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The Impact of Population Growth on Rental Values in Minna, Nigeria

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Abstract

This study examined the impact of population growth on rental values in Minna, Niger State from 1999 to 2011. The study employed the use of both primary and secondary sources of data collection through census sampling techniques. Data on rental value was primarily sourced from registered estate surveyors and valuers in Minna urban, while the secondary data on population growth in Minna was sourced from National Population Commission. The result of rental growth analysis of the four selected areas showed that Maitunbi with a mean figure of 15.38 has better rental growth rate compared with other areas. The result of correlation of between 86.4 and 77.6 showed a strong positive correlation in between population growth and rental growth, and the overall impact of population growth on rental growth is significant. The study concludes that population growth is a basis for increase in demand for accommodation which peradventure increases the rent. Therefore putting population under check by government will affect real estate investors and otherwise, it will favour the investors. Investors in real estate prefer high population growth as it is capable of forcing demand over and above the supply of real estate accommodation. Improvement in housing provision to accommodate the present and future population is therefore suggested.

Keywords: Impact, neighborhood, population growth, residential property, rental value, urbanization.

Introduction

The rapid rate of urbanization as well as inadequacy of infrastructural facilities in urban centres has become a serious challenge to both the citizens and government of developing countries. Urbanization is a phenomenon that encourages population concentration in an area and it represents all the necessary activities and process needed to transform a rural area into an urban center (Mayaki, 2007). Most urban cities of the world have experienced rapid population growth resulting from industrialization and technological advancement. One can freely state that people's rush to urban areas is the resultant effect of attraction of opportunities for wealth generation, economic development and availability of

infrastructural facilities. Ogedengbe (1999) identified infrastructural development and population growth as the major indicators of urbanization in Nigerian cities. According to Fagbubun (2007), concentration of population in a particular place tends to have so many consequences, such as, pressure on the available facilities, urban decay, pollution, urban crime as well as change in rental values. Population growth is referred to as the rate at which the number of population in a particular place increases and it is one of the major indicators of urbanization, the growth of business activities is another indicator of urbanization.

The need for housing development to accommodate urban population leads to the study

of population growth on housing value. Aledare (2008) opines that increase in population which is mostly caused by rural-urban migration encourages urbanization in cities and results to shortage of both quality and quantity of housing. This issue of housing shortage has led to high rent and increase in value of residential accommodations. Sanusi (2011) also indicates a trace and stress of urbanization in Minna. National population commission (2012) established that the population growth of Minna rose from 2.3 in 2006 to 3.4 in 2007 due to influx of people from both the neighbouring rural areas and other parts of the country. This necessitated the increase in demand for housing. Therefore, the study aims at assessing the impact this growth rate has had on the value of housing investment with a view to providing empirical evidence to real estate investors on the profitability of the investment.

Literature review

The study of urban population growth and housing investment especially in developing countries has taken a serious research attention of real estate investors and it is the duty of real estate researchers to carry out empirical studies on the subject matter. The result of some previous studies are presented as follows: Ogedengbe (1999) in his study on the impact of urbanization on residential property value in Benin City Edo State, identified migration, population growth, infrastructural development and political activities as factors of urbanization in Edo State. The result of descriptive analysis revealed that there is a positive relationship between urbanization and property values in Benin City such that as more people migrated into the city in search of job opportunities, the more the competition for residential accommodation. Awanyo (1992) carried out a study on rapid population growth and its impact on residential land uses in Ghana and indicated that when there is rapid population growth in a very low level economic development, it results to a hindrance in terms of providing housing adequate to accommodate the citizens. He stressed further that

the rate of population growth in Ghana has brought about inadequate housing and housing infrastructure. Fadairo and Taiwo (2009) in their empirical study on urbanization, housing and infrastructural facilities in Lagos, Nigeria, acknowledged that for urbanization to be seen as a process which will bring life into a given community, it must be complemented by the provision of basic infrastructure. The study stated that the provision of infrastructural facilities enhances a better urbanization; it did not consider the impact increased population has on property value. Ominde and Ejiogu (2008) studied urbanization in Nigeria and opined that the high concentration of people beyond the available facilities always leads to inappropriate competition. The study discovered that most cities in Nigeria expand in a Horizontal form; this could be attributed to technological inadequacies. The study concludes that urbanization contributes its own development problems without relating the problems to property investment. Illyet *et al.* (2009) conducted a study on the consequences of rapid population growth on housing in Calabar Metropolis and established that there is an obvious relationship between the supply of housing and the increase in the population of Calabar. The paper stressed further that rapid population growth results into unwanted issues like high occupancy rate, growth of slums among others. Bello (2011) carried a study on the impact of urban crime on property value in Akure. This study described urban crime as one of the factors that determine property value. The study further stressed that as urban crime increases in a place, property value decreases. The paper established the impact of urban crime on property value but did not consider the impact of population growth with infrastructure on property value.

David (2009) in his study of the implication of population growth and urbanization for climate change views urbanization as one of the major problems that causes climate change and opined that it is not the growth in (rural or urban) population but rather, the growth in consumption that increases the growth in greenhouse gas

emission. Asoka, Thou and Awanyo (2013) studied the effect of population growth on urban infrastructure and service in Kenya and opined that the growth of cities is certain and solution to urban issues depends upon infrastructural development and management. The problem with unplanned population growth is associated with the demands of the population which mounts pressure on infrastructure and services, this in turns leads to environmental degradation. The study was able to establish the trends in population growth in Nairobi and effect of this population on the available infrastructure but was unable to link this with rental values. Hence this study, which aims to assess the impact of population growth on rental values in Minna from 1999–2011.

Study area

Minna city is close to the Federal Capital Territory and it is a town which is rapidly developing in terms of immediate potential market for many products and services. Both rapid growth and urbanization have been encouraged in Minna due to its location, economic and administrative characteristics. This has gone a long way in stimulating rural-urban migration and urban-urban migration from the

surrounding sub-regions to Minna. Geographically, Minna is located in the middle belt region of Nigeria on latitude $9^{\circ} 37'$ North and $6^{\circ} 37'$ East of the Greenwich meridian. The town has a mean annual rainfall of 1334mm and the raining season usually starts in April. Temperature is mostly higher in March up to 30.5°C and very low in August at 25°C . The indigenous tribe are the Gwaris and the total population of Minna is 201,429 according to 2006 census (Nuhu and Aliyu, 2009).

Research methodology

The population of study comprises residential property investment in Minna. Data on rental values were sourced primarily from registered Estate Surveyors and Valuers using census sampling technique, this is due to the relatively small number of registered Estate Surveyors and Valuers in Minna. Data on annual population growth rate was sourced from secondary source through National Population Commission.

The method of data analysis includes descriptive method (mean, standard deviation and graph) and inferential method (analysis of variance (ANOVA), Pearson's correlation and regression analysis).

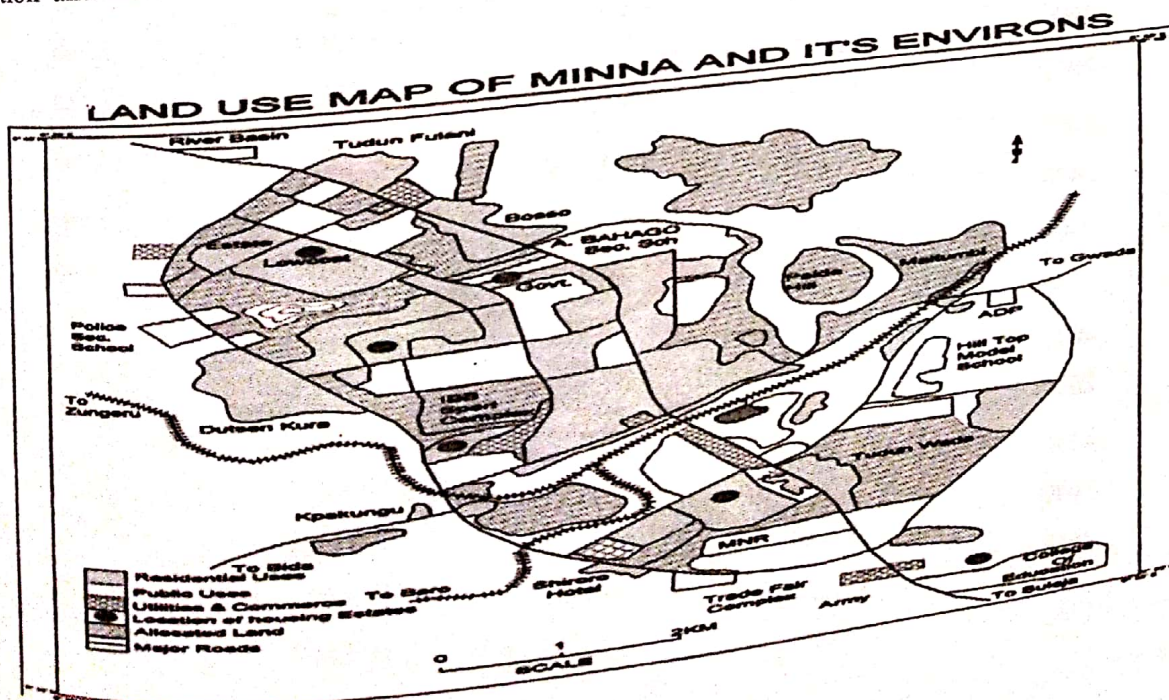


Figure 1: Land use map of Minna and its environs
Source: Ministry of Land and Housing Minna

Analysis of Variance: This method was employed to determine the significance of variation in rental values across the major property markets in Minna

Pearson Correlation: For the purpose of this research, Pearson's product correlation was desirable to ascertain strength of relationship between rental growth rate and population growth rate.

Regression analysis: This method was adopted to determine the amount of increase and variation in rental growth that is due to growth in population.

Results and discussion

This table shows the average rental values for the period under study as well as in the study areas (Tunga, Dutse kura, Maitunbi and Dutse kura). The trend shows upward movement in nominal rent of properties between 1999 and 2011.

Table 3 shows the result of analysis of variance, the critical value of F at degree of freedom at 0.05 level of significant is 1.622 since p-value at 0.099 is less

than $F_{critical}$ 1.860, there is no significant difference in rental values among the study areas. The inference here is that rental values in all the selected zones for the study remain the same.

The table shows the trends in the population of Minna over a period of twelve years. The growth rate was provided to show the rate at which population of Minna grows, from 1999 to 2006, the growth rate was 2.3%, between 1999 and 2006 whereas, and it increased to 3.4% between 2007 and 2011.

The table shows the rental growth rate and population growth rate in Minna. In Tunga the average rental growth rate is given at 11.31%, average rental growth in Kpakungu is given at 14.54, in Dutse kura it is given at 13.31, in Maitunbi it is 15.38, while the population is growing at an average of 2.72%. This indicates that Maitunbi average rental growth rate is better than other areas due to low level of risk as compared to others and it has resemblance with growth in population.

Table 1: Average rental value of property in the study areas (1999-2011)

Year	Tunga	Kpakungu	Dutse kura	Maitunbi
1999	47,200	16,072	41,120	18,560
2000	59,200	20,728	47,020	21,140
2001	67,500	21,920	55,800	23,380
2002	85,500	24,400	69,600	27,200
2003	91,700	27,140	75,820	31,240
2004	101,800	28,580	93,020	38,400
2005	117,800	33,024	113,520	47,560
2006	128,000	43,620	126,300	59,540
2007	134,300	58,172	153,840	74,300
2008	149,500	69,600	179,380	85,640
2009	160,800	77,980	186,720	91,920
2010	183,000	79,940	192,560	103,080
2011	183,000	88,500	200,200	116,040

Table 2: Test of significant variation in rental value among the study areas, using analysis of variance

X_1	$X_1^2, (000)$	X_2	$X_2^2, (000)$	X_3	$X_3^2, (000)$	X_4	$X_4^2, (000)$
47,200	2227840	16,072	258309	41,120	1690854	18,560	344473.6
59,200	3504640	20,728	429650	47,020	2210880	21,140	446899.6
67,500	4556250	21,920	480486	55,800	3113640	23,380	546624.4
85,500	7310250	24,400	595360	69,600	4844160	27,200	739840
91,700	8408890	27,140	736580	75,820	5748672	31,240	975937.6
101,800	10363240	28,580	816816	93,020	8652720	38,400	1474560
117,800	13876840	33,024	1090585	113,520	12886790	47,560	2261954
128,000	16384000	43,620	1902704	126,300	15951690	59,540	3545012
134,300	18036490	58,172	3383982	153,840	23666746	74,300	5520490
149,500	22350250	69,600	4844160	179,380	32177184	85,640	7334210
160,800	25856640	77,980	6080880	186,720	35051078	91,920	8449286
183,000	33489000	79,940	6390404	192,560	37079353	103,080	10625486
183,000	33489000	88,500	7832250	200,200	40080040	116,040	13465281
$\Sigma 1,509,300$	$\Sigma 199853330$	$\Sigma 589,676$	$\Sigma 34842166$	$\Sigma 1,534,900$	$\Sigma 223153807$	$\Sigma 738,000$	$\Sigma 55730054$

Table 3: The Result of one way ANOVA

ANOVA	SS	df	MS	F	P-value	F crit
Source of Variation						
Between Groups	1.571215	12	1.309414	1.622404	0.099062	1.860124
Within Groups	7.344215	91	8.070513			
Total	8.9215415	103				

Table 4: Population Trends of Minna from 1999-2011

Year	Population	Rate
1999	173448	2.3
2000	177,438	2.3
2001	181,511	2.3
2002	185,694	2.3
2003	189,964	2.3
2004	194,334	2.3
2005	198,803	2.3
2006	202,151	2.3
2007	209,024	3.4
2008	216,130	3.4
2009	223,478	3.4
2010	231,076	3.4
2011	238,932	3.4

Source: National Population Commission, 2012.

Figure 2 shows the rental growth index and population index over the period under study. There is an upward movement in same manner in rental growth index between 1999 and 2006, after

which the rental index in Tunga fell below and Maitunbi slightly overlapped above all other locations. Population growth index moved slightly upward and lagged behind rental index. This

indicates that a little or slight increase in population growth shoots the rental growth far above the little change in population.

Table 6 shows the result of strength of relationship between rental growth and population growth. The result reveals that there is strong positive correlation between population growth and rental growth in the study area. In other words, strong positive correlation indicates that as population increases, the rental growth changes in a progressive manner.

The result of impact of population growth on rental growth is presented in table 7. This shows that 72.4%, 76.0%, 83.5% and 86.4% variation in rental growth is caused by population growth. The result further shows a positive impact of population growth on rental growth such that a change in population growth by 1% will cause a rise in rental growth by 4.35%, 6.21%, 5.75%, and 6.75% in Tunga, Kpakungu, Dutse Kura and Maitunbi markets respectively.

Table 5: Average Rental growth rate in property investment in Minna and population growth

Year	Tunga rental growth	kpakungurental growth	Dutse Kura rental growth	Maitunbi rental growth	Population growth
1999	-	-	-	-	2.3
2000	25	29	14	14	2.3
2001	14	6	19	11	2.3
2002	27	11	25	16	2.3
2003	7	11	9	15	2.3
2004	11	5	23	23	2.3
2005	16	16	22	24	2.3
2006	9	32	11	25	2.3
2007	5	33	22	25	3.4
2008	11	20	17	15	3.4
2009	8	12	4	7	3.4
2010	14	3	3	12	3.4
2011	0	11	4	13	3.4
Mean	11.31	14.54	13.31	15.38	2.72
Standard Deviation	10.95	10.95	8.70	7.43	0.55

Source: Authors' field work, 2013

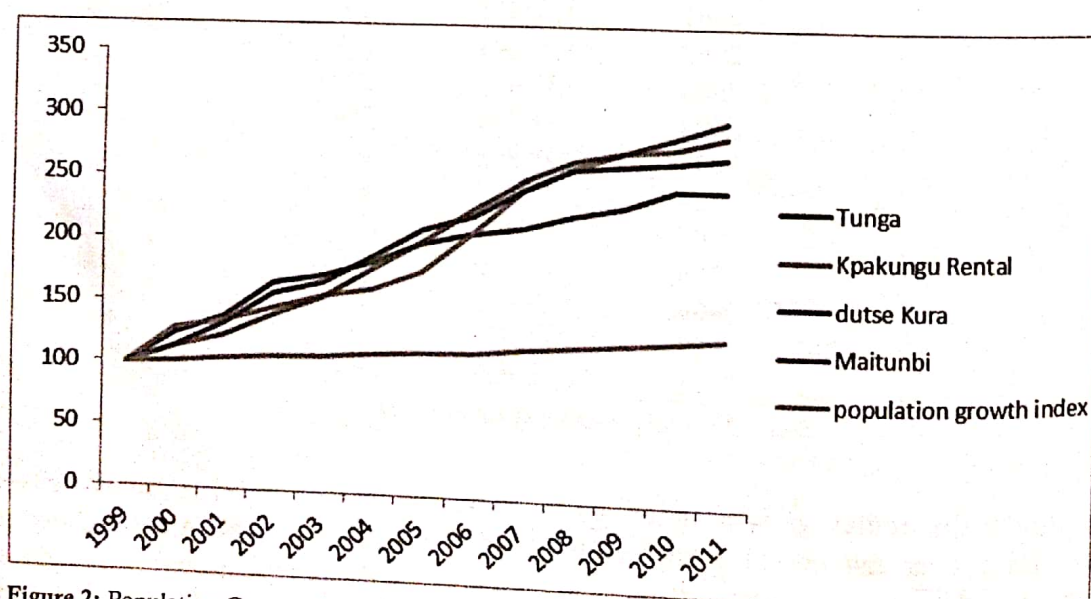


Figure 2: Population Growth Index and Rental Growth Index across Selected Areas

Table 6: Strength of relationship between rental growth and population growth in Minna

Areas	Coefficients	No	T-test	p-value
Tunga Rental Growth	0.961**	13	11.570	0.000
Kpakungu Rental Growth	0.980**	13	16.240	0.000
Dutse Kura Rental Growth	0.967**	13	12.600	0.000
Maitunbi Rental Growth	0.982**	13	17.286	0.000

Table 7: Influence of Population Growth on Rental Growth in Minna

Markets	Models	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R ²
		B	Std. Error	Beta			
Tunga Market	(Constant)	-311.047	43.398		-7.167	.000	.724
	Population Rental Growth	4.359	.377	.961	11.570	.000	
Kpakungu Market	(Constant)	-515.756	44.076		-11.701	.000	.760
	Population Rental Growth	6.214	.383	.980	16.240	.000	
Dutse kura Market	(Constant)	-460.609	52.653		-8.748	.000	.835
	Population Rental Growth	5.759	.457	.967	12.600	.000	
Maitunbi Market	(Constant)	-573.271	45.016		-12.735	.000	.864
	Population Rental Growth	6.755	.391	.982	17.286	.000	

a. Dependent Variable: Tunga Rental Growth

Summary of findings

The reviewed trends in the population of Minna shows that the city started experiencing increase in population long ago and was finally confirmed by the National Population Commission that from 1999 to 2006, the growth rate was 2.3%, which rose to 3.4% from 2007 to 2011. This indicates a 5year change in population growth by 4.4% increase by the years 2015 and 2016. The trend in rental values varied according to location but the movement in the rental growth in Matunbi is better than other selected areas as it provided for secured market with risk. There was a slight upward movement in population growth over the period and this caused larger rise in rental growth. There is strong positive correlation between rental growth rate and population growth rate, the impact was significant across the markets.

Conclusion and implications

The population increase of Minna town has been attributed majorly to factors like urban growth, proximity to the Federal Capital Territory and migration among others. The growth rate could also be associated with the establishment of some Federal Government offices like the Central Bank of Nigeria, Federal University of Technology Minna, Federal Secretariat, and National Examination Council. The increased population and availability of infrastructure in Minna has led to rental values being increased in some areas. The analysis revealed that in as much as there is increase in the rental value in some areas as a result of population increase, over population also puts pressure on available infrastructural facilities. The high rent particularly could make decent accommodation unaffordable to some thereby resulting in the development of slums and degradation of the environment. The implication

of the study is that population growth forms a basis for increase in demand for accommodation which peradventure increases rent, therefore putting the population under check by government will affect real estate investors but otherwise, it will favour the

investors. Investors in real estate prefer high population growth as it is capable of forcing demand over and above the supply of real estate accommodation.

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