishment of massive low-cost housing scheme through public private partnership to meet housing need within the metropolis.

Key words: Land value; Trends; Factors; Urban; Kaduna; Nigeria

Anjide, T. W., Atere, P., Oladehinde, G. J., Ogungbade, O. M., Ezeamaka, C. K., & Daful, M. G. (2023). Analysis of Land Value Trends in Southern Kaduna Metropolis, Nigeria. *Canadian Social Science, 19*(5), 6-14. Available from: http://www.cscanada.net/index.php/css/article/view/13131
DOI: http://dx.doi.org/10.3968/13131

1. INTRODUCTION

Rapid urban expansion in most cities of developing nations as a result of urbanization and economic development has created different problems and has brought about lots of dynamic changes to urban land value (Kolowe, 2014; Adegoke et al., 2017). With respect to economic development, there has been an increase in the need to build commercial, industrial, and residential buildings in recent times. The increasing need to develop land has contributed to the scarce nature of land which is limited in supply. Also, the nature of land access, titling, and registration programs in many urban areas has made it difficult for the urban poor to access this scarce resource. Furthermore, the lack of databases through the cadastral system on land transactions has made it impossible to determine the exact land value.

Most of these problems tend to be more evident in developing countries. In many cases, there are frequently no or very few records of land transactions. Thus, making the land market dominated by the informal sector. However, in most developed countries, this is not always the case. Most developed countries based their assessments of land values on various sizable transactional datasets such as property characteristics, market information on transactions, cost of inputs into land development, and auxiliary information on potential land income (Lozano-Garcia et al., 2013).

Another factor that contributed to the scarce nature of land is population growth. The movement of people into urban areas is rapidly on the increase. Available

data indicates that in 2020, approximately 206.1 million representing 51.96 percent of the total population in Nigeria lives in urban areas and cities. It was also estimated that about 70 percent of the Nigerian population will have been living in cities by 2050 (Aribigbola, Fatusin & Oladehinde, 2022). The implication of this is the increasing pressure on land as it tends to affect the need or demand for land for the provision of housing and other services (Ai, 2005; Aribigbola, 2020). As the pressure on land increases, land resources which is limited in supply tend to be scarce. This in turn increases the land value of the available land resources with time.

The term land value is as old as the cities, and since land was first introduced to the market as a commodity. Its significance has increased over time (Arokoyu & Obafemi, 2002). Land value is generally referred to as the cost per plot of land. Land value according to Abbas (2016) is defined as an estimate of price reflecting the value of a piece of land based on individual expectations and perceptions. In other words, land value is the estimated cost of a plot of land. Adams (1994) asserts that the price of land or other property is either the sum demanded (asking price) or the sum received (price paid), whereas the value of land or other property is represented by price estimates that reflect the owner's subjective expectations and perception of value. Value is probably in line with price in an efficient market

Kaduna in recent times has witnessed a continuous increase in urban growth due to ongoing physical development and expansion, with a significant increase and changes in its land uses and urban landscape largely because of the increase in rural immigrants aggravating rural-urban migration as a result of insecurity in the hinterlands and also because of the job opportunities in the state and federal ministries, parastatals, banks, private establishments, and enterprises, presence of tertiary institutions. Its well-articulated military presence; which includes the location of the Nigerian Defence Academy (NDA), the Nigeria Air Force Base, and the Headquarters of the 1 Division of the Nigeria Army as well as its closeness to the Federal Capital Territory, Abuja (Akpu & Tanko, 2017). These structural changes in its population, physical form, and social constituents over the last century have not only engendered changes in land uses but have also increased competition and intensity in the use of land within the metropolis (Saleh, Badr, Elbanna & Shehata 2014; Gwamna & Yusoff, 2016; Oladehinde, Fatusin & Victor, 2019;). Moreover, it has also increased demand for residential, industrial, and commercial properties as well as its attendant effects on land value.

Previous studies have shown that different factors influence land values (Emoh, Oni & Egolum, 2013; Kabba & Li, 2011; Bible & Hsieh, 1999; Ilechukwu & Salau, 2018). For example, Emoh et al. (2013) identified zoning regulations, improvement tax, and irrevocable power of attorney among the determinants of land value while the determinants according to Kabba and Li (2011) were population, condition of infrastructure, income, social status, and environmental concern in Freetown, Sierra Leone. Bible and Hsieh (1999) found out that the size of land, distance to the CBD, population, and zoning had strong significance for land value. Ilechukwu and Salau (2018) discovered that non-locational factors such as the time of purchasing land, housing type, and distance to major roads, among others largely determine land value. Despite the multiplicity of studies on determinant of land value, it has been observed that trends in land value as well as its implication has received lesser attention. A full understanding of the trends and their implications remains elusive. Moreover, there has not been a thorough study in the Kaduna metropolis on the trend of land value and its implications. This study, therefore, examines trends of land value in the southern Kaduna metropolis, Nigeria. To achieve the above aim, the study provides an answer to the following questions. 1) What is the trend of land value between 1988 and 2018 in the southern Kaduna metropolis? 2) What are the factors influencing land value in the study area?

2. STUDY AREA

Kaduna metropolis is a city in Kaduna State. It is the administrative capital of Kaduna State, Nigeria. Like other cities in Sub-Saharan Africa, Kaduna is growing at a very alarming rate; it has for long attracted people from other places due to the variety of functions that it performs. Historically, the transfer of the West African Frontier Force (WAFF) and the movement of firms like the Royal Niger Company to Kaduna in 1913 and 1917 respectively due to the transfer of the seat of the colonial administration from Zungeru to Kaduna marked the outset of the urbanization process of the then Kaduna (Akpu & Tanko, 2017). The growth was also stimulated by its choice as a garrison town by the colonialists due to its central location in the Northern part of Nigeria (Fredrick, 2006).

Kaduna metropolis is situated between Longitudes 7^0 20' 00" and 7^0 28' 00" east of the Greenwich meridian and Latitudes 10^0 22' 00" and 10^0 40' 00" north of the Equator (Adewuyi 2008; Oluwole 2013). It covers an area of about 260km^2 and the distance between the eastern and western limits of the city is 13.7km though it keeps having changes with increasing development (see Figure 1). It is made up of four (4) Local Government Areas (LGAs); Kaduna North, Kaduna South, part of Igabi, and part of Chikun LGAs as shown in Figure 2 (Oluwole, 2013; Akpu and Tanko, 2017). Kaduna metropolis is located in the central plains of the highlands of Northern Nigeria standing at an average height of 645m above sea level (Abbas, 2016).

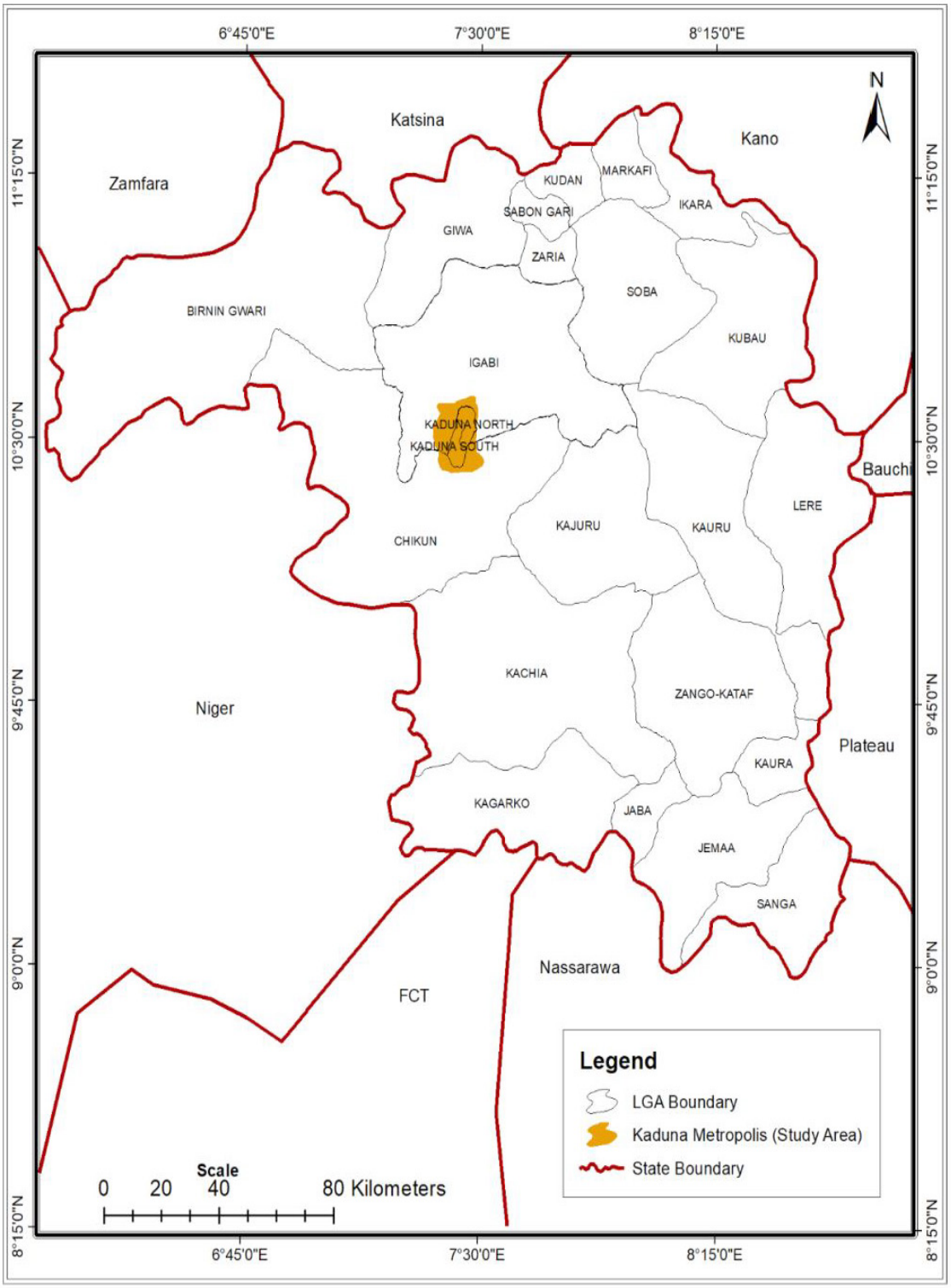


Figure 1
Kaduna Metropolis in Kaduna State
Source: Kaduna Geographic Information Service (KADGIS) (2017)

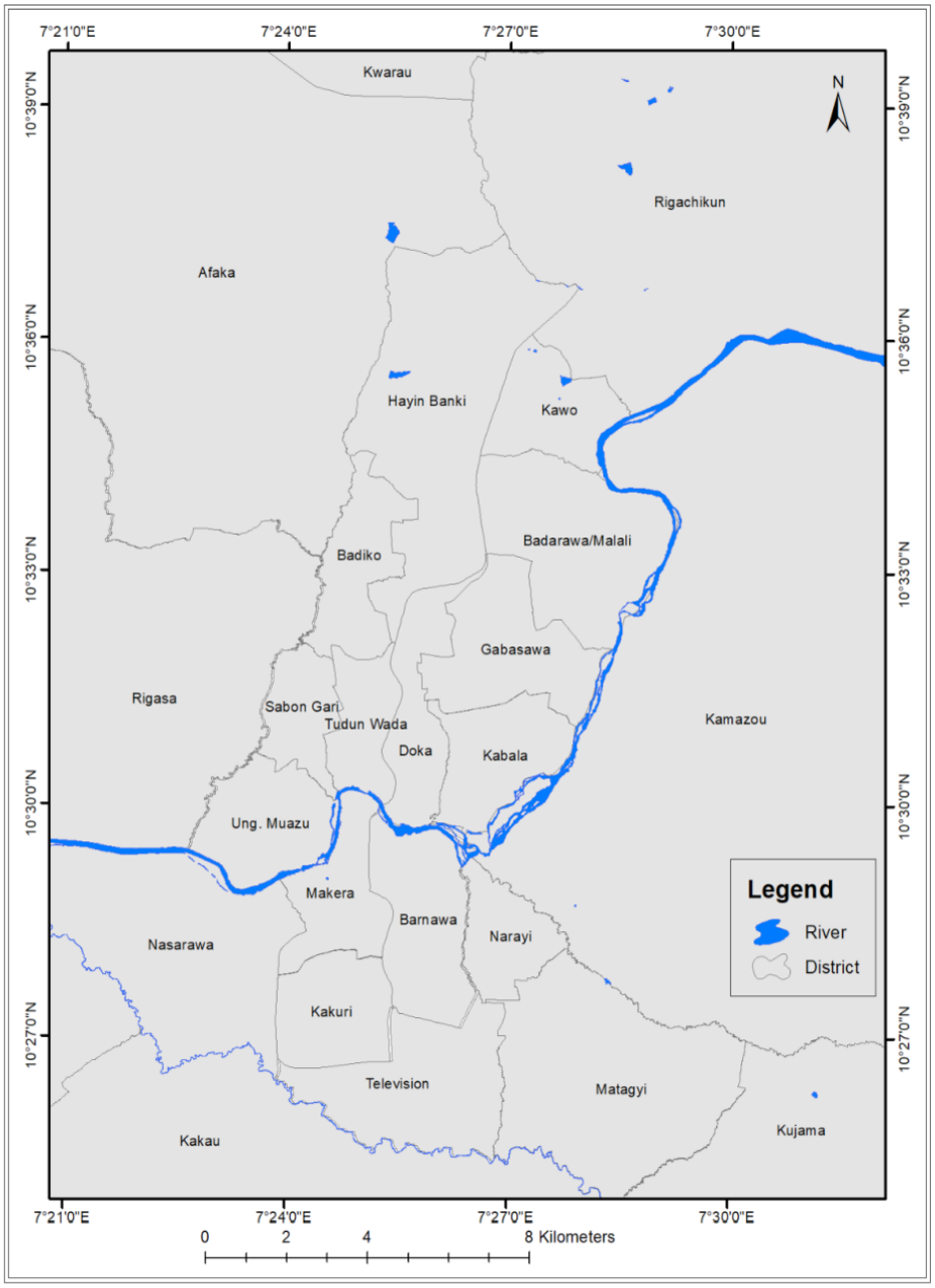


Figure 2
Districts in Kaduna Metropolis
Source: Kaduna Geographic Information Service (KADGIS) (2017)

3. RESEARCH METHODOLOGY

A multistage sampling technique was used for the study. The first stage involved the identification of the planning district in southern Kaduna, the study area. Pilot survey shows that there were nine (9) districts and four (4) districts out of the nine (9) were purposively selected. The four (4) selected districts which represented 40% of the total districts in the southern part of the metropolis include; Kakau, Kamauzou, Kakuri, and Barnawa. While Kakuri and Barnawa districts were selected based on the intensity of land use within the areas, Kamauzou and Kakau districts were selected because there were clusters of settlements rapidly developing along the east bank of River Kaduna and on the west along Abuja Road. The next stage involved the identification and selection of estate surveyors and property owners in the study area. In the selection of the estate surveyors, information from the Nigerian Institution of Estate Surveyors and Valuers (NIESV, 2017) revealed that there were seventy (70) registered Estate firms in Kaduna Metropolis. All

the seventy (70) registered firms were sampled. In the selection of property owners, information from Kaduna State Bureau of Statistics (KSBS, 2018) showed that there were 12,328 housing population (see Table 1).

Table 1
Selected Districts and Housing Population

S/N	Name of Selected Districts	Housing Population
1	Kamauzou	2235
2	Kakau	4632
3	Kakuri	1781
4	Barnawa	3680
Total		12328

Source: KSBS (2018)

The sample size for this property owner was further determined using Yamane's (1967) statistical method for sample size calculation.

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

Where n = sample size
N = total population (12,328)
1 = constant

$$\text{Therefore, } n = \frac{12328}{1+12328(0.05)^2} = 387$$

Using the above method, a total of three hundred and eighty-seven (387) property owners were arrived at, and a stratified sampling technique was used to divide the study area (four selected districts) into different strata (see Table 2) while the random sampling technique was further adopted to select the houses to administer the questionnaires to the property owners. At each house, the respondents were asked if they were the property owners, if not the researcher moved to the next property. This was done continuously till the sample size for the strata was obtained.

Table 2
Breakdown of Sample Sizes for Property Owners

S/N	Strata (District)	Sample Size
1	Kamauzou	70
2	Kakau	144
3	Kakuri	57
4	Barnawa	116
	Total	387

Source: Fieldwork (2018)

Data on the trend of land values for a period of over 30 years (1988-2018) at 5 years intervals of 1988, 1993, 1998, 2003, 2008, 2013, and 2018 was obtained from estate surveyors while factors responsible for urban land value was obtained from property owners in the study area. The obtained data were analyzed and presented using descriptive analysis which comprises percentage distribution, chart, mean, and composite index.

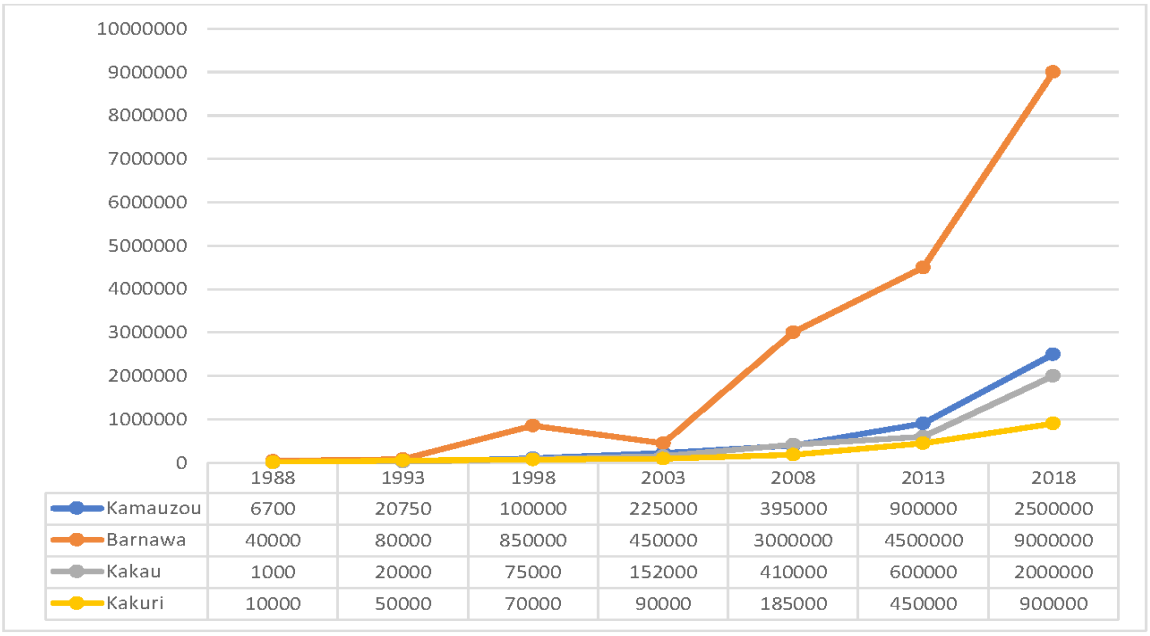
A five-point Likert Scale which is termed Relative Importance Index (RII), was employed in analyzing the factors influencing land value. The rating of 1-5 where; 1-Very insignificant (VI), 2-Insignificant (I), 3-Partially Significant (PS), 4-Significant (S), and 5- Very significant (VS) respectively was used. The sum of each factor was then divided by the total respondents to get the mean score. This is in line with Oladele et al. (2023) and Oladehinde et al. (2022). The Relative Importance Index (RII) was further utilized to identify the factor with the highest influence based on its closeness to 5. RII was obtained by dividing the summated weight value (SWV) by the sample size (378) while the mean RII was obtained by dividing the sum of RII by the number of the identified parameters (9). The following scale measurement of the mean score as established by Badiora (2022) was adopted. The mean scores range from where 1 = Very insignificant (≥1.00 and ≤1.80); 2 = Insignificant (≥1.81 and ≤2.60); 3 = partially significant (≥2.61 and ≤3.40); 4 = significant (≥3.41 and ≤4.20), and 5 = very significant (≥4.21 and ≤5.00).

4. RESULTS AND DISCUSSIONS

4.1 Trend of Land Values in Southern Kaduna Metropolis from 1988 to 2018

Using five (5) and fifteen (15) years intervals to graphically present the trend in land value from 1988 to 2018, highest land values were recorded in Barnawa from an average of 40,000/m^2 in 1988 to about and an average of 9,000,000/m^2 by 2018 as shown in Figure 3. Land value generally dropped between 1998 to 2003, because of insecurity, arising from religious crises of the 2000 Sharia and 2002 Miss World crises in Kaduna. Property owners were willing to sell off their lands in other to relocate back to other places outside Kaduna State. This is in line with the work of Dung-Gwom and Rikko (2009) on the effect of communal crises on housing value in Jos where people disposed their property in a hurry to leave an area during crises at values far below their market value at normal times.

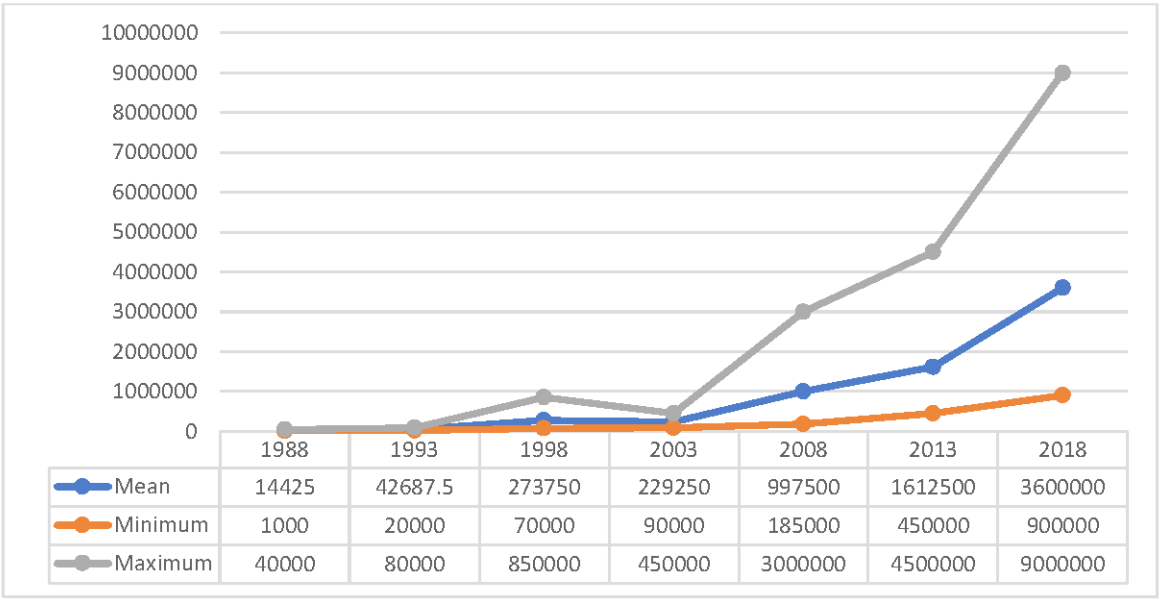
However, between 2003 to 2008, there was an increase in land value, and from 2008 to 2009 there was no significant change in land value. However, by 2011 land value continued to be on the rise in Barnawa which could be attributed to peace and calmness that returned to the metropolis as well as an improvement in economic stability through increase in minimum wage to N18,000 by the then Olusegun Obasanjo administration.



	1988	1993	1998	2003	2008	2013	2018
Kamauzou	6700	20750	100000	225000	395000	900000	2500000
Barnawa	40000	80000	850000	450000	3000000	4500000	9000000
Kakau	1000	20000	75000	152000	410000	600000	2000000
Kakuri	10000	50000	70000	90000	185000	450000	900000

Figure 3
Trend of Land Value in Kaduna Metropolis (in thousands of Naira)
Source: Fieldwork (2018)

n Kamauzou, the study reveals that land value experienced little change over the years but experienced a great increase from periods around 2015 when the Yakowa Express Road was constructed. This is in agreement with the work of Oyebanji (2003) that the spread of road network increases accessibility and conversely influence land value. In Kakau land values also began to experience a sharp rise between the periods 2013 to 2018, because of the post-election crises when people relocated from areas dominated by particular ethnic and religious groups for their preferred location while some others because of the abundance of land for housing as well as farming. Kakuri had the lowest land value compared to all the other areas under study largely because Kakuri from inception was more of an Industrial layout than a residential area. The study also observed the lowest land value was also attributed to the poor quality of housing found there which was mostly congested, old, and dilapidated resulting from the unavailability of land. This is in agreement with Bello and Ajayi (2010) that environmental quality influences land value. The trend line in Figure 3 reveals that the general trend of land value has increased over the period under study.



	1988	1993	1998	2003	2008	2013	2018
Mean	14425	42687.5	273750	229250	997500	1612500	3600000
Minimum	1000	20000	70000	90000	185000	450000	900000
Maximum	40000	80000	850000	450000	3000000	4500000	9000000

Figure 4
Trend of Land Value in Kaduna Metropolis (in thousands of Naira)
Source: Fieldwork (2018)

Further analysis in Figure 4 shows the maximum, minimum, and mean land value in the study area. Results from the figure reveal that the highest minimum and maximum land value of N900,000 and N9,000,000 respectively per plot size (450 sq/m) was discovered in 2018 while the least minimum and maximum land value of N1,000 and N40,000 respectively per plot was observed in 1988. The highest mean land value of N3,600,000 per plot size (450 sq/m) was recorded in 2018 while the least mean valent land value of N14,425 per plot size (459 sq/m) was recorded in 1988. The lines of trend show that the land value rose gently from 1988 to 2003 before it began to pick up on the steep trend between 2003 and 2018.

Having examined the trend of land value across the districts in the study area. The next thing is to examine the significant level using Levene and ANOVA tests (see Tables 4 and 5). The result of the Levene test of homogeneity of variances on land values is presented in Table 4. The result shows that there is significant variation (F value = 7.507, p value = 0.005) across the groups (districts) in the study area. This means that variances of the land values between 1988 and 2018 which are obtained from different districts are equal.

Table 3
Test of Homogeneity of Variances on Land Value

Levene Statistic	*df*1	*df*2	Sig.
7.507	3	24	.001

Table 4
ANOVA of Land Value

			Sum of squares	*df*	Mean square	F	Sig.
Between Groups	(Combined)		24097805350267.8	3	8032601783422.6	2.613	.045
	Linear Term	Contrast	3406837203017.8	1	3406837203017.8	1.108	.039
		Deviation	20690968147249.9	2	10345484073624.9	3.365	.052
Within Groups			73790776095000.0	24	3074615670625.0		
Total			97888581445267.8	27			

ANOVA was also used to test the level of significance between the groups (see Table 4). The result of ANOVA shows that there is significant variation (F value = 2.613, p-value = 0.045) across the groups (districts) in the study area. This implies that the increase in the land value differs significantly in all the districts. The linear term further reveals the significance level (F value = 1.108, p-value = 0.39) across the groups. This means that there is an increase in the land value across the districts.

4.2 Factors influencing land value in the study area

Sequel to the findings on the trend of land value over the years, the study also examines the factors influencing land value in the study area (see Table 5). The mean Relative Important Index (RII) which was calculated is 4.05. This implies that the mean level of importance of the indicators of land value in the study area was 'Significant'. It could be deduced generally that most of the parameters are relatively significant. It is also noted that the relative important index was relatively significant as two groups of indices were observed in the study area. This includes indices with positive deviation and indices with positive deviation. Variables with positive deviation means variables with major significance while variables with negative deviation indicates variable with low significance in the study area.

Table 5
Factors Affecting the Value of Land

Parameters	Relative Important Index					SWV	RII	MD	Rank
	VS	S	PS	I	VI				
	5	4	3	2	1				
Security	1785	0	45	6	12	1848	4.78	0.73	1st
High demand for residential land use	980	604	75	0	15	1674	4.33	0.28	2nd
General inflation	1115	256	300	0	0	1671	4.32	0.27	3rd
High population density	925	264	408	0	30	1627	4.20	0.16	4th
Nearness to major road	830	484	300	0	0	1614	4.17	0.12	5th
Nearness to educational facilities	1060	96	453	0	0	1609	4.16	0.11	6th
Quality of houses	375	412	555	48	0	1390	3.59	-0.33	7th
Presence of healthcare facilities	150	580	312	216	80	1338	3.46	-0.59	8th
Condition of infrastructure	290	656	252	96	33	1327	3.43	-0.62	9th
Total						14098	36.43		
Mean RII							4.05		

Note: RII –Relative Important Index; SWV –Summation of Weighted Value; MD – Mean about Deviation.
Source: Authors' Fieldwork 2018

Findings in Table 5 above reveal that security was rated high as the most significant factor influencing land value in the study area. This means that land value in the study area is strongly influenced by security issues. This relative important index (RII) was 4.78 with a positive deviation value of 0.73. The study agrees with the submission of Farodoye et al. (2021) that people tend to relocate to other places because of insecurity in places where the security of life is guaranteed. The next in the table is high demand for residential land use (RII = 4.33; MD = 0.28). This implies that the value of land in the study area is influenced by the high demand of land for residential purposes. This shows that high pressure on residential land increases the value of land. As the pressure increases the price of land tends to increase as well (Saleh et al., 2014). Other parameters such as general inflation (RII = 4.32; MD = 0.27), high population density (RII = 4.20; MD = 0.16), nearness to major road (RII = 4.17; MD = 0.12), and nearness to educational facilities (RII = 4.16; MD = 0.11) were also rated high with positive deviations above the mean. In contrast, three variables were rated with negative deviations below the mean value. These variables were quality of houses (RII = 3.59; MD = -0.33), presence of healthcare facilities (RII = 3.46; MD = -0.59), and condition of infrastructure (RII = 3.43; MD = -0.62). This implies that the quality of houses, presence of healthcare facilities, and condition of infrastructure were the least rated variables, although they were also significant based on the scale of measurement.

5. CONCLUSION AND RECOMMENDATION

This paper has examined the trends and factors influencing land value in the study area This was examined with respect to the four planning districts that were selected for the study. The study used line graph, mean, and ANOVA to show the trend of land value between 1988 and 2018 as well as to establish the relative importance of the factors influencing land value in the study area. The paper concludes that there was an increase in land value (an average land value from ₦14,425 to ₦3,600,000) between 1988 and 2018. It was also established that there was significant variation in the trends of land value over the years in the study area and across the districts. The increase in the land value in the study area could be explained by different factors such as security, high demand for residential land use, general inflation, high population density, nearness to major roads, nearness to educational facilities, quality of houses, presence of healthcare facilities and condition of infrastructure, in their order of importance.

The study recommended that Estate surveyors and valuers should develop a centralized land/property data bank within Kaduna State for all firms and it should be updated regularly with changing market conditions, Kaduna state Government should invest in the provision of adequate urban infrastructure as well as the establishment of massive low-cost housing scheme through public private partnership to meet housing need within the metropolis. There is a need for a long-range housing development plan for the Kaduna metropolis, as high demand for land was observed there. This could be done by developing land banks with well-articulated development schemes. There is also the need for the government to allocate land to all categories of density and not just to low-density types alone.

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