SPATIO-TEMPORAL PATTERN OF LAND VALUES IN THE ZARIA URBAN AREA, KADUNA STATE, NIGERIA

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DECLARATION

I declare that the work in this thesis entitled **"Spatio-temporal Pattern of Land Values in the Zaria Urban Area, Nigeria"** has been performed by me in the Department of Geography under the supervision of Professor J. A. Ariyo, Dr. I. J. Musa and Dr. J. O.Adefila. The information derived from the literature has been duly acknowledged in the text and in a list of references provided. No part of this thesis was previously presented for another degree or diploma at any other institution.

Shehu ABBAS _____ _____

Signature Date

CERTIFICATION

This thesis entitled ‘‘**SPATIO-TEMPORAL PATTERN OF LAND VALUES IN THE ZARIA URBAN AREA, KADUNA STATE, NIGERIA’’** by Shehu ABBAS meets the regulations governing the award of the degree of Doctor of Philosophy (Ph.D) in Geography of the Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This work is dedicated to my late Father, Alh. Abbas Abdullahi.

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ABSTRACT

Zaria has for long attracted people from other places due to the variety of functions that it performs. Consequently, the pressure of population has led to increased demand for land, thus leading to a rise in land value as well as vibrancy in the land market. And the city has become polycentric, growing from having one centre to eight centre and sub-centres. Previous researches have concentrated on the analysis of either the spatial pattern or factors of commercial, residential or vacant land value, with the influence of Central Business District (CBD) in mind. This study rather took a more holistic approach, by considering the three facets of land use, as well as considering the influence of not only the CBD but also the urban sub-centres. A questionnaire survey was conducted on occupiers of commercial and residential properties across several transectsradiating out from the sub-centres. This was done using systematic sampling, where the first property along a transect was selected, then every fifth one was also selected, until the required sample size was obtained. For the vacant lands, the items were administered on estate dealers and agents, using snowball sampling. The Spearman's rank correlation coefficient was used to test the first hypothesis and to determine the spatial impact of sub-centres on land value while multiple regression analysis was utilised to test the second hypothesis and to unravel the variables that significantly explain the spatial pattern of land values observed. Trend analysis was used to describe the temporal pattern of land value, while Geography Information System (GIS) was used to show pictorially the pattern of land uses and land values. The results show that the first null hypothesis was tested and rejected for commercial land value, implying that commercial land values decline with distance from the urban sub-centres. Conversely, this was not the case for residential land value, as other factors played a greater role in influencing their patterns. For the temporal dimension, resultsshow that there was a general and continuous rise in land value for all the three aspects, except that the rate of increase was higher at different times. The highest mean commercial land value of N5,761/m^2 was recorded around the PZ area in 2014, while least value of N4/m^2 was obtained around Palladan in 1982. For residential land value, it was N4477/m^2in the GRA and N2/m^2around Zaria city, for the same periods. However, in the case of vacant lands, the highest mean value of N22,222/m^2 was recorded at the GRA in 2012, but the least mean ofN0.6/m^2at Zabi, still occurred in 1982. The reason adduced for highest vacant land value in 2012 was because the values went down (by an average of -20%) for the first time after that year. This was attributed to the security challenges – Boko Haram and apprehensions before the 2015 general elections. Again, it was shown that the land markets have influenced the pattern of land value, like the manner of land subdivision, design of areas and philosophy for owning rental property. Part of the contribution of the this work, is that land values do not rise only around the CBD, as put forward by classical submissions, but there are other minor land value peaks around sub-centre areas for commercial uses, as well as others around areas having some environmental qualities for residential uses. The critical role of infrastructure provision implies the need for the state government to expand live-enhancing infrastructure all over the area, to attract more value and consequently more taxes. Similarly, there is the need for long range housing development plan for Zaria, due to high demand e.g. by developing land banks with well-articulated development schemes. Furthermore, Government should allocate land to all density categories, not just the low density type.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The influx of people into urban areas of developing countries is continuously on the increase. Consequently, Africa's urban population is expected to grow from 294 million in year 2000 to 742 million people in 2030, an increase of 152% (UN-HABITAT and Urban Land Mark, 2010). And Nigeria being the most populous nation on the continent would contribute a significant proportion of this. The urban population growth in Africa is mainly determined by two major factors: the migration of mostly young people from rural to urban areas, and a high natural rate of population growth due to high fertility and low mortality rates as well as low median ages. This therefore, affects the need for land for the provision of housing and other services (Ai, 2005). Little wonder that ERSO (2008) has estimated that residential home ownership in Nigeria is less than 25%, compared with the international benchmarks of 75%. It therefore concluded that housing issues would remain one of the primary social focus in the country for next 20years or more.

In line with the view expressed by ERSO (*op. cit.*), Kironde (2000) also observed that rapid urbanization on the African continent has generally been accompanied by a failure on the part of public authorities to provide sufficient land to meet the needs of the burgeoning population. Kironde (*op. cit.*) and Ikejiofor (2005) further added that in many sub-Saharan countries, government agencies that were expected to be the primary suppliers of urban land have proved to be largely ineffective. Consequently, two types of land market have emerged in most African cities, the formal and informal (UN-Habitat and Urban Land Mark, 2010; Bello, 2011; Gordon, Nell and Batoldi, 2007). The formal land market is that in which transactions are based on a well-defined legal framework and land deals entered are officially registered in the government's systems. In the informal land

market, on the other hand, transactions are based largely on a gentleman's agreement and trust with very little written documentation involved. For a variety of reasons, informality is the dominant characteristic of urban growth and the majority of urban residents, especially the poor, obtain land rights through transactions occurring in the informal market which is outside state regulation and formal land market. As a result, unplanned settlements have been developing rapidly (Rakodi and Leduka, 2003; Ikejiofor, 2005; Kironde, 2000). Because of that, Kabba and Li (2011) were of the view that the urban land market plays a critical role in shaping urban development outcomes. This is because they determine the location, density, form and price of residential, commercial and industrial development (Serra, 2004).

It has been noted, however, that the general demand for urban land is influenced significantly, but not limited to population growth, income, and level of economic activities. The supply of land, on the other hand, is determined by location specific characteristics of the land itself, such as topography and physical conditions, amenities such as availability of infrastructure like roads, water, electricity, patterns of land ownership and government policy (Kabba and Li, 2011).

Government policy is indeed a major determinant of urban land values. Emoh, Oni and Egolum(2013) identified zoning regulations, improvement tax and irrevocable power of attorney amongst the many factors that influence land values in Onitsha, Nigeria. The study by Kabba and Li (2011) reveals issues like income, population, condition of infrastructure, social status, and environmental concerns as those with the most important influence on land values in Freetown, Sierra Leone. In another study by Bible and Hsieh (1999) it was found that parcel size, distance to the CBD, population and zoning classification had strong implications for land value in Louisiana, USA. In a nutshell,

numerous factors have been identified to have either positive or negative influences on land value. These factors are examined in detail in the literature review chapter.

Zaria has been a polycentric settlement since historic time, with about three walled settlements (Urquhart, 1970). Today Zaria has experienced growth and expansion around several additional nuclei. Zaria is the second largest urban center in Kaduna State, next only to Kaduna town which is the state capital. Probably for its population size, the area was split into two Local Government Areas (LGAs) of Zaria and Sabon Gari in 1991. For long, the town has been attracting people due to the ever increasing volume and variety of socio-economic activities located at spatially differentiated parts or points. These activities range from the several institutions of higher learning, a number of commercial banks, telecommunication service providers, retail outlets etc., all of which have attracted consumers and providers of ancillary services. These, in a way, increased the demand, not only for residential property, but also for commercial properties in the area and its attendant effects on land values. According to Adams (1994), price for land or property is either the amount sought (asking price) or the sum received (price paid); while the value of land or property are price estimates that reflect subjective expectations and perception of worth. In an efficient market, the value is likely to correspond to price. In this study, therefore, land value is seen as either the price estimate that reflect subjective expectations and perceptions of worth of a piece of land, or a rental apartment. In other words, land value in this study is taken to be the estimated price of a vacant land or the estimated tenement rates paid by the occupiers of a built-up property.

There appears to be a significant increase in land values over time as well as a variation in the pattern of land value over space in Zaria with some areas exhibiting very high rental charges while others are not so high. As a result, there have been increases, not only in rental values, but also in vacant commercial andresidential lands around the study

area. A lot of changes have taken place over the years. For instance, several retail stores had given way to commercial banks around the Paterson Zochonis (PZ) area, causing a kind of bid-rent competition. The Hanwa-Flyover area is becoming busier with expensive commercial andresidential buildings springing up all over the place. Other areas like Zangon-Shanu, Danmagaji-Gwargwaje, and Kofar Doka are experiencing increasing housing density and consequently land value. It is in the light of the foregoing that this study is set out to analyze the impact of the factors of sub-urbanization on the spatio-temporal pattern of urban land values in the Zaria area. Sub-urbanization, which is the growth of areas on the fringes of cities, is one of the many causes of the increase in urban sprawl. Many residents of metropolitan regions work within the central urban area choose to live in satellite communities called suburbs and commute to work by automobile or mass transit (Wikipedia, 2009). It is believed that an understanding of land value and its spatial pattern in the study area will be of importance in urban planning, management and development as well as anticipating future changes.

1.2 Statement of the Research Problem

Urban areas all over the world are known to attract populations due to the varied socio-economic activities in them. For quite a long time, urban Zaria has been known to pull a large number of people, not only from the north, but also from other parts of the country, as a result of the location of many institutions of higher learning, research centers, commercial banks, business activities etcetera in the town. Again, in about the last ten years, the influx of people into the town has gained momentum, especially with the transfer of all Ahmadu Bello University Teaching Hospital (ABUTH) staff from Kaduna and Malumfashi branches to Shika, Zaria, as well as the opening of branches in the town by several commercial banks in recent years. With these developments, it is to be expected that the demand for both commercial and residential properties as well as vacant lands

would be on the rise. This gave impetus to some people to invest in landed properties. Thus, more people are now into real estate business, with some acquiring farmlands in the suburbs and subdividing them into plots for residential purposes. Such cases are common around places like the newly constructed Mobile Police barracks (along Kano Road), along Kakeyi-Shika Dam road, the Zabi-Government commercial college area, both sides of the Kaduna bye-pass, the area around and Ahmadu Bello University Teaching Hospital (ABUTH), Shika areas, etc.

Although the institutions and establishments mentioned above are located in different parts of the town, they all serve as employment centres and have become some kind of sub-centers in their own right (Mcmillen, 2001). Because these sub-urban centers feature a number of economic activities, they can be likened to what Ai (2005) and Miller and Geltner (n.d) called Neighbourhood Business Districts (NBDs).

Zaria, almost from the outset, has been a multi-nuclei city as noted in the work of Urquhart (1970). Because of the notion by Kabba and Li (2011), Uju and Iyanda (2012) that classical theories and models (e.g. Mills, 1972; Muth, 1969 and Alonso, 1964)were more applicable in the industrial north, and not necessarily to developing countries in determining the value of land situated at varying distances around the city, the impact of sub-urbanization on the spatial and temporal pattern of urban land values has therefore received little or no attention. This is a motivation for the present study on spatio-temporal pattern of land value in Zaria urban area; which is again supported by the fact that many of our towns and cities are polycentric by character, having several nuclei.

A number of studies have attempted to determine the spatial pattern and factors influencing land value in various cities.A study of residential land value modeling in Hankou, also in China, by Ai (2005) revealed that though land value varied drastically within and between land-use zones, most of the expensive land parcels were in the CBD.

However, some studies (such as Uju and Iyanda, 2012 and Kabba and Li, 2011) were not in agreement that the CBD exert much significant influence on land value.

On the African scene, for instance, Kabba and Li (2011) tried to identify the most important variables that determine urban land price in the eastern and western sections of Freetown, Sierra Leone. The result shows that income, population, infrastructure, social status, environmental concerns and neighbourhood quality were the major factors that influence land value in the town. The study concluded that the distance-decay model of earlier scholars has not provided strong evidence that distance from the city centre determines the price of land. In other words, the issue of distance from the CBD has not been paramount, as emphasized in classical urban economic theories.

Most of the studies cited above and several others contained in literature review, have largely concentrated on the pattern or factors that either positively or negatively affect land values (such as Adebayo, 2006, Olayiwola, Adeleye, and Oduwaye,2006; Dung-Gwom and Rikko, 2009, Oni, 2009; Bello, 2011). In other words, the impact that a polycentric structure could have on urban land values has been neglected in Nigeria. Similarly, none of the aforementioned studies has combined commercial, residential and vacant lands in a study, nor have they taken into cognizance the temporal pattern of the respective situation examined. They have not also considered the effect of differential land markets on land values. This study therefore attempted a more comprehensive analysis of the impact of sub-urban centres and the effect of land market on the spatio-temporal pattern of commercial, residential and vacant land values in urban Zaria.

1.3 The Research Questions

Based on the foregoing, the study tried to provide answers to the following questions:

a) Where the sub-urban centres in the study area and what are the different types of land use around them?

b) What is the spatial pattern of land value in different parts of Zaria urban area over space and time?

c) What are the factors responsible for the pattern?

d) What are the types of land market and how do they operate in the study area?

e) What are the effects of land market operations on the pattern of land value in the area?

1.4 Aim and Objectives

The aim of this study is to analyse the spatio-temporal pattern of land value in the Zaria urban area, with a view to providing a knowledge base for urban development policies in this and similar areas. The specific objectives to achieve this aim are to:

a) identify and map-out the major sub-urban centres and the land use types around them;

b) determine the evolving pattern of land value in Zaria over space and time;

c) identify and explain the factors that determine or underlie the observed pattern of land value;

d) examine the types and operation of land markets in the study area;

e) assess the effect of land market operations on the observed spatial pattern of land value in the study area.

1.5 Hypotheses

$H_{o\,(1)}$**:** There is no significant relationship between land value and distance away from the urban sub-centres.

$H_{o(2)}$**:** There is no significant relationship between land value and the following explanatory variables: distance from the CBD, distance from sub-centres, neighbourhood quality, population density, proximity to the campuses of high institutions, availability of infrastructural facilities, land use type, topography, road quality, development potential and ethnic composition.

1.6 Scope of the Study

The research is on the spatial and temporal pattern of urban land values in Zaria, Nigeria. Two local government areas (LGAs), Sabon-Gari and Zaria together formed the study area. The two LGAs had a population of 286,871 and 408,198 respectively, according to the 2006 population census. The CBD, located between Paterson Zochonis (PZ) to Sabon Gari market area and the several sub-urban business districts, like Kwangila-flyover, Zaria city market, Kofar Doka-Jos road, Palladan/Aviationarea, Samaru, Wusasa and Danmagaji formed the focus of this study. The study considered commercial, residential and vacant lands.

It is also worth pointing out that the study did not cover aspects like industrial and agricultural land values. Most of the previous studies considered only one aspect at a time. This study is on three different aspects (commercial, residential and vacant land values). Again the study is largely based on vacant land sales value and annual rental values of developed properties (commercial and residential). In other words, the study did not determine the sales value of developed properties. The decision was informed by the apprehension of property owners whenever the issue of sales is involved. The issue of social value attached to land in some cultres is also not part of this research, rather monetary value was the issue considered. The time span for the study is thirty two years, that is, from 1982 to 2014, which coincides with the period from pre-SAP (structural adjustment programme) era to about the present. The choice of the timeframe of the study

was informed by exigency of data availability coupled with the overwhelming impact that the programme (SAP) has had on the socio-economic fabric of the country as a whole. On content, the study identifies the land uses around identified urban sub-centers; the spatial and temporal distribution of urban land values; as well as the types of land markets operating and their *modus operandi*.

1.7 Significance of the Study

One of the impediments to rapid housing growth in Nigeria is the high cost of land in urban areas (ERSO, 2008). Again, the cost of land can contribute to a substantial portion of the project cost and subsequently manifests through residential sales price or rent. In practice therefore, land price (or value) plays a significant role in urban expansion in terms of its development orientation and speed (Hu, *et al.*, 2012). So the characterization of what Brueckner and Colwell (1983) described as land price distribution (LPD) is essential to provide the information needed to improve our understanding and modeling of urban land use change and to reveal the drivers and spatial change patterns of urban development. This is more so because according to Cadwallader (1996) land uses determine land values, as well, land values also determines land uses; as the latter are distributed according to their ability to pay for land. This implies that land value could affect a number of other things in a city.

The situation in Zaria concerning land values is such that there appears to be a significant increase in land values over time as well as a variation in the pattern over space with some areas exhibiting very high land values or rental charges while others are not so high. As a result, there have been increases, not only in rental values, but also in vacant commercial and residential lands in the study area. A lot of changes have taken place over the years. For this reason, land affordability constraints to low-income housing in rapidly growing cities of developing countries are blamed on high land values. Thus, an

understanding of land value variation could help in making choices, based on affordability. But to investors, an understanding of land value pattern and factors would help improve the feasibility study of site acquisition from the developer's point of view. It would also enable more accurate bidding for new vacant sites. Again, urban planners and policy-makers regard land valuation as a guideline of property tax (Ai, 2005). Land administration should therefore be aimed at controlling the adverse social effects, while maximizing the returns in terms of land tax to distribute to the community the benefits of increased land value (Nzau, 2003).

It is expected therefore, that the results of this study would broaden our understanding of urban land economics, especially in the area of land valuation in the study area and in the country as a whole. The study would also be useful in providing a guide for urban land planning and management as well as identifying the direction for anticipated changes. In the end, it would also add to the body of literature on land value in Nigeria, especially that studies on the subject matter are few in this part of the country. It would therefore, serve as reference material for future studies on related topics.

1.8 Structure of the Thesis

Following this introductory chapter is chapter two which examines conceptual and theoretical issues related to the subject matter of the study as well as previous urban land value studies. Chapter three is devoted to a brief overview of the study area and a detailed presentation of the methodology employed in the study. The presentation and analysis of data are contained in chapter four which covers all the objectives, the results of the hypotheses tested as well as their interpretation in terms of what can be inferred from the findings. Chapter five which is the concluding chapter contains a summary of the key findings of the study, conclusions and recommendations arising from the findings of the study.

CHAPTER TWO

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1 Introduction

This chapter examines key concepts, theories, and previous studies that are related to the subject matter of the present study, which focuses on urban sub-centres, land markets and their influences on land value and urban development. To address the issues, we first undertake a review of some issues relating to the concept of land, land value and its determinants, spatial pattern of land value, and land markets. Then we considered the theories which seek to explain the evolution of the internal structure of urban centres- the concentric circles theory, the sector theory and the multi-nuclei theory- with a view to discern the elements of these theories that would deepen our understanding of the spatio-temporal pattern of land value in Zaria. In addition a detailed review of previous empirical studies of urban land value was undertaken in order to identify knowledge gaps that existin the literature which this study has attempted to fill.

2.2 Conceptual Issues

2.2.1 The Concept of Land

Land is best described as the physical earth and its waters which form the life-supporting systems for all living creatures. Itis also seen as a basis for crop and tree production, and water storage. Land provides space for living, construction and the development of various social activities (FAO, 2003).Thus, land has a production value; it is a primary commodity and a commercial asset. Large areas of land may also be considered as a property because of tradition, customary rules, prestige, or other non-economic reasons.

Three important attributes give land a ‘public’ character even in economies which are not governed by a central planning policy. First, land is a natural resource may be held

and used as a common property (non-exclusive but competing uses). Second, land is an essential resource for habitat, and thus needs to be available in sufficient quantity and quality to provide for the security and stability of the society as a whole. Finally, land development and management is often expensive and frequently exhibits natural monopoly characteristics (declining average cost over large ranges of investment sizes), making government intervention to correct these 'market' problems necessary.

Given that land in many societies is often considered as 'publicly owned' as well as scarce, the question is how the public owner can obtain the greatest benefit from its asset while, at the same time, ensuring its conservation and efficient use. Randall (1987) defines a pure public good as one which, because of its very characteristics, is both non-exclusive and non-rival. That is, there is no capacity to control access to the land, and land use by one individual does not preclude another from using the same unit of land. Non-rival resource use has a zero marginal cost, though that definition is somewhat less than precise because it must include both zero incremental cost of provision and zero opportunity cost, i.e. foregone benefits from a specific use. This definition does not preclude a public good from being scarce, if there is a cost to furnishing it (for example, land reclamation from the sea). Land use is hardly ever non-exclusive, although the use of a hectare of land by one person means that this hectare is, at least in a relevant time and at that specific location, not available to others.

2.2.2 Land Value

The concept of value in general economic theory is that of market value (Ewert, 1979). All other uses of the term 'value' require careful definition to avoid confusion with the concept of market value. As market forces determine market value at a particular point of time, there can only be one value at one time. However, over a period, value will fluctuate above and below a normal level determined by the income earning capacity of the

property. Thus, value appraisal is an attempt to approximate market price at a given moment over a period of time. In effect, it measures the magnitude of the entire fund of value that exists for a given set of circumstances. On the other hand, assessment is an attempt to establish a value on the basis of an estimate of the height of the income fund, which best serves as a measure of the taxpaying capability of any property (Ewert, 1979).

Land marketing distinguishes between exchange value, real value and sales value. The exchange value is commonly associated with a price and is expressed in money, because this is the only generally accepted means for comparing values. The real value represents the equilibrium between supply and demand. When supply exceeds demand, the value decreases; in the opposite case, it increases. Value is thus a relative concept, which varies in time and as a function of circumstances. While real value corresponds to a commonly accepted value for everybody, the opportunity value involvesalso the personal appreciation of one or more individuals. The sales value is highly influenced by personal appreciation and circumstances, and is therefore rather variable in time and space. Defining the value of land based on average sales prices of similar plots in the surroundings requires extreme care (Ewert, 1979).

The valuation of land is complex because the same attribute can have very different uses, and thus different values. Moreover, the initial use can change, e.g. land can be converted from agricultural to urban uses, to industrial use, or become a wildlife reserve. In the words of Eckert (1990), the value of a good is the monetary worth of a property, good, or service to buyers and sellers at a given time and the present worth of the future benefits that accrue to real property ownership. And to have a value, a good must have utility, it must be scarce, and there must be a desire for it.

Unlike Ewert (1979), Eckert ibid, argued that basically, two types of value can be identified, viz: value in exchange and value in use. Value in exchange is that value

influenced or determined by the market, and it is a relative value in that the good must be compared to other substitute goods and services in a competitive, open market (Eckert, 1990). Then, value in use is related to the current use of the object, for instance, a rented shop or house.

2.2.3 Determinants of land value

According to FAO (2003), the two main factors that determine land value are (i) its inherent production potential and (ii) options of use. In addition to these underlying factors, supply and demand and the perception of future benefit of any piece of land also affect the determination of its price in a functional market. Therefore, in rural areas, inherent agricultural production potential is the primary factor of land value because food supply from arable land, timber production from forests, or cattle raising from grassland are the main objectives. On the other hand, in urban and peri-urban areas, optional land use in a changing land market is the main component. In such areas, social activities concentrate more on the transformation of primary goods, the provision of services (secondary, tertiary and quaternary activities of the economy) and residential use of space.

With the world-wide transition from a predominantly rural to a more urban society, the importance of land as an almost exclusive production factor for food and primary goods has decreased. The more modern concept of land sees it as a commodity and source for benefit, at the same level as labour and capital. This evolution is at the origin of more or less important price elasticity in functional land markets. It has been concluded by FAO (2003), therefore, that the variables that determine the value of land can be grouped into seven categories, thus: land speculation; land policy and zoning; land taxation; land use options; security of land; productive land capability; and agricultural policy.

a) Land speculation. The fact that land is becoming a scarce commodity in some countries, real estate has become a means for speculation. In this context, land is

bought and sold in the expectation that it will keep or even increase its intrinsic value in an inflationary market. Speculation creates short term variations in market and may distort land markets. Inflation and money erosion will attract more buyers to the land market and thus increase prices.

b) Land taxation. It is a form of tax that is only levied on land surfaces that go beyond the basic subsistence level. It is sometimes based on the capital value of the land. Successful implementation of the tax depends on a satisfactory valuation of the land. In relation to land value, taxation can mainly be considered a negative factor eroding profitability and income generation, and thus as a source for lower land value.

c) Land use options. In areas where there is land use competition, this usually affects land value because of existence of optional competing uses. Some options may be more beneficial – this will increase (or decrease) as a function of the desirability and willingness of one more individual or group to exploit them. For instance, independent of location and degree of urbanization, sales price for land destined for dwellings are three to four times higher than those for the neighbouring agricultural areas (FAO, 2003).

d) Security of land. This is an incentive to optimize land use and land management, and to maintain values. People will not make land improvements if they are not sure of later benefitting from them. Insecurity leads to less care, deterioration of resources and poor management. These factors all have an adverse effect on the market value. That is why land values for registered areas are generally higher than those for non-registered areas.

e) Land policy and zoning. The increased pressure on land to accommodate the population growth in cities as well as the demand for land by other secondary and

tertiary sectors of the economy make the need for land policy and zoning necessary. Where there is no such control, it could result in serious competition for land, speculative land markets, illegal occupation and grabbing, and environmental degradation (FAO, 2003). In short, zoning has a stabilizing effect on land prices because it removes the speculative elements of future land use changes.

f) Agricultural policy. Access to markets and distance from towns affects land value both directly and indirectly. Farmlands nearer markets tend to fetch higher prices because the transport of products is easier and cheaper. And if crop prices are high, profits from the land will be high and the value of land as a production factor will accordingly be high. Again in countries where there are restrictions on foreign ownership of land, such may depress land values and deter investors (Cohen, 1998 in FAO, 2003)

g) Productive land capability. Studies have shown that in some countries, like France, lands with the highest yields, such as the deep loamy soils of Paris basin, are the highest priced on the land market. Less fertile, coarser textured soils or erosion-prone sloping lands are priced 30% – 40% lower, except where alternative more beneficial land uses become possible (FAO, 2003).

2.2.3.1 Summary of land value determinants

In practice, land price (or value) plays a significant role in urban expansion in terms of its development orientation and speed (Hu,Cheng, Wang and Xie, 2012). Therefore the characterization of what Brueckner and Colwell (1983) described as Land Price Distribution (LPD) is essential to provide the information needed to improve our understanding and modeling of urban land use change and to reveal the drivers and spatial pattern of change of urban development. In the light of this, the framework for land value determination in urban areas can be presented in the form of a graphic model such as is

depicted in Figure 2.1 in which increased urban population, due to factors like high fertility and rural-urban migration lead to increased demand for land for more housing and other related uses in urban centres. The inability of the formal land market to cope with the high demand for land (due to bureaucratic inefficiency) has led to the emergence of the informal land market. Within this dual land market system, land value is influenced by several positive and negative factors which influence land transactions.

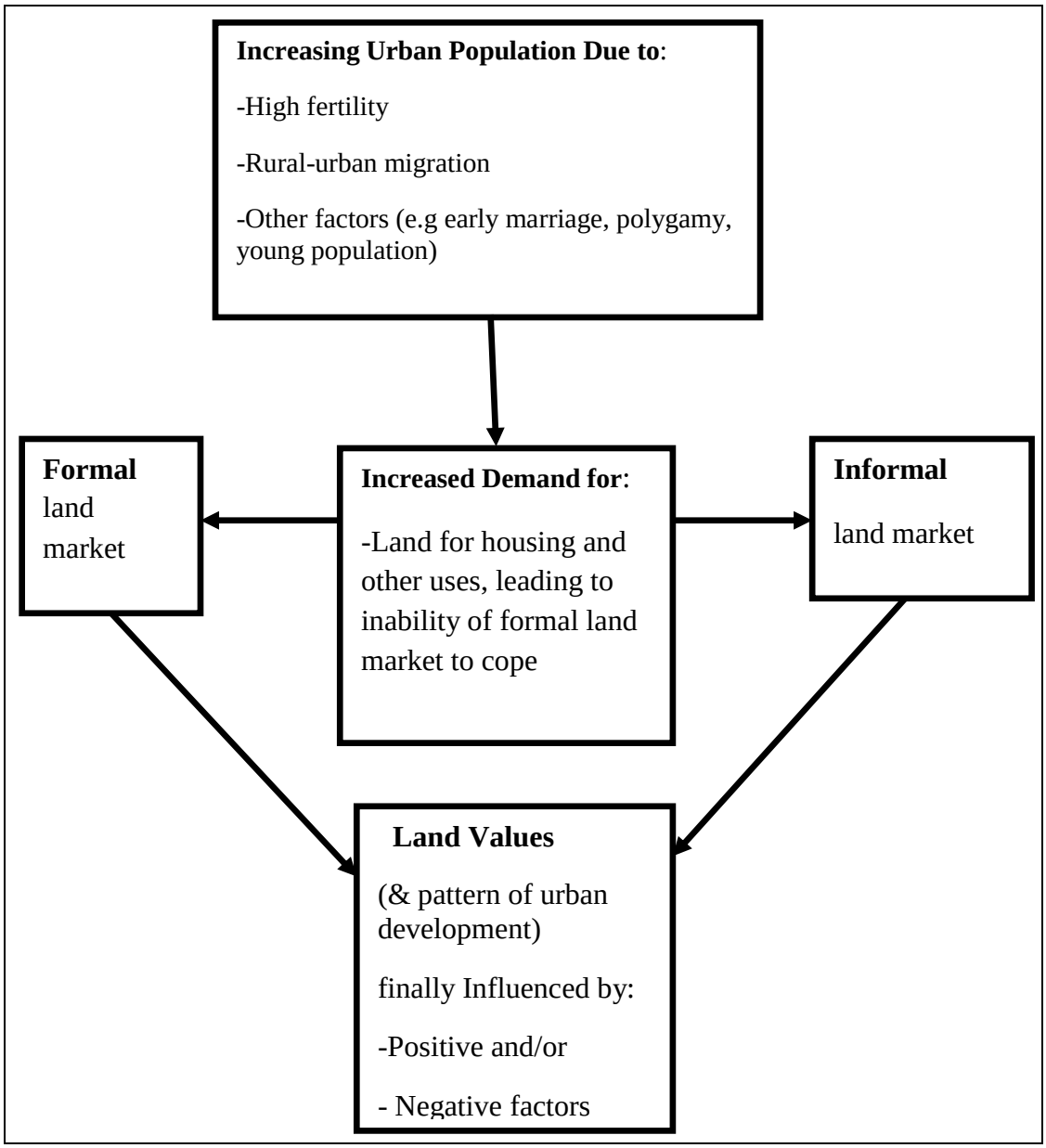


Figure 2.1: Summarised Framework of the Factors Influencing Urban Land Value

Source: Authors' summaryfrom reviewed materials

2.2.4 Pattern of Land Value

Pattern refers to the characteristics and properties found in repeated and regular manner within one object, or between a number of objects with such repetition in the form of shape, density, distribution, linkages, connection or orientation (Mackaness and Edwards, 2002). These occur among the same kind of objects or different kinds of objects or within an object, or between objects that are repeated with sufficient regularity. Such repeated properties may be shape, orientation, connectedness, density or distribution and the frequency of such patterns enables development of prototypical views of geographical processes.

Zacks and Tversky (2001) examined the idea of events as objects and argued that patterns themselves are objects bounded in space, organized hierarchically and recognizable by a set of distinctive qualities. The qualities can be emphasized through the process of abstraction and symbolization, viewing patterns as complexes of primitive objects and relationship between the primitives giving shape, extent, orientation, density, topology and configuration (which refers to collection of objects that comprise the pattern) as their intrinsic properties.

In explaining patterns of property values, Lean and Goodall (1977) opined that the centre of an urban area is the position of greatest accessibility where transport route systems converge. Competition between firms whose revenue is high when in such a position will force up rents and land values above those in the remainder of the urban area. Firms will compete to locate in the centre to take advantage of complementarity, which to large extent, is a function of accessibility. The larger the urban area the more distinct will be the clusters of complementary uses become. Similarly, the higher the degree of accessibility and complementarity, the larger the urban area and the higher the land value inthe centre is likely to be. As accessibility decreases from the centre it is expected that the

value of commercial property will decrease, that is, where main and secondary roads are placed will be major determinantsin the location of the commercial uses. In the same vein, commercial uses can normally attract land away from industrial uses, so that the general pattern will be the highest land values for commercial uses, the next highest for industrial uses, and the lowest for residential accommodation. Complementarity or incompatibility of properties may be an important factor that determines land values in parts of an urban area. If land in a given part of a town is put into complementary uses, this will likely enhance the land values, where as if they are incompatible with each other it may lower the land values. Developments in transport routes or systems may lead to changes in land values in an urban area. By such developments, some land values may rise as accessibility increases, while others may fall as incompatible uses move closer, thus, creating the general pattern of land use and value in the urban areas (Xie and Levinson, 2006).

2.2.5 The CBD and sub-centres

According to Murphy (1971) a Central business District (CBD) is also known as downtown, central commercial district, retail business section, downtown business district, or central area. Amongst the many features of a CBD, according to Murphy, include the following: (i) it is central, at least in terms of accessibility; (ii) it has a great concentration of tall buildings than any other region of the city's offices and largest retail stores; (iii) it is the area where vehicular and pedestrian traffic are likely to be most concentrated; (iv) it averages higher assessed land values and taxes paid than any other part of the city, and (v) it draws its business from the whole urban area and from all ethnic groups and classes of people.

One should, however, not have the impression that the CBD typically displays a high degree of uniformity. It is true that retail business and office uses predominate and give the district its primary character, but there are marked variations in the concentration

of these activities within the CBD. From a point or area of maximum business activity and land values, there is, ordinarily, an uneven gradation outward towards an indefinite boundary. The edge of the district is more a zone than a line; and the fact that every CBD boundary is conceptual rather than real adds to the difficulties of CBD research (Murphy, 1971).

The CBD is the specialised retail focus not only of the city but also of the region for which the city may be considered the central place. Outside the CBD but dispersed within the service area are subsidiary centres or what may be called suburban centres or Neighbourhood Business Centres (NBDs). The number and order of these subsidiaries are related to the order of the city as a central place and therefore to the order of its CBD (Murphy, 1971). This understanding of the relationship between the CBD and central place theory would help us to further appreciate the concept of Neighbourhood Business Centres (NBDs), a key issue in this study. That is, the city has subsidiary centres outside the CBD but within the service area.

It has also been noted that the central place theory applies on different scale i.e. there is a hierarchy of retail areas within cities, so that the CBD is only one of the central places recognizable in an urban area. Thus, in the middle 1930s, Malcom Proudfoot (in Murphy, 1971) published a classification of retail structure of the city that has five grades – CBD, outlying business centre, principal business thoroughfare, neighbourhood business street, and isolated store cluster. Similarly, Hans Carol has also applied the central place hierarchy idea to the city of Zurich, Switzerland. He distinguished four levels, viz: local business district (considered the lowest order), neighbourhood business district (low order) regional business district (middle order) and the CBD (high order). In addition, the work by Onokerhoraye (1982) has noted that a detailed examination of the functional and physical characteristics of identified commercial centres suggested that there were three

distinctive types, thus: the neighbourhood centres, which were emerging in the various residential districts; the principal thoroughfares, with concentrations of retail activities and finally the central business district, which was the major commercial nucleation in the town.

The central place theory, in a way, enhances our understanding of city commercial structure by enlarging the foundations provided by the concentric zone, sector, and multiple nuclei theories. Again, since several studies have highlighted the effect of CBD on land value, it is to be assumed that land value would also be influenced by other subsidiary business districts, such as the sub-centres or NBDs. This is a key issue that this research was set to determine.

2.2.6 Land Market

FAO (2003) define land market as a mechanism through which people acquire or transfer land and land use rights. But according to Dowall (1991) cited in Owei (2007) land market is a mechanism by which seekers of land for various uses can acquire it for its development into the required uses. According to Kironde (2000) a land market is a mechanism through which those seeking for land, and those owning or controlling are brought into transaction in order to affect access to land by the land seekers. Like in most economic transactions, economic forces of demand and supply, according to Farvacque and McAuslan (1991) are expected to determine price of urban land. And demand is usually for construction of buildings and their appurtenances. This demand is usually affected by things like household income, capacity for saving, access to credit and the number of people who want to keep land as investment. Supply on the other hand, is affected by the spatial pattern of infrastructure, topography, willingness of land owners to make land available on the market, and government restrictions on the use of land, such as through zoning.

According to FAO (2003), there are two different types of economic approach to determine land value. The first is to provide a basis for market-driven allocations and prices. The second is pricing by a central authority to recover costs of services. Market allocations require two specific initial conditions: secure property rights and low transaction costs. First, land users must have some form of certain rights to land. In many instances, these are usufruct rights. That is, although the 'state' is the ultimate owner of the land, individuals or groups have the legal entitlement to use land. Secondly, these usufruct rights must be tradable in some form for markets to develop. Whether or not the state is able to recoup income from the rights is generally irrelevant to the efficient use of the resource. Owners of the rights will trade provided the land use right brings higher returns by sale than in use.

It is also relevant to note that most analyses of land markets in African cities recognise the co-existence of formal and informal land markets. But defining them is difficult, as they are often inter-related. While they have different rules, regulations and processes, they also share similarities, actors and logics (UN-Habitat and Urban Land Mark, 2010). Formal land markets are those whose transactions are legally recognized whereas informal land markets transactions are not recognized by law or are not officially registered in governments' system. Many African countries recognize dual legal systems of land ownership – common law or civil code law (inherited from colonial governments) and customary law.

Common law tenure couldincludeboth freehold and leasehold tenure systems. In both systems land is alienable, which means that landowners can transact, sell and transfer the land. If these tenure systems are well managed and administered, and secure the rights of landowners and users, they provide the basis for a robust urban land market (UN-Habitat and Urban Land Mark, 2010). However, in customary tenure options, land is not

alienable. Instead, it is collectively owned by a community, clan or family and is not treated as a resource to be sold or transacted in the open market. Communal tenure practices thus typically discourage the existence of an active urban land market, although they may help some people gain access to urban land.

Like other markets, the urban land market is an exchange system consisting of a variety of institutions, individuals, rules and regulations. A legal framework supports the land market, determiningand enforcing the rights of land users. When the law is followed, it is usually the state that enforces and adjudicates these rights through the courts or special government departments (UN-Habitat and Urban Land Mark, 2010).

The state may also be involvedin regulating land and its exchange through its land administration and management functions. In a robust market, there are buyers and sellers, financialinstitutions that provide debt financingor the funding needed to purchase and improve land.

On the other hand, the term 'informal' land market is used to describe a variety of urban land transactions, exchanges and transfers that are not recognised by the state as legal, but which are nevertheless sociallyaccepted as legitimateby a variety of urban actors. Informal land markets are a hybrid of a variety of practices and contain elements of customary/civilcode lawand social practices adapted to suit existingurban conditions. Although this market is, according to the law, illegal, thestate (or some of its agents) is often complicit in its functioning.

Like the formalurban landmarket, informal markets consist of a variety of institutions which support, facilitate, regulate and arbitrate informal land transactions. These include state officials, such as local government councilors, traditional leaders, chiefs, community leaders, and community and family networks.

In many African countries the informal land market dominates landtransactions, where the supply and demand of landare mediated more by social relationshipthan by a financial logic. A study in South Africa has shown that although price or costis still an issue, it is of secondary importance in the way people transact land in the informal market (Marx and Roysten, 2007:5). In fact a study by Gordon *et al*., (2007) has identified some reasons for the persistence of the informal land market in African countries as follows:

a) Low income households are better able to access affordable land through the informal market

b) It is easier to perform transactions through it i.e. there is low transaction costs

c) Information in informal market could be simply through word of mouth and networks used to identify and access opportunities

d) Informal market is thick, with many buyers and sellers, which is a consequence of failure in the formal land market.

To cap it up all Gordon (*ibid*) concluded thus:

> These markets operate side by side with the informal land market, being a direct result of the failure of the formal land market to provide for low-income households/emerging businesses.Formal urban land markets favour those with the resources who can afford to compete for land and with resources to invest in land. Low income households and emerging businesses are accommodated as supplementary participants (if at all), as tenants, sub-tenants and users of facilities and amenities. As a result, they are pushed into the informal market. High levels of regulation, high transaction costs and lack of access to finance increase the separation of the formal and informal markets.

One characteristic of the informal land market is that of land speculation which is more rampant than in the formal or official market. It is seen as a financial activity that involves the purchase of real estate with the hope that the price will increase (wiseGEEK, 2016). Most land purchases can be better referred to as real estate investment, since land tends to appreciate in value over time due to factors such as scarcity. According to Zhu

(2008) private land ownership in capitalist societies essentially facilitates land speculation at the urban-rural fringe and therefore, to some extent, promotes urban sprawl. Private land ownership allows land speculators to easily buy land at the urban fringe, hold it for a period of time and then sell it to developers. In this sense, urban sprawl is dependent on the behaviors of many private land holders and is actually shaped by land speculations. And urban growth will be determined by the extent to which these fringe lands are successfully incorporated into the urban fabric.

It is also important to note that land speculators are driven by multiple motivations in deciding whether and how to supply their lands for urban development and continued growth. Business profits, investment returns, planning rules, quality of life impacts, and bequest motives all play important roles (Zhu, 2008).

2.3 Theoretical Considerations

2.3.1 Theories of the Internal Structure of Urban Centres

2.3.1.1 The concentric circles theory

The model was derived from empirical observations by Burgess (1925) of the way in which the city of Chicago had developed. It is a hybrid of idealized land use patterns and urban social structure with a strong emphasis on residential areas. The model is usually presented as a concentric zonation of activities (see Fig. 2.2). In fact one of the assumptions of the model, according to Waugh (1995) is that land values were highest in the centre of the city and declined rapidly outwards to give a zoning of urban functions and land use. Five of such zones have been identified. At the first zone, which is at the core of the city is the central business district (CBD). It contains the major shops and offices; the centre for commerce and entertainment as well as the focus for transport routes.

The next zone is the transition or twilight zone. This is where the oldest housing is either deteriorating into slum property or being ‘invaded’ by light industry. The inhabitants

tend to be of poorer social groups and first-generation immigrants. The third zone is known as the low-class or Working class housing areas. This is occupied by those who have 'escaped' from zone 2, or by second generation immigrants who work in nearby factories. They have to live near to their place of work to reduce travelling costs and rent. The fourth zone is called Medium-class housing. It contains single-family dwellings, being spacious, but intermingled with some exclusive residences and high-class apartment buildings. The last zone, which occurs towards the periphery, is the High-class or Commuter housing zone. It is occupied by people who can afford the expensive properties and the high cost of commuting. It also includes the suburbanized villages beyond the city boundary.

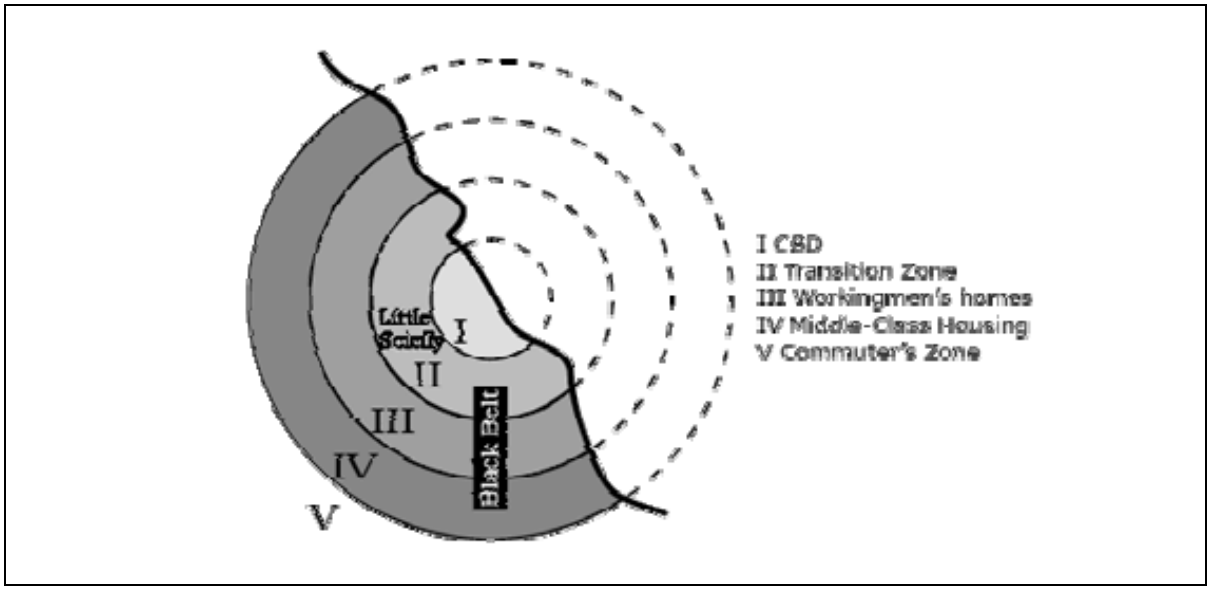


Fig. 2.2: Concentric Model
Source:Pacheco (2004)

2.3.1.2 The sector theory

Another perspective to urban structure was the model developed by Hoyt (1939). Using 8 variables for 142 cities in the USA, Hoyt emphasized the importance of sectorial form of development, rather than concentric. The arrangement of the sectors was such that high income areas were protected from low income districts and

from industry by buffer zones of middle income housing. It is important to note that within the sectors, Hoyt clearly identified concentric zones of differential rent and a tendency for the most fashionable residential areas to migrate outwards from the centre along specific sectors, as in Fig. 2.3. The processes are different from those of the foregoing model.The Burgess model was largely concerned with social factors such as ecological competition and migration, whereas Hoyt concentrated on amenity value and filtering. In practical terms, Hoyt's model seems preferable to that of Burgess because it is more firmly based on empirical data, based on the number of cities considered, and because it went further to acknowledge that the CBD is not the only commercial focus of the city. This latter point is important because the rationale for identifying sectors was the growing importance of motor transport, which was creating subsidiary commercial nodes, often alongside major radial roads (Ai, 2005).

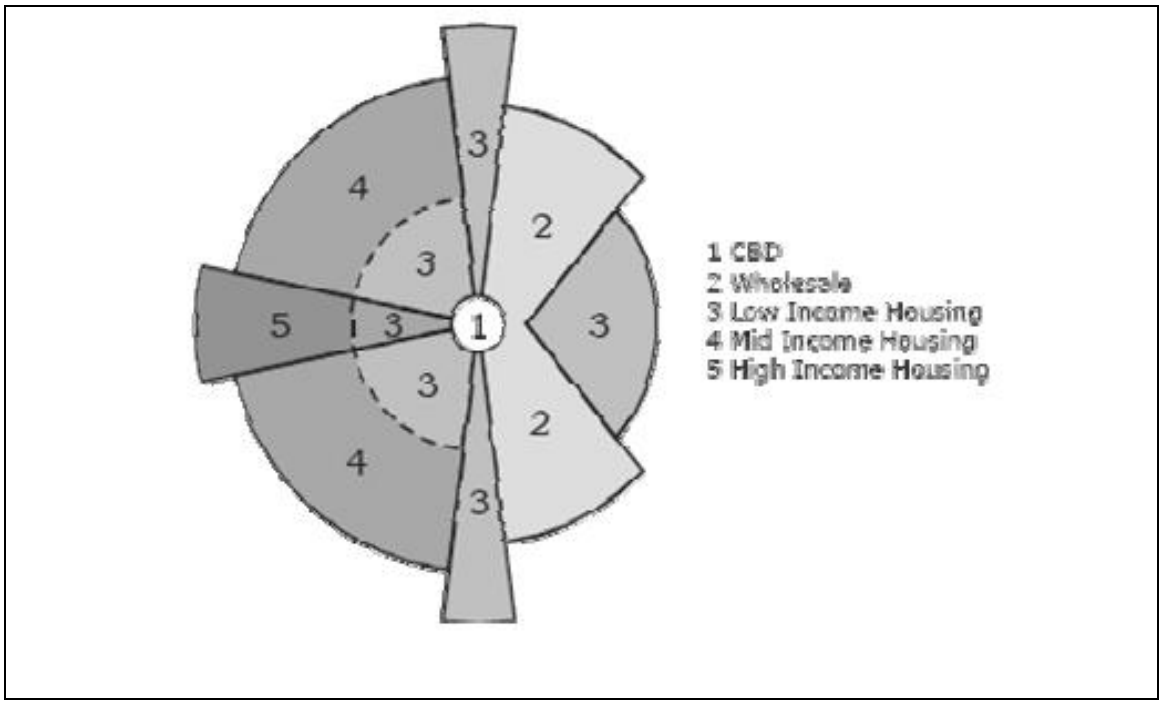


Fig. 2.3: Sector model
Source:Pacheco (2004)

2.3.1.3 The multiple nuclei theory

Furthermore, another related model was also put forward by Hariss and Ullman (1945), known as the "multiple nuclei" model. This, in a way, extended Hoyt's subtle recognition that the CBD was not the only focus of activity, and made explicit in the model. It incorporated elements of Burgess and Hoyt, but it is more flexible than either. In essence, it implies that the city has a cellular structure within which a number of specialized areas develop (see Fig. 2.4). Some of these may be highly nucleated, such as suburban shopping centres, industry or high income housing. In relaxing the assumption of a single centre, and the assumptions of general accessibility to the core, the multiple nuclei model recognizes the interaction of three main elements of the location factor. One is that it gives some weight to topographical and historical features in the origins of the growth of the city. Secondly, it recognizes that different levels of retailing do not all seek a central area, some preferring suburban locations closer to their market. Lastly, it allows for agglomeration economies and both the negative and positive externalities, which cause certain firms or households to cluster together (Kivell, 1993)

It is equally important to acknowledge the fact that all the three models, discussed above, originated from North America. Subsequently, Mann (1965) attempted to refine them for the British context. The diagrammatical model drew heavily from the concentric zone and sector models, but made passing reference to separate and more specialized areas.

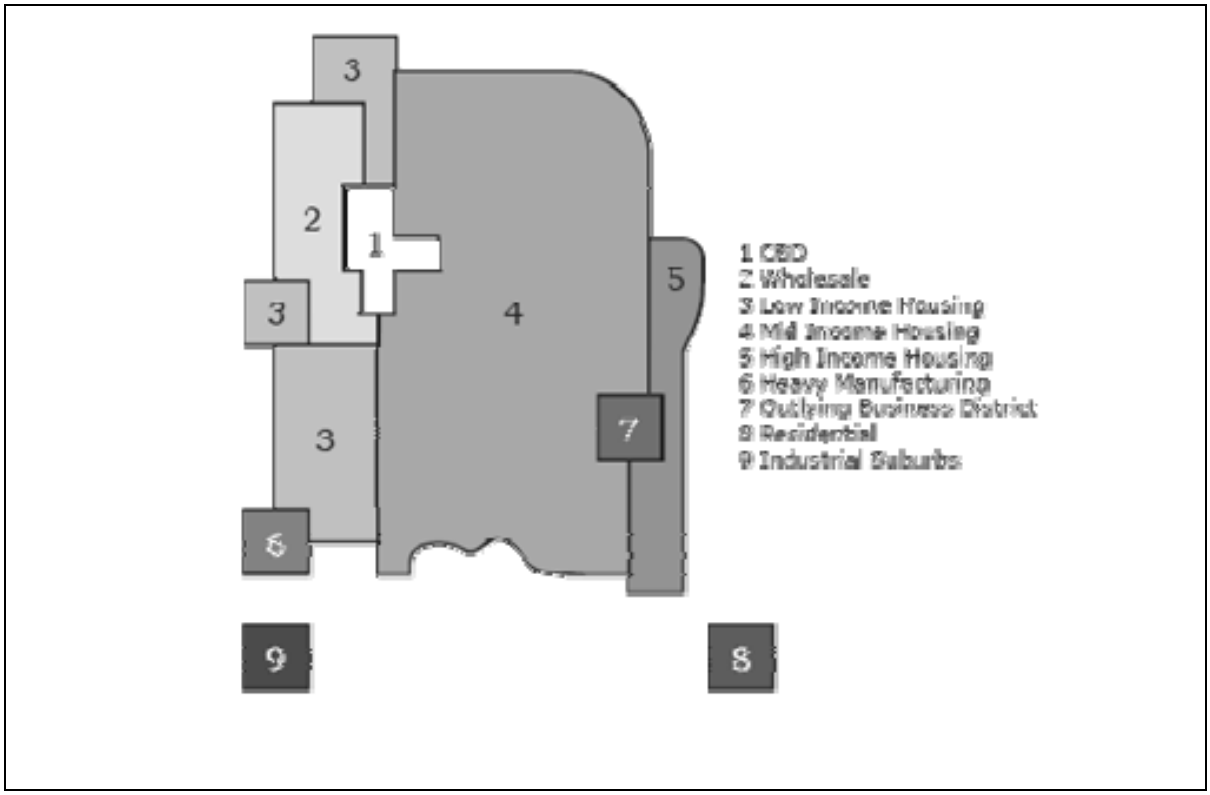


Fig. 2.4: **Multi Nuclei Model**
Source: Pacheco (2004)

2.3.2 Theories of Urban Location/Rent

2.3.2.1 Urban rent theory

This theory also known as the urban structure approach to land price has been dominant in the philosophy of land value behavior. The works of Wingo (1963) and Alonso (1964) have dwelled so much on this issue. They treated differences in location by varying the price which consumers are prepared to pay for the product of the land. This approach concentrates on one major factor as the determinant of land price, which is accessibility to the centre of the city or CBD. Alonso (*op cit*.)also used transportation costs as the main variable to explain urban land values for different land uses. Using a simplified city, he built up a bid-rent function model.

In line with the many assumptions made by the theory, all working and commercial places are located at the centre of the city. The CBD is also assumed to be the only destination for residents of the city. And transport cost increase with distance from the CBD. Since that assumption is only related to the CBD, the distribution of land price or rent is influenced by their distance to the CBD. Based on that, Alonso (*ibid*) made a one directional analysis of land value, which led to the well-known prediction that land values usually decline with distance from the CBD. The theory therefore tries to show that the only factor that people take into cognizance in the choice of a location is the cost of transport.

Consequently, any attempt to minimize this cost will result to a higher demand for locations in the inner city, and this makes the cost of land to be on the higher side around the CBD than in the suburbs. For that reason, land close to the CBD would have the highest bidding as well as highest land utility. Activities therefore, bid competitively in a land market for use of different locations (Phe and Wakely, 2000). In the long run, this competitive allocation process results in a tendency for the overall land-use pattern to adjust, so that each location is occupied by the activity which can pay the highest price/rent. This yields an ordered pattern of land use in which all activities are optimally located, in the sense that utilities are maximized (Adams, 1994). In short, this model implicitly assumes that land using activities have different needs to locate close to the CBD and would bid for land accordingly. This results in a gradient of intensities of land uses and land prices which declines outwards from the CBD.

The bid-rent formulations, according to Alonso, rest upon the assumption that different activities would have bid-rent curves, which vary in form according to their need to be at the centre of the city. This, in turn, depends upon the nature of activities, their ability to take advantage of highly priced central sites and their sensitivity to transport

costs (Kivell, 1993). The theory provides the basis for the arrangement of land uses and values as shown in Fig. 2.5. It shows that there are three major land use activities in cities, thus: commercial, industrial and residential. Most industrial activities have a need to be close to the city centre, at least for reasons of labour availability, transport and marketing services. However, their need is less than that for commercial uses and they are less sensitive to small variations in accessibility, hence their rent gradient is less steep and they cannot compete successfully for the very central locations. Then residential uses, usually the largest user of land in the city, may desire a fairly central location, but cannot derive sufficient profit to outbid commercial and industrial uses. Consequently, they become a residual use, left to the lowest levels of the bid-rent curve with locations furthest from the CBD.

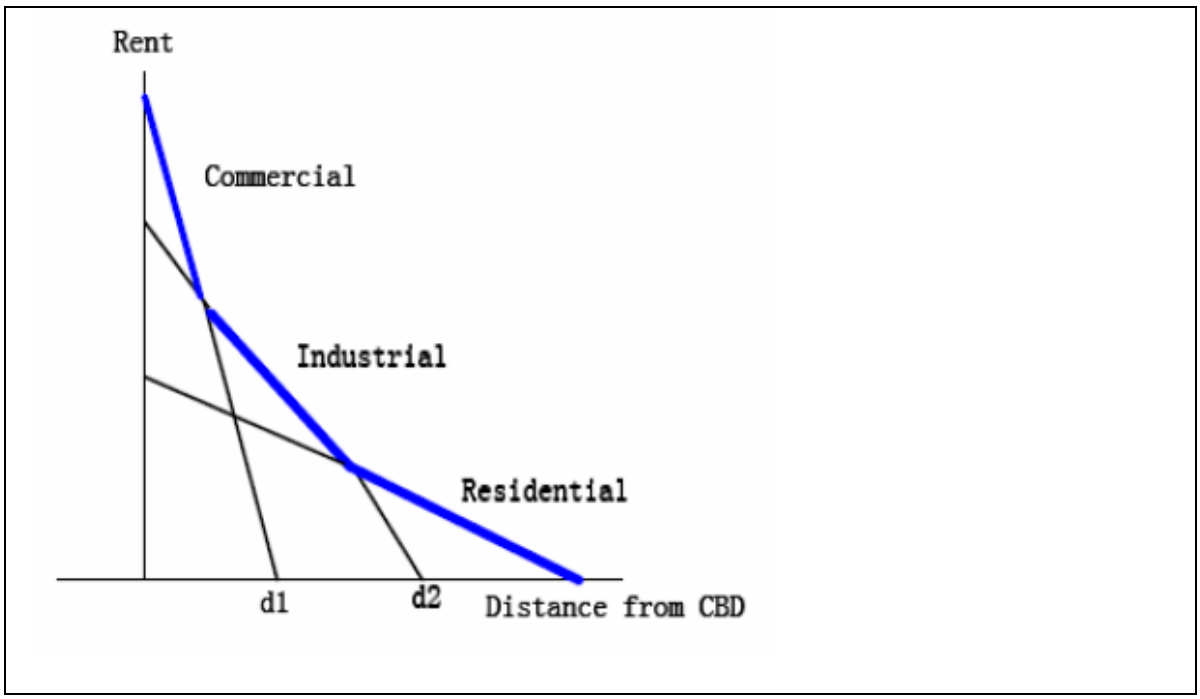


Fig. 2.5: Land use and Land value pattern
Source:Alonso (1964)

2.3.2.2 Filtering down theory

This theory explains how different socio-economic groups come to occupy particular neighbourhoods in succession, at different times. It was originally put

forward by Burgess (1952) to explain his observations about Chicago, where higher-income households moved further from the city centre and slightly lower-income groups occupied the vacated housing. According to Mills and Hamilton (1994), the filtering model is one in which housing is constructed for high-income households and over its lifetime is passed on to lower-income households.

As incomes among a high-income group rise, demand for housing increases. Some individuals will be able to satisfy their increased demand for housing by buying newly constructed houses. The newly constructed houses will probably be located further away from the city-centre, where vacant land is available. It is usually cheaper to build on vacant land than to bear the opportunity cost of demolition and clearance expenses of buildings. Furthermore, inner city lots are generally too small to accommodate the preferences of high income households (Blair, 1995).

2.3.2.3 Trade-off model

According to Muth (1969), the Trade-off model explains the predominance of quality housing on the city perimeter in terms of the trade-off between access to central locations and household demand for space. The model is based on the assumption that as incomes rise the rate at which households are willing to substitute access for cheaper land changes. The model, according to Blair (1995:248), deals with two categories of changes namely: space versus access within a central city and trade-offs in a multiple nuclear city, which will be elaborated upon below.

a) Space versus access/travel cost minimization theory

AccordingtoBalchin,Bull&Kieve(1995:84), if travel coststo work are nilor very low,householdswillbepreparedtopaythehighest rents or prices for accommodation. Through the working of the price mechanism, this would imply that the rich live very close to the central business district and the poor live in less expensive outer areas. The

opposite is however generally true. Low income earners live close to their work (usually within the inner areas of cities) to minimize their cost of travelling, rents are mainly regulated, and housing densities are high. As incomes rise, there has been a tendency for people to live further away from their work in areas of lower density and more expensive housing. Balchin, Bull and Kieve (1995) also argue that the outward spread of cities would only be compatible with travel cost minimization, if employment was simultaneously decentralized, but that this decentralization of employment opportunities usually does not take place, which implies that travellingcostremainsimportant.Itisalsoseldompossiblefor affirm torelocatetoanareathatisclosetoallitsemployees.But,accordingtoBalchin&Kieve(1982),the travelcostminimizationtheoryisvalidtosomeextent.Althoughhousepricesmaybeveryhighin thecommuterbelt,residentialvaluespersquaremeter(m^2)tendtodiminishoutwardsfromthece ntralareaascompetitionfrom business uses gets less.

AccordingtoBlair(1995:249)theincreaseddistancefromtheCBDalsoincreasestheopport unitycostofcommuting.Theincreasedopportunitycostofcommutingtendstoorienttheoptima llocationtowardthecity'scentrewhereaccessisbest.Whichpullwilldominatecannotbedeterm inedtheoreticallyandmaybeillustratedwiththehelpofasimplediagram,depictedinFigure2.6.

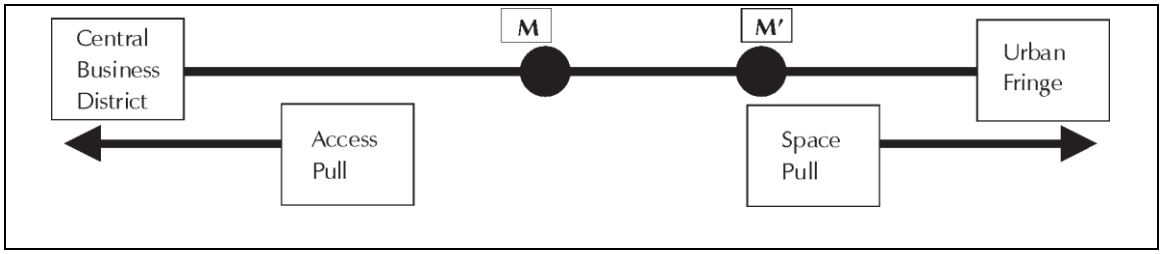


Fig 2.6: Space Versus Access as Income Rises
Source: Jordaan *et al*., (2004)

Initially,thehouseholdisinequilibriumat point M. As income increases, the household will relocate because the desire for more space plus the cheaper land near the fringe is

stronger than the increased pull of the desire for better access. Relocation to M' would reflect the stronger space pull caused by the income increase (Blair, 1995: 149). The contrast suggests that the trade-off is affected by attitude regarding the value of non-work time and preferred living accommodation. Critics pointed out that a trade-off model of the above sort is least satisfactory in explaining residential location within a conurbation where there may be several central business districts and a complex pattern of commuting. Patterns and relationship will also be distorted by the decentralization of employment. Blair took themodelastepfurtherandexpandedthetheorytomakeprovisionfortheMultipleNuclearCity, which is discussed below.

b) Trade-off in the multiple nuclear cities

ThestructureofcitieshashoweverchangedinrecentyearsandlocationsotherthantheCBD havebecomeverypopularforcommercialuses.Thereareincreasinglymultiplepointswithinamet ropolitanareathatrepresentpointsofsubstantialaccess.TheCBDisnolongerthecontrollingacces spointinmostmajormetropolitanareas.Duringthepastfewyears,jobshaveshiftedfromthecentra lcitytosuburban locations,so theassumptionofminimumtransportationcostsattheCBDareunrealisticformostfamilies.TheC BDremainsthesiteofthepluralityofjobs,butmanylarge business agglomerations exist throughout most metropolitan areas. Within limited areas, land costs may actually decline, moving towards the central city (Blair, 1995: 250).

Evans (1985)alsoexpanded thetrade-offhypothesisbysuggestingthatahouseholdmightmovefurtheroutfromthecitycentreiftheir demandforspaceincreases,butiftheirincomeincreaseandtheirdemandforspaceremaincons tant,theywillprobablymoveclosertothecitycentre.Evansfurthersuggestedthatfollowingag eneralincreaseinpay,higherincomehouseholdout-

bidlowerincomegroupsbothontheperipheryofurbanareasandintheinnercities,inthelatterca seoftenbymeansofgentrification. High-income groups can bid forlandinanylocationbecausetheycan afford high transport cost and expensive housing, which implies that increases or decreases in transportcostwillnothaveanimpactontheirlocation.High-incomecommutersdonothavetotrade-offtravelcostandhousingcost-theycanaffordboth.Apatternofhouseholddistributionwithamorethanproportionatenumber ofhigh-incomehouseholdsinbothinnerandperipheralareasandamorethanproportionatenumberofl owerandmiddle-incomegroupsinbetween,resultsfromthiscompetitionbetweenincomegroups.Highways, moreover,maymakeouterlocationsmoreaccessiblefromthecentralbusinessdistrictthanma nyinnersuburbanlocations(Balchin, Bull&Kieve,1995).

2.3.2.4 Cultural agglomeration theory

Households often stay in a neighbourhood even if their income changes, because they enjoy living in that neighbourhood. They may prefer to live in the commuter belt where they can benefit from a better environment and open space and where they can segregate themselves from lower socio-economic groups (Balchin and Kieve, 1982). Blair(1995:250)statesthatculturalfactorsareimportantinneighbourhoodformation.People oftenbelievetheywillfindcongenialfriends(orfriendsfortheirchildren)iftheylivenearpeopl elikethemselves.Thus,neighbourhoodswhereindividualswithsimilar socialcharacteristicsarefoundwill be formedbased on social desires and agglomeration economies.Balchin&Kieve(1982)based,thisonhouseholdswithsimilarincomes,andpresu methattheywill,inthelongrun,bewillingtoincurthesamepricefortravellingandhousing.

Iftravellingcostsincrease,certaingroups willmigratetoareaswherethecostofhousingisrelativelycheaper,whilepeoplewilltendtomove tomore expensivehousing iftravellingcostsdecrease.Theactualdirectionofchange,ifany,willdependupontherelativestrengthofthesetwoopposingforces.Itshould,however,benotedthatevenifthereweresaninversecorrelation between houseprices andtravelcosts,itisunlikelythatallhouseholdswouldtrade-off.Harvey(1996:206)alsopointsoutthat environmental characteristicareimportantinthelocationdecisionsofahousehold.Certainenvironmentalqualitiesmaybemoreimportanttocertainsocialgroups,beitonthebasisofincome,cultureorreligion.

2.3.2.5 Maximum housing expenditure theory

This theory states that income, availability and conditions of mortgage finance determine residential location. Their choice is fairly restricted and the point on the housing cost curve will be determined largely by mortgage availability (Balchin and Kieve, 1982). The theory is based on the assumption that house-buyers will attempt to acquire a house as expensive as they can afford with the maximum mortgage, which they can raise in the area of their choice. Although house-buyers may seek a property over a wide area, transport costs may be a relative minor consideration and may vary in relation to the distribution of houses within a specific price range. Environmental and social factors are likely to be a much greater influence over choice. This hypothesis proposed by Ellis (1967) and Stegman (1969) implies that there is no overall relationship between income, travel cost or time and place of work and that there is no effective trade-off. Other residential location theories that concentrate more on government and its involvement will now be described.

2.3.2.6 Tiebout model

This model describes the following relationship between local government programs, taxes and housing prices:

a) Ahousepurchasedinaparticulararеaembodiesabundleofservicesthatvary depending on government activity. Individualsformpreferencesforanareabased onthepublicservicesand other featuresoftheexternalenvironmenttogetherwiththeprivateservicesofthehouse;
b) Differentlevelsofserviceprovisionswilloftenresultindifferenttaxburdensamongmunicipalities,and
c) Individualsdifferintheirpreferenceandwillingnesstopayforprivatehousingservicesandalsoforthegoodsassociatedwithhousinginaparticularneighbourhood(Blair, 1995:251).

TheTieboutmodelpresentsacombinationof different aspects model that was also discussedintheothermodels,butalsoputsastrongemphasisondifferencesinpreferenceresultingfromgovernmentpolicyandprogrammes.Thismodelrecognizes thatindividualsinthesamepositionmightnotmakethesamedecisions.Iftheyarenotsatisfiedwiththewaythingsare,theywillnotnecessarilybearwithit.Individuals"votewiththeirfeet"forthecombinationofamenitiesanddis-amenitiestheyprefer.

2.3.2.7 Aggregate economic fallout model

HillandBier(1989)developedamodelof neighborhoodchangethatlinkschangesintheeconomic basetoneighbourhoodformation.Changesinthenationaleconomymayaffectparticularlocal sectors,andtheseimpactsareinturntranslatedintochangesin neighbourhoodcharacteristics.Thismodel suggests that neighbourhoods have identifiablelinkstooccupationsandindustriesinthelocaleconomy.Itcanthereforealsobeuse

din collaborationwiththeculturalagglomeration model in which households, where members occupy similar occupations, may prefer the same type of neighbourhood.

2.3.3 Elements of the Theories Relevant to Urban Land Value

From the theories reviewed so far, it is relevant to identify areas of linkages with the issue at stake – land value. Starting from the concentric model by Burgess, its emphasis on the ring pattern of land use zonation with the CBD at the centre implies high land value at the centre, which declines with distance away. In the case of Sector theory, the importance of radial roads around the city has been emphasized. This shows that apart from the CBD other possible impacts on land value could be road networks around a city. Then the Multiple nuclei model tries to highlight the fact that apart from the CBD there could be several other commercial nerve centres in a particular city which can affect the value of land in different parts of the city.

There is also the urban location or Bid-rent theory. It concentrates on one factor as the determinant of land value, that is, accessibility to city centre, hence it came up with the bid-rent function model. In other words, activities bid competitively for space at the city centre and only those activities that can pay for lands close to the centre can occupy such areas.Those that cannot are to be found at locations some distance from the city centre. This theory is directly on the issue at stake. The Filtering down theory, on the other hand, maintained that high-income households usually move further away from the city centre with increasing income, while slightly lower-income groups move up to occupy the houses left by the high-income group. This helps to explain the factors that influence residential mobility, thus influencing land value patterns.Thiswould then help to raise the value of lands in areas that attracts new housing schemes. Next is the Trade-off model. It tries to explain the predominance of quality housing on city perimeter in terms of the trade-off between access to central

location and household demand for space. The model deal with two issues: space versus access trade off in a mono-centric city and trade off in multiple nuclei city. That is, in the first case the rich households preferring fringe areas for more spacious housing at the expense of easy access to the city centre. This could help to boost land marketing activities around such areas, thereby raising their values. In the second case, multiple nuclei cities, which is more the case in metropolitan areas, the CBD is no longer the controlling access point, since there are other sub-centres. Within limited areas therefore, land costs may actually decline or peak up, moving towards the city centre.

Furthermore, the cultural agglomeration theory proposed that households may prefer to remain in a particular neighbourhood even if their income has improved. That is, cultural factors are important as people may want to maintain congenial friendly relations. In such a way people can agglomerate based on social desires. As a result, land value in those areas may be on the high or low depending on the attitude of the predominant people of the area. This can therefore, be a factor that can help to explain land value patterns. Another theory is the maximum housing expenditure theory. It advocates that house buyers would attempt to acquire a house as expensive as they can afford with the maximum mortgage, which they can raise in the area of their choice. This can influence land values because the more the availability of mortgage facilities, the more the demand for land and consequently the higher the value.

The model by Tiebout was on differences in preferences of individuals resulting from government policy and program. That is, different individuals have preferences for different amenities and dis-amenities in choosing places of residence. This shows that facilities provision in an area can help attract some people, thereby affecting values. Finally, the Aggregate economic fallout model advocates that changes in the

national economy may affect particular local sectors and these impacts are in turn translated into changes in neighbourhood characteristics. In other words, there can be linkages between neighbourhoods and occupation or industry in the local economy. In this way any positive or negative turn in the economy that affects a particular sectoror industry can make or mar the fortunes of the land business.

2.4 A Review of Related Previous Studies

2.4.1 Identification of Urban Sub-centres

Several studies have attempted defining suburban centres as well as methods of determining them. The first formal procedure for identifying employment sub-centre area was proposed by McDonald in 1987 (McMillen, 2001) who suggested that the first step is to estimate a simple employment density function for a monocentric city. That is, sub-centres produce clusters of positive residuals in the estimated function. The method has however, been criticized for a number of reasons, one of which is that the notion of cluster is subject to interpretation.

In another sub-centre identification method put forward by Guiliano and Small (1991), a sub-centre was defined as a set of contiguous tract that have a minimum employment density of 10 employees per acre each and together, have at least ten thousand employees. They therefore, identified 32 sub-centers in the Los Angeles area. It is however important to observe that this definition is sensitive to the cut off points used for minimum employment density and total sub-centre employment. The same cut off points imply an unreasonably large sub-centre in the northern Chicago suburbs with over 400,000 employees, leading McMillen and McDonald (1998) to raise the cut offs to 20 employees per acre and 20,000 total employment. This therefore, implies that local knowledge must guide the choice of cut off points, limiting the analysis to familiar metropolitan areas.

Furthermore, Craig and Ng (2001) in their own approach tried to eliminate many of the problems of the earlier methods of sub-center identification. They used a nonparametric estimation procedure to obtain smoothed employment density estimates for Houston, Texas, USA. They first looked for local rises in the density-CBD relation, and then inspect the rings to find sites with unusually high density and employment. They used their knowledge of Houston to accept or reject high density sites as sub-centers. However, the method requires some local knowledge to choose which sites are sub-centers within rings around the CBD, and the imposition of symmetry around the CBD is unsuited to cities that are distinctly asymmetric due to varied terrain or multiple sub-centers.

In order to deal with many of the problems associated with some of the earlier procedures, such as the issue of familiarity with an area, McMillen (2002) came up with a method of hybrid, two-stage approach which combines McDonald's and Craig and Ng procedures. The first stage is the identification of sub-center candidates through an analysis of the residuals of a smoothed employment density function. The study uses a nonparametric estimator, locally weighted regression, to estimate the employment density function. It involves multiple applications of locally weighted regression. In the second stage McMillen (2002) uses a semi-parametric procedure to assess the significance of the potential sub-center sites in explaining employment density. Distances to potential sites are included as explanatory variables in the parametric part of the regression – so if the regression indicates that densities fall significantly with distance from a potential sub-center site, then the site is included in the final list of sub-centers.

Based on the foregoing, it is important to note that most of these methods, including the last one, may not be readily applicable in Third World countries, where the level of industrial development is rather low, so that employment may be more in the informal sector and local trading. And for that reason, obtaining information from such

small-scale business organisations could be an entire research on its own. Again some of the methods require a lot of competence in high-level statistical computations. Perhaps for this reason, Nzau (2003) in his study of the city of Nairobi defined a sub-center as an area planned and designated for commercial use and with high level of both employment and economic activities than neighbouring areas. In addition, it should have a high concentration of different establishments, including financial institutions, businesses and offices.

However, it should also be noted that the approach by Nzau (2003) has not suggested a way out, where no area or areas have been specifically designated as sub-centers, as is the case in the present study of urban Zaria. It has not also taken into cognizance the presence of other human activity centers, like motor parks, small markets or its location at major road intersections. However, in the study by Onokerhoraye (1982) on Ilorin, Nigeria, the only criterion applied in the definition of centres was that each should have at least twenty commercial establishments that are located adjacent to one another. And no precise rule was used for delimiting the boundaries of centres, each case being judged subjectively after a thorough field survey (Johnson, 1966 in Onokerhoraye, 1982). The study noted that boundaries of most such centres were delimited by non-commercial land use areas of about 100 to 200 metres. This was facilitated by the fact that most commercial developments in the town are at or near street intersections and along the major roads leading to the centre of the town. So that commercial development gives way to non-commercial, usually residential land uses. The study by Onokerhoraye (1982) eventually found that there were a total of twelve modern commercial districts in the town.

The present study looks at a sub-centre as an area of higher economic activities than its surroundings and usually located around major arterial road intersections. Such economic activities include presence of a market (and or a chain of retail stores), a motor-

park and higher vehicular and pedestrian movements than surrounding areas. The road intersections should have at least a major road artery and a feeder road.

2.4.2 Spatial and Temporal Pattern of Land Value

A number of empirical studies have been conducted to determine the spatial and temporal pattern of land value. The study by Rikko and Dung-Gwom (2006) tried to determine the spatio-temporal pattern of land values in peri-urban areas of Jos, Plateau state. It used a questionnaire survey, field observation, measurements as well as interviews (with land vendors and community leaders). The data so collected were analysed using descriptive statistics and diagrams. The results show that there was a continuous increase in land value through the years studied in all sampled areas, from 1990 to 2005. The area called Rayfield had the highest land value with N110 per square metre in 1990, but increased by 763.6% by 2005; while the lowest land value was in Fudawa (N30 per square metre at the beginning of the period and N410 per square metre at the end). The factors identified as being responsible for the high land value in Rayfeild include the elite status of the area due to the presence of medium and high income earners as well as retired senior military officers etc; as well as good security due to presence of the government house, the official residence of the state governor, in the area.

In another work by Amenyah (2013), the factors determining residential rental prices in Accra, Ghana, were analysed. Three different localities in the city were compared and 100 households were selected proportional to the population. Transect walk was undertaking and the interview method was used. ANOVA was performed to determine the existence of a significant difference in mean rental prices across the 3 locations. The results show that East Legon, sparsely populated and largely occupied by high income groups, had a rental charge that was approximately three times that of Chokor, densely

populated and occupied by low income earners. The results of ANOVA showed that location significantly affects rental price and that such prices are positively skewed; meaning that majority of rents are on the increasing side.

The study by Amenyah (*ibid*), also forecasted that rent would become higher and higher but in different magnitudes, depending on location. The study also revealed that 49% of households lived in single room apartments, while 29% lived in one bedroom apartment or what is called 'chamber and hall' in Ghana (or what is sometimes called 'room and parlour in Nigeria). This was linked to poverty, as many could not afford apartments with more rooms which cost a lot more. Finally the study recommended, among other things, the need to formulate and enforce housing policies; provision of basic facilities should be ensured by the rent control department and new structures should meet housing standards.

2.4.3 Factors Influencing Land Value

As defined by Adams (1994 in Zheng, 2003) values of land and property are price estimates that reflect subjective expectations and perception of worth. According to Ewert (1979) value designates a property's actual worth in relation to other similar properties while price was seen as the amount sought (asking prices) or the sum received (price paid). Generally, it is believed that in urban areas two groups of factors determine land value (Adebayo, 2006). These include those that have to do with the individual properties and those that affect property values collectively. This study, being geographical, has more to do with the latter.

2.4.3.1 Urban infrastructure and land use

Several studies have been conducted to determine the effects of infrastructure provision and land use on land value. The work by Adebayo (2006) is one of them, essentially on the effect of urban infrastructure on property values in Lagos. Data

collected through a questionnaire survey was analysed using descriptive statistics. Results of the study revealed that the presence of essential infrastructural facilities and services was a major determinant of property value, and that property values tend to peak in those areas that enjoy easy accessibility (through road network), electricity, pipe-borne water and efficient drainage. Sada (1968) had earlier noted that the supply of different services in Lagos, the former capital of Nigeria, was bound to make the city to be differentiated along many socially related lines with concomitant effects on property values. Kabba and Li (2011) have also confirmed the importance of infrastructure and services in influencing land value in Freetown, Sierra Leone. Likewise, Amenyah (2013) has noted the role of amenities in determining rental values in Accra, Ghana. While stable power supply from NESCO was one of the factors that help to explain land value variation in Jos, as explained by Rikko and Dung-Gwom (2006). Conversely, Oyebanji (2003) in a study has stated that good spread of road network has a tendency to increase accessibility with certain areas becoming less accessible as a result of traffic congestion, thereby causing value to shift to areas that are accessible.

In addition, Adebayo (2009) also carried out a research to determine the impact of urban land use change on property values in Metropolitan Lagos. A set of questionnaire was randomly distributed to estate surveyors and valuers. Eventually, it revealed that factors of demand and supply were the major influences on land use in the area, and among the major changes was the conversion of Vitoria Island from residential to commercial uses. Consequently, the increase in demand for commercial use in turn leads to increase in property values. The study also found that the development has brought problems such as traffic congestion and overstretching of infrastructural facilities. It therefore, suggested the need to enforce planning laws to allow for balance allocation to various uses.

The spatial concentration of office uses and how their combination with other land uses affects value of office properties was the concern of the study by Stratton (2008). This was to determine the relationship between spatial clustering of office uses and office property values. The variables used were cluster size, regional location and relationship to transportation infrastructure, internal land use mix and transportation network. The study revealed that recent office development has continued to benefit economically from agglomeration. In addition, office property values were positively affected by intensity of office development, a central regional location and clustering or agglomeration of office parcels.

In a somewhat similar study, Adebeyo and Oni (2011) examined the effect of sustainable industrial land use on land values in Agbara industrial estate, Ogun state. The study revealed that rental value of different properties rose steadily during the period under study (1997 to 2008). It recommended that both government and private business men should endeavor to site industries in areas that are less developed for rural development and that private developers should seize the opportunity of high demand for residential accommodation in such industrial areas and invest.

2.4.3.2 Environmental quality

The importance of environmental quality to the socioeconomic activities of man cannot be overstated. Little wonder that a number of studies have found that environmental quality also influences the value of properties. In a study by Bello and Ajayi (2010) the effect of waste dump sites on land value in parts of Lagos metropolis was examined. Data were collected from a sample of occupiers of residential properties within 1000 metres to waste dumpsites and for comparative analysis, some samples were also taken from a neighbourhood not close to waste dumpsite. Using what is called 'Relative Satisfaction Index' (RSI), ANOVA and correlation coefficient, it was found that RSI of the areas close

to the dump sites was rather low. In other words, the closer the property to the dump sites, the lower the satisfaction derived. The correlation results show that there is a weak linear relationship between rental value and the satisfaction of occupants in the area. This weak relationship, which is contrary to expectations, was attributed to the situation where demand was higher than supply. In such situations, there are tendencies that occupiers may not get value for their money, since it is a sellers' market – so the 'beggar', may therefore, have no choice. The study, therefore, recommended that planning authorities should strictly enforce regulations concerning building line setback so that people should not build close to certain areas; and that investors should avoid business in properties close to waste dumpsites. Kakulu (2007) attempted a study on the observed distortion of land value trend in the oil rich Niger Delta area of Nigeria. Results show that the land value pattern exhibited by different communities was based on their proximity to the oil well locations and processing plant. Consequently, land values around communities close to the flow station generally exhibited the lowest values.

In addition, Oni (2009) observed that where a building is located will determine how easy it will be to attract customers or how easy it will be for employees to get to work. Buildings within city limits are more valuable than those outside the city and those closer to the center of town and major roadways are worth more than those on small or obscure side streets. The neighbourhood within which such buildings are located also determines the value and profitability of the real estate. Potential income of an office space is another factor. An investor will calculate the amount of money that a property is likely to bring each month from renting the property. This is an important part of the commercial property analysis.

2.4.3.3 Social status

Because of certain social or economic considerations people tend to flock together in terms of residential location i.e. somehow in line with the adage that ‘‘birds of the same feather flock together’’. This is also in line with the cultural agglomeration theory earlier discussed. A study by Rikko and Dung-Gwom (2006) in the city of Jos, Nigeria noted that the factors identified as being responsible for the high land value in Rayfeild include the elite status of the area due to the presence of medium and high income earners as well as retired senior military officers as well as good security due to the presence of the government house in the area. There was a similar finding by Kabba and Li (2011) where the western part of Freetown recorded higher land values because most of the residents belong to the elite and decision making class, while the east had lower values, because it was predominantly occupied by middle and lower class category of people.

2.4.3.4 Social vices

Social problems like communal conflicts and crimes could have significant effect on land values. A case in point was reported by Dung-Gwom and Rikko (2009) in a work on the effect communal conflicts on housing value in Jos. It revealed that because of the movement of people to peri-urban areas from the city centre and vis-versa, there was a sharp rise in rent between 2003 – 2009; coinciding with the crisis period. In addition, there were cases of what they termed ‘forced sales value’ for some residential buildings in the city centre. That is, when people dispose their property in a hurry to leave an area at a price far below what its market value would be in normal times.

Similarly, a number of studies have noted the effect of crime on land value. For instance, the study by Bello (2011) has tried to determine the effect of crime on property values in Akure, Nigeria. Using descriptive statistics and multiple regression analysis, it was found that the coefficient for crime was negative; meaning that as crime rate increased, property values decreased in the area. It therefore, recommended that crime

prevention and control should be given priority, especially by improving the living condition of slum dwellers. Pope (2008) also conducted a study to investigate households' reactions to the information contained in sex offender registries through their impact on housing prices in Hillsborough County, Florida (USA). Using data purchased from the Property Appraiser's office and dataset on sex offender movements, it was found that the average house within a tenth of a mile of a registered sex offender living in a single family residence, sold for 2.3% less after the sex offender moved into the neighbourhood. This was estimated to be a reduction of three thousand five hundred dollars ($3,500.00) on the average. Moreover, it was found that housing prices tended to rebound shortly after the sex offender leaves the neighbourhood.

2.4.3.5 Miscellaneous factors influencing land value

Oyebanji (2003) reported that a number of factors affect property values in Nigeria. These include population change (also in agreement with Kabba and Li (2011), change in fashion and taste, institutional factors (culture, religious belief, and legislation), economic factors, location, complementary uses, transportation and planning control. Other factors identified by Sada (1968) include the effects of political factors on geography of a study area noting that the emergence of Lagos as a livable city was as a result of the political decision that made it a capital city in 1914. The difference in jurisdictional areas within the city and the associated varying levels of resources, the city has become a complex city. Zoning law is another factor; each city has its own set of zoning laws setting forth how certain areas of town are allowed to be used. What is more, the study by Amenyah (2013) has noted that the main factors responsible for the pattern of rental value are closeness to work places, security (or good security due to presence of Government House) and location.

The study by Cloete and Chikafalimani (2001) on property industry in Malawi was in agreement with Stratton (2008), which identified eight factors that affect property value, which are architectural design, quality of finishing, maintenance condition of the property, size of property, security, condition of the street, and location. Hendon (1971) studied the effect of a park on property values and found that the park had stabilizing influence on residential property values, especially among high-valued residential properties, and lower with less-valued ones. The study by Uju and Iyanda (2012) has noted that time of land purchase was most important in Onitsha. In other words, an increase in the number of years when land is purchased would result in a decline in land value by 0.39%. Then, historical background of the Rayfeild area in Jos as a neighbourhood for white miners was identified as one the factors for the high land value recorded (Rikko and Dung-Gwom, 2006).

2.4.4 The CBD, Urban Sub-centres and Land Value

A number of studies have established that land values consistently tend to decrease with distance from CBDs, thus emphasizing the importance of such centres in land value analysis. It is pertinent to note that the study by Uju and Iyanda (2012) tried to establish the relative importance of location and non-location (or non CBD) factors in determining residential land value in Onitsha, Nigeria. The study argued that non-location factors also largely influence land values. A set of questionnaire was administered to landlords or their representatives. Result of the study shows that land values do not decrease away from the CBD, unlike the findings of Alonso (1964), Ball (1973), and Asabere (1981). But it is in line with the findings of Kabba and Li (2011) and Rikko and Dung-Gwom (2006) which suggested the need to revise the classical urban economic theories (such as the bid rent) to represent contemporary conditions of urban areas in developing countries.

From the literature accessible to this writer, it is only the work by Nzau (2003) that shows some concern about the influence that urban sub-centres could have on land values. His work on Nairobi, Kenya, tried to model the influence of urban sub-centres on the value of vacant residential lands in the city. Different multiple regression models were build using data for 3 years. The research revealed that despite Nairobi been polycentric, distance to the CBD was still the main factor influencing land values. Distance to urban sub-centres was insignificant in 2 out of the 3 years investigated. Influence of urban sub-centre was only significant within 500 metres, which is due to what he called 'next door effect'. It is important to note that the work by Nzau only considered vacant lands, regardless of their distance from the sub-centres. Again, the study applied gridlines over the study area before randomly selecting 85 vacant plots for the study and extrapolated for others not selected.

2.4.5 Knowledge Gaps Identified in the Literature

From the studies accessible to the writer and reviewed above, it is evident that (i) previous studies either considered only the impact of residential or commercial uses on land value. The present study examines the combined effect of both on land value. (ii) Previous studies either considered the spatial pattern of the value of only vacant or built up land. The present study combined both. This, it is believed, would enable us to compare values across the various land uses as well as to appreciate the one that stand above the rest. In this way, we can as well compare the outcomes with hypothesized land use and land value pattern for cities, as illustrated in Fig.2.4. (iii) Previous studies did not consider the impact of urban land market, yet in Africa rapid urbanisation has led to a situation in which more land is transacted in the informal than the formal or official market. There is a great deal of land speculation in the informal market which affects land value. (iv) Studies on the pattern of land value around urban sub-centres are very rare (what was more

common was the CBD effect on land value) is very rare. This study tried to determine the effect of such centres and the CBD on land value in Zaria. (v) Little attention has been paid to studies on land value in much of the northern part of the country, except the city of Jos. The present study of urban Zaria should enrich the literature on the subject matter. And such studies are also rare on non-state capital cities.

CHAPTER THREE

THE STUDY AREA AND METHODOLOGY

3.1 Study Area

3.1.1 Location

Zaria is located in the central plain of northern Nigeria, about 950km from the sea, approximately between latitudes 11^{o} 00' - 11^{o} 10' North of the equator and longitudes 7^{o} 36' - 7^{o} 45'East of the Greenwich Meridian (Fig. 3.1). Zaria is the second largest town in Kaduna State, after Kaduna town which is the state capital. Zaria and Sabon Gari are the two local government areas (LGAs) that form the study area, with the Kubanni River as the boundary that separates the two areas. The headquarters of Zaria LGA is located in Zaria city, near the Emir's palace, while that of Sabon Gari is located at Dogarawa. The 13 electoral wards that make up Zaria LGA are Anguwan Fatika, Anguwan Juma, Dambo, Dutsen Abba, Gyallesu, Kaura, Kufena, Kwarbai, Limancin Kona, Tudun Wada, Tukur-Tukur and Wucicciri; while the 11 wards that constitute Sabon Gari LGA are Anguwan Gabas, Basawa, Bomo, Chikaji, Dogarawa, Hanwa, Jama'a, Jushi, Muchia, Samaru and Zabi wards.

3.1.2 Relief and drainage

In terms of landforms, Zaria is situated on the vast gently undulating plains that extend across much of northern Nigeria (Thorp, 1970). The plain, which is generally undulating, varies in altitude from about 550m to 740m above sea level, it is punctuated by hill features of two kinds, namely, rock inselbergs, such as the Kufena hill, attaining a height of 820m and lateritic ironstone capped residuals (Iguisi, 1996). It is pertinent to note that the relief of an area can affect land value. Hilly areas are not attractive to commercial or residential uses.

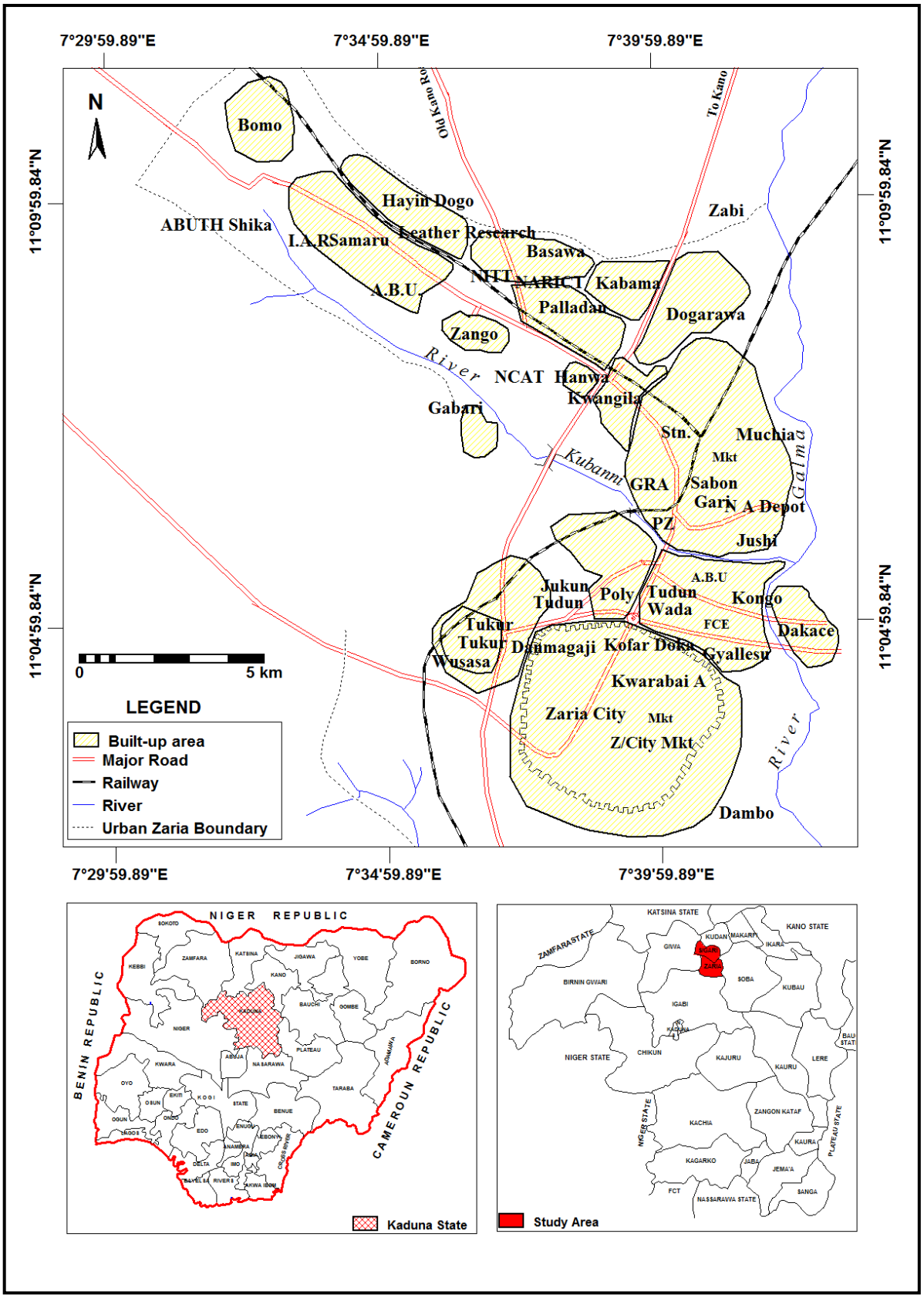


Figure 3.1: The Study Area

Source: Adapted and Modified From Topographic Map of Zaria Sheet 102 S.W

The area is drained by three major rivers: Galma, Kubanni and Saye rivers. The volume and flow of these rivers is highly irregular and follows rainfall events. The drainage systems of Zaria focuses mainly on River Galma, and excepting it, all streams in the area are seasonal, flowing only during and after rainy season, although the larger ones have surface water along stretches for much of the year. A very good example is the Kubanni River along Samaru (Mortimore, 1970). The nature or pattern of drainage in an area can affect accessibility, which in turn can affect the value of properties.

3.1.3 Climate

Zaria lies within a region which has the tropical continental climate (*Aw*), with distinct wet and dry seasons, the wet season occurring in the high-sun period. The rainfall is seasonal in character and about 90% of it falls between April and October, with the heaviest recorded in July and August. The mean annual rainfall is 800mm (Ojo, 1982). The low and seasonal rainfall of the area make its mark on the vegetation, which assumes various shades of green in the wet season and turns brown, pale or yellow in the dry season (Hore, 1970). According to Schwedferger (2007), the local people distinguish four seasons as follows:

a) *Bazara* (hot and dry): Mid-February to mid-May, the hot dry season;

b) *Damina* (wet): Mid-May to the end of September, the rainy season;

c) *Kaka* (dry): October to mid-December, the harvest season; and

d) *Rani* (cold and dry): Mid-December to mid-February, the cold dry season of the harmattan.

The onset of the rainy season is highly variable and unpredictable in the area, although long-term average appears to be first week of May (Owonubi and Olorunju, 1985). Variability in the mean cessation date of the rainy season has been reported to be October 8th, with an upper limit of October 23rd (Akintola, 1986). The dry season is

practically rainless. It is characterized by hazy to dusty conditions, as well as low temperature, which is sometimes as low as 10^{o}C at night. Zaria experiences a brief period of hot but dry weather in March and April, during which average temperatures get higher than the approximately 27^{o}C monthly mean. Some studies (such as Emoh *et al*., 2013; Uju *et al*., 2012) have shown that seasonality can affect land marketing activities in some areas. That is, because the harvest season is associated with good business, unlike the wet or planting season.

3.1.4 Vegetation

Vegetation in the Zaria area is of the Guinea Savanna type. Unfortunately, this characteristic vegetation cover is hardly preserved due to urbanization and poor management practices, like fuelwood harvesting, annual bush burning, cultivation and intensive grazing (Ologe, 1971). It is typically deciduous woodland type, with trees that shed their leaves annually during the dry season to conserve water. There are also herbs, shrubs and grasses (Oluwa, 1986; Ogunjobi, 1993). The herbs and grasses grow very tall in some places particularly around the basins, where water retention and moisture is high. There is the presence of evergreen trees along the perennial rivers and streams. The *Ceiba pentandra* (silk cotton tree or Rimi in Hausa) is dominant in the landscape. There are also*Mangifera indica* (Mango) trees (exotic and foreign), common trees seen dotting the region. This is due to the seasonal character of rainfall which favours the growth of the tree species. The mango trees are planted by locals for their fruits and shade.

Isoberlinia doka with an average height of 20 m is one of the dominant trees in the area. Other trees found include *Tamarinus indica* (Tamarind or Tsamiya in Hausa), *Parkia clappertonia*(Hausa = Dorowa) and others which are found useful to man. A common grass community is the *Anropogan spp* (Kwabe, 1987). Grazing for livestock and grass

cutting for local mud house construction are common human activities that contribute to the absence of the grass.

3.1.5 Soil

The soils of Zaria falls under the leached ferruginous tropical classification, developed on weathered regolith overlain by a thin deposit of wind-blown silt from the Sahara desert (Wright and McCurry in Aminu, 2014). Most of the soils have a sandy loam texture (Jaiyeoba, 1995). Leaching of clay materials and ions down the soil profiles is a major soil development process. The soil exhibit a marked horizon differentiation with iron oxide deposits in the clay-rich B-horizon that underlies the A-horizon in forms of mottles, concretions or ferruginous hard pans called duricrusts (Klikenberg, 1970). The top soil is rather coarse due to eluviation of the fineparticles of the A-horizon (Jaiyeoba and Ologe, 1990). Klikenberg (1970) has identified the three types of soil in the Zaria area, viz: fadama soils (in valley systems), soils developed on meta-sediments i.e. schists and quartzites) and soils developed on granites. Soil quality can affect land value especially in rural or peri-urban areas of a city.

3.1.6 Peopleand population

Zaria, being in the heart of the Hausaland is predominantly occupied by the Hausa speaking people, traditionally known as Zage-zagi or Zazzagawa, who largely occupy the old walled city. Outside it however, there are other Hausas, who originally migrated into Zaria from the northern states. These are especially found in Tudun Wada. The non-Hausa in-migrants to the area, such Igbos, Yorubas, northern minority tribes and so on, are predominantly found in areas like Sabon Gari, Palladan and Samaru.

According to the 2006 population census, the two LGAs that make up the Zaria urban area have a combined population of 698,348 (with S/Gari having 291,358 and Zaria 406,990) (NPC, 2010). And according to Butler (2015), Zaria is among the top ten most

populous urban areas in Nigeria. Indeed it has been ranked 8th, and is the only non-state capital amongst the top ten. If that is the case, it is the most populous city outside of any capital city in the country. Areas ofhigh population density are associated with lower land values and vice-versa, as found by Kabba and Li (2011) in Sierra Leone. Again, with a growing population in an area, a high demand for land and properties is expected. This, therefore, tend to affect land values, in line with the principles of demand and supply.

3.1.7 Economic Activities

There are about fourteen manufacturing industries and major commercial establishments(Bello, 2000). As a result of this and many other developments in the area, the study has found that between 1962 and 1992, Zaria as an urban centre has been transformed from an educational centre to a rapidly growing manufacturing industrial city sprawling for more than 25km stretch along Kaduna-Sokoto motor road.

In the area of transportation industry (road, railway and air), the city has the National Institute of Transport Technology (NITT), Nigerian College of Aviation Technology (NCAT), workshop and station of the Nigerian Railway Cooperation (NRC) as well as being a nodal centre for road and rail transport. Also, several banks have in recent years opened branches in Zaria, especially along Kaduna road (around PZ area), so much that some people unofficially call that area 'Bank road'. Examples of such banks include branches of Diamond, Stanbic IBTC, Skye and Zenith banks.

Zaria is also home to a number of agro-based and agro-allied industries (such as tobacco manufacturing like the British American Tobacco (BAT), food processing like SAJ foods ltd (makers of SAN yoghurt and juice), Habib, Basako and Hanan Yogurt, Premeir Seeds, Sunseed, Cotton Ginneries, Zaria Industries limited- manufacturers of Tarpaulin e.t.c), Electric Metre Company (EMCON), United Oil Mills, Comrade Cycles, A.J. Seward, Holt Agric Engineering Company, establishment such as the military and

police bases (e.g. Nigerian Army Depot, Nigerian Military School and the recently constructed Mobile Police Barrack), numerous traditional cottage industries, Table 3.1 shows the major economic activity centres in Zaria. All things being equal, it is expected that the higher the volume of economic activities, the higher would be the incomes and consequently demand for more commercial and residential properties as well as vacant lands. And the higher the demand, the higher would be the value.

Table 3.1: Major Commercial Activity Centres in the Zaria Urban Area

CBD & sub-centres	No. of banks	No. of petrol filling stations	Markets	M/Parks
1. the CBD (PZ-Sabon Gari Market	21	13	4	4
2. Tudun Wada-Kongo	2	5	2	1
3. Kofar Doka	0	3	0	1
4.Zaria City Market– Emirs	2	2	1	0
5. Danmagaji-Fly over	0	3	1	1
6. Fly-over Kwangila	0	7	1	1
7. Palladan/Aviation	0	1	1	0
8. Samaru/ABU	4	2	1	1
Total	**29**	**36**	**11**	**9**

Source: Fieldwork, 2016

3.1.8 Infrastructural Facilities

The growth of urban Zaria though influenced by historic circumstance and political authority it wielded prior to the 19thcentury, is also the result of deliberate establishment of educational institutions (Bello, 2000). Hence, it has been noted that twelve out of the seventeen tertiary institutions in Kaduna state are located in Zaria. In terms of higher education, there are some of the following: Ahmadu Bello University, Federal College of Education - F.C.E., Nuhu Bamalli Polytechnic, Amir Shehu Idris College of Advanced Studies – ASICAS. There are also training and research institutes (e.g. Federal College of Chemical and Leather Technology Institute for Agricultural Research – I.A.R, National Animal Production Research Institute -NAPRI, Centre for Energy Research Training -

CERT, National Research Institute for Chemical Technology, National Extension Research and Liaison Services (NAERLS), Institute of Administration, Kongo, Ahmadu Bello University Teaching Hospital - ABUTH) and so on drawing staff and students from the four corners of Nigeria and beyond. In this vein, Bello (*ibid*), further added that as a result of the dominance of this urban area, there is a continual drift of young men and women into the area. Therefore, it is clear that population in the area is increasing with a concomitant increase in the demand for land.Probably for this reason, land values would have greatly gone up.

In terms of healthcare facilities, a study by Abbas (2009) indicated that there were 11 public and private hospitals in the Zaria urban area (8 in Zaria and 3 in S/Gari LGAs) that have facilities for immunization program.

There are also a number of recreational/sporting areas, including the Zaria Race Course/polo field, 3 Stadia – 1 in the walled city, 1 at Kabama, and another 1 in S/Gari Township, which also houses the Zaria recreation club.

Water supply in urban Zaria has been an issue for some time. A report by Water power and Development company (1991) shows that the Zaria water supply scheme was expanded twice (1974 and 1980) to a designed output of approximately 56,800 m^3/d. Unfortunately, it now produce an output of 32,000 m^3/day. There is therefore, a short fall of 24,800m^3/day based on the 1980 installed capacity. To worsen matters, the population of the area has far outstripped the 1980 figures. A study by Musa, Abbas and Lukman (2009) has observed that the pattern of tap water supply problem in urban Zaria presents a picture of two extremes. That is, areas that have some water supply (GRA, S/Gari and Tudun Wada) and areas that do not have supply at all (parts of Zaria walled city, Kofar Gayan, and Samaru). It is, however, heartwarming to note that there are visible efforts by the Kaduna State Government towards finding a lasting solution to the problem. This is in

view of the aggressive phase of work at the treatment plant in Zaria Dam, as well as the laying of supply pipelines in all nooks and crannies of the urban area.

3.2 Methodology

3.2.1 Reconnaissance Survey

A reconnaissance survey of the sub-centres was conducted. In the process, potential transects to be followed during the field survey were selected. Also visited were the government lands office in Zaria, estate property agents, land vendors/agents/dealers and rent collection agents. Discussions were carried out with some these actors in the real estate business with a view to establish a rapport with them before the time for the actual field survey for data collection. Four field assistants were recruited to help interpret/administer the questionnaires.

3.2.2 Types of Data Utilised

The types of data utilised are:

(a) An inventory of land use practices around identified urban sub-centres- the number of businesses or facilities around the selected centres such as such as shops, filling stations, banks and motor parks. This is because, the more the volume of commercial activities, the higher would be the demand for commercial properties and *cetaris paribus*, the higher would be the land value around such areas.

(b) The amounts paid as rental charges for commercial and residential properties as well as the prices of vacant lands across the study area. This includes information about the past and present situation, which was used to determine trends.

(c) Data on the factors determining land values

(d) Data about the types and modes of operation of land markets found in the area

3.2.3 Sources of data

Data for this study were collected from both primary and secondary sources.

3.2.3.1 Primary source

The primary source was through field surveys that included the administration of questionnaires, interviews and observations. Four sets of questionnaire were used; one set for each of estate surveyors(or agents/vendors), rent agents, occupiers of commercial and residential properties/tenants.

3.2.3.2Secondary source

Secondary data were obtained from organizations like the Kaduna State Government Lands Office in Zaria, estate valuers/agents/vendors and rent collection agencies. Other required information was obtained from published and unpublished texts, journals, and conference papers.

3.2.4 Sampling Techniques and Sample Size

3.2.4.1 The transects

The study started by identifying all major sub-urban centres located at different points in the two LGAs that make up urban Zaria. A sub-urban centre according to Craig (1996) should be an area with a high employment density than its surrounding areas. McMillen andMcDonald (2000) were also of the view that employment densities and economic activities are the best measures to use for the identification of urban sub-centres. And in particular, a sub-centre should be expected to serve as an attraction to surrounding areas. Thus, according to McDonald andMcMillen (1998) and Craig and Ng (2001) local knowledge of an area is necessary to identify urban sub-centres. The researcher, therefore, made use of ample knowledge of the Zaria environment to identify the sub-centres.

Purposive sampling was undertaken whereby all sub-centres that were identified and the CBD constituted the population of localities for the study. From each of these localities, at least two transects, radiating in different directions, were selected for the purpose of questionnaire administration. The level of land use density was the criterion for

the selection of the direction of the two transects from the central point of each urban sub-centre. In other words, areas around each urban sub-centre where land use intensity was high were deliberately selected for questionnaire administration. The total number of transects so selected were 23.

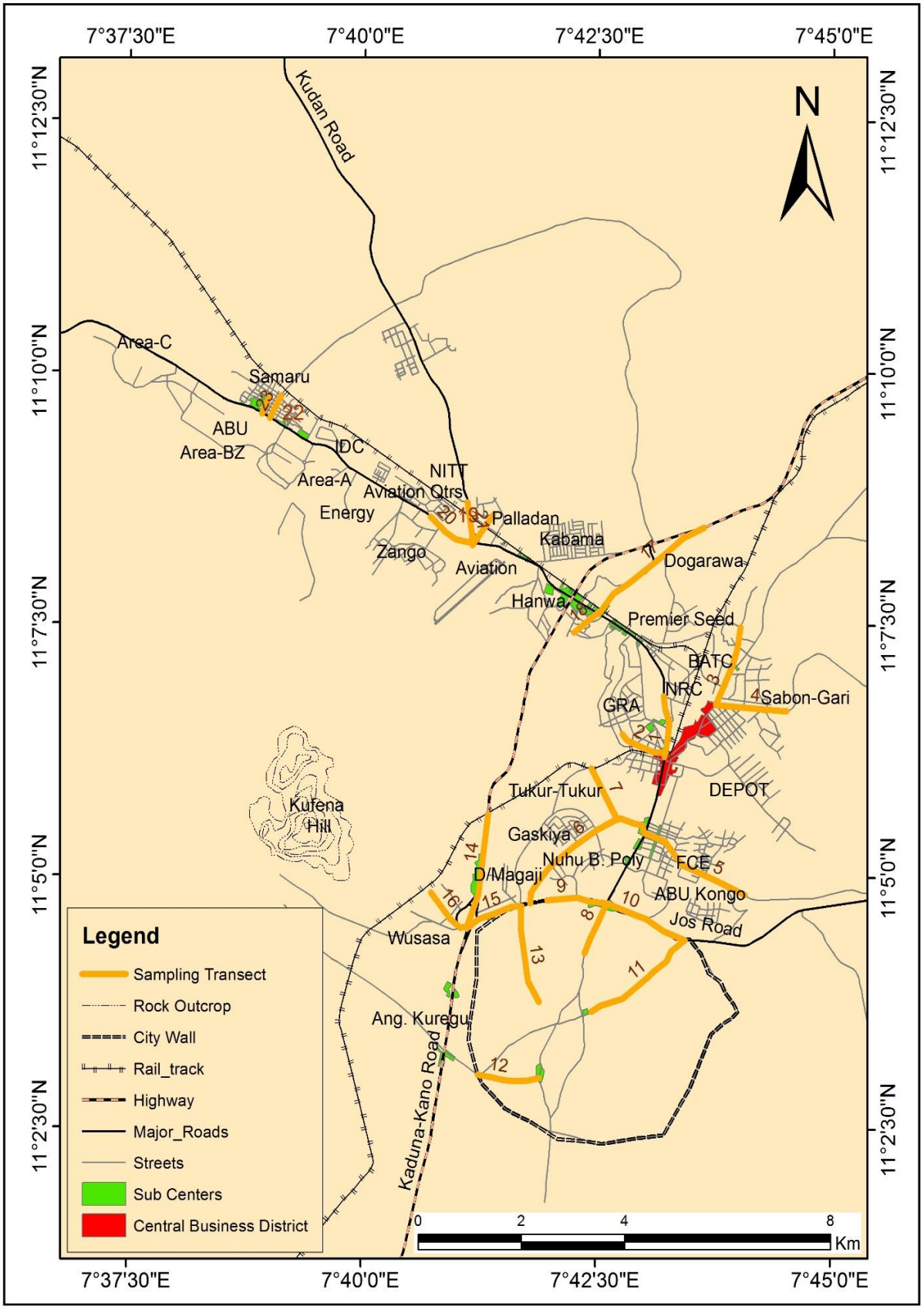


Figure 3.2: Sampling Transects for the Study

Source: Adapted and Modified From Topographic Map of Zaria Sheet 102 S.W

3.2.4.2 Land-occupying structures

The number of shops or business premises, residential housing units, physically counted along the 23 transects (as contained in Table 3.2) during the reconnaissance survey were 3880. That is, at least two sampling transects were selected from each sub-centre area and all properties were counted. This formed the population of land-occupying structures from which a sample for the study was obtained using Slovin's formula: $n = (N/1) + (Ne^2)$

where
n = sample size
N = the population
1 = constant
e = error tolerance level or margin represented by confidence limit, e.g. 0.05 or 95%

Using this formula gives us a sample size of 399 from a total of 3880 land-occupying structures in the study area. But the actual number of copies of the questionnaire given out for administration was 500 as a safeguard against losses, or improper completion (cf. Oni, 2009; Emoh, *et al.*, 2013). The questionnaires were allocated directly proportional to the size of each component of the land-occupying structures. Thus, business/commercial land uses were allocated 323 copies of the questionnaire while residential buildings got 168 (Table 3.2). Systematic sampling method was used to select the specific land-occupying property or structure for questionnaire administration. The procedure involves selecting the first property on the street and then every fifth commercial and or residential lands or properties as they flanked both sides of the sampling transects. This was done continuously until the required number of lands/properties (500) in the sample size was obtained.

Table 3.2: Questionnaire Distribution by Transects around the CBD and Sub-centres

SN	Transect	No. of Business Premises/shops (A1)	Sample Size (A2)	No. of Houses (B1)	Sample size (B2)
1	AA-PZ to Samaru Rd	88	11	04	01
2	AB-Union Bank to Abu Huraira College	107	14	07	01
3	AC-Mkt to River Ang. Jaba	108	14	175	23
4	AD-Friday Mosque to GCC	212	27	116	15
5	BA-Agoro to FCE	152	20	65	08
6	BB-T/Wada Mkt to NUBA Poly	157	20	66	09
7	BC-Agoro to end of street (central sto)	161	21	90	12
8	CA-K/Doka to Prison	37	05	22	03
9	CB-State library to Bridge (Kd Road)	71	09	12	01
10	CC-K/Doka to new Jos Rd	272	36	58	07
11	DA-Emir's palace to B/Zazzau	104	13	91	12
12	DB-Z.City Mkt to Kuyambana	173	22	77	10
13	DC-B/Dodo to K/kibo	142	18	107	14
14	EA-D/Magaji f/o to Kano Rd Bridge	84	11	36	05
15	EB-Wapah foam to D/Magaji F/o	131	17	48	06
16	EC-D/Magaji f/o to Wusasa Hill	17	02	43	06
17	FA-Salama Hosp. to Inner Kwangila	86	11	37	05
18	FB-Yan-goro(hanwa) to Hanwa-makera	62	08	25	03
19	GA-Basawa Rd Junc. To NITT	54	07	08	01
20	GB-Quarry site (Aviation) to Junction (Basawa Rd)	16	02	07	01
21	GC-Sokoto Rd to Inner Palladan	37	05	51	07
22	HA-D/Iche to end of GDSS Samaru	231	30	117	15
23	HB-Iya Road Samaru	73	09	43	03
	TOTAL	**2,575**	**332**	**1,305**	**168**

Key: Transects AA – AD fall around the CBD, while the rest(BA – HB) fall around the different Sub-centres; each initial alphabet/letter represents a sub-centre (e.g. 'A' for the CBD), while the second alphabet represents a sampling transect.
Source: Fieldwork, 2016

3.2.4.3 Estate agents/dealers

To select estate dealers/agents, the snowball sampling technique was utilized. It involved contacting a well-known estate agent and interviewing him/her after which he/she was asked to introduce the researcher to an equally well-established person in the same business. The method is often used to obtain a sample when there is no adequate list which could be used as a sampling frame (Osuala, 2005). The method was adopted because of the difficulty in identifying this category of respondents. Therefore, once one

was identified and agreed to be interviewed, the request was made for links with others until a total of 89 were found and interviewed.

3.2.5 Methods of Data Collection

3.2.5.1 Pilot survey

A pilot testing of the questionnaires was carried out to ascertain the validity of the research instruments. The results were used to modify the research instruments before they were used in the actual survey.

3.2.5.2Questionnaire survey

A questionnaire survey was used to gather information on issues like the most significant factors that respondents (occupiers of commercial and residential properties) believed determine the price of vacant lands and annual rental value of commercial and residential properties, the reason behind the choice of the property, length of stay, advantages derived due to proximity to sub-urban centre etc. A set of questionnaire was also administered to practicing estate agents/valuers/vendors (identified through snowball sampling, explained under subheading *3.2.4.3*) with a view to elicit information on values of vacant land in different parts of the town and other issues related to land values.

3.2.5.3 Measurement of the dependent and independent variables

In this study, the dependent variable in the case of multiple regression analysis is land value, which is either the rental charges per metre square per annum (for commercial and residential properties) or the price paid for vacant land per metre square. Data on these were obtained from different sources, which included questionnaire administered on tenants in commercial and residential properties located along the sampling transects, where information on the amount paid per annum were collected. Information from rent collection agencies was used to validate questionnaire responses. In addition, information on the value/price of vacant land was obtained from estate agents/dealers and key

informants like the local chiefs/traditional rulers and rent collection agencies. Rent values were collected and entered as value per metre square in the Nigerian currency, the Naira. The values of vacant land were also entered in the same units of measurement. That is, even though the information was collected per plot of land (100ft by 50ft or 30metre by 15metre and so on), this was converted to value per metre square.

For the independent variables, many factors that affect land value were determined and information on them was collected. Such factors were identified from the literature on the subject matter, discussions with estate dealers/agents/valuers, rent collection agencies, building professionals as well as the researchers' local knowledge of the study area. Consequent upon that, the key factors identified are i) distance from the CBD ii) distance from sub-centres, iii) neighbourhood quality iv) population density v) distance to the campuses of high institutions vi) availability of water supply vii) land use type viii) topography ix) road quality x) development potential xi) ethnic composition and xii) season of the year.

The distance from Sub-centres to CBD was measured using straight-line distances. This was measured in kilometres and metres, as the case may be. For the distances between the sampled properties and the sub-centres, hand held Garmin GPS was utilized. In the case of population density, this was measured in binary form. That is, all the sampled areas were divided into two categories, high density and low density; hence, areas of high density were given a value of 1, while areas of low density were assigned a value of 0. The factor of proximity to the campuses of higher institutions was also considered important because the population of both staff and students could be a reason behind the high demand for both commercial services as well as residential properties. To measure the impact of nearness to higher institutions of learning, the various locations in Zaria were divided into four classes based on closeness to the campuses, viz; very close =1, close =2,

far =3, very far =4. It is assumed that areas very close to campus would have higher value than those further away. Neighbourhood quality was measured based on the quality of the settlements around an area. This was observed in the field and measured qualitatively. Each area was given a value between 1 and 4 (very good =1, good =2, fair =3, poor =4). Some of the issues considered for the categorization include; housing quality/size, socio-economic status, and noise level.

Another variable measured was population density. All things being equal, it is expected that areas with low density (e.g. the GRA) would have high value as against high density areas (e.g. the old city). The importance of water supply to any community cannot be overemphasized. And the fact that some parts of the urban area have continued to suffer the problem of pipe-borne water supply, make this factor to be quite relevant to the study. This was assessed qualitatively. That is, very regular supply =1, regular supply = 2, irregular supply = 3, no supply at all = 4. In addition, there is the land use variable. Even though we could have commercial, residential and mixed land uses, this analysis has adopted the first two. That is, areas dominated by any of them are considered as being such. And other things being equal, commercial lands should attract higher values than residential. This was measured in binary form, thus; 1 = commercial and 0 = residential.

The relief or topography of an area could affect its value. Areas on steep slopes may imply more inconveniences right from construction; they, therefore, tend to attract lower values, as against uniform terrains. This was also measured in binary, with areas of steep slope being assigned a value of 0 and a uniform or gently sloping area assigned a value of 1.

The quality of roads can also be a factor that affects the value of a place or property. Good roads would aid socio-economic activities, while the opposite can hamper them. Roads in the area were categorized into four classes, based on level of importance

and quality. Thus; Arterial (tarred) roads =1, tarred roads =2, tarred (potholed) roads =3, un-tarred = 4. Another important variable considered was the rate of development or development potentials of an area. It is believed that areas that have fully developed are more secured than areas that have too many undeveloped vacant lands. It is, therefore, expected that not many would be attracted to reside in such areas. Consequently, values are expected to be on the lower side in less developed areas compared to areas that have fully developed. Measurement of this variable was in binary form, with areas highly developed assigned a value of 1 and areas highly undeveloped assigned 0.

There is also the issue of season, wet or dry. The literature has shown that seasonality tends to affect land transactions in some places. Land dealers/agents were asked whether there is difference across the areas in terms of seasonality of business. This was measured in binary, i.e. 1 for dry season and 0 for wet season. The last, but not the least, variable considered was ethnic composition of an area. Interactions with some estate agents have indicated that cosmopolitan areas (and areas dominated by none natives) have tended to attract higher land values, much more than the areas dominated by the natives of the area. This was measured in binary form, with the more cosmopolitan areas assigned a value of 1 and the non-cosmopolitan (or areas dominated by natives) a value of 0.

3.2.6 Methods of Data Analysis

3.2.6.1 Use of GIS

The GIS method was used to produce Vector maps to depict the pattern of land use as well as the major sub-centres identified. This was to achieve the first objective, which is the identification of urban sub-centres and land use types around them.

3.2.6.2 Spearman's rank correlation co-efficient

This was used to test the first hypothesis on the relationship between land value and distance away from the sub-centres (and CBD) as well as to describe the spatial pattern of

the values. To use this technique, the interval data on distance and land value were converted to ordinal measurements by ranking them. The Spearman's rank correlation co-efficient model used is in the form:

$$r_s = 1 - \left[\frac{6\sum d^2}{N(N^2-1)}\right]$$

Where r_s is the rank correlation coefficient to be estimated, Σd^2 is the sum of the squares of the rank differences (between distances and land value); and N is the number of pairs of rankings – in this case the number of sampling points along a transect.

3.2.6.3 Scatter-gramsand Choropleth maps

Scatter-gramswere used to show the pattern of land value from the CBD (and sub-centres) to the end of sampled transects.sChoropleth or Value maps of the study area were used to show the spatial pattern of land values, which is the second objective. According to National Geographic Society (2005) the choropleth maps use colour shading to represent different quantities or values (in this case land values).

3.2.6.4 Trend line analysis

This was used to show the temporal pattern of land value for the study area. That is, land value was plotted against time. This is part of the second objective.

3.2.6.5 Multiple regression analysis.

This was used to test the relationship between the dependent variable (land value) and the independent variables, like distance from the CBD, distance from sub-centres (major commercial centres), and population density, etcetera. This was used to achieve the third objective, which is ''To identify and explain the factors that determine or underlie the observed pattern" and to test the second hypothesis, which is ''There is no significant relationship between land value and explanatory variables''. The multiple regression model used is in of the form of:

$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + \ldots\ldots + b_nx_n + e$

Where,

Y = dependent variable (value of commercial, residential and vacant lands)

a = constant

$x_1, x_2, x_3\ldots\ldots, x_n$ are independent variables (distance from the CBD, distance from sub-centres, neighbourhood quality, population density, proximity to the campuses of high institutions, availability of infrastructural facilities, land use type, topography, road quality, development potential and ethnic composition)

$b_1, b_2, b_3 \ldots\ldots\ldots b_n$ are the regression coefficients which determines the contribution of the independent variables

e = residual or stochastic error (which reveals the strength of $b_1x_1\ldots\ldots b_nx_n$. If e is low the amount of unexplained factors will be low and vice versa. This tool was used to test the second hypothesis.

Using the factors mentioned above, the functions analysed using the above regression model are:

LV(CLv/RLv/VLv) = ƒ (Dist_CBD, Dist_SC, Prox_HI, L_Use, Neb_Q, Pop_D, Topog, Infras, Ethn_Co, Road_Qu, Devt_po)

Where:

LV = the value of land or rent (commercial, residential or vacant), as the case may be, charged per square metre

Dist CBD = the distance from CBD

Dist SC = the distance from Sub-centres

Prox HI = the proximity to higher institutions of learning

L Use = the Land Use

Neb Q = neighbourhood quality

Pop D = population density

Topog = topography

Infras = infrastructure

Ethn Co = ethnic composition

Road Q = road quality

Devt po = development potential of an area

Based on the above, our multiple regression equation now takes the following form:

$$Y(CLv/RLv/VLv) = a + b_1 Dist\ CBD + b_2 Dist\ SC + b_3 Prox\ HI + b_4 L\ Use + b_5 Neb\ Q + b_6 Pop\ D + b_7 Topog + b_8 Infras + b_9 Ethn\ Co + b_{10} Road\ Qu + b_{11}\ Devt\ po$$

Where, a is the regression constant and b_1 to b_{11} are the value rating for the independent variables.

3.2.6.6 Descriptive statistics

Descriptive statistics were used to summarise the types and operations of land markets in the area and to shed further light on objective four, which is thus "To examine the types and operation of land markets in the study area".

3.2.6.7 Qualitative Method of Analysis

This involved describing the results obtained from the field surveys and interpreting them by explaining what they imply, or what can be inferred from them.

3.2.6.7 Statistical computing packages used

These analyses were carried out by means of the Statistical Package for the Social Sciences (SPSS, version 19) and Microsoft Excel 2010.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the research findings and analysis of data in line with the objectives of the study as well as the research hypotheses. The chapter is structured into five sections, namely, (i) demographic and socio-economic characteristics,(ii)sub-urban centres and land uses around them, (iii)the evolving pattern of land value in urban Zaria over time and space, (iv) factors influencing the observed pattern of land value in the area, (v) the existing land markets and how they function and (vi) the effects of land markets on land value in the study area.

For the purpose of capturing information on occupiers of commercial and residential properties, 500 copies of questionnairewere administered, out of which 354 (or 71%) were returned and utilized for the analysis. That is, 235 for commercialand 119 copies for residentialproperties. Again, through snowball sampling, anotherset of 89 questionnaires were administered on Estate Agents/Dealers.Put together, a total of 443 copies of questionnaire were returned and utilized for the analysis (see Appendices I – IV for samples of questionnaire).

4.2 Demographic and Socio-economic Characteristics of the Respondents

4.2.1 Sex

Table 4.1 shows the composition of respondents by sex. Out of the 89 Estate Dealers/Agents,about 89% were males, while the remaining 11%were females. This clearly indicates that the estate businness in urban Zaria is male-dominated. This could be partly attributed to the influence of the predominant religion(Islam) in the area, which does not encourage intermingling of women with men. Again, the business sometimes require

field measurements and demarcations in the open, which may not be in tandem with tradition of secluding women the area.

In the case of occupiers of commercial properties, 80% of the respondents were males while 20% were female; and similarly the male were predominant in the case of residential properties, with74% respondents, while the female were 26%. This further shows the predominance of men in most socio-economic affairs in Zaria. This is because even in the administration of the questionnaires, married women hardly responded due to the purdahsystem(the seclution of women)among natives of the area.

Table 4.1: Distribution of Respondents according to Sex

Sex	**Respondents Estate Dealers/Agents**	**Occupiers of Commercial Property**	**Occupiers of Residential Property**	**Combined Total**
Male	79 (88.8%)	188 (80%)	88 (74%)	354 (80%)
Female	10 (11.2%)	47 (20%)	31 (26%)	89 (20%)
Total	**89 (100%)**	**235(100%)**	**119(100%)**	**443 (100%)**

Source: Field work, 2016

4.2.2 Occupation

Occupiers of commercial and residential properties were also asked question on their businness or occupation. Table 4.2 shows that the bulk, about 68% of them were into commerce/trading; while 15% were civil servants. This pattern of response somehow reflects the predominance of commercial activities around the centres and sub-centres that formed the corner stone of this study. This is followed by civil service, for which Zaria is well known for due to the presence of several government institutions and organisations.

Table 4.2: Distribution of Respondents according toOccupation

Occupation	Frequency	Percent
Professional	22	6.2
Commerce/Businness	240	67.7
Civil servant	52	14.7
Farming	9	2.6
Others	31	8.8
Total	**354**	**100**

Source: Field work, 2016

4.2.3 Educational Attainment

The educational attainment of estate agents was also requested. Table 4.3 shows that majority of them, about 44% had secondary school education. The next category is those that hold tertiary level certificate, that is, a diploma and above with about 29%. The level of education amongst the estate dealers/agents could be an advantage to them in terms of maintaining daily records of transactions in the businness as well as in drafting attestetions for sales.This has really assisted in response to the questionnaires.

Table 4.3: Distribution of Respondents according toEducational Attainment

Level of education	Frequency	Percent
No formal education	10	11.3
Primary school education	14	15.7
Secondary school education	39	43.8
Tertiary education	26	29.2
Total	**89**	**100**

Source: Field work, 2016

4.2.4 Years of Experience

Table 4.4 shows that about 71% of the estate dealers/agents have been in the businness for between 10 to 20 years, while about 23% have spent more than 20 years in it.

This shows that the respondents have the requisite experience to give reliable information about the trade.

Table 4.4: Years Spent in the Businness by Estate Agents/Dealers

Years in estate businness	Frequency	Percent
Less than 10	6	6.7
10 – 20	63	70.8
Above 20	20	22.5
Total	**89**	**100**

Source: Field work, 2016

4.3 Sub-urban Centres and Land Uses Around them

This section addresses the first objective of of the study, that is, to identify and map out the sub-urban centres and the land use types around them. This was achieved using a base map of the study area and the wirter's deep knowledge of the entire area to idenfity places of high concentrations of ecconomic activities. By means of an intensive fieldwork, therefore, the entire area was combed which resulted in the idenficaiton of the CBD and seven sub-centers as the major commercial centres in the area which are shown on Figure 4.1a.

On the other hand, Figure 4.1b shows the pattern of land use in the study area. The scattered yellow portions depict public places, notably institutions of learning, for which Zaria is very famous for. The dark-reddish colour potrays the residential areas. In-between the institutions and the residential areas are found the more reddish colours, representing urban sub-centre areas – very vital in this study. It would be noticed that the sub-centre areas are located around major road intersections in the area.

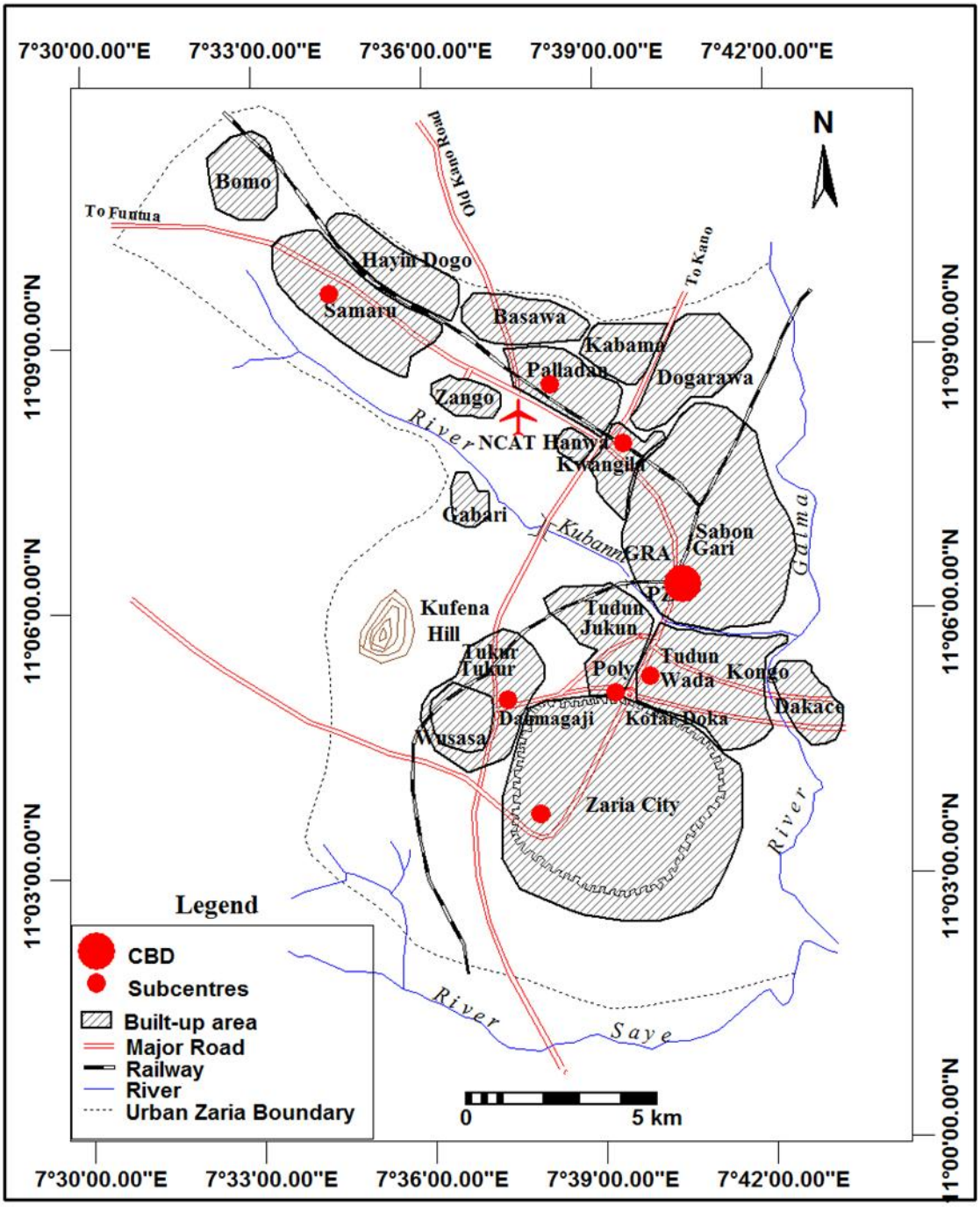


Figure 4.1a: The Study Area Showing the CBD and Sub-centres

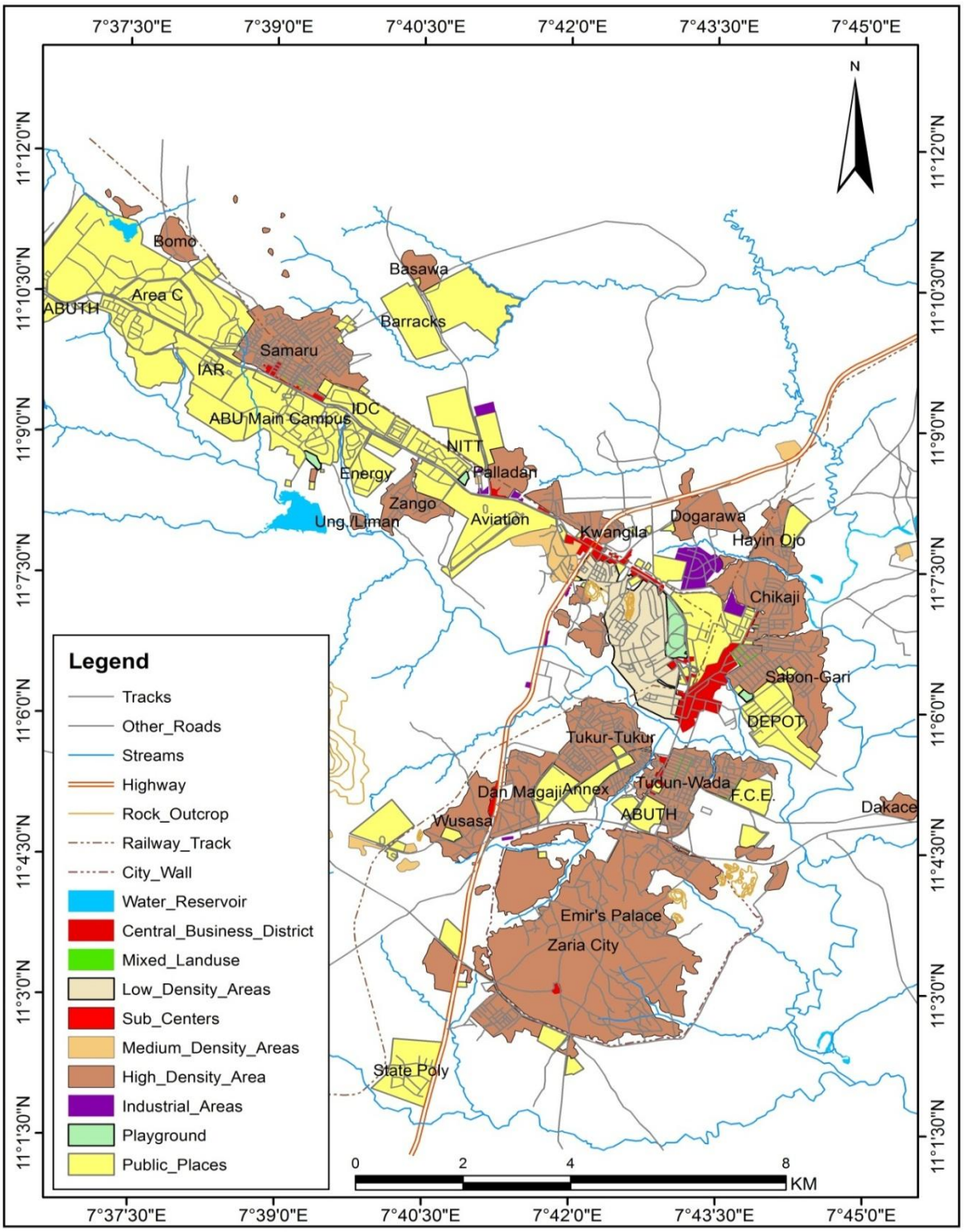


Figure 4.1b: Pattern of Land use in the Study Area

Source: Quick Bird Satellite Sensor

Table 4.5 shows the size of commercial land use around the CBD and Sub-centres. It revealed that the Paterson Zochonis (PZ) to Sabon Gari (S/Gari) market area is the

largest and major commercial nerve centre of the Zaria urban area and is, therefore considered as the CBD. It has an enstimated area of 820,566sq metres (or about 55% of all commercial land use), and has many service activities like wholesale and retail trading, banking, finance and legal firms.

Table 4.5: Size of Commercial Land Uses around the CBD and Sub-centres

CBD &Sub-centres	Commercial Land use (square metre)	Percentage	Rank Order
PZ/Sabon Gari	820566.1	55.2	1st
Kwangila	286296.2	19.3	2nd
Samaru	106085.8	7.1	3rd
Tudun-Wada	72674.81	4.9	4th
Kofar Doka	70973.36	4.8	5th
Dan Magaji	55808.2	3.8	6th
Zaria City	43676.27	2.9	7th
Palladan	29463	2.0	8th
Total	**1485543.74**	**100**	

Source: Field work, 2016

Next is the Kwangila/flyover commercial area (sub-centre), with a commercial land use area of about 286,296sq. metres (or about 19% of all commercial land use) while the Samaru sub-centre came third. The least of all is the Palladan/Aviatiation College sub-centre, with just 29,463sq. metres (or about 2% of all commercial land use). The CBD and other seven sub-cenres are discussed in more detail below.This approach is supported by McMillen and McDonald (1998) and Craig and Ng (2001) who recommended that local knowledge of an area is necessary to identify urban sub-centres, as well as McDonald and McMillen (2000) who also recommended that density of employment and economic activities are the best measures to use for the identification of urban sub-centres.

4.3.1 The CBD and its Land Use

The area from PZ to S/Gari market is a continuous chain of commercial activities, as shown in Fig. 4.2, which is a landuse map of the CBD and its surrounding.Residential and public land uses are quite dominant in the area. This is especially accounted for by the presence of the Government Reservation Area (GRA), Nigerian Railway yard and the Nigerian Army Depot and Barracks within this section of urban Zaria. Commercial uses such as banks, retail stores, petrol/fuel filling stations are very important in the area. It is important to note that the biggest market in Zaria (located in S/Gari) falls within this area. Also to be found in this area are 22 bank branches, 13 petrol filling stations, the main motorpark, and some major modern businness concerns like the PZ Nig. Plc, ALBABELLO Trading Company Nig. Ltd, Mr BIGGS, etc. These findings are in line with some of the features associated with a CBD by Murphy (1971), who identified things like composition of largest retail stores, offices, vehicular and pedestrian traffic as marks of a CBD.

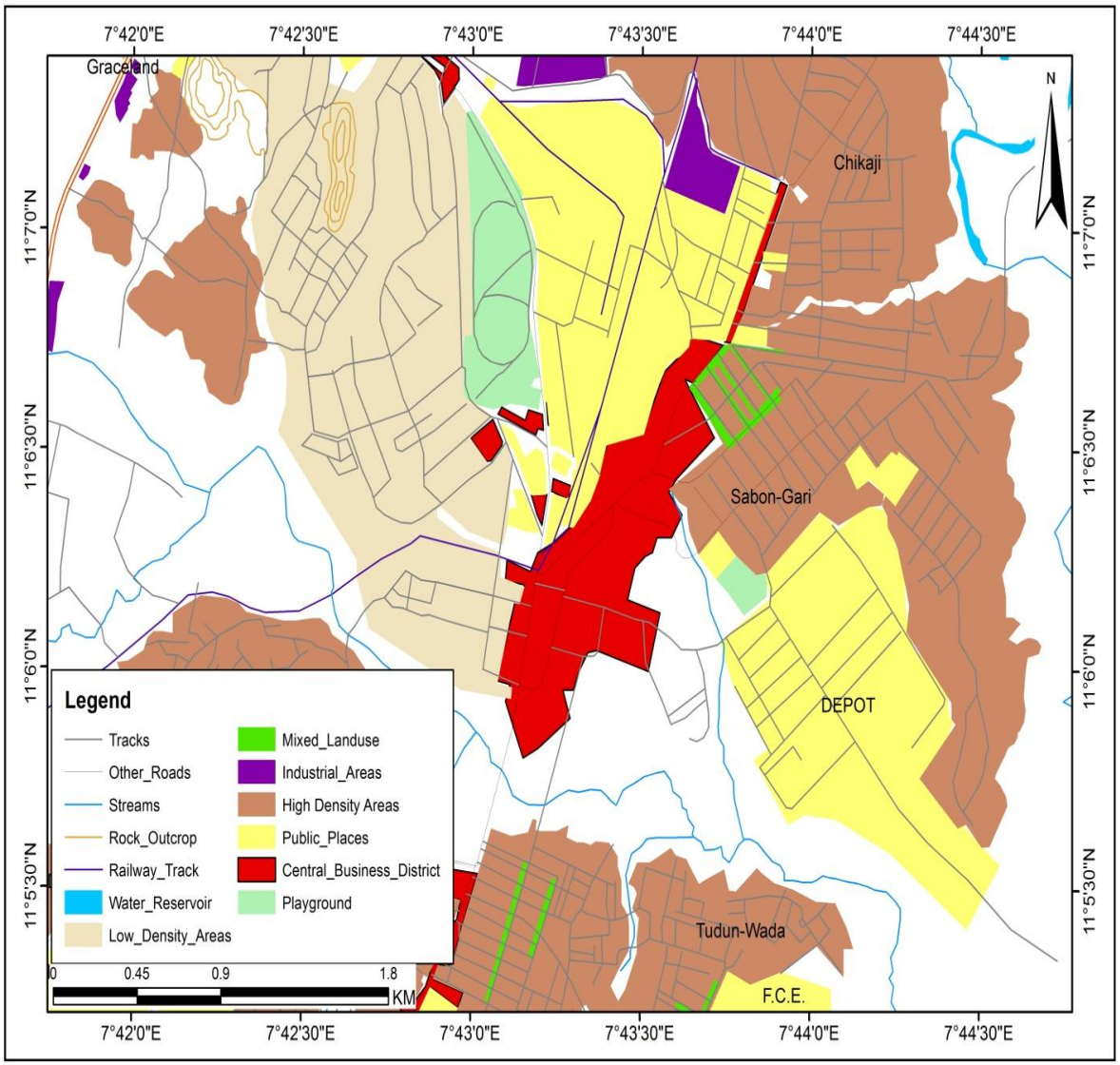


Figure 4.2: Zaria CBD

Source: Quick Bird Satellite Sensor

The PZ-S/Gari market area, which is the largest commercial centre satisfies quite well some of the qualities of a 'downtown', 'retail business section' or 'central area' as it is called in some countries. This is because it is not only more centrally located in urban Zaria, it is the centre of retailing and office location (e.g. the provincial headquaters that house several government agencies, Nigeria Police Area Office and Divisional Headquarters, the Federal Road Safethy Commission (FRSC), etc are all located around here). Further more, there is a high concentration of vehicular traffic and pedestrians

around the S/Gari market and PZ. Undoubtedly, the CBD draws business from the whole urban area (and even beyond) as well as from all ethnic groups and classes of people. The CBD changes from time to time. For instance, the area containing the highest concentration of banks today (i.e. from Polo field to the round-about) contained many foreign-owned retail shops about 15 to 20years ago such as Mandilas Motors (Volkswagen vehicles) , J. Allen Motors (Ford vehicles), Bata Shop (shoes), Lennards (shoes), Chellarams (supermarket), Harris Store (electrical appliances), Leventis Stores (supermarket) etc.

4.3.2 Kwangila-Flyover Sub-Centre

The second largest area in terms of the size of commercial land use is the Kwangila/Flyover area (Figure 4.3). The key land uses here are residendial, like Hanwa and its new extension, Kwangila and Graceland estates, as well as commercial uses, like the chain of retail stores around the flyover. Of great importance also is the major road intersection (the overhead bridge) in this area. The area has a small market close to the bridge, a major motorpark, seven fuel filling stations, some important restaurants such as ALNASIHA, HABIB, private health clinics and so on. This is in conformity with the work of Nzau (2003), who noted that sub-centres in Nairobi, Kenya, had some of the following features: Restaurants and bars, several small shops, few offices, clinics, entertainment parksand so on.

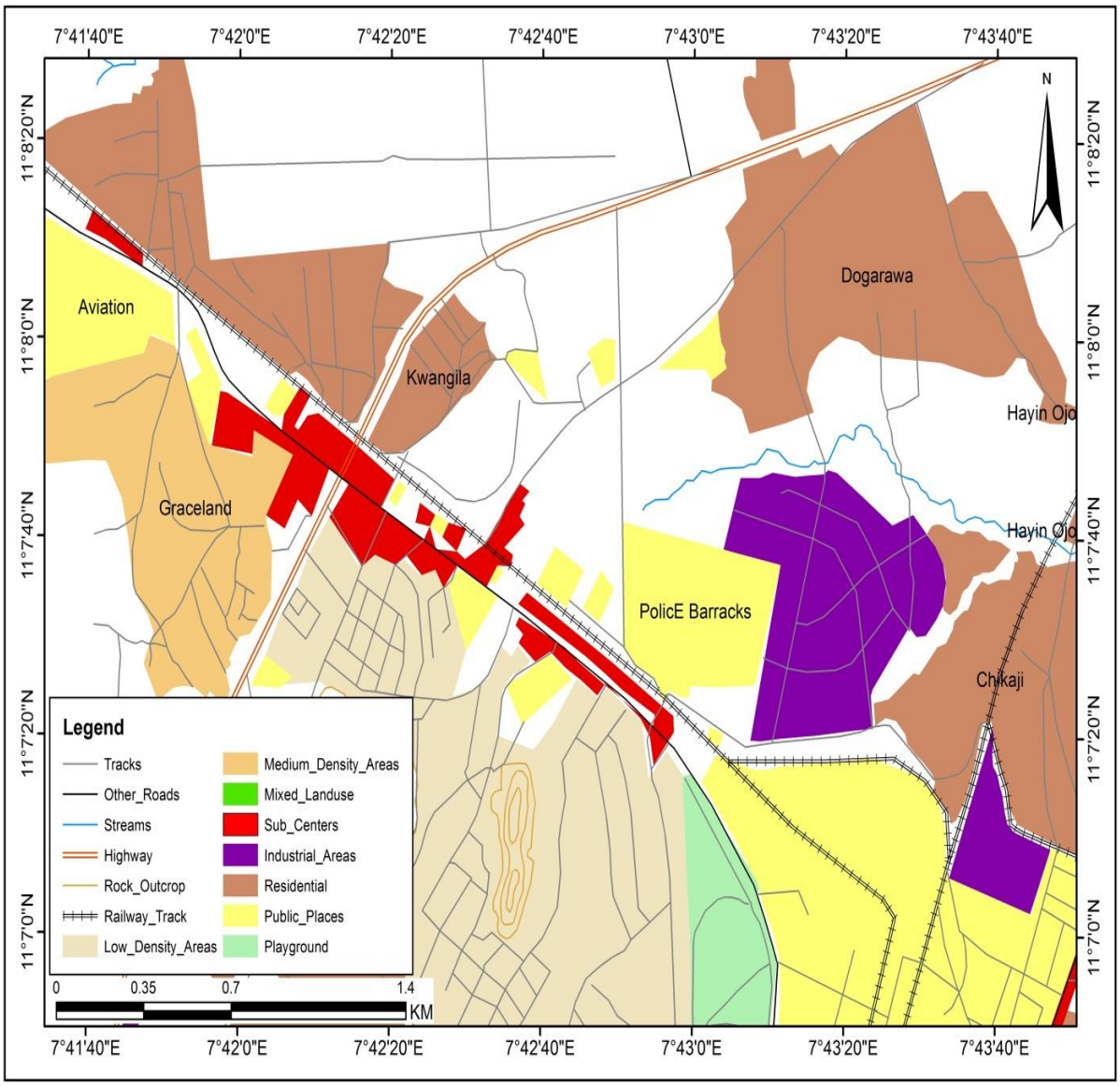


Figure 4.3: Kwangila-Flyover Sub-centre

Source: Quick Bird Sattellite Sensor

The Kwangila-flyover area has been experiancing remarkable growth. This could be as a result of the fact that it enjoys some elements of centrality, being at the centre of Zaria's road nodality. That is, from the flyover/overhead bridge there are transport routes to the northwestern, northeastern and even the southern states of Nigeria. It has therefore, become an easy point of reference for travellers and other commuters. Perhaps for this reason, the area has the most vibrant motorpark in the whole of urban Zaria. This has made the area to be very busy, almost throughout the day (and even night). And this has been

attracting other business activities around the sub-centre. It is gradually becoming the focus of transportation in the city. Little wonder that it is one of the major points of traffic lock-jam in the city. Pedestrian movements are also quite conspicous.

4.3.3 Samaru-Ahmadu Bello Univerity sub-centre

The third sub-centre in terms of the size of commercial land use is Samaru-Ahmadu Bello Univerity (ABU) complex. One of the most important land use in urban Zaria, higher institutions of learning, occurs here, that is, the main campus of ABU (see Fig. 4.4). The other institutional land uses here include the Ahmadu Bello Univeristy Teaching Hospsital (ABUTH), Leather Research Institute and Indusrial Development Centre. Samaru settlement on the north side of Sokoto road is a high desnsity residential area while other residential areas within ABU main campus are of low density. The area has four bank branches (next only to the CBD in terms of numbers), a market, a motorpark, restaurants and numerous retail shops.

The sheer size of ABU staff and students population has ensured that this area continues to generate demand for goods and services. So even though the area is not located around a major road intersection, the fact that it is lying along Zaria–Sokoto regional road is a factor that continues to exert influence on the socio-economic activities of the area and the city as a whole.

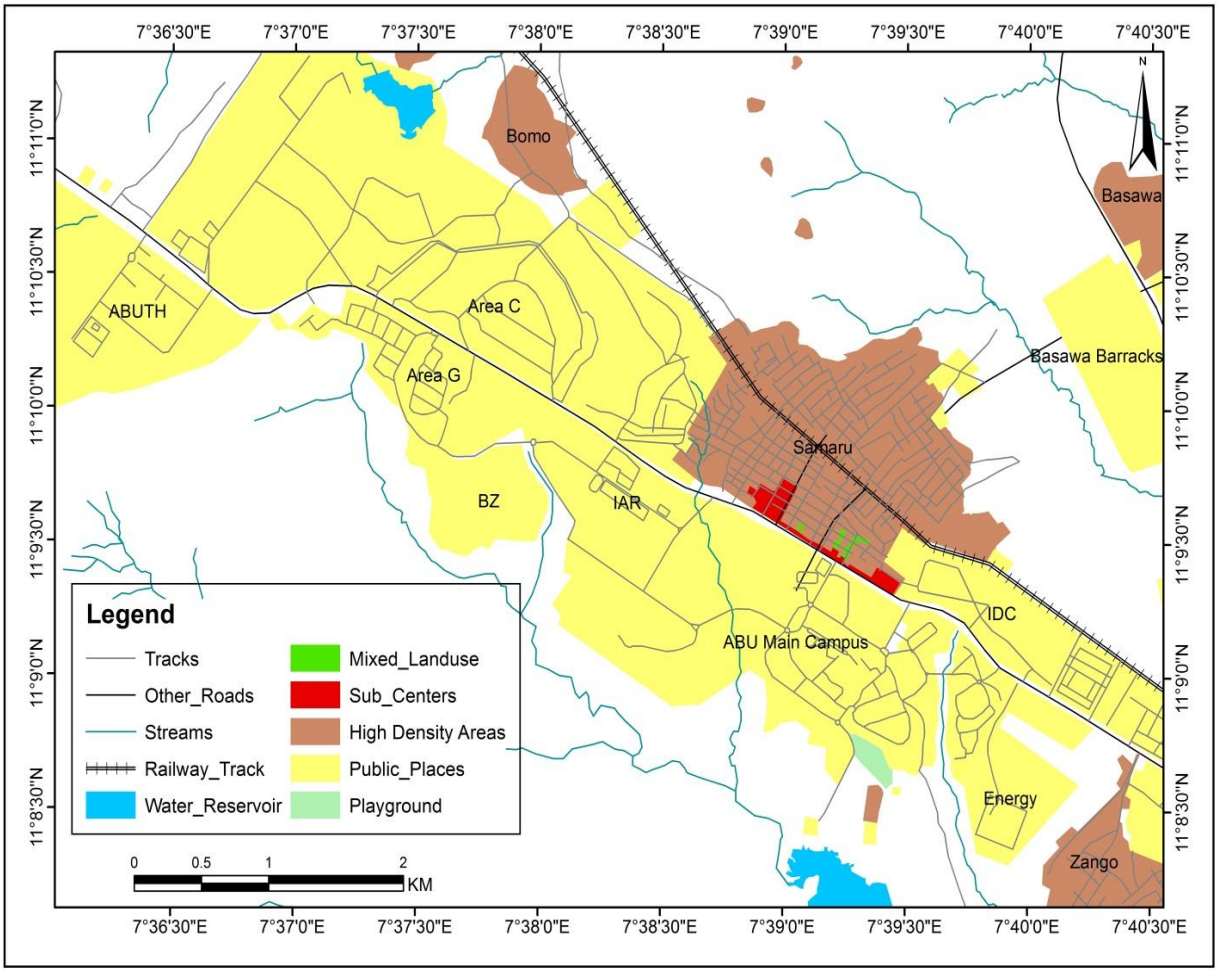


Figure 4.4: The Samaru Sub-centre

Source: Quick Bird

4.3.4 Tudun Wada sub-centre

Tudun Wada is the number four sub-centre in terms of the size of commercial land use (about 72, 674 sq. metre). It is the closest sub-centre to the CBD being separated only by the River Kubanni (and its bridge), which also serves as the boundary between the two LGAs that form the urban centre- Sabon Gari and Zaria LGAs. Fig. 4.5 shows the distribution of land uses around this sub-centre. It is clearly evident that residential and public uses cover the bulk of land in the area. This may not be unconnected with the fact that Tudun Wada was the oldest planned, high density residential area by the colonial administration for muslims non-Hausa migrants to Zaria.

The Tudun Wada sub-centre is located around a major arterial road junction and has 2 markets, 2 banks and about 5 filling stations. The major public land uses around this sub-centre include the Congo campus of ABU, the Federal College of Education, Gaskiya campus of the Nuhu Bamalli Polytechnic, the old site of the ABUTH, Gaskiya Corporation, a state-owned and a private radio station. The high population concentration in the area plus those from the various higher institutions of learning would, no doubt, contribute in one way or the other to the demand for goods and services the area has to offer.

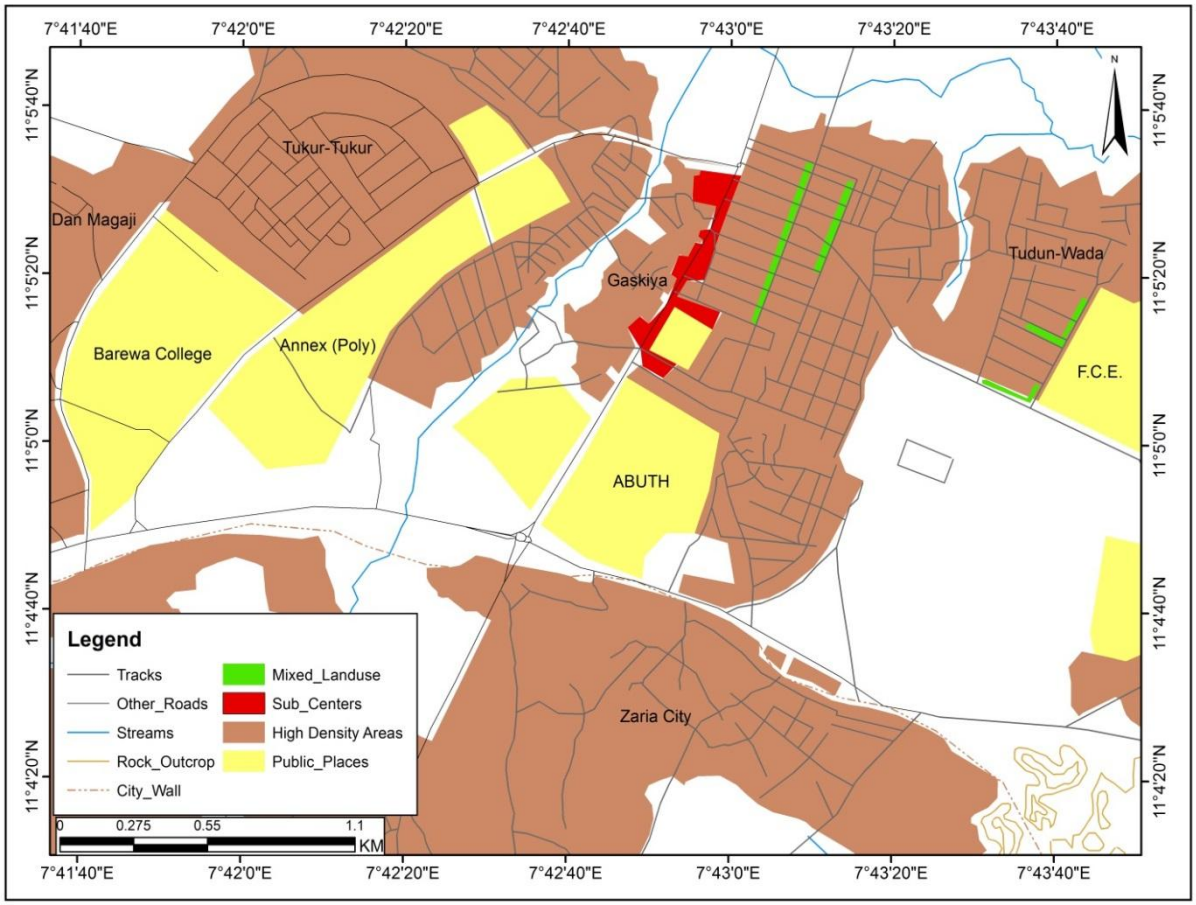


Figure 4.5: Tudun Wada Sub-centre

Source: Quick Bird

4.3.5 Kofar Doka sub-centre

Next to Tudun Wada is the Kofar Doka Sub-centre, both in terms of size of commercial area (about 70,973sq. metres) and proximity. The area is located at the centre

of a major arterial road intersection, as shown in Fig. 4.6. It has a state library, a fire service station, waterboard pumping station, a motorpark, 3 fuel filling stations, restaurants, a goat market and a chain of retail stores around. All these have ensured the vibrancy of socio-economic activities around the area.

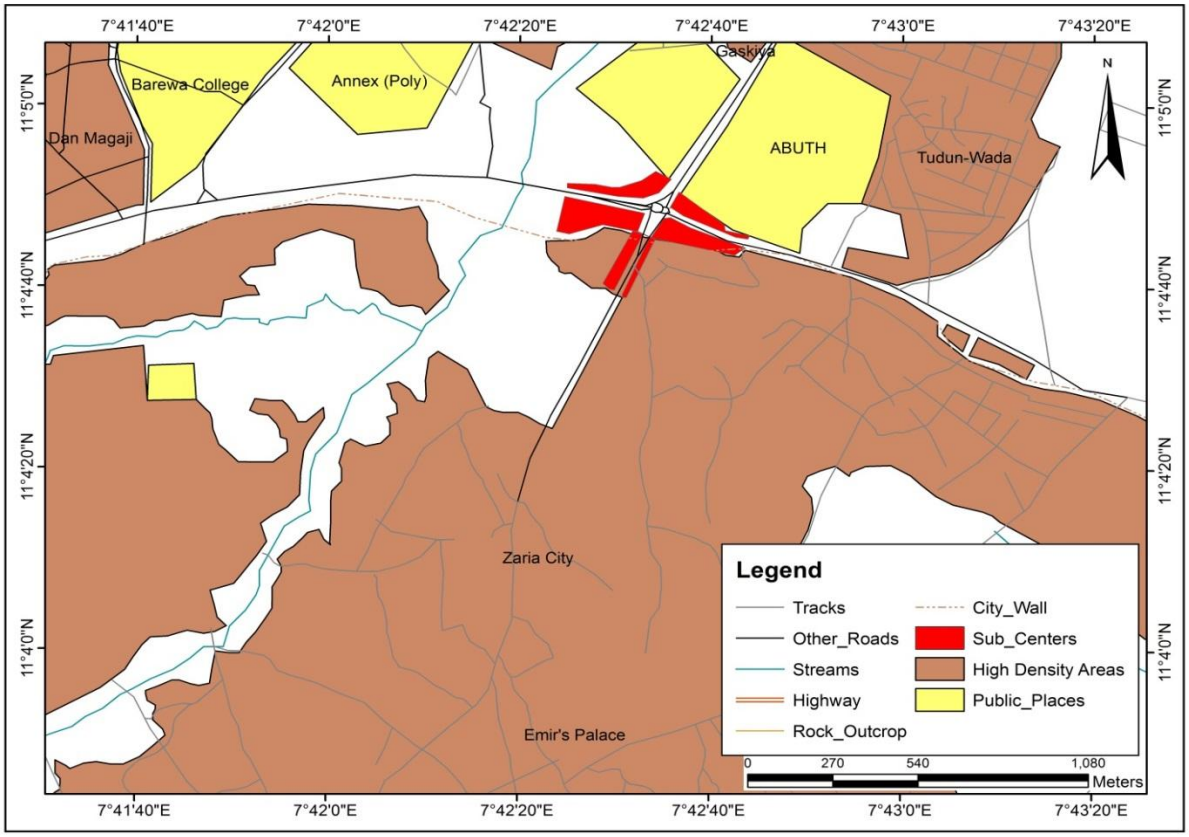


Figure 4.6: Kofar Doka Sub-centre

Source: Quick Bird

4.3.6 Danmagaji Sub-centre

The next commercial centre in terms of size (about 55,808sq. metres) is Danmagaji, that is, the area around the other flyover in urban Zaria (Fig. 4.7). It is also a major arterial road junction, with an overhead bridge on the major Kaduna-Kano highway. It has a vegetable and foodstuff market, a motor park, number filling stations and numerous retail stores. In addition to the population of the residential areas of Danmagaji, Wusasa, Tukur-

Tukur and Anguwan Dankali, the fact that it serves as a rest-stop point for travelers would ensure a continuous demand for goods and services around the area.

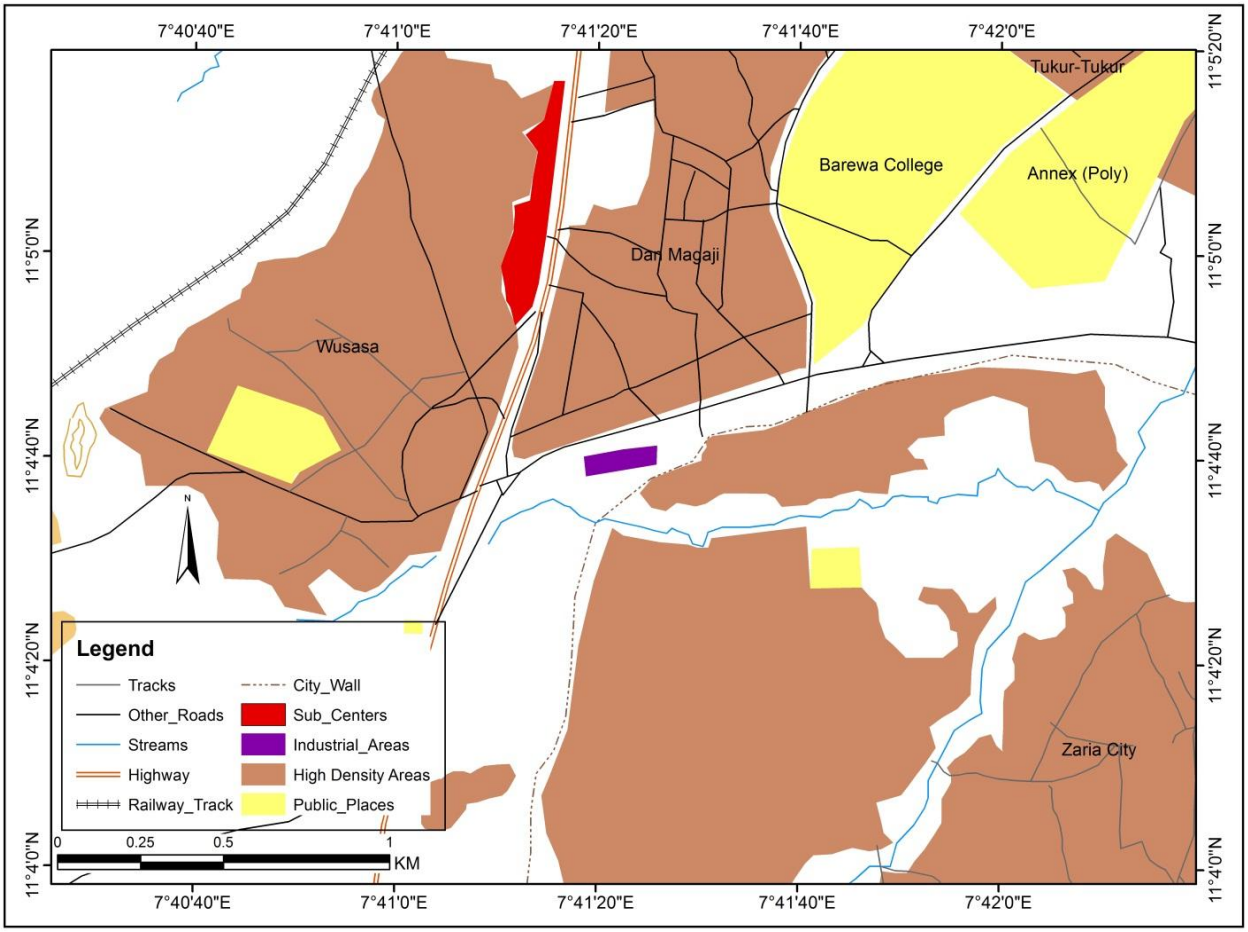


Figure 4.7: Danmagaji Sub-centre

Source: Quick Bird

4.3.7 Pallace-city Market

This is one of the areas with the least size of commercial land use, about 43,676sq. metres. It is located in the old city and combines the area from around the market towards the Emir's palace. It has a very high population density, as indicated by density of the residential area around (Fig. 4.8). Some of the residential areas here include Baban Dodo, Kwarbai, Kakaki, Rimin Tsiwa, Kusfa, Limancin kona and so on. It has a local government secretariat, court of justice, police office, 2 banks, a market and numerous shops along the streets.

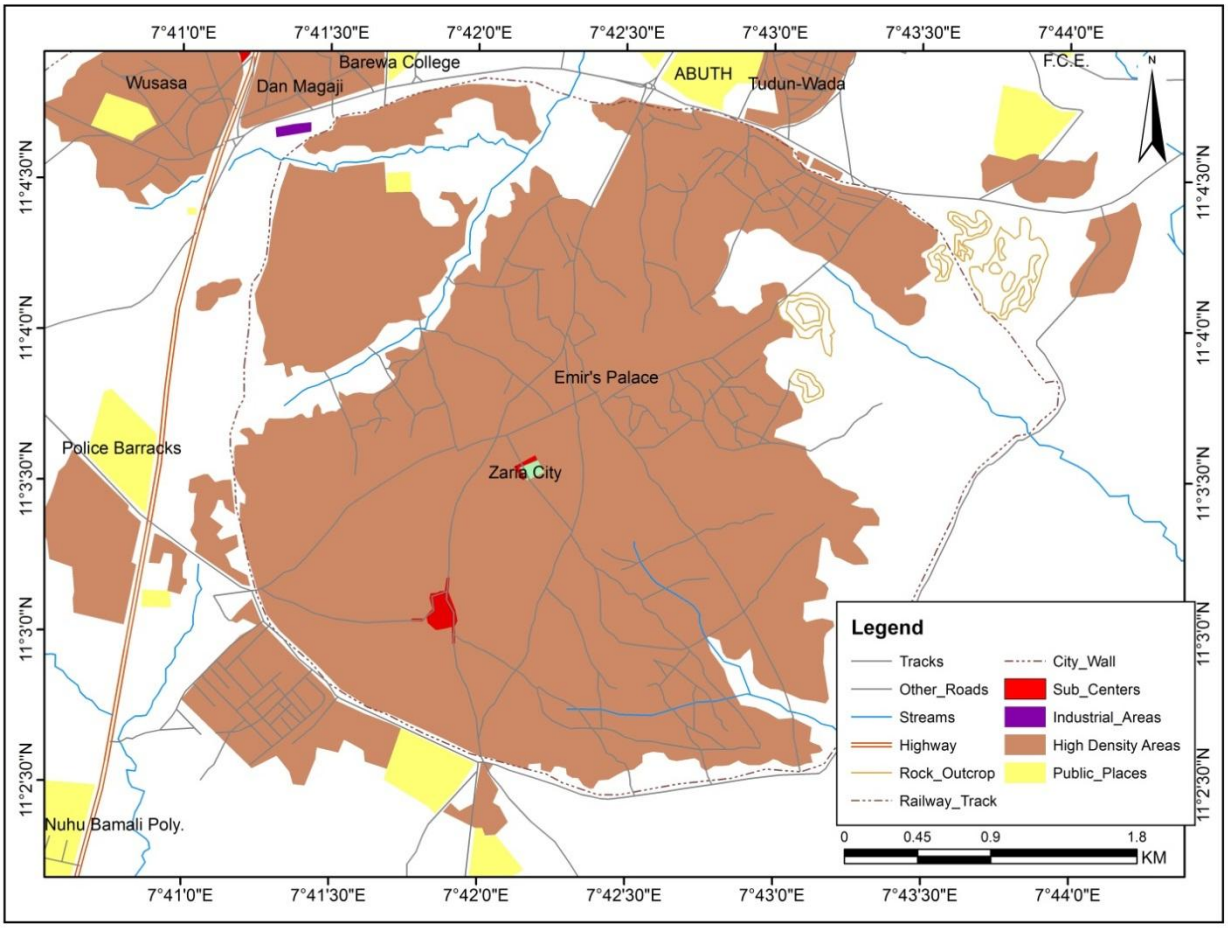


Figure 4.8: Palace-City Market Sub-centre

Source: Quick Bird

4.3.8 Palladan-Aviation College sub-centre

This is the smallest sub-centre in terms of the size of commercial land use, about 29,463 sq. metres. Major settlements around include Palladan, Hayin Malan, Anguwan Fulani and so on. It is located at the junction of Basawa-Sokoto roads, near the aviation college. It has a number of public places like the 2 transport-oriented higher institutions of learning (Nigerian Institute of Transport Technology- NITT and the Nigerian College of Aviation Technolgy- NCAT), the Nigerian Army Police College, the Nigerian Research Institute for Chemical Technology, Federal Government Girls'College and St. Joseph Junior Seminarhy. There are also a market, a fuel filling station and several stores in this sub-centre.

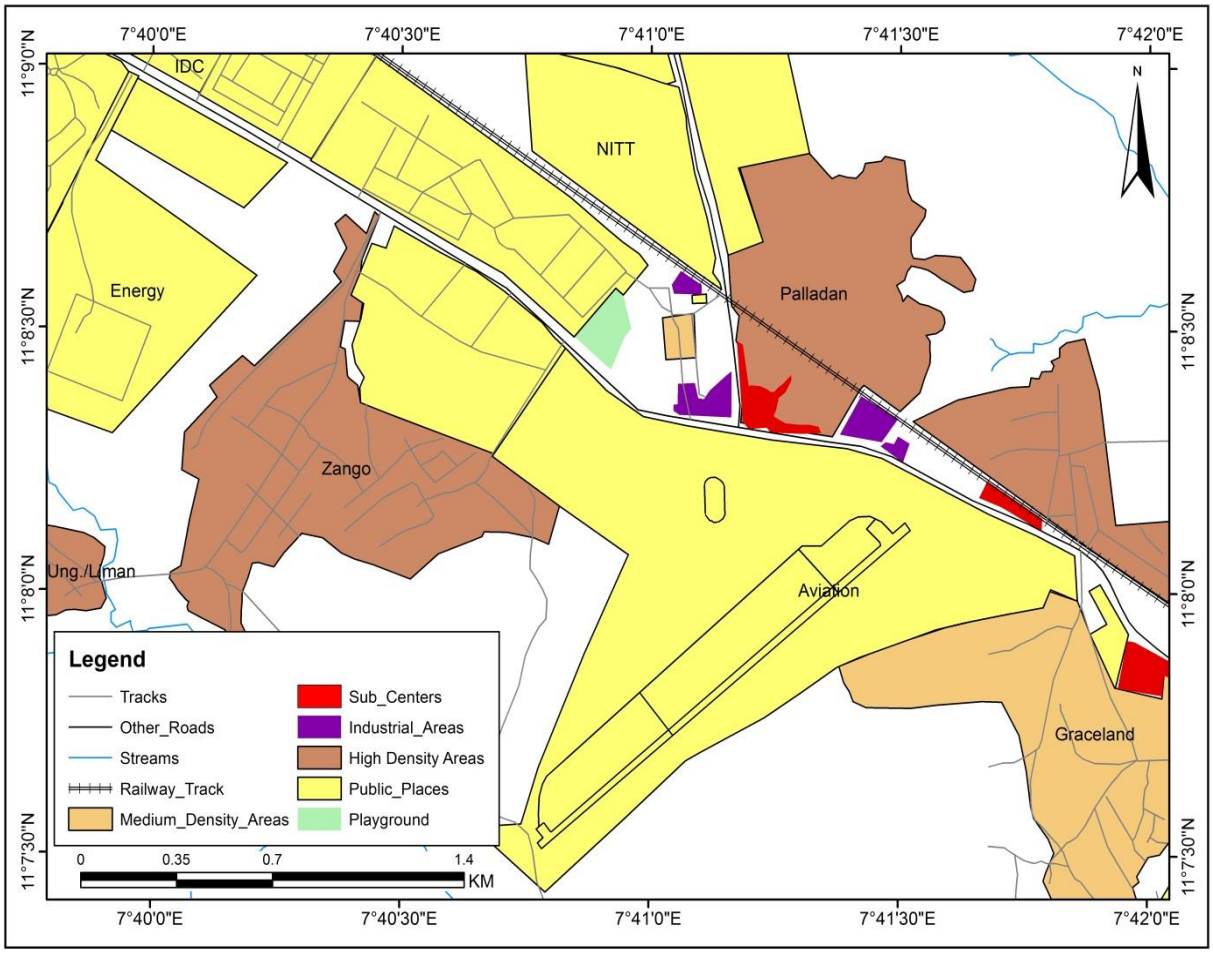


Figure 4.9: Palladan Sub-centre

Source: Quick Bird

4.3.9 Some common features of the Sub-centres

In a nutshell, it has been observed that all the sub-centres posesess most or all of the following features, among others:

- they occur around major road intersections; examples include the two flyover (Kwangila and Danmagaji), Kofar Doka, T/wada, Palladan
- presence of a market (big/small); such as Samaru, T/wada, Zaria city, the two flyovers and Palladan.
- A motorpark (permanent/make shift); including Kofar Doka, T/wada, Samaru, Zaria city, the two flyovers, palladan

- Chain of retail shops along the road is a common feature of all the sub-centres
- Occasional Traffic jams; especially at Kwangila flyover, T/wada, Kofar doka
- Fuel filling stations- commom to all the sub-centres

This shows that the areas are indeed centres of high volume of economic activities that also help to attract other activities and people to such areas. These findings are in accord with the study by Nzau (2003) who enumerated things like the presence of small shops, supermarkets, restaurants and office blocks among the features of sub-centres in Nairobi, Kenya.

4.4 The Pattern of Land Value in Urban Zaria over Time and Space

In the preceding section, we have described the CBD and Sub-centres, which are key economic activity centres in the city. The following subsections try to analyse the patterns in segments.

4.4.1 Pattern of Land Value Over Space

Part of the second objective of this research is to determine the spatial pattern of land value in urban Zaria. Since our survey was centered on the urban sub-centers identified in the preceding subsection, the data on land value (commercial and residential) and distance were analysed and presented below. Following that, the hypothesis was tested which states that "There is no significant relationship between land value and distance away from the urban sub-centres*".* Following the example of Majumdar *et al.,* (2006), the land values used in the present study were expressed in Naira per square metre per annum.

4.4.1.1 Spatial pattern of commercial land value in the study area

Occupiers of commercial properties (like retail stores), rent agencies/collectors and estate dealers and agents were asked questions in order to ascertain the rental value over a number of years of the premises they occupied at the time of the survey. The responses(see

Appendix II, question 13 and 20; Appendix III, question 8; Appendix IV, question 13) were analysed and the mean rental values determined for each year (Table 4.6).The second coIumn shows the sampling transects (23 in number), the five columns show the land value by years under study for the different transects.

Table 4.6 further shows that the highest mean value in a year recorded was N5761/m^2 around the PZ area in 2014. It was followed closely with a value of N5480/m^2, as shown in the 7^{th} column. The lowest mean value recorded in a year occurred around the Basawa junction in 1982. Then, in line with the work of Oni (2009), a mean value for years under study (1982 – 2014) was calculated for each of the transects. The result of which is contained in column 8 of Table 4.6.Finally, the last column presents the categories of commercial land value in descending order – the highest being N2688/m^2. That is, those under 'A' had the highest value, followed by 'B', 'C' up to 'E', with the lowest value. The lowest mean values occurred within the old city.

Table 4.6: Mean Annual Rental Value of Commercial Properties in Urban Zaria

S/N	Transect	Commercial rent (Naira/m^2) per annum						Category
		1982 (A)	1992 (B)	2002 (C)	2012 (D)	2014 (E)	Mean	
1	PZ to Polo Field	20	716	1820	4733	5761	2610	A
2	PZ(Union Bank) to Abu H College(GRA)	20	800	2594	4545	5480	2688	A
3	S/G Mkt to D/Bauchi Rd (River)	8	445	1761	3912	4263	2078	B
4	Aminu Rd to Kings Rd (GCC)	8	29	1514	3371	3721	1729	C
5	Agoro to FCE	11	480	1035	2975	3339	1568	C
6	T/Wada Mkt to NUBA Poly	11	480	1269	2850	3152	1552	C
7	Agoro to Dental Rd	10	320	1933	3016	3169	1690	C
8	K/Doka to Prison Rd	5	55	208	1400	2150	764	E
9	K/Doka -State library to Bridge (Kd Road)	N.A	N.A	777	2322	2322	1807	C
10	K/Doka to new Jos Rd	7	444	1451	2276	2525	1341	D
11	Emir's palace to B/Zazzau	5	25	208	1734	2028	800	E
12	Z.City Mkt to Kofar Kuyambana	6	66	1417	1911	2173	1115	D
13	B/Dodo to Kofar kibo	5	55	672	1454	1454	726	E
14	D/Magaji f/o to Kano Rd Bridge	N.A	35	752	1417	1602	761	E
15	D/Magaji F/o to Wapah foam/Pepsi	5	25	591	1294	1517	686	E
16	D/Magaji f/o to Kufena Hill	5	20	1272	2275	2275	1169	D
17	Salama Hosp. to Inner Kwangila	N.A	N.A	1272	3125	3125	2507	A
18	Yan-goro(Hanwa) to Hanwa-makera	6	199	611	1547	2050	883	E
19	Basawa/Aviation Rd Junc. To NITT	N.A	N.A	1000	1500	1668	1389	D
20	Basawa/Aviation Rd Junc. to Quarry site	4	199	992	1875	2375	1089	D
21	Sokoto Rd to Inner Palladan (Ang flani)	10	444	1815	2787	2870	1585	C
22	D/Iche to GDSS Samaru	12	500	1862	3128	3695	1839	C
23	Iya Road Samaru	13	640	1862	3695	3870	2016	B
	Mean Rent	**9**	**281**	**1219**	**2520**	**2850**		

Source: Field work, 2016

Using the last two columns of Table 4.6, asimplified summary of the pattern of averagecommercial land value for 1982 to 2014 is contained in Table 4.7, which shows that category A had the highest land value, followed by category B, then C, D and E in that

order. In other words, the table shows that all transects with mean commercial land values between N2501 to N3000 were categorized under A; transects with values between N2001 to N2500 were in category B; those with a value between N1501 to N2000 were in category C; category D contain transects with a value range between N1001 to N1500 and; the last category (E) belong to those with values between N501 to N1000.

Table 4.7: Spatial Pattern ofAverageCommercial Land Value in Urban Zariafor 1982 to 2014

S/No.	Category	Transects	Range of mean rental value/m^2/annum
1	A	PZ to Polo Field, PZ(Union Bank) to Abu H College(GRA), Salama Hosp. to Inner Kwangila,	N2,501 – N3,000
2	B	S/G Mkt to D/Bauchi Rd (River), Iya Road Samaru	N2,001 – N2,500
3	C	Aminu Rd to Kings Rd (GCC), Agoro to FCE, T/Wada Mkt to NUBA Poly, Agoro to Dental Rd, K/Doka -State library to Bridge (Kd Road), Sokoto Rd to Inner Palladan (Ang flani), D/Iche to GDSS Samaru	N1,501 – N2000
4	D	K/Doka to new Jos Rd , Z.City Mkt to Kofar Kuyambana, D/Magaji f/o to Kufena Hill, Basawa/Aviation Rd Junc. To NITT, Basawa/Aviation Rd Junc. to Quarry site,	N1,001 – N1,500
5	E	Emir's palace to B/Zazzau, K/Doka to Prison Rd, B/Dodo to Kofar kibo, D/Magaji f/o to Kano Rd Bridge, D/Magaji F/o to Wapah foam/Pepsi, Yan-goro(Hanwa) to Hanwa-makera	N501 – N1,000

Source: Field work, 2016

Based on the information in Table 4.7, Figure 4.10 depicts the pattern of mean commercial land value pictorially. The dark brown portions represent areas with the highest mean commercial land value, then followed by the brown and the light brown in that order.Since we are treating the three different aspects of land value in turns, the residential and vacant land areas are held constant, so to speak, and this is to reduce the congestion or confusion that could mask information, if all the three aspects are mapped

incombination. For the purpose of this, therefore, the residential land areas have been coloured green,while the vacant lands are kept aside, being largely at the periphery.

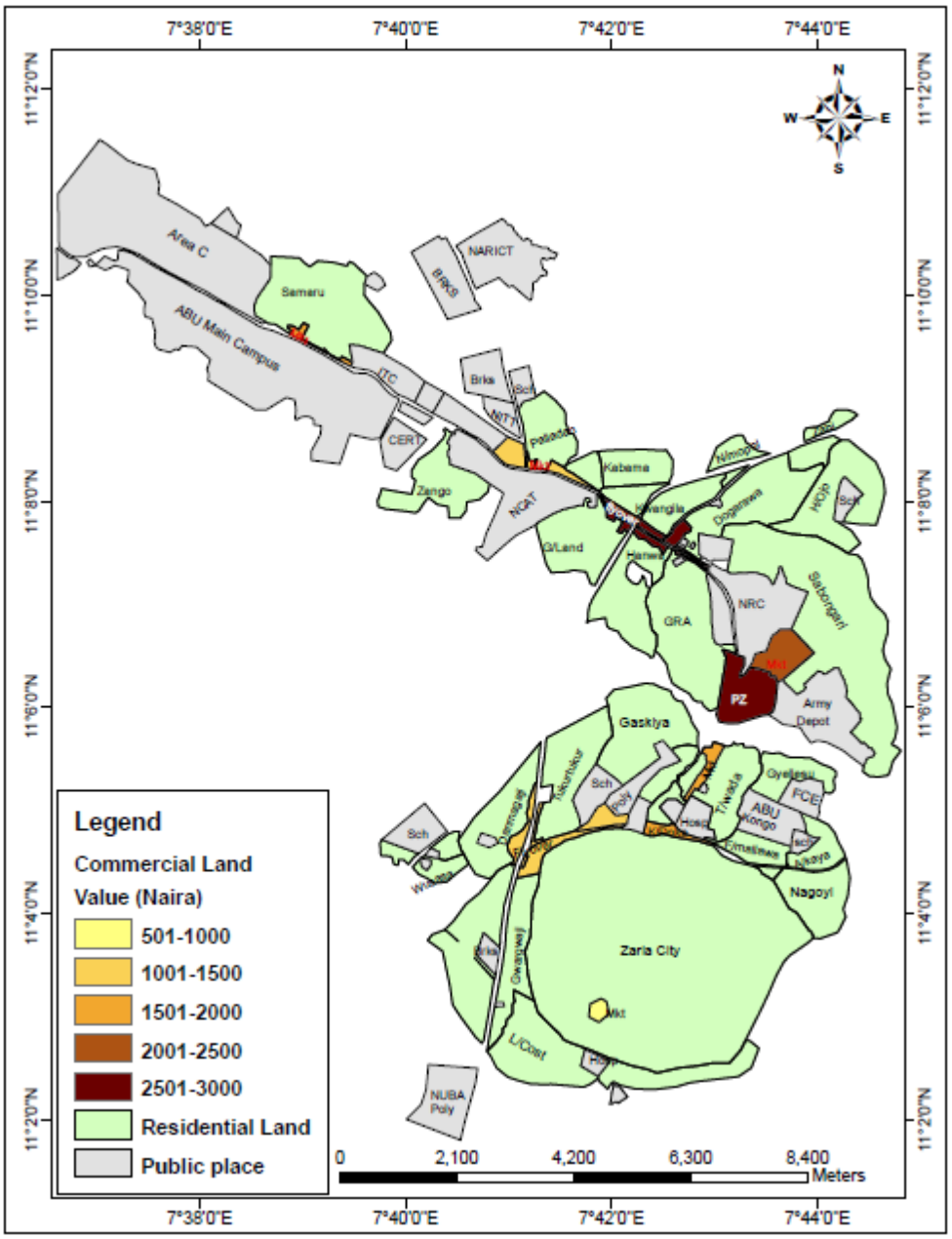


Figure 4.10: Pattern of Average Commercial Land Value in Urban Zaria (1982 – 2014)

Source: Field work, 2016

The highest amount charged in the PZ area may not be unconnected with the high competition between different commercial activities, trying to obtain locations around this

central area. And this is largely due to the advantages enjoyed by the area in terms of accessibility, centrality and high demand for goods by pedestrians. No wonder that in recent years several banks have emerged, taking over the areas previously occupied by foreign retail stores (Lebanese, British, Indian and German) i.e. in a kind of bid-rent competition.The indigenisation policy of the 1970s as well as Structural Adjustment Program (SAP) of the 1980s and 1990s had driven all the foreign retail stores out of business in Zaria and their buildings were either empty or put into less than optimal uses before banks took them over in the last decade and a half. The banks that came to town to join already existing ones like First Bank, Union Bank, Unity Bank, and Afribank (Main Street Bank) and United Bank for Africa (UBA) are Zenith Bank, Stanbic-IBTC Bank, Keystone Bank, Guaranteed Trust Bank (GTB), Fidelity Bank, Skye Bank, and Diamond Bank. The high land value in Sabon Gari could be attributed to its proximity to the PZ area as well as the presence of the biggest market in urban Zaria, the Sabon Gari market.

In order to test our first hypothesis that "There is no significant relationship between land value and distance away from the urban sub-centres", the Spearman's rank correlation coefficient was used to see whether there is a discernible pattern, from the sub-centres outwards, i.e. whether it is in line with Alonso's urban land value theory which says that land value decline with distance from the CBD. The results are presented individually, sub-centre by sub-centre, beginning from the CBD and ending at Samaru. Starting from the CBD, responses from the questionnaire for commercial land values administered along four transects, namely, PZ to Polo field, Union bank to Abu Huraira College (in the GRA), S/Gari market to D/Bauchi Road and S/Gari central mosque to Government Commercial College were analysed.

The analysis shows that the correlation is significant at 0.05 level (2-tailed test). In other words, there is indeed a strong distance-decay relationship between commercial land

value (in the form of rental charges) and distance from the CBD, with a value of -0.853, as shown in Table 4.8. It implies that as distance increases from the CBD, land value decreases. We therefore, have to reject the null hypothesis and accept the alternative one, i.e. that there is a significant relationship (negative) between commercial land value and distance away from the CBD. This conforms with Alonso's theory and indeed several studies such as Ai (2005) and Jordan *et al*., (2004). And explaining patterns of property value, Lean and Goodall (1977) opined that the centre of an urban area is the position of greatest accessibility, where transport routes and systems converge. Competition between firms whose revenue is high when in such a position will force up rents and land values above those in the remainder of the urban area.

Table 4.8: Correlation of commercial land value and distance for Zaria CBD

			Distance	Land value
Spearman's rho	Distance	Correlation coefficient	1.000	**-0.853**
		Sig. (2-tailed)		0.000
		N	46	46
	Land value	Correlation coefficient	**-0.853**	1.000
		Sig. (2-tailed)	0.000	
		N	46	46

Source: Author's Analysis, 2016

The information in Table 4.8 is illustrated diagrammatically in a scatter-gram in Fig. 4.11. It shows that the highest land values, as represented by the dots, were recorded at the origin (CBD centre), and that such values decreased as we move away from the centre of the area, thus theline of best-fit slants clearly downward towards the end of the X axis, indicating that land values go downwards as we move farther and farther away from the CBD.

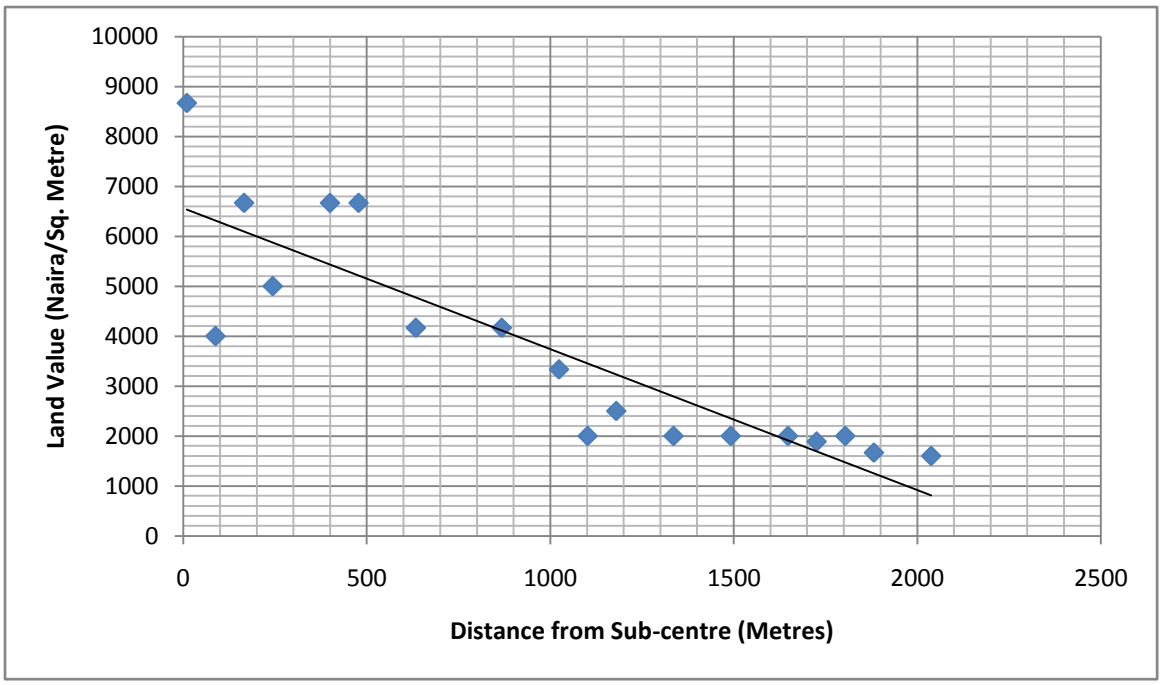


Figure 4.11: Spatial Pattern of Commercial Land Value around Zaria CBD

Source: Field Work, 2016

The next area is the Tudun Wada sub-centre, adjacent to the CBD, i.e across the Kubanni Bridge. In this area, three transects were taken as follows: Market to FCE road, Agoro to Annex campus of the NUBA Poly and Central Store-Dental road. However, in this case, the analysis shows that the correlation is not significant at 0.05 level, since it gave a probability of 0.243, which is higher than our alpha. But it has shown elements of a weak positive correlation with a value of 0.173, as presented in Table 4.9. That is, land value increased as distance increase away from the sub-centre, though not very much. This situation may not be unconnected with the fact that towards the end of two of the three transects, value enhancing land uses were located, notably the Institute of Administration, ABU Kongo campus and FCE, Zaria on the one hand and the annex campus of NUBA Poly on the other. Therefore, even though high values might occur around the T/Wada market and Agoro junction, equally high or even higher values could occur around such high institutions.

Table 4.9: Correlation of Commercial Land Value and Distance for T/Wada Sub-Centre

			Distance	Land value
Spearman's rho	Distance	Correlation coefficient	1.000	**0.173**
		Sig. (2-tailed)		0.243
		N	47	47
	Land value	Correlation coefficient	**0.173**	1.000
		Sig. (2-tailed)	0.243	
		N	47	47

Source: Author's Analysis, 2016

In the same manner, as done earlier, this pattern of relationship is depicted diagrammatically in Figure 4.12, which shows that the distribution of dots has not demonstrated a significant orientation towards increasing or decreasing values with distance from the centre of the area. If not for the line of best-fit, hardly can one discern any serious tilting towards any particular direction. Therefore, we have to accept the null hypothesis that the Tudun Wada sub-centre has no effect on the value of land around it.

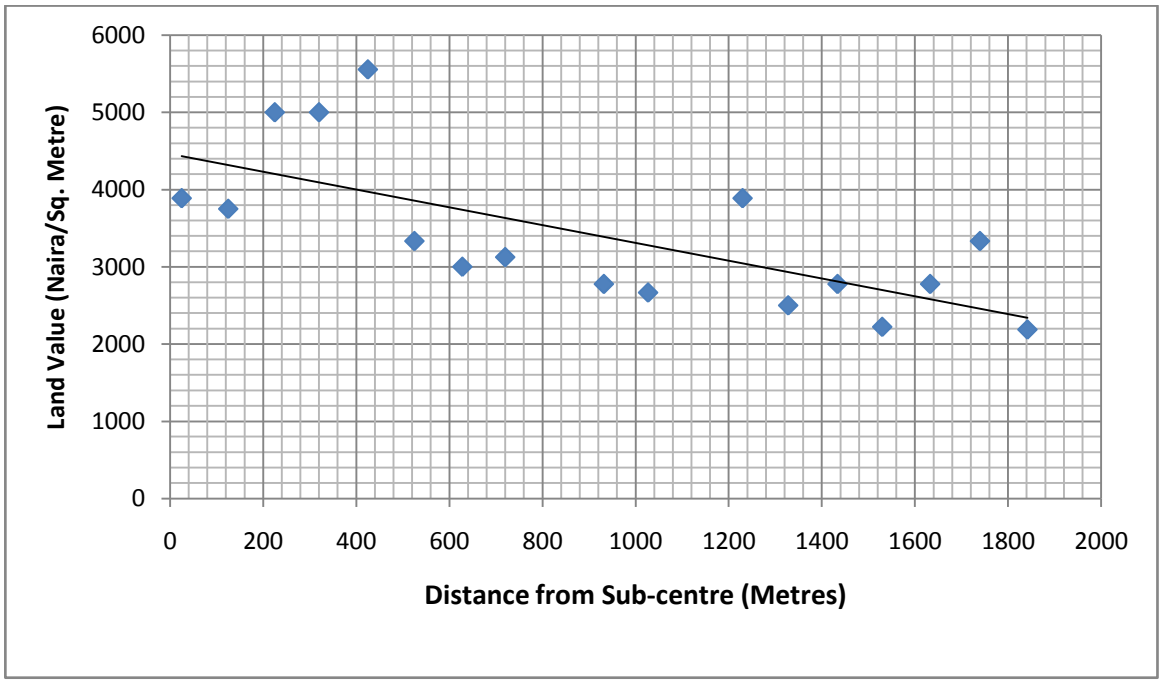


Figure 4.12: Spatial pattern of commercial land value around Tudun Wada Sub-centre

Source: Field work, 2016

Moving further towards the city wall, there is the Kofan Doka sub-centre. A similar questionnaire survey was conducted along three sampling transects, viz: Kofan Doka-Jos

road, Kofan doka- Mamu oil and Kofan Doka-Prison yard. The analysis revealed that the correlation was significant at the 0.05 level. The -0.652 value, as contained in Table 4.10 shows a fairly strong negative correlation between distance and commercial land value in the area. This means that as distance from the sub-centre increases, land value decreases. This is similar to what obtains at the CBD.

Table 4.10: Correlation of commercial land value and distance for Kofan Doka Sub-centre

			Distance	**Land value**
Spearman's rho	Distance	Correlation coefficient	1.000	**-0.652**
		Sig. (2-tailed)		0.001
		N	35	35
	Land value	Correlation coefficient	**-0.652**	1.000
		Sig. (2-tailed)	0.001	
		N	35	35

Source: Author's Analysis, 2016

The similarity with the CBD finding becomes evident if we consider the pattern of dots distribution in Fig. 4.13. It shows that the centre of the area had the highest value, with the dots high up around the origin and the dots going down towards the end of the x-axis. Again, the line of best fit has clearly slanted down towards the right, indicating a fall in land value with increasing distance from sub-centre.

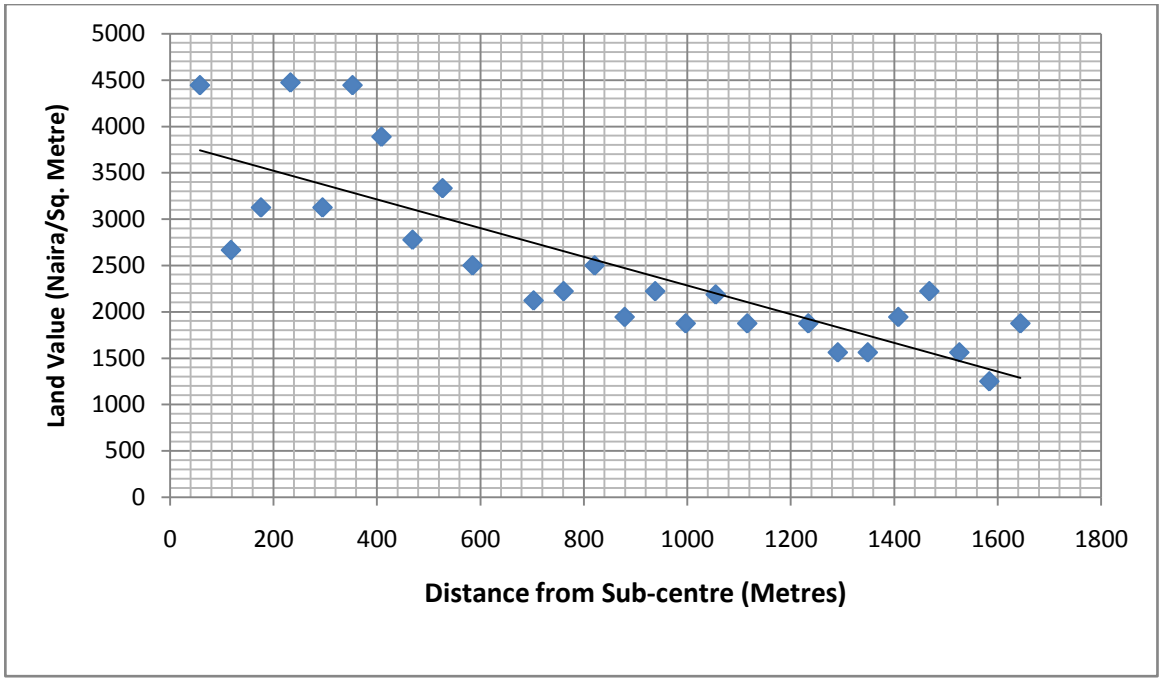


Figure 4.13: Spatial Pattern of Commercial Land Value around Kofar Doka Sub-centre

Source: Field work, 2016

The next sub-centre is located in the heart of the walled city. This is where we have the Emir's palace, the oldest market in the urban area and indeed the oldest building structures, being the oldest settlement in urban Zaria. The results of Spearman's rank correlation for the area revealed an insignificant relationship between distance and commercial land value, with 0.065. This may not be unconnected with the fact that a good number of the properties surveyed were either occupied by the owners or their relatives, or that the rental charges were largely nothing to write home i.e. when compared with what obtain in other areas. However, the correlation coefficient value of -0.353 appears to indicate a weak negative relationship between the two variables in question, as shown in Table 4.11, that is, commercial land value does not decrease with increasing distance from the sub-centre, which means we have to accept the null hypothesis in this case also.

Table 4.11: Correlation of commercial land value and distance for Zaria City Sub-centre

			Distance	Land value
Spearman's rho	Distance	Correlation coefficient	1.000	**-0.353**
		Sig. (2-tailed)		0.065
		N	28	28
	Land value	Correlation coefficient	**-0.353**	1.000
		Sig. (2-tailed)	0.065	
		N	28	28

Source: Author's Analysis, 2016

Figure 4.14, further depicts the picture. The dots have not very clearly indicated the pattern of tilting towards any side, hence the insignificance of the relationship. And the line of best fit has not also too clearly shown the direction of its orientation, though there are signs of tilting.

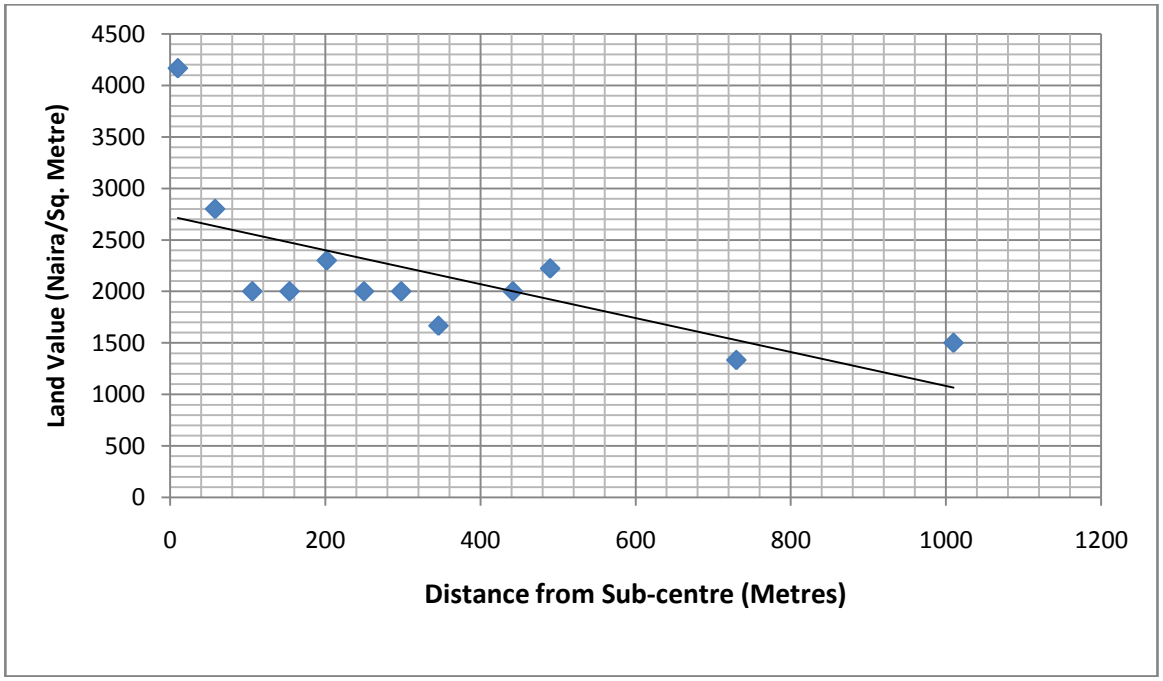


Figure 4.14: Spatial pattern of commercial land value around Zaria City Sub-centre
Source: Field work, 2016

The flyover at Danmagaji/Wusasa is our next sub-centre. This is a major arterial road junction in Zaria. Business activities have been on the rise in this area. A correlation analysis conducted for the area indicated an insignificant outcome, with 0.076, which is

more than 0.05.The correlation coefficient of -0.395 (see Table 4.12) imply that there is a weak correlation between distance and commercial land value around the Wusasa area. In other words, land value does not necessarily decrease with distance away from the sub-centre of the area. Here again we have to accept the null hypothesis.

Table 4.12: Correlation of Commercial Land Value and Distance for Danmagaji Sub-centre

			Distance	**Land value**
Spearman's rho	Distance	Correlation coefficient	1.000	**-0.395**
		Sig. (2-tailed)		0.076
		N	21	21
	Land value	Correlation coefficient	**-0.395**	1.000
		Sig. (2-tailed)	0.076	
		N	21	21

Source: Author's Analysis, 2016

The above statement can be presented diagrammatically in Figure 4.15. It shows that the dots fell almost along a straight line, except one. That is, commercial land values revolved around a certain figure along the sub-centre. The slight slanting of the line was as a result of the single very high value recorded at the origin. This was largely as a result of the building quality and high accessibility of the area.

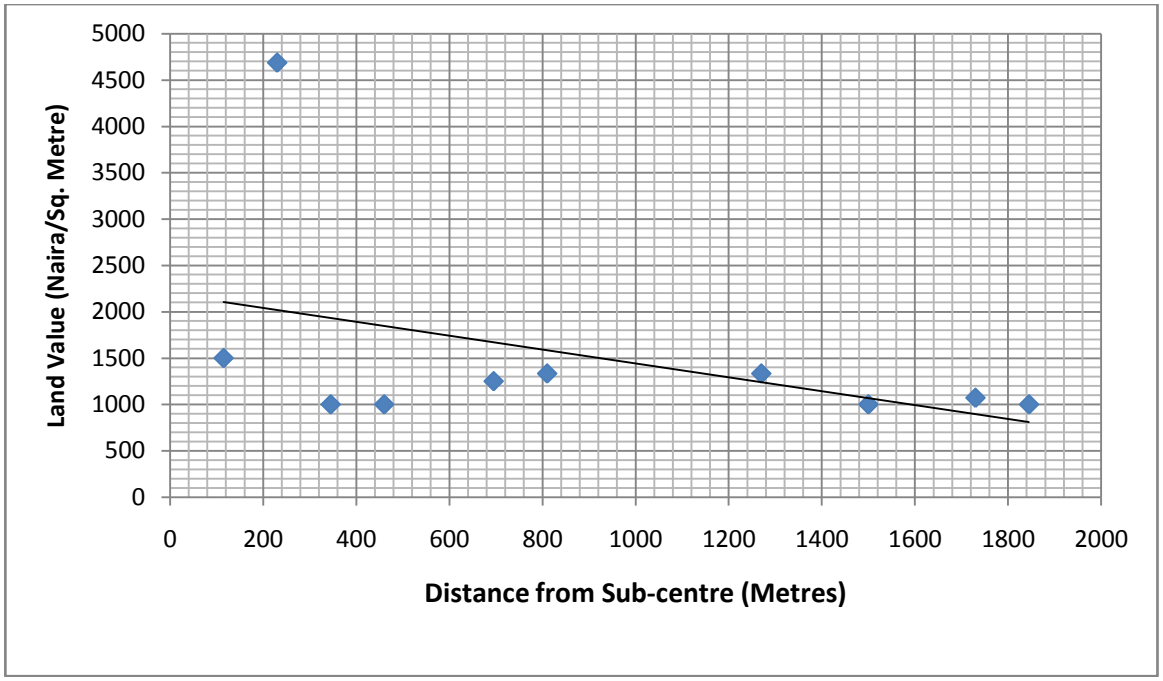


Figure 4.15: Spatial Pattern of Commercial Land Value around Danmagaji/Wusasa Sub-centre

Source: Field work, 2016

The next Sub-centre, coincidentally, also falls around another flyover (overhead bridge), located at Kwangila. It is also a major arterial road junction, having one of the major motor parks in the study area. A correlation analysis shows that distance and commercial land value are not significantly correlated, with a value of 0.884 (see Table 4.13), though the coefficient reveal some elements of negative relationship. That is, land value to some extent, decrease with distance from the sub-centre. This relative lack of strength may not be unconnected with the fact that while on the one hand land value appear to be virtually consistent along the major arterial Sokoto road (on both sides of the overhead bridge), the virtual absence of major shopping outlets along the other roads (’Yangoro-Hanwa and Salama Hospital-Kwangila Roads), did not give room for any appreciable variation. Again, atop the overhead bridge, there are virtually no major commercial activities located, both towards the Kaduna and Kano sides of the bridge.

Table 4.13: Correlation of Commercial Land Value and Distance for Kwangila Sub-centre

			Distance	Land value
Spearman's rho	Distance	Correlation coefficient	1.000	**-0.043**
		Sig. (2-tailed)		0.884
		N	14	14
	Land value	Correlation coefficient	**-0.043**	1.000
		Sig. (2-tailed)	0.884	
		N	14	14

Source: Author's Analysis, 2016

That relationship is what Fig. 4.16 is trying to portray. It indicates that the dots are somehow spread around the centre of the diagram, so the variation in value does not show a significant relationship. It is only the line that indicated some elements of slanting in a particular direction.

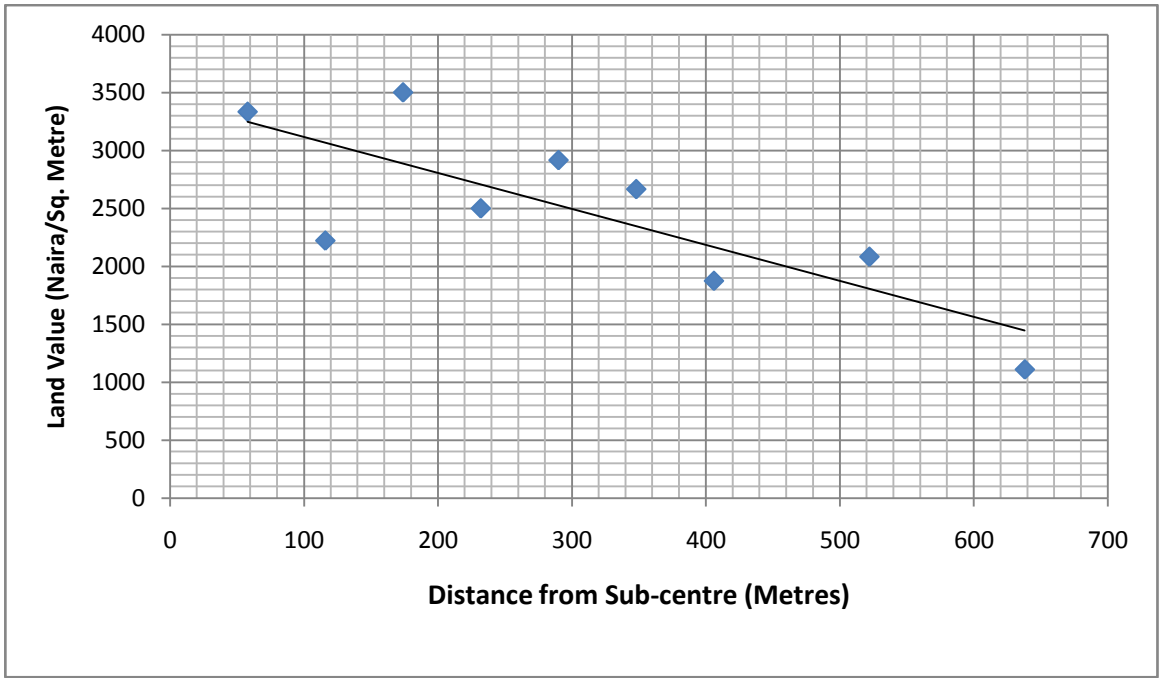


Figure 4.16: Spatial pattern of commercial land value around Kwangila Sub-centre

Source: Field work, 2016

Another important sub-centre along the Sokoto road is the Palladan/Aviation sub-centre. Apart from the presence of the Nigerian College of Aviation Technology (NCAT), the area has a small market and a make-shift motor park, all of which have the tendency to

attract socioeconomic activities. The correlation analysis for this centre revealed that there is a significant correlation between distance and land value, with 0.012 level, as shown in Table 4.14. The coefficient shows that there is a fairly strong negative correlation between the two variables at -0.670, which means that commercial land value decreased with distance from the sub-centre.

Table 4.14: Correlation of Commercial Land Value and Distance for Palladan Sub-centre

			Distance	**Land value**
Spearman's rho	Distance	Correlation coefficient	1.000	**-0.670**
		Sig. (2-tailed)		0.012
		N	13	13
	Land value	Correlation coefficient	**-0.670**	1.000
		Sig. (2-tailed)	0.012	
		N	13	13

Source: Author's Analysis, 2016

Fig. 4.17 clearly indicate the direction of decrease in land value, i.e. the dots going downwards towards the right hand side, meaning that the value decrease with distance from the sub-centre of the area. And even the line further points the direction of fall in values.

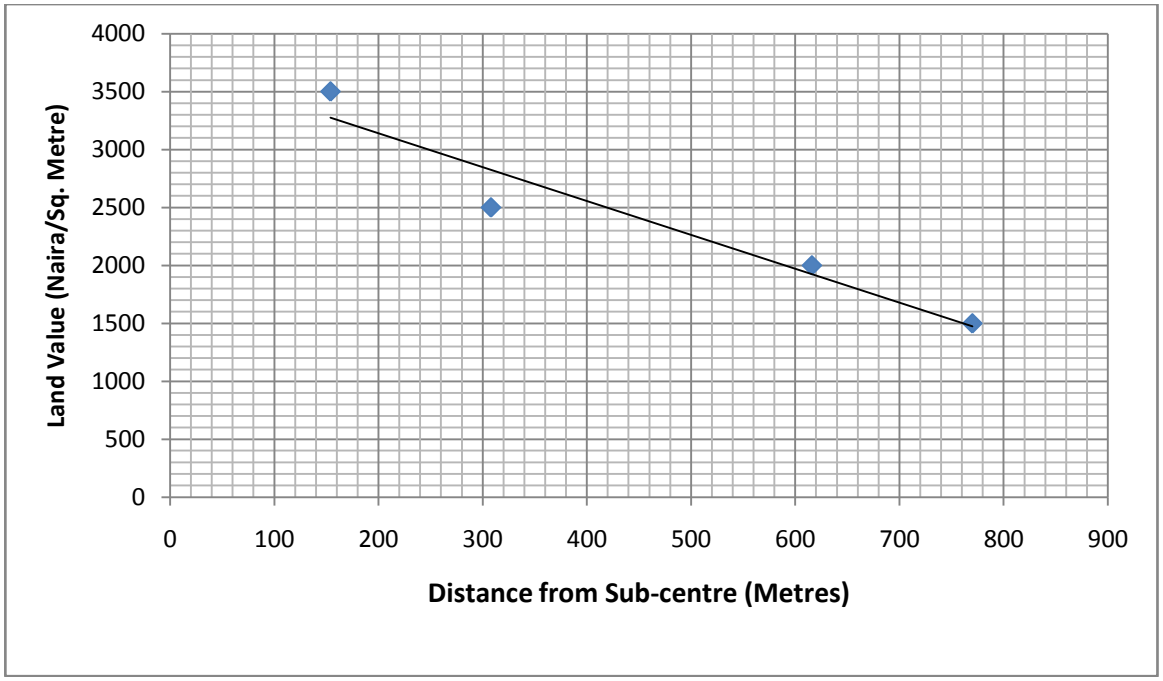


Figure 4.17: Spatial Pattern of Commercial Land Value around Palladan Sub-centre

The last is Samaru sub-centre, the home of Ahmadu Bello University(main campus), a major activity centre in urban Zaria. Apart from a high population of both staff and students of the university, there are a lot of other socioeconomic activities in the area, most of which were attracted to the area directly or indirectly as a result of the presence of a cluster of higher institutions of learning and research centres, as well as several banks and the Samaru market. A correlation analysis for the area shows that there is a significant correlation between the two variables, with 0.001. It also revealed that there is a strong negative correlation between land value and distance, with a coefficient of -0.0727 (see Table 4.15). This is only next to the CBD in terms of the strength of relationship between land value and distance from the sub-centre. And the result implies that land value decreases as distance from the sub-centre increases.

Table 4.15: Correlation of commercial land value and distance for Samaru Sub-centre

			Distance	Land value
Spearman's rho	Distance	Correlation coefficient	1.000	**-0.0727**
		Sig. (2-tailed)		0.001
		N	28	32
	Land value	Correlation coefficient	**-0.727**	1.000
		Sig. (2-tailed)	0.001	
		N	32	32

Source: Author's Analysis, 2016

The results of correlation coefficient can be illustrated in Fig. 4.18. The pattern of distribution of the dots (representing commercial land value) shows the highest values occur very close to the origin (the sub-centre in this case) while the lower values appear further away from the origin.

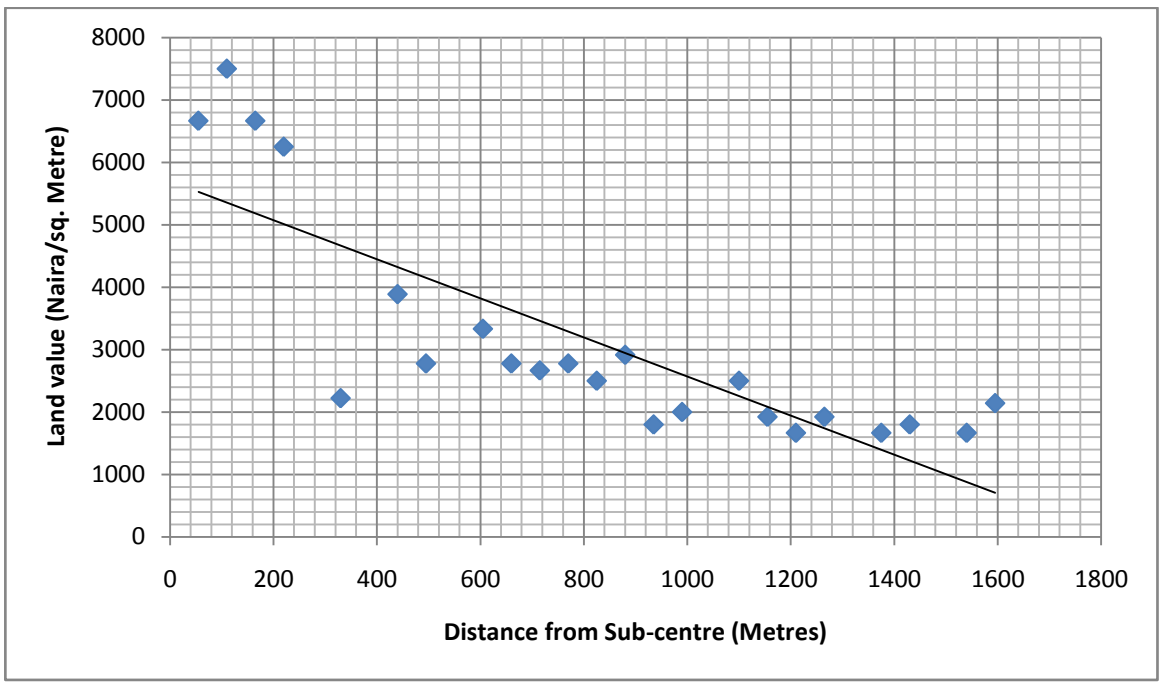


Figure 4.18: Spatial pattern of commercial land value around Samaru Sub-centre
Source: Field work, 2016

The foregoing analysis shows that out of the 7 sub-centres and one CBD, the pattern of commercial land value has been influenced by the centres in 4 areas.In a

nutshell, the CBD and three sub-centres (Kofar Doka, Palladan/Aviation and Samaru) affect the value of land around them while four (Tudun Wada, Zaria city, Danmagaji and Kwangila Flyover) do not.The fact that four out of the 8 centres and sub-centres examined showed a strong influence on commercial land value around them means we cannot accept the null hypothesis for the entire work. In fact, six out of the sub-centres show a negative relationship between the two variables, meaning that land value decrease with distance from the core of the sub-centres. This outcome is in line with the finding by Jordan, Drost and Makgata (2004) that the average land value in eastern suburbs of Pretoria is an inverse function of the distance from the CBD. This is also in concordance with Alonso's theory.

On a general note, the reasons why four sub-centres are not able to perform the expected- influencing the value of land around them could be that the sub-centres in question are just beginning to be affected by increasing demand for commercial use of land which is being fueled by rapid population growth in urban Zaria which is, in turn, fueling the rapid tertiarisation of the people, i.e. people moving straight from primary into tertiary economic activities. Since the scatter-grams of all of the sub-centres for which the null hypothesis was accepted show a slight downward trend, we can safely assume that attachment of monetary value to land (commercialization of land) is just beginning to take root in those places. So with time, everything remaining the same, those sub-centres will come to exert more influence on the value of land around them.We can therefore, conclude that there is a significant relationship between commercial land value and distance away from urban sub-centres.

4.4.1.2 Spatial pattern of residential land value in the study area

In this subsection again, the information gathered from tenants, rent collectors etcetera on land value was analysed to obtain the mean residential land value of the area, as

shown in Table 4.16. Once again, the area around the CBD, the GRA and Hanwa New-Extension area recorded higher residential land values around them than other sub-centres.

Table 4.16 further shows that the highest mean residential value recorded in a year was N4477/m^2 around the GRA in 2014. It was followed by a value of N3125/m^2around Kwangila-Hanwa New Extension, as shown in the 7^{th} column. The lowest mean value recorded in a year occurred around the Zaria city and Palladan in 1982. Then, in line with the work of Oni (2009), a mean value for years under study (1982 – 2014) was calculated for each of the transects. The result of which is contained in column 8 of Table 4.16. Finally, the last column presents the categories of commercial land value in descending order – the highest being N2507/m^2. That is, those under 'A' had the highest value, followed by 'B', 'C' up to 'E', with the lowest value. The lowest mean values occurred within the old city (N517).

Table 4.16: Mean annual residential land Value (rent) in Urban Zaria: 1982-2014

S/No.	Transect	Rent (Naira/m^2) Per Annum					Mean	Category
		1982 (A)	1992 (B)	2002 (C)	2012 (D)	2014 (E)		
1	PZ to Polo Feild	N.A	N.A	N.A	N.A	N.A	N.A	
2	PZ(Union Bank) to Abu H College(GRA)	15	597	1351	3731	4477	2034	A
3	S/G Mkt to D/Bauchi Rd (River)	4	223	857	2238	2238	1112	B
4	Aminu Rd to Kings Rd (GCC)	3	223	857	2238	2238	1112	B
5	Agoro to FCE	7	223	928	2985	2985	1426	B
6	T/Wada Mkt to NUBA Poly	6	328	1043	2238	2985	1302	B
7	Agoro to Dental Rd	6	328	1043	2985	2985	1470	B
8	K/Doka to Prison Rd	2	40	135	1492	1492	632	C
9	K/Doka -State library to Bridge (Kd Road)	N.A	N.A	135	1492	1492	1040	B
10	K/Doka to new Jos Rd	N.A	44	141	1791	1791	942	C
11	Emir's palace to B/Zazzau	2	44	746	1492	1492	755	C
12	Z.City Mkt to Kofar Kuyambana	2	32	164	1194	1194	517	C
13	B/Dodo to Kofar kibo	2	40	223	1492	1492	650	C
14	D/Magaji f/o to Kano Rd Bridge	N.A	N.A	535	1492	1492	1173	B
15	D/Magaji F/o to Wapah foam/Pepsi	5	44	298	2238	2238	965	C
16	D/Magaji f/o to Kufena Hill	N.A	N.A	286	1791	1791	1289	B
17	Salama Hosp. to Inner Kwangila	N.A	N.A	1272	3125	3125	2507	A
18	Yan-goro(Hanwa) to Hanwa-makera	N.A	328	746	2238	2238	1388	B
19	Basawa/Aviation Rd Junc. To NITT	N.A	N.A	746	1791	1791	1443	B
20	Basawa/Aviation Rd Junc. to Quarry site	2	135	690	1325	2238	878	C
21	Sokoto Rd to Inner Palladan (Ang flani)	5	350	578	1585	2985	1101	B
22	D/Iche to GDSS Samaru	6	370	928	2985	2985	1455	B
23	Iya Road Samaru	7	370	1275	3125	3200	1595	B
	Mean	**5**	**209**	**653**	**2092**	**2273**	**1199**	

Source: Field work, 2016

It can be seen that the residential land values or rents which were in single digits at the initial stage, except around the GRA, kept on rising over the years. A summary of the pattern of average residential land value for 1982 to 2014 is presented in Table 4.17. That is, all transects with mean residential land values between N2001 to N3000 were in category A; those with values between N1001 to N2000 belong to category B; while those that had values between N1 to N1000 were put in category C.

Table 4.17: Spatial Pattern of AverageResidential Land Value in Urban Zaria for1982 to 2014

S/No.	Category	Transects	Range of Mean annual Rental Value/ m^2/annum
1	A	PZ(Union Bank) to Abu H College(GRA), Salama Hosp. to Inner Kwangila	N2,001 – N3,000
2	B	S/G Mkt to D/Bauchi Rd (River), Aminu Rd to Kings Rd (GCC), Agoro to FCE, T/Wada Mkt to NUBA Poly, Agoro to Dental Rd, K/Doka -State library to Bridge (Kd Road), D/Magaji f/o to Kano Rd Bridge, D/Magaji f/o to Kufena Hill, Yan-goro(Hanwa) to Hanwa-makera, Basawa/Aviation Rd Junc. To NITT, Sokoto Rd to Inner Palladan (Ang flani), D/Iche to GDSS Samaru, Iya Road Samaru	N1,001 – N2,000
3	C	K/Doka to Prison Rd, K/Doka to new Jos Rd, Emir's palace to B/Zazzau, Z.City Mkt to Kofar Kuyambana, B/Dodo to Kofar kibo, D/Magaji F/o to Wapah foam/Pepsi, Basawa/Aviation Rd Junc. to Quarry site	N1 – N1,000

Source: Field work, 2016

Table 4.17 shows that the highest mean residential property value of between N2, 000 to N3, 000 per metre square per annum was collected at the GRA and the Hanwa New Extension area. Once again, the least was charged at the city, Danmagaji and Palladan areas. The high value obtained at the GRA was largely due to some of the following reasons: it is an area for the elite, with an initial advantage; a development of the colonial administration; serenity of the environment; large sized plots; high quality of buildings in the area etc. The Hanwa area also enjoys some of the characteristics mentioned here, although it is a more recent development.

The low value recorded in the old city may not be unconnected with some of the following: the area is unplanned, being a pre-colonial development; quality of building is on the low side; accessibility is an issue in some sections; population density is very high;

again the area is predominantly occupied by natives, most of whom lived with one or more relatives, so that collecting rental charges could be seen as a misnomer. And for some landlords, the houses were not meant for profit-making or income; rather, it was kept/meant for inheritance by progenitors/heirs. For this reason, the rental charges were very low in some instances.

The null hypothesis that "There is no significant relationship between land value and distance away from the urban sub-centres" was tested using the Spearman's rank correlation analysis Here again, we started from the CBD moving clockwise and ended at Samaru sub-centre. At the CBD, the result of the analysis shows that there is no significant relationship between distance and land value, with a value of 0.094, though the correlation coefficient shows a weak negative outcome, -0.0342, as contained in Table 4.18. This implies that we should accept the null hypothesis.

Based on the information in Table 4.17, Figure 4.19 depicts the pattern of mean residential land value pictorially. The various shades of green colour represent residential land value. The deep green portions represent areas with the highest mean residential land value, then followed by the lighter green colours in that order.Since we are treating the three different aspects of land value in turns, the commercial and vacant land areas are held constant, so to speak, and this is to reduce the congestion or confusion that could mask information, if all the values are mapped in combination. For the purpose of this, therefore, the commercial areas have been coloured pink while vacant lands are left out, being largely at the periphery. The ash coloured areas have not been valued as they are zoned public places.

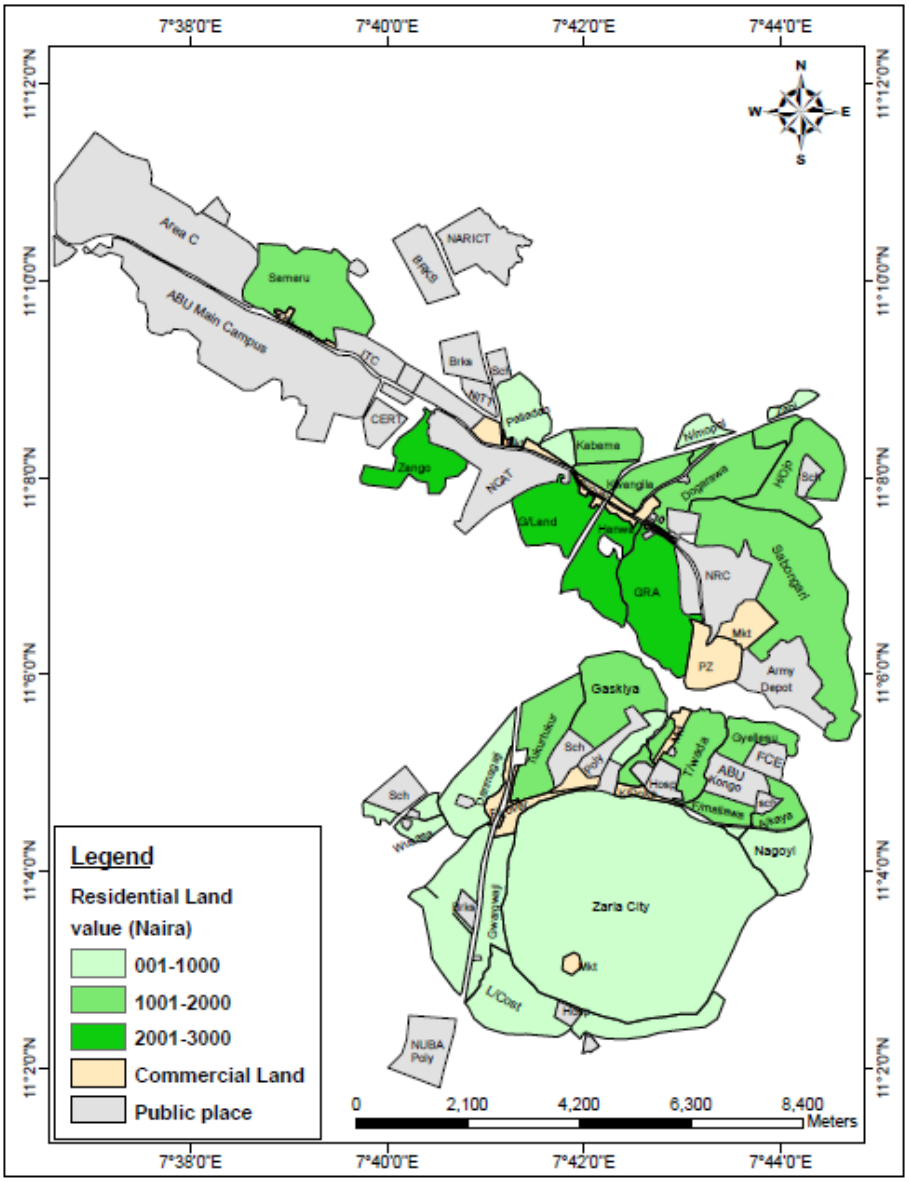


Figure 4.19: Pattern of Average Residential Land Value in Urban Zaria (1982 – 2014)

Source: Field work, 2016

Table 4.18: Correlation of Residential Land Value and Distance for Zaria CBD

			Distance	Land value
Spearman's rho	Distance	Correlation coefficient	1.000	**-0.342**
		Sig. (2-tailed)		0.094
		N	25	25
	Land value	Correlation coefficient	**-0.342**	1.000
		Sig. (2-tailed)	0.094	
		N	25	25

Source: Author's Analysis, 2016

However, using graphical illustration as in Fig. 4.20, it shows sign of the negative relationship between distance and residential land value, i.e. with the slanting of the line downwards towards the right, meaning that the values decrease as we move away from the core of the CBD.

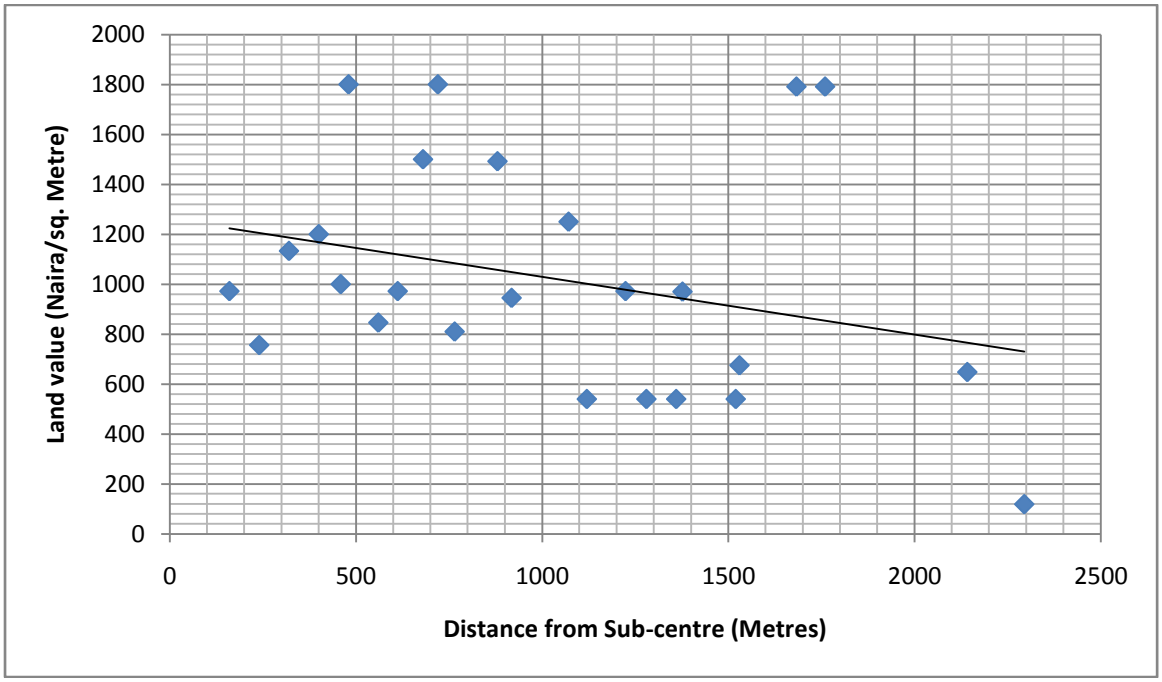


Figure 4.20: Spatial Pattern of Residential Land Value around the Zaria CBD
Source: Field work, 2016

A similar outcome was recorded at Tudun Wada sub-centre. The result revealed that there is no significant relationship at 0.718. Since the relationship is not significant, we have to accept the null hypothesis. But the correlation coefficient gave a negative result, i.e. that to a certain extent,residential land values decrease with distance away from the sub-centre (see Table 4.19).

Table 4.19: Correlation of Residential Land Value and Distance for T/Wada Sub-centre

			Distance	Land value
Spearman's rho	Distance	Correlation coefficient	1.000	**-0.078**
		Sig. (2-tailed)		0.718
		N	24	24
	Land value	Correlation coefficient	**-0.078**	1.000
		Sig. (2-tailed)	0.718	
		N	24	24

Source: Author's Analysis, 2016

The graphical picture of the situation however, was more a straight line than anything, as shown in Fig. 4.21. The dots are scattered all over the area, so the line does not tilt either way.

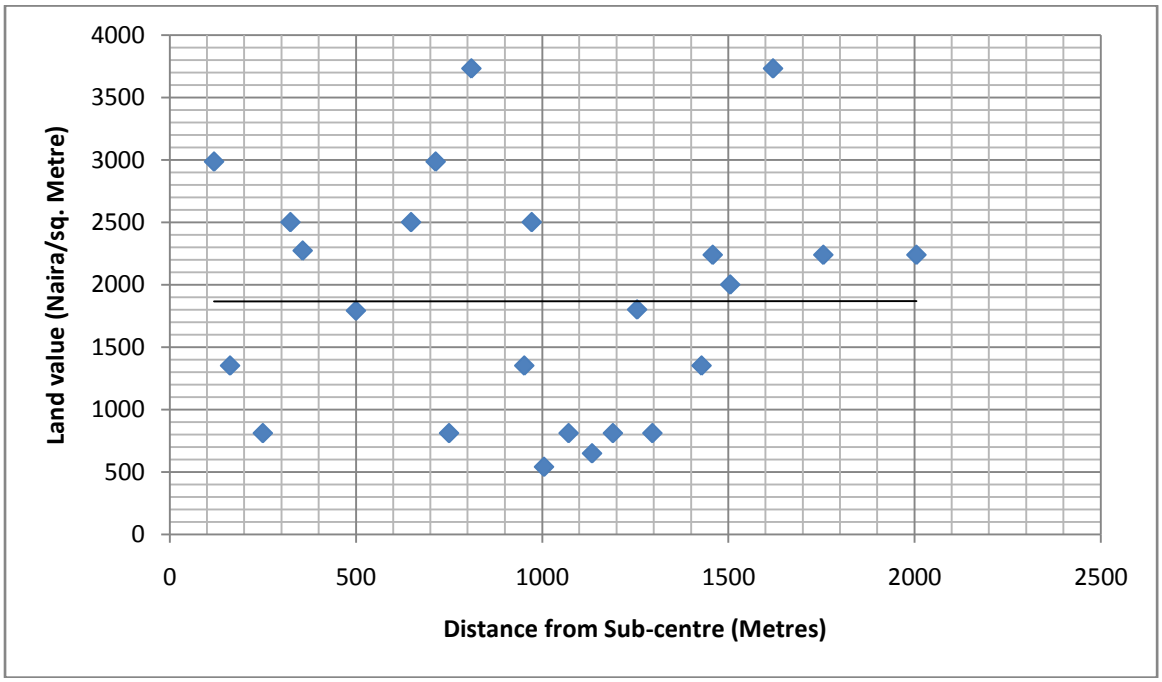


Figure 4.21: Spatial pattern of residential land value around T/Wada sub-centre

Source: Field work, 2016

Moving further to Kofan Doka sub-centre, the result was still in line with the last two. It shows that the relationship is not significant at 0.080, as contained in Table 4.20. Since the relationship is not significant, we have to accept the null hypothesis. Conversely, in this case the correlation coefficient gave a positive sign with 0.651, meaning that

residential land values tended to increase, to some extent, with distance from the core of the sub-centre.

Table 4.20: Correlation of Residential Land Value and Distance for K/Doka Sub-centre

			Distance	Land value
Spearman's rho	Distance	Correlation coefficient	1.000	**0.651**
		Sig. (2-tailed)		0.080
		N	8	8
	Land value	Correlation coefficient	**0.651**	1.000
		Sig. (2-tailed)	0.080	
		N	8	8

Source: Author's Analysis, 2016

Fig. 4.22 graphically illustrates the point we are trying to drive home. That is, the line slanting towards the origin of graph and rising to the right side, indicating the rising value. This could be due to the higher quality of some residential areas away from the rather noisy commercial sub-centres.

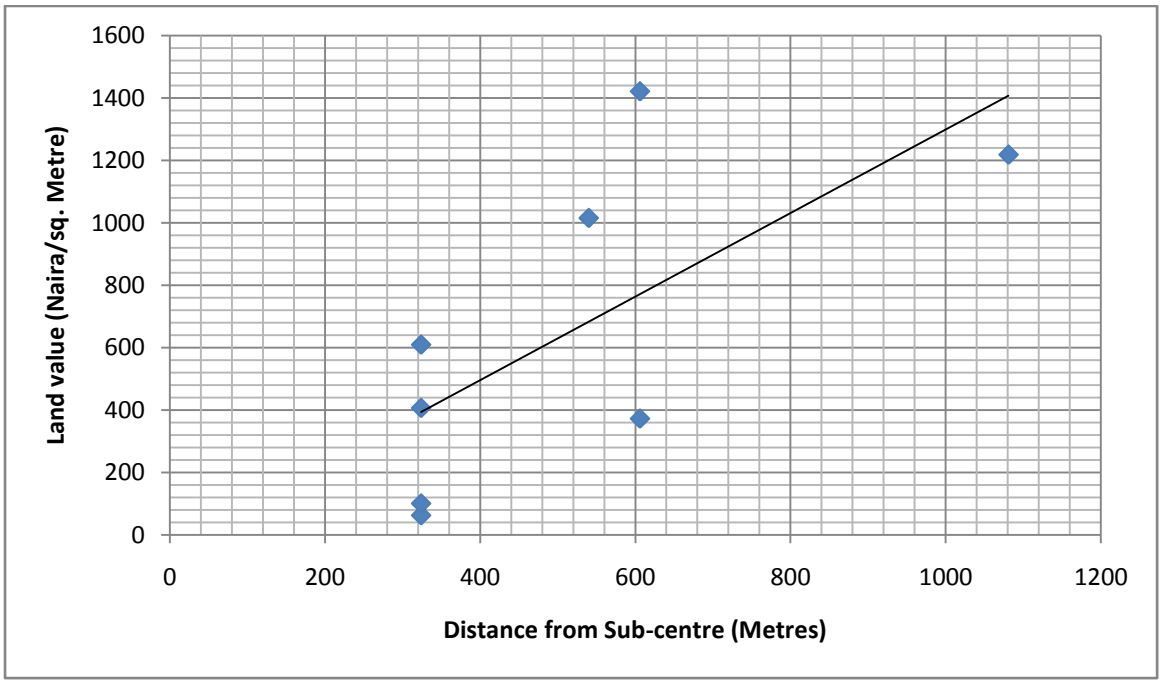


Figure 4.22: Spatial Pattern of Residential Land Value around K/Doka sub-centre
Source: Field work, 2016

The next area is Zaria city sub-centre. The correlation here too is not significant at 0.063, as presented in Table 4.21. Since the relationship is not significant, we have to accept the null hypothesis. But just like in the case of K/Doka sub-centre, the correlation coefficient is positive with 0.413. This means that to a certain extent, residential land values increase with distance from the sub-centre. This could be because of higher neighbourhood quality of some areas that away from such centres.

Table 4.21: Correlation of residential land value and distance for Zaria City Sub-centre

			Distance	Land value
Spearman's rho	Distance	Correlation coefficient	1.000	**0.413**
		Sig. (2-tailed)		0.063
		N	21	21
	Land value	Correlation coefficient	**0.413**	1.000
		Sig. (2-tailed)	0.063	
		N	21	21

Source: Author's Analysis, 2016

Fig.4.23 is an illustration of the manner of rising values as we move away from the core of the area, even though the relationship is not significant.

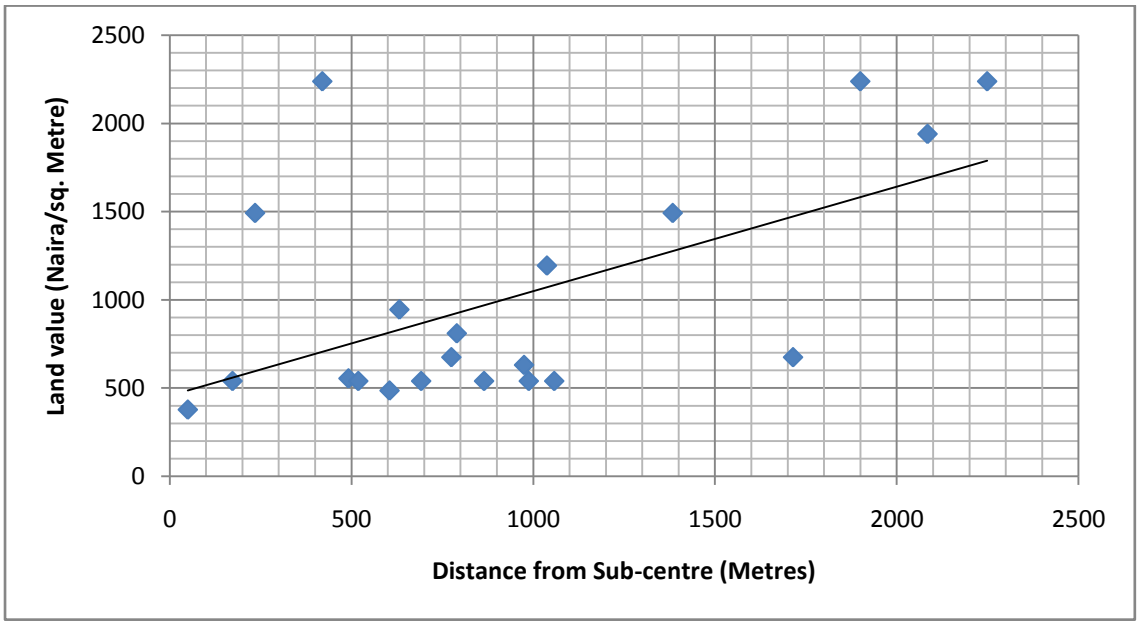


Figure 4.23: Spatial Pattern of Residential Land Value around Zaria city sub-centre
Source: Field work, 2016

Moving further clockwise is the Danmagaji sub-centre. Result of the analysis (in Table 4.22) show that there is no significant relationship with a value of 0.986. Since the relationship is not significant, we accept the null hypothesis. But the correlation coefficient gave a negative value of -0.006, which shows that even though the relationship is not significant, residential land values, to a little extent, decrease with distance from the sub-centre.

Table 4.22: Correlation of Residential Land Value and Distance for Danmagaji Sub-centre

			Distance	Land value
Spearman's rho	Distance	Correlation coefficient	1.000	**-0.006**
		Sig. (2-tailed)		0.986
		N	13	13
	Land value	Correlation coefficient	**-0.006**	1.000
		Sig. (2-tailed)	0.986	
		N	13	13

Source: Author's Analysis, 2016

The dots are scattered all over the place so that the line of best fit does not tilt in favour of any of the two sides, that is, land value not necessarily increasing or decreasing in either direction.

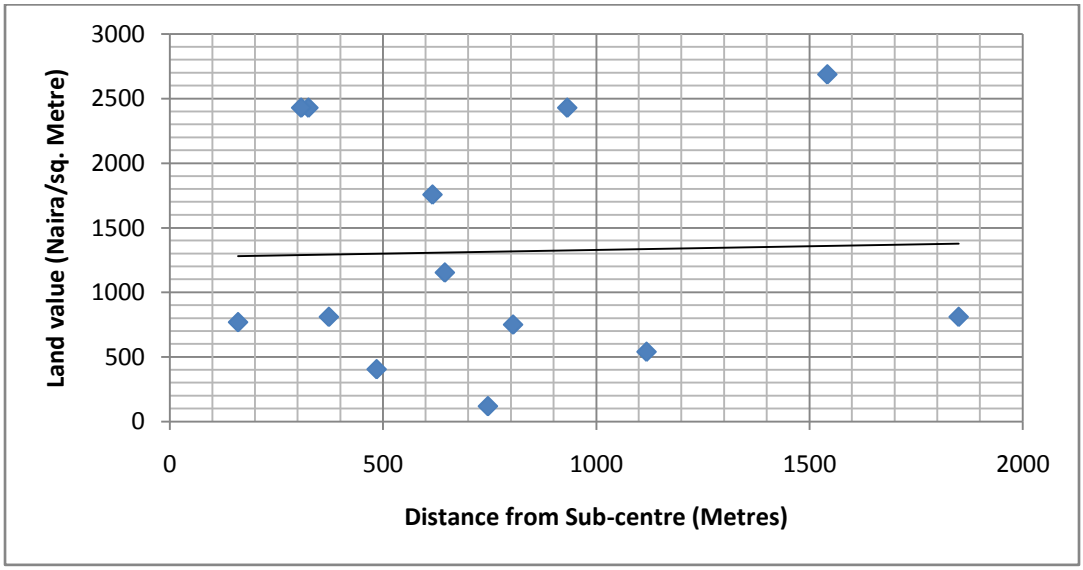


Figure 4.24: Spatial Pattern of Residential Land Value around Danmagaji Sub-centre

Source: Field work, 2016

The Kwangila flyover is next in line. Here again, it shows that there is no significant relationship between distance and land value, with a value of 0.818 (see Table 4.23). Since the relationship is not significant, we accept the null hypothesis. The correlation coefficient shows a positive result with 0.108, which imply that to an extent, residential land values tended to increase with distance away from the sub-centre. This could due to the location of some high quality neighbourhoods away from the centre.

Table 4.23: Correlation of Residential Land Value and Distance for K/FlyoverSub-centre

			Distance	Land value
Spearman's rho	Distance	Correlation coefficient	1.000	**0.108**
		Sig. (2-tailed)		0.818
		N	7	7
	Land value	Correlation coefficient	**0.108**	1.000
		Sig. (2-tailed)	0.818	
		N	7	7

Source: Author's Analysis, 2016

Fig.4.25 shows that the line indicates an increasing trend of values moving away from the origin.

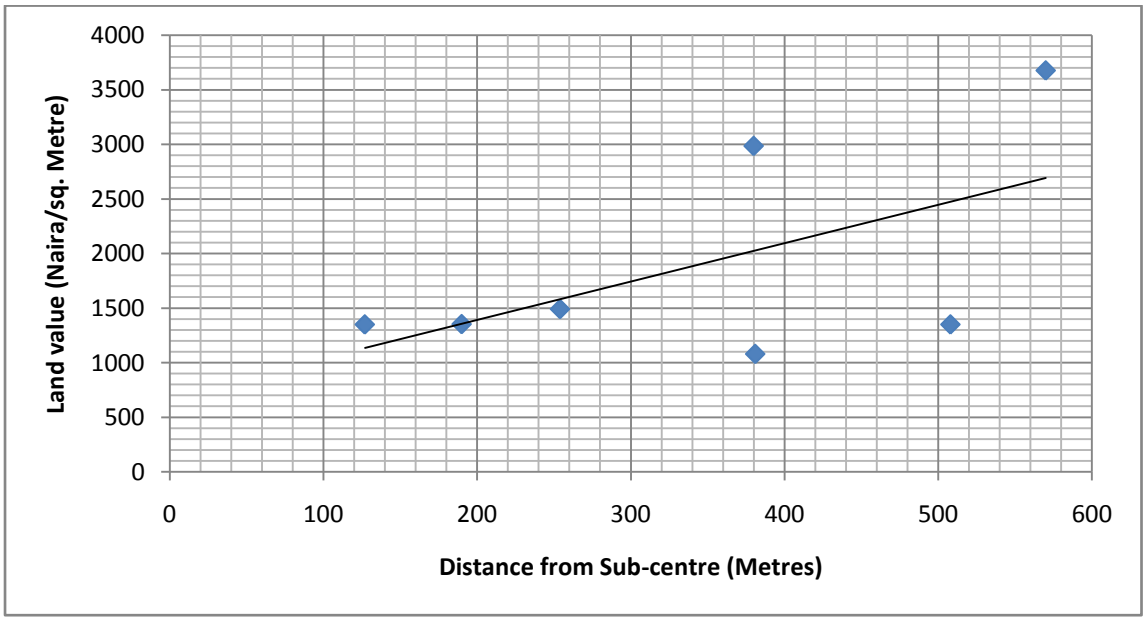


Figure 4.25: Spatial Pattern of Residential Land Value around K/Flyover sub-centre
Source: Field work, 2016

The only sub-centre where there was a significant correlation was recorded at the Palladan/aviation subcentre, with 0.005. Since the relationship is significant, we have to reject the null hypothesis. The coefficient shows a very strong negative correlation, with -0.883 (see Table 4.24). That is, land value for residential properties decreases with distance from the sub-centre.

Table 4.24: Correlation of Residential Land Value and Distance for Palladan Sub-centre

			Distance	Land value
Spearman's rho	Distance	Correlation coefficient	1.000	**-0.883**
		Sig. (2-tailed)		0.005
		N	7	7
	Land value	Correlation coefficient	**-0.883**	1.000
		Sig. (2-tailed)	0.005	
		N	7	7

Source: Author's analysis, 2016

The graphical illustration in Fig. 4.26 indicates the direction of decrease in land value, moving away from the sub-centre.

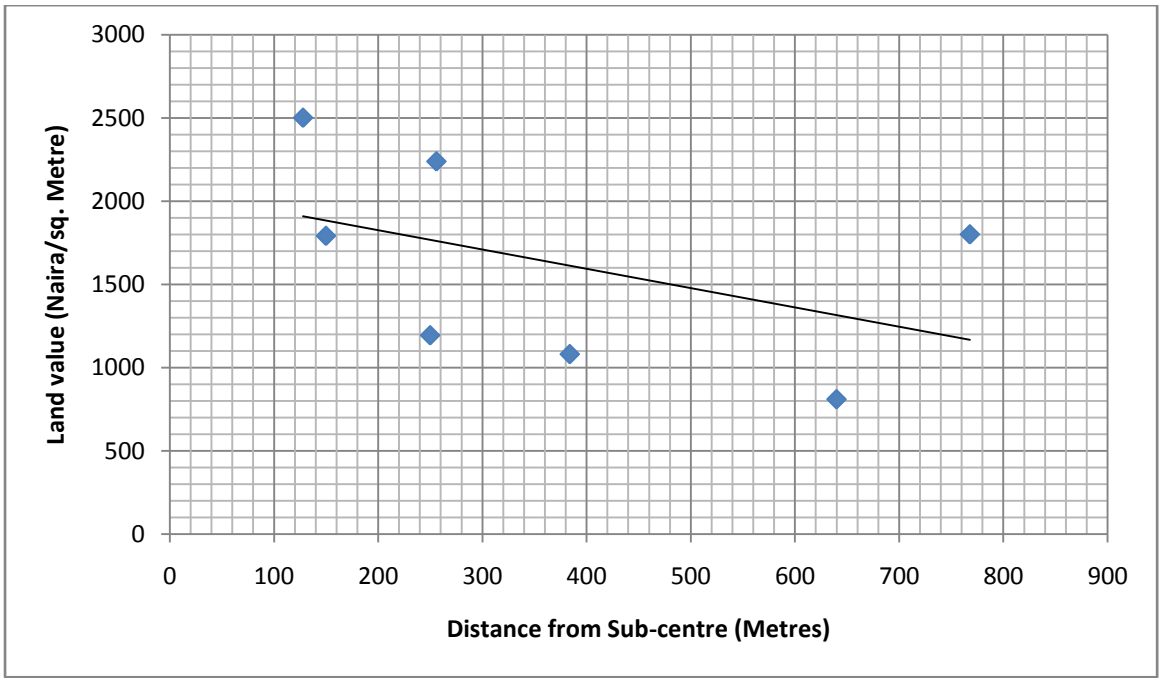


Figure 4.26: Spatial Pattern of Residential Land Value around Palladan sub-centre
Source: Field work, 2016

Finally, the result for Samaru sub-centre (Table 4.25) indicates that the relationship between distance and land value is not significant with 0.346. Since the relationship is not significant, we accept the null hypothesis. But the correlation coefficient gave a negative value of -0.262, which imply that, to a little extent, land values decrease with distance from the sub-centre.

Table 4.25: Correlation of Residential Land Value and Distance for Samaru sub-centre

			Distance	Land value
Spearman's rho	Distance	Correlation coefficient	1.000	**-0.262**
		Sig. (2-tailed)		0.346
		N	15	15
	Land value	Correlation coefficient	**-0.262**	1.000
		Sig. (2-tailed)	0.346	
		N	5	15

Source: Author's Analysis, 2016

Fig. 4.27 is an illustration of pattern of decrease in land value with distance from the sub-centre, as indicated by the slanted line.

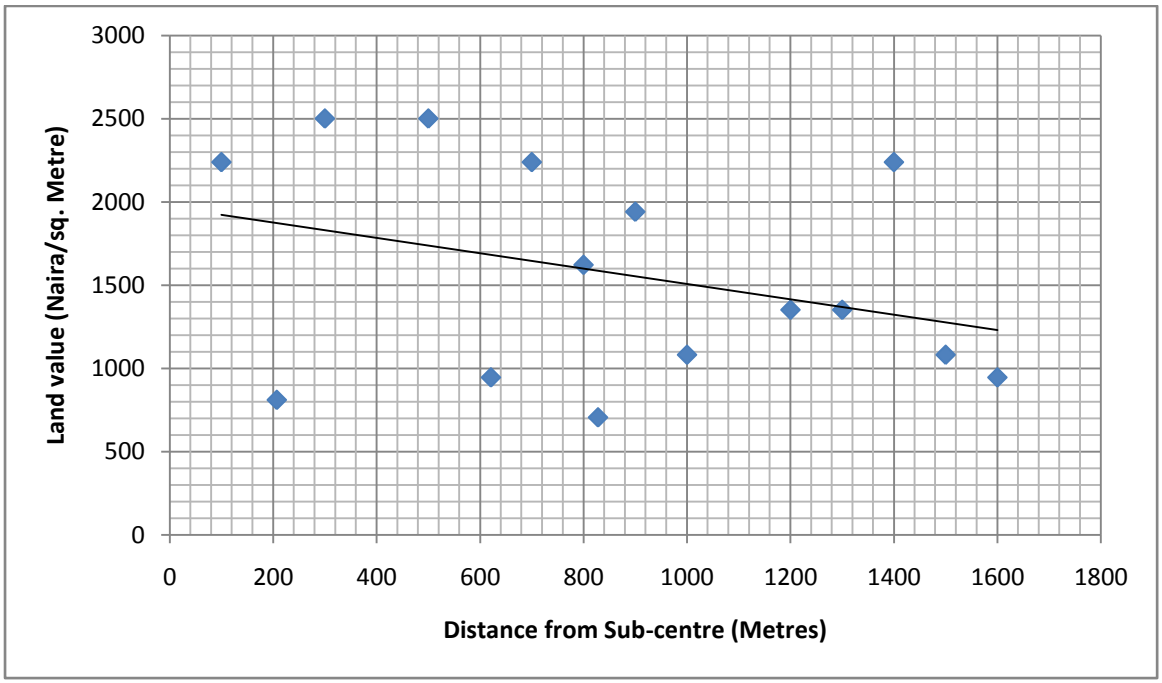


Figure 4.27: Spatial Pattern of Residential Land Value around Samaru sub-centre

Source: Field work, 2016

The results revealed that in all the sub-centres and the CBD (except one of the Sub-centre areas) the relationship between distance and land value was not significant. In a nutshell, therefore, we again accept the null hypothesis that ‘‘There is no significant relationship between land value and distance away from the urban sub-centres’’. This is because out of the 8 sub-centres analysed (the CBD inclusive), only one centre has demonstrated some influence on the spatial pattern of residential land value around it. This is in line with the finding of Nzau (2003) that despite Nairobi being polycentric, urban sub-centres did not significantly influence residential land value in 2 out of the 3 years investigated. It is also similar to the outcome of Uju and Iyanda (2012) who show that residential land values do not decay away from the CBD land value in Onitsha, Nigeria.

So far, we have shown that statistically, the relationship between distance and residential land value was significant only in one sub-centre (Palladan/Aviation). And again, the correlation was negative i.e. land value decreasing with distance from the sub-centre. However, although the correlation is not significant for seven of the sub-centres, it is important to note that five of the centres show a negative correlation (albeit a weak one for most of them) between the two variables (i.e. Palladan, Samaru, PZ/GRA/S/Gari, Danmagaji and T/wada). For the other three,the relationship is positive. Part of the implication of this, is that people in the area do not attach great importance to residing close to the major commercial centres in the area. Rather they consider other factors. That is, people to a certain extent, seemed to prefer residential accommodation away from the busy and noisy commercial areas; and were ready to pay more for the quieter locations.

The trend of the results from our analysis could be as a result of the variation in the quality of properties being rented by tenants and partly due to greed or lack of it on the part of property owners or landlords. Interviews with some tenants has revealed that in the same area different rents could be charged by different owners, either due to differences in

structural qualities or the desires of the owner. In fact, there were situations where owners charged unusually very low rents. This was because their mission was not profit oriented, rather as assets meant for their heirs/offspring. The significant relationship between distance from the sub-centre and rent recorded for Palladan/Aviation may not be unconnected with the decline in the quality of structures as one move away from main road and the small market around. Many of the buildings as one move away from the busy area were largely constructed with mud, and served with some narrow, bad roads. For this reason, such areas have not attracted the high income earners.

But looking at the situation generally, we can safely assume that attachment of monetary value to land (commercialization of land) is just beginning to take root even in the residential areas. So with time, all things being equal, those sub-centres will come to exert more influence on the value of residential land around them. For the moment, there is no significant relationship between residential land value and distance away from the urban sub-centres.

However, an important issue to observe is that on the one hand, this study is line with the conclusions of the classical studies (such as Wingo, 1963; Alonso, 1964) and some empirical studies (such as Jordan *et al*., 2004; Nzau, 2003) on distance decay effect form the CBD, as far as commercial land values are concerned. That is, land value decline away from centre of a city. On the other hand, this study has concluded that residential land values do not obey that law. There values are rather influenced by things like neighbourhood quality, road quality and other such environmental issues. Therefore, the general pattern of land value in urban Zaria is such that there are several land value peaks brought about by urban centres and sub-centres, especially in the case of commercial land value, and others triggered by the environmental qualities – notably neighbourhood and roads, particularly in the case of residential lands.

4.4.1.3 Spatial pattern of vacant land value in the study area

Unlike in the previous sections, where the questionnaire responses of occupiers of commercial and residential properties were utilized, here it was the responses of land dealers, vendors or agents (89 in number) that were used to obtain the mean vacant land values in the study area. As earlier stated under methodology, this category of respondents were gotten through snowball sampling, since it was not easy to pinpoint them. Again, unlike commercial and residential properties, where at least tenants or occupants can easily be traced, owners of vacant lands are not easy to come-bye. And any extra-efforts at tracing them can easily be misinterpreted. Yet, the vacant lands cannot be traced continuously form the sub-centres to the end, as they are largely found at the peripheral areas. This is why the determination of distance-decay effect, as was done for the other two (commercial and residential lands) was not applied here. Table 4.26 shows that the GRA had the highest value in the study area, while Zabi had the least.

Table 4.26 shows that the highest mean vacant land value recorded in a year was N22,222/m^2 around the GRA in 2012. It was followed by a value of N17,777/m^2 around the same location in 2014, as shown in the 7th column. That is, land values generally went down between 2012 and 2014 in the area. The lowest mean value recorded in a year occurred around Hayin Ojo and Hanwa in 1982. Then, in line with the work of Oni (2009), a mean value for years under study (1982 – 2014) was calculated for each of the locations. The result of which is contained in column 8 of Table 4.27. Finally, the last column presents the categories of commercial land value in descending order – the highest being N8877/m^2. That is, those under 'A' had the highest value, followed by 'B', 'C' up to 'E', with the lowest value. The lowest mean values occurred at Zabi (N267/m^2).

Table 4.26: Mean Value of Vacant Land in Urban Zaria (1982 – 2014)

	Location	Average price of a plot of land (30m x 15m in Naira/m^2					Mean price	Category
		1982	**1992**	**2002**	**2012**	**2014**		
1	GRA	55	333	4,000	22,222	17,777	8877	A
2	T/wada/ Gyallesu	18	44	667	11,111	8,889	4146	C
3	Gaskiya	15	33	267	6,667	4,444	2285	D
4	,, (New L.o)	-	-	778	11,111	8,889	5195	C
5	Gonar Ganye	-	-	-	2,889	2,667	2778	D
6	Ang. Kaya	-	-	222	4,444	3,333	2666	D
7	F/Mallawa	-	-	222	4,444	3,556	2741	D
8	Nagoyi	-	-	-	1,556	1,333	1445	E
9	Ban Zazzau	-	-	133	2,667	2,222	1674	E
10	Kwangila	-	6.7	444	4,444	4,444	2335	D
11	Hanwa/Yangoro	2.2	5.6	333	17,777	15,555	6735	B
12	Kabama	-	-	-	4,889	3,333	4111	C
13	Dogarawa	4.4	5.6	222	3,333	2,667	1246	E
14	Hayin Ojo	2.2	1.6	111	2,667	2,222	1001	E
15	Zabi	-	0.6	67	556	444	267	E
16	New Mopol Ba	-	-	-	778	444	611	E
17	Z/Shanu	-	-	444	4,889	3,778	3037	D
18	Hayin Mal.	-	-	222	4,444	3,333	2666	D
19	Palladan	-	-	222	3,333	2,222	1926	E

Source: Field work, 2016

Table 4.27 gives a simplified summary on thepattern of averagevacant land values for 1982 to 2014. The GRA (in category A) had a mean value of about N8, 000 per square metre and above. Category B is the next area in terms of value (Hanwa New-Extension), with a mean value of between N6001 to N8000 per square metre. The areas with the least value included Zabi, New Mopol Barrack area, Nagoyi. The high values around the GRA could be as a result of a number of reasons. First, the area is purely a high class residential area, with a serene environment, high quality buildings, large sized plots, well planned and

had the initial advantage of being occupied by the colonial masters. The area is therefore for the rich and powerful in the society. The second area, Hanwa New Extension, also enjoys some of the advantages mentioned about the GRA. It was planned with high quality buildings in a serene environment. This is consistent with the works of Kabba and Li (2011) in Sierra Leone and Rikko and Dung-Gwom (2006) who noted that Rayfeild in the city of Jos, Nigeria, had high land value due to reasons like: the elite status of the area; the presence of high income earners as well as retired senior military officers;coupled with good security, due to presence of the Government House. In the case of category E areas, the lower values could be as a result of some of the following reasons: low level of infrastructural development, lack of clear planning, poor accessibility, low quality of the pre-existing housing structures and lack of essential amenities.

Table 4.27: Spatial Pattern of Average Vacant Land Value in Urban Zariafor 1982 to 2014

S/N	Category	Areas	Range of Mean Vacant Land Value/m^2
1	A	GRA	Above N8,000
2	B	Hanwa-Yangoro	N6,001 – N8,000
3	C	T/Wada, Gyallesu, Gaskiya, Samaru and Kabama area	N4,001 – N6000
4	D	Ang. Kaya, F/mallawa, Z/shanu, Hayin Malan, Danmagaji area, Gonar Ganye	N2,001 – N4,000
5	E	Nagoyi, Ban-Zazzau, Dogarawa, Hayin Ojo, Zabi, New Mopol Barack, Zaria city area, Palladan	N1.00 – N2,000

Source: Field work, 2016

Vacant lands or undeveloped lands in urban Zaria were not found everywhere as in the case of commercial and residential properties earlier analysed (see Fig. 4.28). For this reason, the activities of land dealers and agents was more around the peripheral areas of

the city where farmlands were easily acquired, subdivided and converted to commercial and residential land uses. It is for this reason that most of the areas utilized for this segment of the study somehow differ from the ones considered in the earlier segments. So, the issue of vacant land availability very much determined where samples were obtained.

Consequent upon that, in Table 4.26, a number of the areas had no values indicated because land transactions were yet to get there until recently. And this is largely due to population increase that has brought about increased demand for residential as well as commercial properties.

Based on the information in Table 4.27, Figure 4.28 depicts the pattern of mean vacant land value pictorially. The various shades of pink and blue colour represent vacant land value. The reddish-pink portions represent areas with the highest mean vacant land value, then followed by the blue-wish-pink colour, blue-wish and then light pinkish in that order.Since we are treating the three different aspects of land value in turns, the commercial and residential land areas are held constant, so to speak, and this is to reduce the congestion or confusion that could mask information, if all the values are mapped in combination. For the purpose of this, therefore, the commercial areas are in brownish colour, while residential lands are in green colour. The ash coloured areas have not been valued as they are zoned public places.

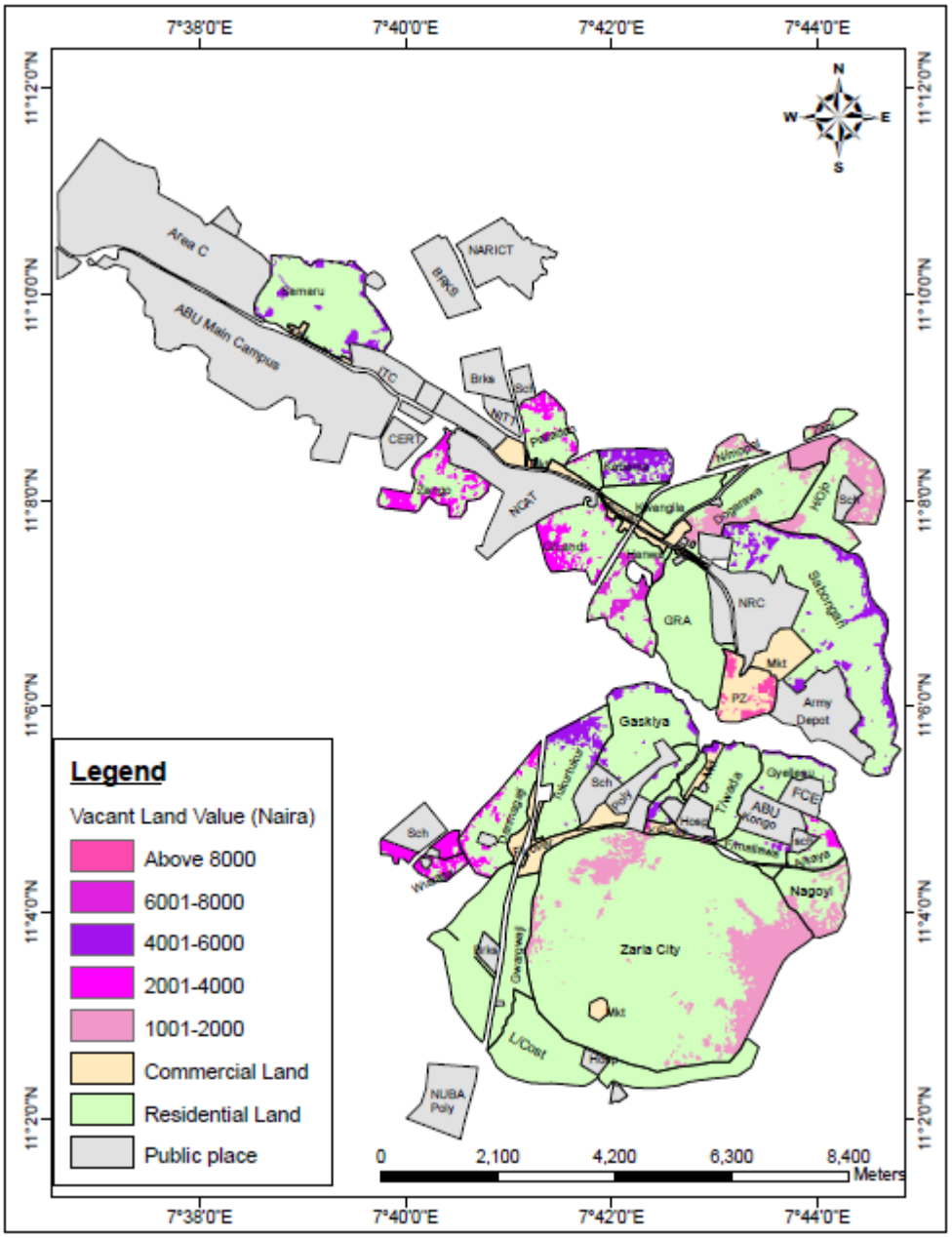


Figure 4.28: Pattern of Average Vacant Land Value in Urban Zaria (1982 – 2014)
Source: Field Work, 2016

4.4.2 Pattern of land value over time

So far, we have analysed the spatial pattern of land in urban Zaria. This segment examines the temporal dimension of land value in the area.The same three facets of land values- commercial, residential and vacant land values- form the basis for the analysis and discussion that follows.

4.4.2.1 Temporal pattern of commercial land value in the study area

Information for this segment was obtained from questionnaire responses of tenants, rent collection agencies, land dealers/agents, etc. The study has found a continuous rise in the value of commercial properties in the form of rental charges. As shown in Table 4.28, the mean rental value of about N9 (nine naira) per square metre was recorded in 1982. The figure rose continuously and astronomically to N281 in 1992, then to N1, 219 in 2002. Then, it went up to N2, 520 in 2012, and marginally increasing to N2, 854 two years later. The analysis also shows that the highest rate of increase was recorded between 1982 and 1992, with an overall mean of 2,865 percent increase, while the figures went down to 1197%, 155% and 13% as at 2002, 2012 and 2014, respectively. This could be as a result of the Structural Adjustment Program (SAP) introduced in 1986, which had to do with the devaluation of the naira, and which had far reaching impact on the socio-economic fabric Nigeria. It may be recalled that the Nigerian Naira had higher value over and above the dollar up to the late 1970s. But after the devaluation, the naira kept going down and today one needed about N300 to get a single dollar. If the rate of this devaluation is to be calculated in percentage terms, one wonders what the figures would be like. This could therefore be one of the major reasons behind the skyrocketing value of commercial land.

Table 4.28: Mean Rent and Rate of Change in Commercial PropertyValue in Urban Zaria (1982 – 2014)

SN	Transect	Commercial rent (in Naira/m^2) per annum					Mean	Sub-centr mean	% Changes between			
		1982 (A)	1992 (B)	2002 (C)	2012 (D)	2014 (E)			(A) & (B)	(B) & (C)	(C) & (D)	(D) & (E)
1	AA	20	716	1820	4733	5761	2610		3480	154	160	22
2	AB	20	800	2594	4545	5480	2688		3900	224	75	21
3	AC	8	445	1761	3912	4263	2078	2276	5463	296	122	9
4	AD	8	29	1514	3371	3721	1729		263	5121	123	0
5	BA	11	480	1035	2975	3339	1568		4264	116	187	12
6	BB	11	480	1269	2850	3152	1552	1603	4264	164	125	11
7	BC	10	320	1933	3016	3169	1690		3100	504	56	0
8	CA	5	55	208	1400	2150	764		1000	278	573	54
9	CB	N.A	N.A	777	2322	2322	1807	1304	N.A	N.A	198	0
10	CC	7	444	1451	2276	2525	1341		6243	227	57	11
11	DA	5	25	208	1734	2028	800		400	732	734	17
12	DB	6	66	1417	1911	2173	1115	880	1000	2047	35	14
13	DC	5	55	672	1454	1454	726		1000	1122	116	0
14	EA	N.A	35	752	1417	1602	761		NA	2049	88	13
15	EB	5	25	591	1294	1517	686	724	400	2264	119	17
16	EC	5	20	1272	2275	2275	1169		300	6260	79	0
17	FA	5	20	1272	2275	2275	1169		300	6260	79	0
18	FB	N.A	N.A	1272	3125	3125	2507	1838	NA	NA	146	0
19	GA	6	199	611	1547	2050	883		3217	207	153	33
20	GB	N.A	N.A	1000	1500	1668	1389	1120	NA	NA	50	11
21	GC	4	199	992	1875	2375	1089		4875	399	89	27
22	HA	10	444	1815	2787	2870	1585		4340	309	54	3
23	HB	12	500	1862	3128	3695	1839	1712	4067	272	68	18

Source: Field work, 2016

To bring out the picture more clearly, the minimum, maximum and mean commercial land values by years are shown in Figure 4.29. The highest mean value of N5761/m^2 was recorded in 2014, while least value of N4/m^2 was obtained in 1982, as expected.The trend lines show how the values rose very gently from 1982 to 1992. The steepest trend was recorded thereafter, through the years 2002 to 2012. It was rather less steep, thereafter.

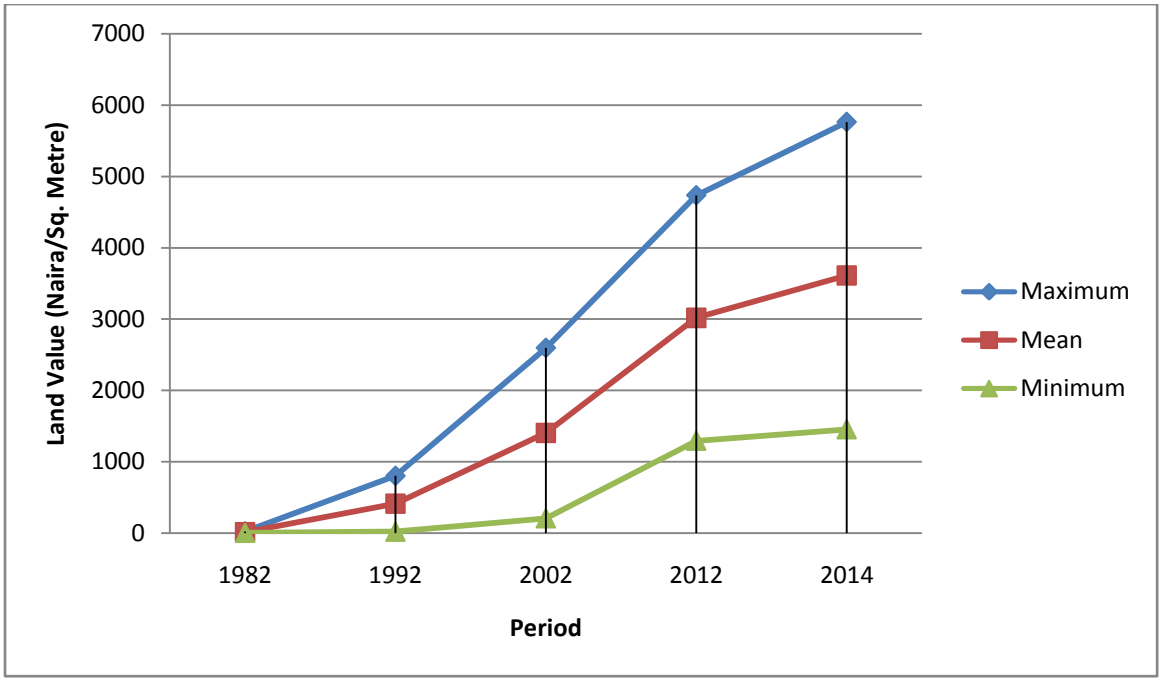


Figure 4.29: Trends in the Maximum, Minimum and Mean Commercial Property Valuein Urban Zaria (1982 – 2014)
Source: Field work, 2016

4.4.2.2 Temporal pattern of residential land value in the study area

In a similar manner, the study reveals that there has been a continuous rise in the pattern of residential land value in the form rents paid for residential accommodation. Table 4.29 shows that the mean rental values of about N5 (five naira) per square metre was recorded in 1982. The figure rose astronomically to N209 in 1992, then to N653 in 2002. Then it went up to N2, 092 in 2012 and marginally increased to N2, 273 two years later. In percentages terms, the results also show that the highest rate of increase was recorded between 1982 and 1992, with an overall mean of 4,164 percent increase, while the figures went down to 356%, 372% and 10% in 2002, 2012 and 2014 respectively. As earlier noted this could be as a result of the Structural Adjustment Program (SAP) introduced then.

Table 4.29: Mean Rent and Rate of Change in Residential Property Value in Urban Zaria (1982 – 2014)

SN	Transect	Rent (in Naira/M^2) Per Annum					Mean	Sub-centre mean	% Changes Between			
		1982 (A)	1992 (B)	2002 (C)	2012 (D)	2014 (E)			(A) & (B)	(B) & (C)	(C) & (D)	(D) & (E)
1	AA	N.A	N.A	N.A	N.A	N.A	N.A		N.A	N.A	N.A	N.A
2	AB	15	597	1351	3731	4477	2034		3880	126	176	20
3	AC	4	223	857	2238	2238	1112	1419	5475	284	161	0
4	AD	3	223	857	2238	2238	1112		7333	284	161	0
5	BA	7	223	928	2985	2985	1426		3086	316	222	0
6	BB	6	328	1043	2238	2985	1302	1399	5366	218	115	33
7	BC	6	328	1043	2985	2985	1470		5366	218	186	0
8	CA	2	40	135	1492	1492	632		1900	238	1005	0
9	CB	N.A	N.A	135	1492	1492	1040	871	NA	NA	1005	0
10	CC	N.A	44	141	1791	1791	942		NA	221	1170	0
11	DA	2	44	746	1492	1492	755		2100	1596	100	0
12	DB	2	32	164	1194	1194	517	640	1500	413	628	0
13	DC	2	40	223	1492	1492	650		1900	458	569	0
14	EA	N.A	N.A	535	1492	1492	1173		NA	NA	179	0
15	EB	5	44	298	2238	2238	965	1069	780	577	651	0
16	EC	N.A	N.A	286	1791	1791						
17	FA	N.A	N.A	286	1791	1791	1289		NA	NA	526	0
18	FB	N.A	N.A	1272	3125	3125	2507	1898	NA	NA	146	0
19	GA	N.A	328	746	2238	2238	1388		NA	127	200	0
20	GB	N.A	N.A	746	1791	1791	1443	1236	NA	NA	140	0
21	GC	2	135	690	1325	2238	878		6650	411	92	69
22	HA	5	350	578	1585	2985	1101		6900	65	174	88
23	HB	6	370	928	2985	2985	1455	1278	6067	151	222	0
	Mean	**5**	**209**	**653**	**2092**	**2273**	**1199**		**4080**	**212**	**220**	**8.6**

Source: Field work, 2016

In order to shed more light on the observed temporal pattern the minimum, maximum and mean residential land value by year are shown in the trend depicted in Figure 4.26. The highest mean value of N4477/m^2 was recorded in 2014, while the least value of N2/m^2 was obtained in 1982 as expected.The trend lines show how the values rose very gently from 1982 up to around the year 2002, before it began to pick-up on the steepest trend between 2002 and 2012, thereafter, rising gently to 2014.

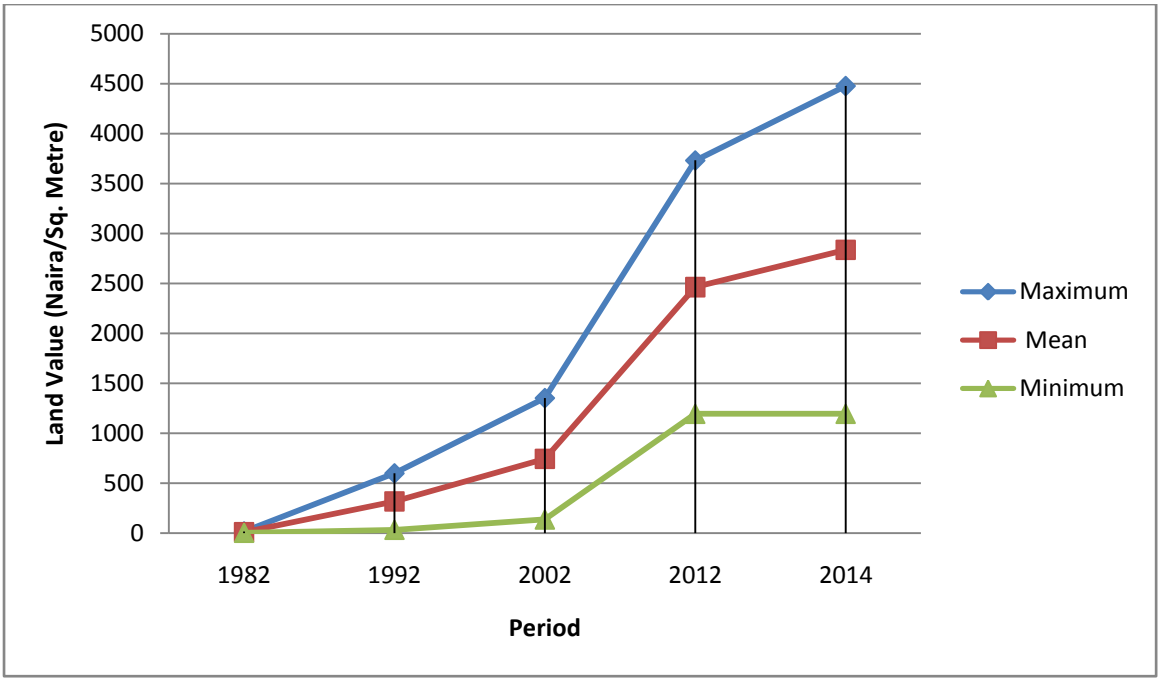


Figure 4.30: Trends in the Maximum, Minimum and Mean Residential Property Valuein Urban Zaria (1982 – 2014)
Source: Field work, 2016

4.4.2.3 Temporal pattern of vacant land value in the study area

The pattern of vacant land value in urban Zaria exhibits a very low rise from the 1980s up till around the year 2002. At the beginning, the minimum value recorded per square metre of vacant land was about N0.6 recorded at Zabi, along Kano road, as shown in Table 4.30. The highest amount recorded was N55 per square metre, obtained at the GRA. By the year 2012, the minimum recorded was N556, while the highest was N22,222, at the same locations respectively. However, by 2014 land values went down in virtually all parts of the study area. This, according to estate dealers, agents and other stakeholders in the land business, was basically due to the problem of insecurity, largely brought about by the Boko Haram insurgency that has bedeviled this part of the country. A good number of the non-indigent populations were fleeing the area. Again, so many people were skeptical of investing their resources into such ventures, due to uncertainty. The situation was made worse by the apprehension that surrounded the possible outcome of the

2015general elections. Many entertained fears that things were going to get worse, if the country was at all able to avert civil war and possible balkanization.

Table 4.30: Mean Vacant Land Value and its Rate of Change in Urban Zaria (1982-2014)

SN	Location	Average price of a plot (50m x 15m) in Naira/m^2					Mean	% Change between			
		1982 (A)	1992 (B)	2002 (C)	2012 (D)	2014 (E)		(A) & (B)	(B) & (C)	(C) & (D)	(D) & (E)
1	GRA/PZ	55	333	4,000	22,222	17,777	8877	505	1101	455	-20
2	T/wada/Gyales	18	44	667	11,111	8,889	4146	173	1415	1565	-19
3	Gaskiya	15	33	267	6,667	4,444	2285	120	709	2397	-33
4	,, (New L.o)	-	-	778	11,111	8,889	5195	-	-	1328	-19
5	Gonar Ganye	-	-	-	2,889	2,667	2778	-	-	-	-8
6	Ang. Kaya	-	-	222	4,444	3,333	2666	-	-	1901	-25
7	F/Mallawa	-	-	222	4,444	3,556	2741	-	-	1901	-19
8	Nagoyi	-	-	-	1,556	1,333	1445	-	-	-	-14
9	Ban Zazzau	-	-	133	2,667	2,222	1674	-	-	1905	-16
10	Kwangila	-	6.7	444	4,444	4,444	2335	-	6526	900	0
11	Hanwa-Y/goro	2.2	5.6	333	17,777	15,555	6735	154	5846	5238	-13
12	Kabama	-	-	-	4,889	3,333	4111	-	-	-	-31
13	Dogarawa	4.4	5.6	222	3,333	2,667	1246	27	3864	1401	-19
14	Hayin Ojo	1.6	2.2	111	2,667	2,222	1001	37	6837	2302	-16
15	Zabi	0.6	01	33	556	444	267	-	5400	729	-20
16	N. Mopol Bar.	-	-	-	778	444	611	-	-	-	-42
17	Z/Shanu	-	-	444	4,889	3,778	3037	-	-	1001	-22
18	Hayin Mal.	-	-	222	4,444	3,333	2666	-	-	1901	-25
19	Palladan	-	-	222	3,333	2,222	1926	-	-	1401	-33
	Mean	**14**	**54**	**555**	**6,012**	**4,819**	**2292**	**286**	**928**	**983**	**-20**

Source: Field work, 2016

Consequently a number businesses suffered serious setbacks, and the land business was not an exception. This was more because it is capital intensive. The result was, therefore, a fall in land values across the area. The minimum land value fell from N556 to N444, while the maximum slumped from N22,222 to N17,777 as depicted inFig.4.31.

It shows that the trend for vacant land values was very gentle from 1982 to 1992, with the line graph almost parallel with the horizontal x-axis, especially the minimum value. The lines rose to a steeper trend between 1992 to 2002. The steepest trend line was recorded from then till the year 2012. However, for the first time, in all the three types of land value analysed, the value of land nose-dived between 2012 and 2014. This is due to

the high level of insecurity situation in the nation as demand for vacant land dropped significantly, especially in those areas of northern Nigeria where the threat of Boko Haram insurgency was imminent, Kaduna State inclusive.

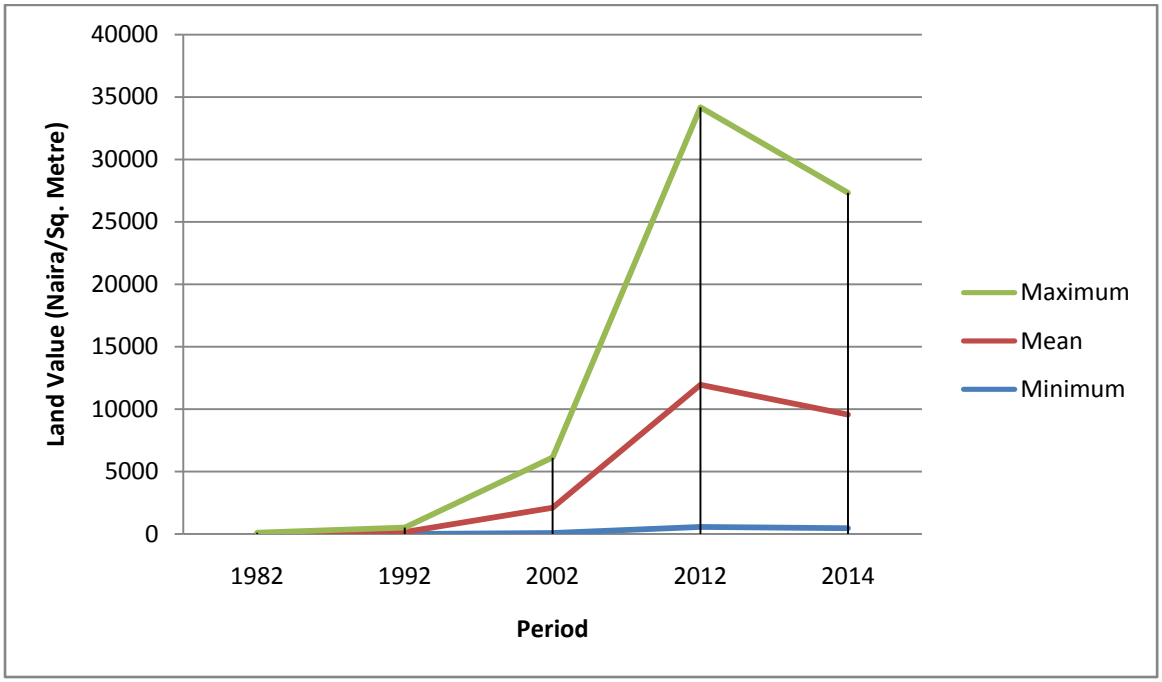


Figure 4.31: Trends in the Maximum, Minimum and Mean Vacant Land Valuein Urban Zaria (1982 – 2014)
Source: Field work, 2016

The pattern of temporal variation in vacant land value appears more interesting when we look at the situation in percentage terms. While the percentage increase was only about 286% from 1982 to 1992, the figures skyrocketed to 928% by the year 2002. It went up by about 983% between 2002 and 2012. Surprisingly, however, reverse was the case in the subsequent two years. The value of vacant lands went down by about -20% (see Fig. 4.31).

The foregoing implies that, *cetaris paribus*, the value of commercial and residential properties would continue to rise in the future. This is therefore a kind of motivation for investors in the business, because sooner or later higher dividends are almost certain. It also shows that rental value (for commercial and residential land use types) are hardly affected by 'shocks' in the market, as we have seen in the case of security challenges, which has had greater negative effect on vacant land value.

4.4.3 Comparing Commercial, Residential and Vacant Land Values in Zaria

The analyses carried outso far have revealed the pattern and trend of both commercial and residential land values. In this section, the two- commercial and residential land values- are compared. The value of vacant land is not included at this stage. The reason is that the values collected and analysed for vacant lands was essentially the cost of outright purchase/sale of the lands, not rental charges, as was the case with the other two under consideration. Any comparative analysis that includes the value of vacant lands would, therefore, not be of any meaning. Again, since vacant lands can fall into any of the other two categories after development, it would be awkward to 'put the cart before the horse'.

Table 4.31 shows that the minimum commercial land value recorded in 1982 was N4, while it was half of that for residential during the same year. The trend continued like that up till 2014, but the minimum commercial land value recorded (N1454) was still higher than the residential, which was N1194 in the same year.

Table 4.31: Mean Commercial and Residential Land Value by Years

Land Value (in Naira/m^2)						
Year	**Minimum**		**Maximum**		**Mean**	
	Com.	**Res.**	**Com.**	**Res.**	**Com.**	**Res.**
1982	4	2	20	15	12	8.5
1992	20	32	800	597	410	315
2002	208	135	2594	1351	1401	743
2012	1294	1194	4733	3731	3014	2463
2014	1454	1194	5761	4477	3608	2836

Source: Field work, 2016

The trend of the maximum and mean land values inTable 4.34 remained the same-commercial land values consistently higher than the residential land values. This is so much in line with the findings of several previous studies, including Alonso (1964), which even came up with a graphical illustration, showing how the three major urban land uses (commercial, industrial and residential) are positioned in cities based on their value level. In this case, however, industrial lands are outside the scope of this study, hence we may only be able to illustrate ours using the two land uses under study (see Fig. 4.32).

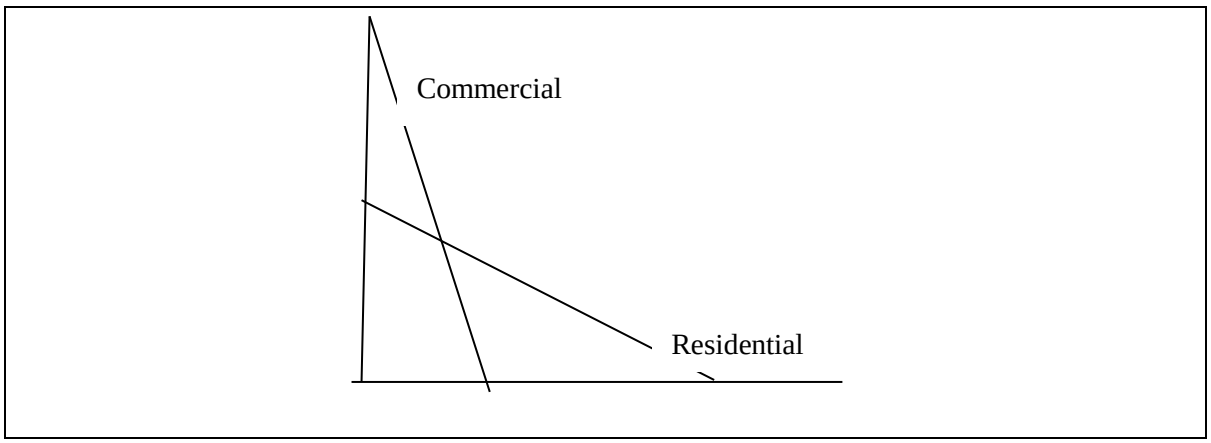


Figure 4.32: Commercial and Residential Land Use and Land Value

Source: Adapted and modified from Alonso (1964)

However, even though comparing all three facets of land value (commercial, residential and vacant) was avoided in the preceding paragraphs, we can compare them based on their individual rate of increase, in percentages. Table 4.32 shows that between 1982 to 1992, residential land value recorded the highest rate of increase of about 4080%, followed by commercial land with 3022% rate of increase, while vacant lands went up by only about 286%. The very high rate of increase for residential land value (and also the commercial lands) could be as a result of the inflation recorded then, due to SAP and increasing population of the town, when more higher institutions like the state polytechnic, NITT and NARICT as well as many other public and private organisations were beginning to settle down in the area. These gave impetus for increased demand for accommodation by both staff and students in different parts of the study area. By this time, vacant land business was virtually not an issue, when some lands were acquired at values close to nothing. There were hardly organized groups in the business. It was more between the buyer, seller and the village head.

Table 4.32: Comparative Analysis of Percentage Rate of Change in Land Value

Land use	Mean % change in value by years			
	1982-92	1992-02	2002-12	2012-14
Commercial	3022	334	107	13
Residential	4080	212	220	8.6
Vacant	286	928	983	-20

Source: Field work, 2016

Between 1992 to 2002, activities in the vacant land business began to get vibrant with increased demand for accommodation occasioned by the rising population. With the increased demand for vacant land, there emerged a high rise in their value. And rate was highest with 928%, as shown in Table 4.35. This was followed by commercial lands and then residential lands. The pattern of rise can partly be attributed to the democratic transition that ushered in the fourth republic in 1999. There was more money in circulation

both among political office holders and many of their supporters. Again the take-home pay of Federal government employees, especially in higher institutions of learning was significantly improved. And Zaria has several such high institutions. Everybody was trying to build a house or two or rent a decent accommodation. Therefore, the high rate of increase in vacant land value, as well as the activities of land dealers/agents, continued even between 2002 and 2012. Hence, vacant land values continued to record the highest rate of increase (983%). It is for this reason that one of the respondents, a land dealer, noted that he could not have spared me a ten minute interview, if activities in the vacant land business had remain as vibrant as it used to be.

But that was all history, as the values of vacant lands suddenly took a turn for the worse. This was because between 2012 to 2014 there were the unfortunate activities of Boko Haram insurgency, coupled with the charged political atmosphere, occasioned by the uncertainties surrounding the 2015 general elections. These had sent fears down the spine of all and sundry. Consequently, the value of vacant lands took a negative value of -20%. People were no longer willing to invest in the business, while many non-natives were leaving the city, and in the process were selling-off some of their landed properties – at a time that the number of buyers had seriously gone down. There were therefore, many cases of people disposing off their properties, at values lower than the price for which they were initially purchased. In the case of the other facets – commercial and residential lands, there were little increases, as rental charges are hardly reversed once fixed.

In a nutshell, it is clear that the commercial land value, in the form of rental charges, have been consistently higher than residential value over the period under study, when the two are compared. This is in line with many studies (Alonso, 1964; Zheng, 2003; Ai, 2005). But when the facets under investigation were compare in terms of the rate of increase in land value, it revealed that at the initial stage, residential land values had the

highest rate of increase over and above the others. However, later, the rate at which vacant land values were rising was much higher than the rest. This was attributed to inflow of more cash into the society since the country transited into democracy in 1999. Then suddenly there was the security challenge that bedeviled the area and indeed the region as a whole. The value of vacant lands nose-dived as a result. The rate of rise in commercial land value remained modest perhaps because the volume of demand may not be as much as the others, and again only a small proportion of the land is required for business.

4.5 Factors Influencing the Pattern of Land Value in Urban Zaria

This section addresses the third objective of our study and tests the second null hypothesis which states that "there is no significant relationship between land value and the following explanatory variables: distance from the CBD, distance from the sub-centres, neighbourhood quality, population density, proximity to the campuses of higher institutions of learning, availability of water supply, land use type, topography, road quality, development potential, ethnic composition and the season. And to achieve this, the section is also divided into three subsections based on the land value facets under consideration i.e. commercial, residential and vacant land values.

4.5.1 Factors Influencing Commercial Land Value

As earlier stated, several factors that affect land value were identified from the literature, local knowledge of the study area as well as from discussions with stakeholders in real estate business. About twelve factors/variables were shortlisted (see the above paragraph). In order to achieve our third objective and to test the second null hypotheses, the multiple regression model was utilized. In this sub-section, commercial land value (in the form of annual rental charges for business premises/shops) was the dependent variable, while the explanatory variables (the 12 factors mentioned above) were the independent variables. The variables were represented in a model, thus: commercial land value = Y

(CLv), distance from CBD = Dist CBD, distance from sub-centre = Dist Sc, proximity to higher institutions of learning = Prox HI, land use = L Use, population density = Pop, neighbourhood quality = Ne Qual, water supply = Water s, quality of road = Road Q, ethnic composition =Ethn Com, topography= Topo, development potential = Devt Pot., and Season =season.

The results of the multiple linear regression model utilized in analyzing the relationship between commercial land value and the explanatory variables are contained in Table 4.33.

Table 4.33: Results of the Regression Analysis for Commercial Land Value

Explanatory variables	**Unstandardised coefficients**		**Standardised coefficients**		
	B	Standard Error	Beta	***t***	*P* value
1 (Constant)	4050.941	688.804		5.881	.000
Dist CBD	966.547	231.786	.268	4.170	.000
Dist Sc	703.063	347.853	.116	2.021	.044
Prox HI	942.952	246.848	.240	3.820	.000
L Use	410.277	122.117	.200	3.360	.001
Pop	132.018	392.112	.018	.337	.737
Ne Qual	5.982	60.883	.10	.098	.922
Water S	-141.077	216.588	-.075	-.651	.515
Road Q	95.909	106.693	.050	.899	.370
Ethn com	.665	.218	.200	3.046	.003
Topo	-146.027	74.954	-.103	-1.948	.053

.

Source: Field work, 2016

The model to highlight the result of the fitting is presented in the following equation:

Y (CLv) = 4050.94 + 966.55Dist CBD + 703.06Dist SC + 942.95Prox HI + 410.28L Use +132.02Pop D + 5.98Neb Q - 141.08Water S + 95.91Road Q + 0.67Ethn Co - 146.03Topo

From the equation (which is also the content of column 2 of Table 4.33), one can deduce that there is a positive relationship between commercial land value and the explanatory variables, except neighbourhood quality, water supply and topography (i.e the three that show a negative relationship). Therefore, we have to reject the null hypothesis, and accept the alternative one. This means that, *cetaris paribus*, as distance from CBD, sub-centres and the campuses of higher institutions increased, land value decreased. Similarly, the higher the population of an area, the higher the charges for commercial properties, while also, the more an area is close to areas of commercial land use, the higher its value. Again, areas that enjoy good road networks, good neighbourhood quality and those that have a cosmopolitan ethnic composition tend to attract higher land values. This is in conformity with the finding of Adebayo (2006) that property values in Lagos tend to peak in those areas that enjoy easy accessibility (through road network) and that of Oni (2009) that the neighbourhood within which buildings are located also determines the value and profitability of the real estate also in Lagos. On the other hand, it has also shown that water supply in an area has not been a major determinant of commercial land value. There also exist a negative correlation between topography and commercial land value, that is, the more hilly or undulating an area, the lower the value.

As an example, the more a business is located around the CBD or sub-centre, the easier it would be accessed by consumers/pedestrians and the more would be the turnover and consequently profit. Hence, both staff and students of the many high institutions in the

city contributed to increase the demand for commercial services. And where there is the added impetus of high population density around, especially a cosmopolitan one, would go to further accentuate the demand for goods and services. This could be because of the fact that, as it is commonly said, that 'the market does not discriminate against anyone'. And where there is the cross-fertilization of ideas, be it in business or other spheres of life, progress is certain.

From our analysis (in Table 4.33), the *p* values for distance to CBD, sub-centre, proximity to higher institutions of learning, population density, land use and ethnic composition were less than 0.05, meaning that there are statistically significant relationships between commercial land values and the five variables at 95% confidence level. That is, the calculated *p* value of 0.001, is less than 0.05. This means that the null hypothesis is rejected, implying that there is a significant relationship between commercial land value and the variables analysed. The R^2 is 73.9%, while the adjusted R^2, which is a more appropriate measure for a correlation estimate that accounts for the presence of multiple independent variables, was also determined. The adjusted R^2 obtained is 0.718, indicating that the regression model is highly significant, as it has explained about 71% of the land value variation in the study area.

4.5.2 Factors Influencing Residential Land Value

One of the major land uses, especially in urban areas, is residential land use. Having analysed the factors that influence commercial land value, this subsection tries to look at the influences of the set of variables on residential land value. Still in order to achieve our third objective and to test the second null hypotheses, a similar approach is adopted, as in the case of commercial land value. In the multiple regression model adopted here, residential land value is the dependent variable, while the explanatory variables are the same ones used for commercial land value analysis. The variables are represented in

the model thus: residential land value = Y (RLv), distance from CBD = Dist CBD, distance from sub-centre = Dist Sc, proximity to higher institutions of learning = Prox HI, land use = L Use, population density = Pop, neighbourhood quality = Ne Qual, water supply = Water s, quality of road = Road Q, ethnic composition =Ethn Com, topography= Topo, development potential = Devt Pot. and Season = season. Results of the multiple regression model utilized in the analysis is presented in Table 4.34.

Table 4.34: Results of Regression Analysis for Residential Land Value

Explanatory variables/factors	**Unstandardised coefficients**		**Standardised coefficients**		
	B	Standard Error	Beta	*T*	*P* Value
1 (Constant)	1946.638	405.338		4.803	.000
Dist CBD	68.662	72.521	.086	.947	.346
Dist Sc	4.676	132.638	.003	.035	.972
Prox HI	387.376	137.957	.235	2.808	.006
L Use	- 50.510	45.736	.183	-1.104	.272
Pop	0.234	239.791	.151	1.947	.054
Ne Qual	524.124	383.072	.101	1.368	.174
Water S	254.435	100.697	.386	2.527	.013
Road Q	54.203	202.115	.021	.268	.789
Ethn com	466.809	.115	.157	2.032	.045
Topo	-226.358	52.111	-.365	-4.344	.000
Devt pot	-660.443	96.854	-.595	-6.819	.000

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Source: Field work, 2016

Table 4.34 shows the estimated coefficients of the variables that would be fitted into the multiple linear regression model to describe the relationship between residential land values and the explanatory variables or factors. The model is presented in the following equation:

Y(RLv) = 1946.64 + 68.66Dist CBD + 4.68Dist SC + 387.38Prox HI - 50.51L Use + 0.23Pop D + 524.12Neb Q + 254.44Water S + 54.20Road Q + 466.81Ethn Co - 226.36Topo – 660.44Devt pot

This equation(which is also the content of column 2 of Table 4.34) also shows that there are positive relationships between residential land value and the explanatory variables, excepting the following: land use, topography and development potential. Therefore, the null hypothesis is again rejected. This result implies that as neighbourhood quality increases residential land value tended to increase. Also residential land values tended to increase as we move towards the higher institutions of learning in the town. Then, the more cosmopolitan an area, the higher its residential land values. Other factors that have shown the tendency to attract high residential land values include low population density, quality of road, nearness to CBD and sub-centre as well as water supply. Those that show negative effect on residential land value are low rate of development in an area, undulating topography, and land use.

The high score for neighbourhood quality (524.124 column 2 of Table 4.34) in the analysis may not be unconnected with the fact that areas that have good lay-outs and high quality housing like the GRA and Hanwa New Extension, have tended to attract the well-to-do in the society, big time politicians and government functionaries, including high-ranking armed forces personnel. For the high values around higher institutions of learning, this may not be unconnected with the increased demand for accommodation by both staff and students of such campuses. The fact of a cosmopolitan ethnic composition as attracting high residential land value could be because of the fact that such areas tend to give the urban centre a truer colour of urbanity, with a good number of neighbours from different ethno-religious background, willing to pay for residential accommodation.

Again, relatively low population density has tended to attract high values, as the serenity of such areas confers on it some advantages, especially in the eyes of people in the upper social class. Also the advantages associated with accessibility make good quality roads attractive and consequently higher residential land value. The CBD and sub-centres come to mind in this regard. Although they might not be too influential as far as our analysis is concerned, yet they contribute to raising the value of residential apartments around them. However, the noise around, as well as the hassles and bustles of economic activities and traffic do not encourage high-class residential settlement.

Furthermore and still from Table 4.34, the ***p***-values for proximity to higher institutions of learning, water supply and ethnic composition were less than 0.05, meaning that there are statistically significant relationships between residential land values and the five variables at 95% confidence level.

In addition, the analysis shows that the *p* value is 0.001, which is less than 0.05. This means that the null hypothesis is rejected, implying that there is a significant relationship between residential land value and the variables analysed. The R^2 is 71.8%, while the adjusted R^2, which is a more appropriate measure for a correlation estimate that accounts for the presence of multiple independent variables, was also determined. The adjusted R^2 obtained is 0.669, indicating that the regression model is highly significant, as it has explained about 66% of the land value variation in the study area.

4.5.3 Factors Influencing Vacant Land Value

In view of the ever-increasing population in the study area, the demand for vacant land for residential as well as commercial land use has been on the increase. And the land market has been bubbling with activities for quite some time. In order to achieve the third objective and to test the second null hypothesis, multiple regression analysis is again employed. The variables were represented in a model, thus: vacant land value = Y (VLv),

distance from CBD = Dist CBD, distance from sub-centre = Dist Sc, proximity to high institutions = Prox HI, land use = L Use, population density = Pop, neighbourhood quality = Ne Qual, water supply = Water s, quality of road = Road Q, ethnic composition =Ethn Com, topography= Topo, development potential = Devt Pot., Season = season. Results of the multiple regression model utilized in the analysis is presented in Table 4.35.

Table 4.35: Results of the Regression Analysis for Vacant Land Value

Model	**Unstandardised coefficients**		**Standardised coefficients**		
	B	Standard Error	Beta	t	P-Value
1 (Constant)	15025.972	11486.252		1.308	0.232
Dist CBD	1.491	1.160	0.526	1.286	0.240
Dist Sc	59.369	996.903	0.018	0.060	0.954
Prox HI	651.145	3026.431	0.080	0.215	0.836
Pop	-1628.983	4192.332	-0.201	-0.389	0.709
Ne Qual	5254.500	4088.214	0.591	1.285	0.024
Water S	1.042	0.888	0.444	1.174	0.279
Road Q	4227.593	2419.690	0.945	1.747	0.012
Ethn com	1035.554	1985.582	0.132	0.522	0.618
Topo	-2652.918	4142.342	-0.276	-0.640	0.542
Devt pot	2171.0233	2197.369	0.657	0.988	0.035
Season	-2063.986	3040.677	-0.486	-0.679	0.519

Source: Fieldwork, 2016

Table 4.35 shows the estimated coefficients of the independent variables from the multiple linear regression analysis. These coefficients are fitted into the regression model to describe the relationship between residential land values and the explanatory variables. The model is presented in the following equation:

Y(VLv) = 15025.972 + 1.491Dist CBD + 59.369Dist SC + 651.145Prox HI – 1628.983Pop D + 5254.500Neb Q + 1.042Water S + 4227.593Road Q + 1035.554Ethn Co – 2652.918Topo + 2171.0233Devt pot – 2063.986Season

The above equation (which is also the content of column 2 of Table 4.35) shows positive and statistically strong relationships between the value of vacant land and three explanatory variables or factors, namely, neighbourhood quality, road quality and development potential with a ***p*** value of 0.012, 0.024 and 0.035 respectively. It also show a positive, though not very strong, relationship between the value of vacant land and the other variables except, population density, topography and season. Therefore, the null hypothesis which states that:"There is no significant relationship between land value and the following explanatory variables: distance from the CBD, distance from sub-centres, neighbourhood quality, population density, proximity to the campuses of high institutions, availability of infrastructural facilities, land use type, topography, road quality, development potential and ethnic composition", is once again rejected. The outcome implies that the higher the neighbourhood quality, the higher the value of vacant land. Also, vacant land values tended to increase as road quality improves. Accessibility contributes in enhancing the value of vacant lands. Then the more cosmopolitan an area, the higher the vacant land values. Areas with high development potentials also attract high vacant land values especially that land speculators in the land business are always on the watch-out for any such areas. This time around, however, factors like proximity to high institutions in the town, the sub-centre areas, the CBD as well as water supply have not been really very influential in determining the value of vacant lands.

On the other hand, those variables that show negative effect on residential land value included high population density, undulating topography and seasons. This implies that people in the area rarely considered the seasons of the year in taking decisions to acquire a piece of land; once there was the means, the purchase was made. This could be largely as a result of the fact that the area is an urban setting, where agriculture is not the major means of income. Then, topography has not been of any influence because the study

area is largely an even terrain, with only pockets of areas having undulating or hilly terrains. Land parcels close to areas having high population densities tended to attract lower value probably because such areas were hardly the choice of the well to do in the society; again such areas could be noisy, dirty, unplanned and with low quality of buildings. This tends to give such areas a lower rating by people in the upper echelon of the society, thus values over there tend remain on the low side.

Furthermore, the analysis shows that the ***p*** value is 0.043, which is less than 0.05. This means that the null hypothesis is rejected, implying that there is a significant relationship between residential land value and the variables analysed. The R^2 is 78.5%, while the adjusted R^2, which is a more appropriate measure for a correlation estimate that accounts for the presence of multiple independent variables, was also determined. The adjusted R^2 obtained is 0.548, indicating that the regression model is highly significant, as it has explained about 54% of the land value variation in the study area.

At this juncture, it is important to note the role of culture and tradition. Land and housing in the Zaria urban area are largely controlled by cultural norms, except in a few locations like Sabon Gari and Pallandan that, *ab initio*, had a commercial or profit orientation. In the more traditional areas of Zaria, the value attached to land and housing was not to make profit but as property the owners hope to bequeath to their heirs. This value attached to landed property accounts, in large part, for the findings of this study being different from the expected in the more traditional areas of urban Zaria.

Having said that, it is important to point out that even in the traditional areas of urban Zaria, and indeed in the whole of the study area, the pressure of rapidly increasing population is gradually changing the traditional non-pecuniary value attached to land. This is demonstrated by the positive relationship, albeit a weak one, between rent/price of commercial, residential and vacant lands and some predictors/independent variables such

as distance from the CBD/sub-cenetres, environmental quality and infrastructure. In other words, one could predict that with time, and *ceteris paribus*, this relationship would grow more statistically significant.

4.6 Types and Operations of Land Market in Urban Zaria

Land and property are usually transacted or obtained through some mechanisms, which is the market. The fourth objective attempts to determine the types and operations of the land market. Based on the outcomes of questionnaire survey and interviews, the three broad types of land market identified and discussed are (i) the formal (ii) informal and (iii) semiformal land markets.

4.6.1 The Formal Land Market and its Operation

Interview with some key members of staff of the Lands Office, an arm of the Kaduna State Ministry of Lands and Survey, as well as some practicing surveyors gave insights into the activities of the agency.

The formal land market refers to a medium through which the state government provides access to land for the citizenry for the purpose of developing shelter, usually allocated after fulfilling certain criteria and for a maximum of 99 years. In Zaria, the agency responsible for that is the lands office, an arm of the Kaduna State Ministry of Lands and Survey, located at the provincial office near PZ, Zaria. The office is headed by a Principal lands officer, who is answerable to the headquarters in Kaduna.

4.6.1.1 Procedure for accessing land in the formal market

The formal land market has, basically, one supplier of land - the government of Kaduna State, through the Lands Office, an arm of the state Ministry of Lands and Survey. Approval for the supply of such lands has been the prerogative of the state governor. Therefore, the frequency of supply/availability of lands under this arrangement purely depends on the state chief executive. The selection of new sites for development, the

design of layouts and the processing of the application for land by individuals and organisations are tasks for the state Ministry of Lands and Survey. The procedure for individuals and organisations to access land in the formal market is outlined below[1].

a) Collection, completion and submission of three sets of application forms to which should be attached documents such as declaration of age and tax clearance certificate. The duly completed forms are submitted to the Lands Office, Zaria for onward transmission to the State Ministry of Lands and Survey (headquarters in Kaduna) for processing.

b) Processing of the applications by land allocation committee.

c) Applications found to have fully complied with the requirements for land allocation are compiled by the land allocation committee and sent to the state governor for final approval.

d) Preparation of provisional offer of lands to the allottees approved by the governor.

e) Payment of the charges attached to each provisional offer of land by the allottees.

f) Preparation of the certificate of occupancy (C. of O) for each allottee that has paid on time and in full charges specified in the provisional letter of land allocation.

g) Signing of the C. of O. by the state governor. The C. of. O may be for a lease period of between 25 and 99 years.

h) Collection of the C of O from the Land Office by successful allottees.

4.6.1.2 Plot sizes

Below is the range of plot sizes usually allocated by the formal land market for residential and commercial uses.

a) 30metres by 15metres (standard plot size for medium density uses)

b) 30metres by 22.5metres (plot size for fairly low density uses)

c) 30metres by 30metres (standard plot size for low density uses)

4.6.1.3 Criteria for assigning land value in the formal market

As has been earlier noted, the government usually allocates plots of land on 99 year lease, rather than outright sale. However, the state, as a whole, has been divided into three zones for land charges thus: Zone 1 (the state capital), Zone 2 (urban LGAs, namely Zaria, S/Gari and Kafanchan) and Zone 3 (rural LGAs).It is however, important to note that there are variations in the charges payable within a zone based on the level of development of an area, even within a particular zone. For instance, while the fees paid to government for a plot of land in Kabama and Gaskiya layouts (in Zaria and S/Gari LGAs, respectively) was only N100,000, the amount paid for the BATC layout (near the CBD and Depot NA) was N350,000.

4.6.1.4 Problems associated with the formal land market

The outcomes in this subsection are also based on interviews with some staff of the agency and practicing estate surveyors in the area. It shows that insufficient supply of land is one of the key problems associated with the formal land market, as it depends on the will of the state governor. That is, unlike in the informal market, where there was almost always land available at one location or the other, availability of land in the formal land market is highly occasional. It could take several years before lay-outs are earmarked for allocation to people.

Another issue is that of difficulty in performing transactions, due to the amount of bureaucracy associated with the process of obtaining an allocation. This could be discouraging. The procedures for land allocation as highlighted in subsection

4.5.1.1(procedure for accessing land) are numerous. For instance, one is required to tender a declaration of age and tax clearance certificate. Many of our local people may not have either. Again, not many would appreciate the fact that the application has to undergo the several steps itemized, when in the informal market the transactions are more a direct face-to-face interaction between the buyer and seller.

There is also a lot of delay in the process. The bureaucratic processes mentioned above are enough to cause delays in the processing of land. And step *g* alone, in the procedures referred to above, could take between one to four years. When this is compared with what obtain in the informal land market, hardly can our people be patient enough to go through such long and uncertain procedures that may not necessarily guarantee the successful acquisition of a plot of land. For the informal market, it is a cash and carry kind of transaction, which can be completed in a day or two - signing of attestations inclusive.

In the light of the above issues, one can easily understand why land is very difficult to access in the formal market for the generality of the people, a factor that is driving the high demand for land in the informal land market.

4.6.2 The Informal Land Market and its Operation

The informal land market entails a variety of urban land transactions practices, exchanges and transfers that are not recognised by the state as legal, but which are nevertheless socially accepted as legitimate by a variety of urban actors (UNHABITAT and URBAN LAND MARK, 2010).

4.6.2.1 Actors in the informal land business

a) Real estate dealers: These are individuals who procure vacant lands, usually farmland, which they then subdivide into plots for re-sale. A real estate dealer owns the capital and has agents or vendors under him.

b) Real estate agents/vendors. These group of actors are responsible for advertising and actual sales of demarcated plots owned by the real estate dealer. This category of stakeholders in the informal land market are actually commission agents, who earn their income by taking as a commission an agreed percentage of the amount for which a property is sold. Real estate agents also assist property owners to advertise houses for sale or rent, a service for which they also collect a commission after a sales or rent deal is closed.

4.6.2.2 Some operations in the informal land market

The processes by which the informal land market operates to deliver plots of land to prospective buyers in the study area are numerous. And this can affect land value. Using a questionnaire survey administered on land dealers and agents, several dimensions of the market that were unraveled are highlighted below.

a) Preparing the land for sale:One of the key issues was the ways by which the dealers procured vacant lands for onward sales to buyers. Fig. 4.33 presents the responses of estate dealers/agents. It shows that the great majority of the respondents (76 or 85.4%) obtained lands for business via the purchase of farmlands around the periphery of the study area. Such lands were subdivided into convenient plot sizes, before being sold to the public. Only 13 or 14.6% of the land dealers got lands through the repurchase of government allocated plots initially obtained from the formal land market.

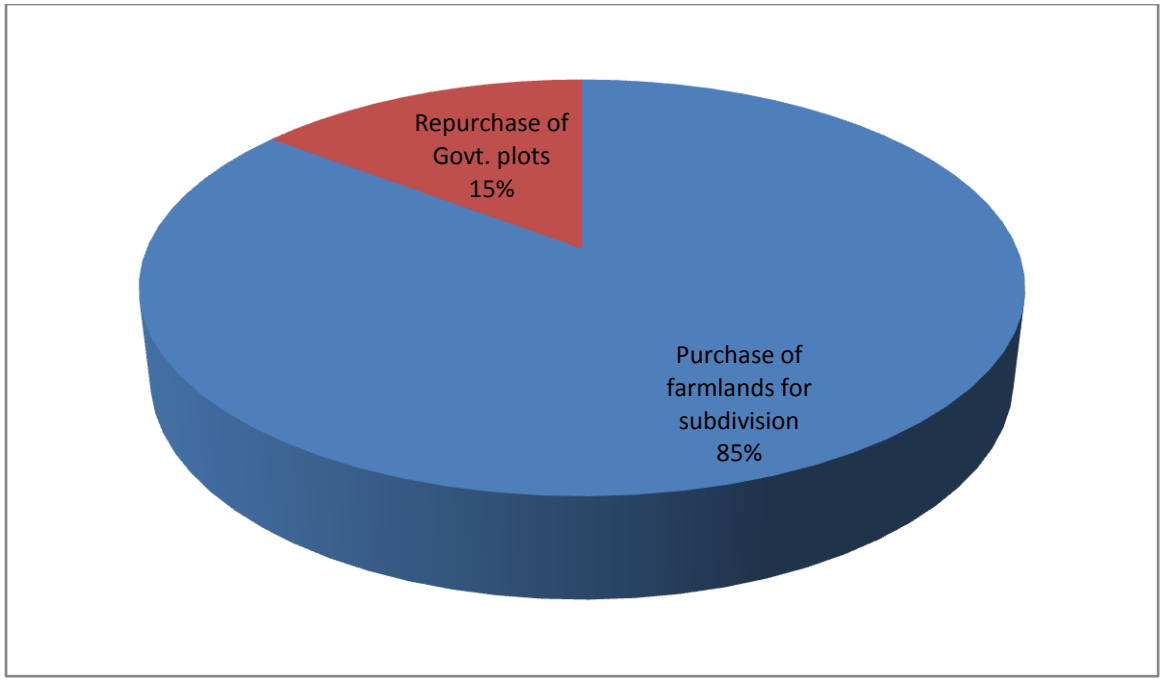


Fig. 4.33: Sources of Lands for Sale by Agents
Source: Field survey, 2016

After obtaining the lands, a question that may arise is on the way by which such commodity was subdivided. The responses to such a question are contained in Table 4.40. It revealed that the bulk of the respondents (77 or about 86%) agreed that they (the estate dealers/agents) and their assistants in the business were the ones doing the job, because of their years of experience in the occupation. It also shows that about 7.8% did engage the services of professional surveyors to do it for them; while only about 5.6% ever engaged the services of staff from the works department of the LGA. This imply that such land preparation is done with little or professionalism, since the requisite training was lacking by many of the stakeholders. This is likely to affect the value of such plots of land in the long or even the short run.

Table 4.40: Subdivision of Vacant Land

Subdividing the Vacant land by	Frequency	Percentage
Professional surveyors	5	7.9
By self /my assistants/boys in the business	77	86.5
Staff from the local government works department	7	5.6
Total	**89**	**100**

Source: Field survey, 2016

That brings us to the issue of dimensions or sizes of plots usually made available for sales. Table 4.41 presents a summary of such information. Majority of the respondents (47 or 52.8%) believed that the more common dimension was 30metres x 15metres, then followed by 15m x 15m, or what is called half plot with 20 respondents (or 22.5%). The least common plot size was 30m x 30m, mostly found in high land value areas like the GRA. This pattern of sizes, it was noted, was largely due to affordability. Only the well-to-do could go for the bigger sized lands; the majority went for what they could afford- the smaller plot sizes. For this reason, the sizes were demarcated based on the nature of market/demand. And it was therefore, noted that the 30m x 30m plot size was much more the product of formal rather than the informal market.

Table 4.41: Reported Sizes of Vacant Plots in the Informal Land Market

Size of vacant plots	Frequency	Percentage
7.5m by 7.5m	10	11.3
15m by 7.5m	5	5.6
15m by 15m	20	22.5
30m by 15m	47	52.8
30m by 30m	7	7.8
Total	**89**	**100**

Source: Field survey, 2016

Furthermore, because of the harsh economic situation in the country, respondents have noted the increasing popularity of the 7.5 by 7.5 metres, popularly called 'quarter' plot i.e. one-fourth the size of 30 by 15 metres, considered as full plot.

b) Market information in the informal land market:A question was asked on how people (the public) gets to know about the availability of plots, after they have been so demarcated and ready for sales. The way and manner in which a product is being advertised could affect demand and possibly value. The responses are contained in Table 4.42.

Table 4.42: Method of Advertising Vacant Lands in the Informal Market

Method of advertising	Frequency	Percentage
Through colleagues in the business/my "boys"	80	90
Village heads	7	7.8
Town criers	2	2.2
Total	89	100

Source: Field survey, 2016

It reveals that 80 of the respondents (or about 90%) agreed that such information was advertised largely through colleagues in the estate business. About 7 of the respondents believed that such information was also spread through the local chiefs/village heads; while only about 2% agreed that town criers also played some role in the dissemination of such information to the general public.

Another question asked was on whether demand for land is affected by seasonality. Figure 4.33 shows the pattern of responses obtained. It shows that majority (about 74% in maroon colour) of the respondents maintained that seasonality was not affecting the tempo of activities in the land market. That is, business transactions can be high or low, whether in the dry or wet season. Only about 26% (in blue colour) of the respondents felt that business was better during the dry season. And they reasoned that this was because at

about that time, people (especially farmers) had more money to spend, because of the harvest season for farm products. On the other hand, the high rate of response of 'no seasonality' was, perhaps, because the study area is predominantly an urban centre, with people engaged more in the secondary, tertiary or quaternary sectors of the economy than the primary sector. Hence, the level of dependence on farm income could be on the low side.

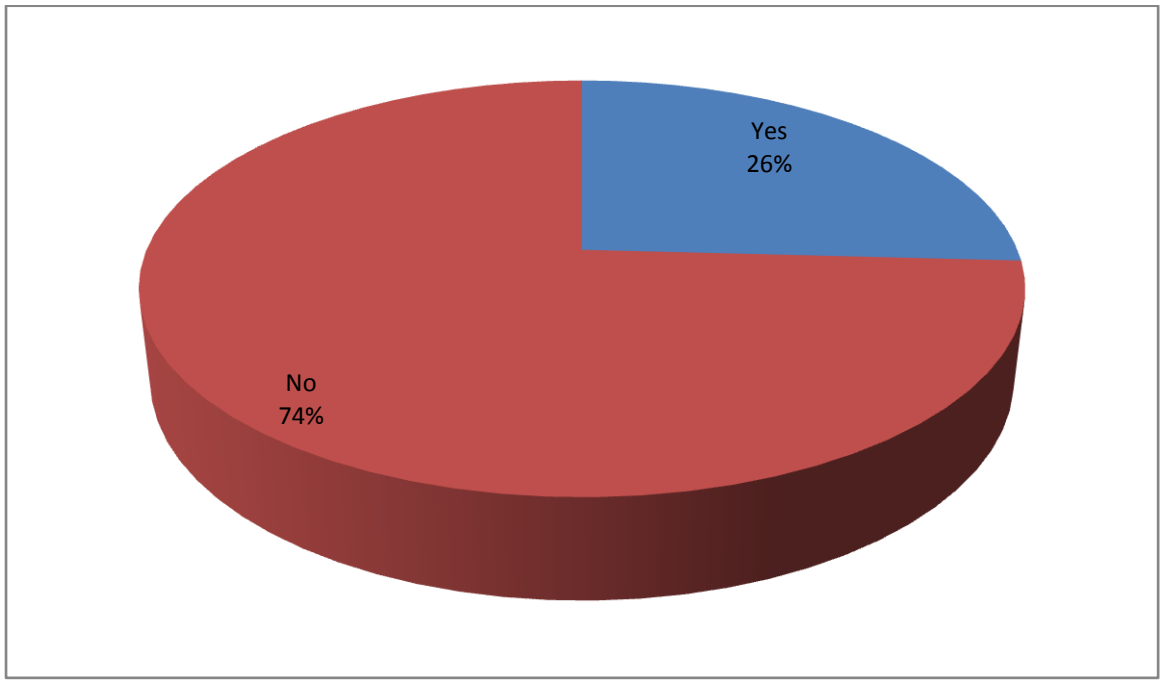


Figure 4.34: Seasonality in Demand for Vacant Lands
Source: Field survey, 2016

However, it is important to report here that discussion with some of the respondents has shown that some of the elements of seasonality that occasionally affects business transaction include the annual Hajj (pilgrimage) and the disbursement of benefits of disengaged employees of certain organisation's, e.g. Power Holding Company of Nigeria (PHCN). It was noted that in the case of the first, many of the land dealers have been frequenting the Holy land during the annual pilgrimage period. And due to lack of trust among colleagues/assistants in the business, such dealers preferred that their business

should be put on hold, pending their return home after the Hajj exercise. In the second case, demand for estate properties had the tendency to the rise once the benefits of disengaged employees of certain organisations were paid – the case PHCN has been well noted.

c) Attestation and problems of the business:Since transactions in the informal land market are not entitled to any C of O and are not usually registered with government, there has to be a way of documenting some form of evidence that could come in handy, in case of any dispute. Based on this, a question was asked on the methods by which such transactions are documented. The responses are contained in Table 4.44. The findings show that handwritten attestation, signed by the two parties (buyer and seller), their witnesses and the village head was the most common form of evidence for 40 respondents (or 45%). It was closely followed by the use of letter-headed paper signed by the two parties, witnesses, village head and the district head. The least of all was the use mere receipt issued to the buyer, with 4 respondents (or 4.5%).

Table 4.43: Means of Attesting to Land Transactions in the Informal Land Market

Means of attesting to transactions	Frequency	Percentage
Mere issuance of receipt	4	4.5
Handwritten attestation, signed by the two parties, their witnesses and the village head	40	45
Letter-headed paper signed by the 2 parties, witnesses, village head and the district head	37	41.6
A paper signed by the 2 parties, local traditional chiefs and a lawyer	8	8.9
Total	89	100

Source: Field survey, 2016

The dominance of handwritten attestation, it was noted, was because of the fact that it tended to enjoy greater preference as even courts were said to accept them better than the

others. It was also said that many people prefer the option because it was considered simple and straight forward.

It is however worthy of note that the lands business has its own hitches. A question was asked requiring respondents to select the major problem they felt affect the business. Table 4.44 contains a summary of the responses. It reveals that the major problem that has affected the business was civil or political unrest with 41 respondents (or 46%). The next major problem was that of insincerity among colleagues which 34 (or 38.2%) of respondents identified.

Table 4.44: Problems of doing Business in the Informal Land Market

Problems of doing business	Frequency	Percentage
Govt. policies/interference	2	2.3
Insincerity among colleagues	34	38.2
Problems of litigation	12	13.5
Civil/political unrest	41	46.0
Total	**89**	**100**

Source: Field survey, 2016

Civil or political unrest was a major problem that had seriously affected the land business, especially because of the insurgency that had bedeviled the northern part of Nigeria. The demand for land seriously nose-dived and the value of land went down accordingly. One of the key land dealers, Alh. Aminu H/Ojo, in an interview has noted that if not for the crippled business situation, he could not have spared me ten minutes for the interview. That is, in the hay-days of business, when there was no unrest, he would have been too busy to give attention to people like this writer.

According to some of the respondents, the reason why there was problem of insincerity was partly because the business climate had entered a trying time and some actors were not able to adjust. Some have made a lot of money earlier and therefore, found

it difficult to adjust to the hard times. For this reason, some of the respondents have noted that there were a plethora of court cases hanging on many of the actors in the business. Again, a lot of them were in the habit of trying to outsmart one another out of share greed and the attitude of getting-rich-quick.

d) Advantages of the informal land market:Interview with some of the respondents revealed the following as the advantages they derive from the informal land market:

i. low cost of purchase of farmlands
ii. highly profitable, especially when compared with initial cost of purchase
iii. absence of any bureaucracy, as it is more like a cash and carry system
iv. very fast in responding to demand
v. virtually no maintenance cost for land, hence they have a slogan 'No cost of feeding, watering or weeding'
vi. One could join the business today, without a dime, and instantly reap dividends, once he was accepted by those already established.

4.6.2.3 Actors' rating of some factors affecting demand for land in the informal market

In order to understand the effects of the informal land market on the demand for land respondents were requested to rate the several factors that were identified from various literature sources and discussions with stakeholders in the business. The responses are contained in Table 4.45.

The last two columns to the right in the table,shows that the economic/political situation of the country had the highest weighted mean of 9.37. It is followed by accessibility with a mean of 9.13. The next was type of adjoining property, with 8.69. However, the least factors were legislation/government and information about land availability, with 5.15

Table 4.45: Rating of factors affecting demand for vacant land in the informal market

Ratings by respondents													Weighted Mean		Rank order
The weights	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**			
1. Econ/pol	39	0	0	0	0	0	17	2 8	0	7	0	0	9.37		1st
2. Nearness to a Sub-c	18	0	0	5	8	0	6	33	1	4	16	0		8.65	4th
3.Acces	25	0	6	18	9	1	10	5	0	0	13	0	9.13		2nd
4. Population Density	0	2	9	20	8	22	1	21	2	9	0	0		8.41	5th
5. Security	0	0	1	14	34	13	8	0	0	15	6	0	7.74		7th
6. Legislation/Govt.	1	4	2	7	9	24	9	0	0	12	15	1		5.15	11th
7. Avail. Of Soc. Infra	0	5	7	6	3	12	12	0	0	34	10	0	7.33		8th
8 Type of Adj Ppty	6	4	21	13	6	8	5	0	11	6	11	13		8.69	3rd
9. Info on land avail.	0	3	6	0	8	9	14	1	14	1	11	12	5.15		11th
10. Environment	0	20	15	6	2	0	7	1	27	1	2	16		7.92	6th
11. C of O	0	17	15	0	2	0	0	0	28	0	5	18	6.33		10th
12. Seasonality	0	34	7	0	0	0	0	0	6	0	0	29	6.52		9th
Total	89	89	89	89	89	89	89	89	89	89	89	89			

Source: Field survey, 2016

The reason for the very high rating of economic /political situation is largely because of the security challenges that the country is facing, especially due to the apprehension associated with the outcomes of the 2015 general election and the 'Boko Haram' insurgency. Many investors in the sector, as well as potential buyers, were skeptical of doing business. The second most influential factor rated is accessibility. Many land dealers and agents believed that one the of major factors that help to attract people to buy plots of land is the favourable location that such lands possessed, especially in terms of the ease with which one could move in or out of an area. So, road quality is considered very important. Another factor that has a high rating is the type of adjoining property. Many people are attracted to purchase plots of land in an area, once such an area has what may be described as the 'initial advantage'. That is, once there were high quality building structures around, this could give the place a positive effect or what Nzau (2003) described

as ‘next-door-effect’. This implies that areas that have the opposite scenario are bound to have low demand and low value.

4.6.3 The Semiformal Land Market and its Operations

4.6.3.1 Actors in the semiformal land market

This category of market essentially has to do with rent collection and related real estate activities. Interviews revealed three categories of actors in the semiformal land market, namely, rent agencies (or companies), caretakers and ‘*Yan-sodore*’ (commission agents). Rent collection agencies could be partly considered formal, since they are registered with the government. They may, however, be looked at as informal since no feedback, in terms of the records of their activities was documented with government. Again, they were involved in other activities like the sales of plots of land, leasing and consultancy on real estate issues. The two most prominent in town were AREWA Real Estate Property Agency and ALBARKAWA Real Estate Agents. There were a number of others in town that have not been as vibrant, like Haske, Zazzau and Nawaitu. Such organized agencies usually maintain an office, with three or more staff, record books, and at least a computer, among others. Part of their procedures for accepting tenement properties from landlords included the completion of a form, which is obtained at a certain price, about N1000 in Albarkawa. Then the house is inspected to ascertain its readiness for occupation. Interview with the agencies revealed that the commission on rental proceeds for the major estate agencies in town was in the region of 10% of all tenement incomes.

The second group of actors the semiformal land market is known as caretakers who are individuals not registered with government. They take care of estate properties on behalf of the owners. That is, issues like rent collection from tenants as well as routing maintenance were in the care of these individuals. The last, is what is called “*Yan-sodoro*”, literally commission agents or go-between. These are individuals who scout for rental

apartments for prospective tenants through the registered rent agencies, for a commission in return. However, some of such agents were in the habit of charging tenants over and above the stipulated rental amounts. In this way, they not only claim commission from both the tenants and the agencies, but also collect some amounts through dubious ways.

4.6.3.2 The Purpose of and approaches to sourcing rental properties

From interview with practitioners in the rent collection business, it was gathered that there were basically two approaches/methods of sourcing properties for rental purposes. First, organisations, especially higher institutions of learning in the study area, sometime required rental properties, which they would then furnish for the use of their staff or as offices. Second, individuals could rent apartments directly from rent agents after agreeing on the stipulated terms and conditions for the properties in question.

On the purposes of individuals giving out their properties for rent, interviews revealed that there are two philosophies behind it- (i) rent as income and (ii) rent for asset-keeping. The first is the more common scenario. Some individuals that have the means and interest often invest in the rental property business. A good return is expected periodically. In the second situation, however, some well-to-do individuals would rather construct or obtain properties meant for their heirs (for inheritance or for use when they get married), but in the meantime would be rented out to other people for an amount that may be far below the mean expected value.

4.6.3.3 Problems associated with the property rental business

From interviews with stakeholders in the property rental business, the following issues were observed to affect the business:

a) Security challenges. Since there are fears about the consequences of accommodating dubious/unscrupulous elements, this has made the job rather more

difficult. i.e. how could one screen prospective tenants under the circumstance? This was worsened by the current security challenges in the country.

b) Unauthorised lending of proceeds from rent (or what they call 'teaming and leading'). This is a situation whereby agents indulge in paying/lending the rent proceeds of one landlord to another, pending the receipt of the other ones' proceeds i.e. paying Mr. X, using the income of Mr. Y. This occurs when one landlord comes to an agent in urgent need of cash, even though his own was yet to come.

c) Litigation (court) processes. This tended to consume so much time and resources of the agent. Therefore, any such encounter with a tenant was never an easy situation.

d) Corruption by agency staff. Some staff engaged as rent collectors by the agencies are occasionally involved in corrupt practices like tampering with rent proceeds collected from tenants and pretending that such tenants were yet to make payments.

e) Poor or no remuneration for consultancy services. Some people in the area hardly appreciate the value of consultancies offered by such organisations. This was so because such services were offered without entering into any form of agreement. After offering such services, appreciations hardly go beyond a 'thank you'.

4.7 Effects of Land Market on the Pattern of Land Value

4.7.1 The Effectsof Formal Land Market on the Pattern of Land Value

4.7.1.1 Criteria for assigning land value

Information for this part of the study was obtained through interviews with some senior staff in the Lands Office, Zaria, located at the provincial office near PZ area. As has been earlier noted, the government usually leases out plots of land, rather than outright sale. However, the state as a whole has been divided into three zones for processing fees, thus: Zone 1 (the state capital), Zone 2 (urban LGAs namely Zaria, S/Gari and Kafanchan)

and Zone 3 (rural LGAs). Zone one had the highest processing fees, followed by Zone 2, then Zone 3 in that order.

It is important to note, however, that variation in the processing fees paid is based on the level of development of an area, even within a particular Zone. For instance, while the fees paid to government for a plot of land in Kabama and Gaskiya layouts (in Zaria) was only N100,000, the amount paid for the BATC layout (near the CBD and Depot NA) was N350,000. After such lands have been allocated, however, some of the beneficiaries rather prefer to sell such allocated plots of land to interested buyers, usually at much exorbitantly higher rates. And most of the time, there are people willing to pay, largely because people had greater confidence in purchasing plots that have C of O. Again, the clear planned design of such government allocated areas had the tendency to attract wealthy individuals. These tended to give formally allocated lands greater value than those from the informal source. There is always a development scheme to be followed by allottees in building up the plots of land in government-allocated lands. These include the proportion of the plot to be actually built up and the observation of the right-of-way for streets, drainage and utility lines.

4.7.2 The Effect of Informal and Semiformal Land Market on Land Value Pattern

4.7.2.1 Land subdivision and value determination

As earlier noted, the major source of land for the informal market was through the purchase of farmlands for conversion into plots for residential or commercial purposes. After obtaining the land, it was mostly subdivided by the owner with the help of his assistants or colleagues in the estate business. That is, they hardly engage the services of experts in the field. Therefore, since they lacked the technical knowledge of the job, their primary motive was profit maximization. For this reason, plots were demarcated without regards to future planning implications. Issues like provision for right of way or access

roads, drainage or utility line were never a priority, as they would only help to cut down the stock of land at the disposal of the land dealer. Thus, plots were demarcated in relatively smaller sizes so as to capture all possible spectrum of the consumers. Therefore, plot sizes could be as small as 7.5m by 7.5m (known locally as 'quarter plot') or even less; and there was hardly 30 by 30 metre plots.

This helps to explain why the value of plots of land is relatively lower in informal market. apart from the many other factors. The poor nature of design of such locally demarcated areas also help to account for its low patronage by the rich and powerful in the society. The lack of an accompanying development scheme leads to haphazard development of lands associated with the informal land market. Such pattern of urban development could therefore not attract the emergence of any major urban sub-centre.

4.7.2.2 Philosophy/Purposes of owning rental property and rent value

On the purposes of individuals giving out their properties for renting, (rent as income and rent for asset-keeping) this affects land valuation. In the first case, a good return is expected periodically. The greedy landlords were criticized for increasing rental charges on an annual basis, while others could give three to four year spacing between increments. Apart from the landlords, some tenants haboured the feeling that incessant rental increments were largely instigated by real estate agents, with a view to getting fatter commissions. In the second situation, however, properties would be rented out to other people for a rental amount, many a-time far below the minimum expected value. This was part of the reasons for the relatively low rental charges around the old/traditional city.

A number lesson can be learned from the many issues raised, thus far, about the effect land market on land value. First, it is clear that some of the features that attract high value for the lands supplied through the formal land market include provision for access roads, larger plots, drainage and utility lines in addition to the C of O which provides

security of tenure on the land so leased out by government. These have attracted the elites to such areas and consequently have attracted high value. This is evident in areas like the GRA, Hanwa New-Extension and Gaskiya New layout, among others. Since these qualities are apparently attractive, land suppliers can take a cue by ensuring that at least some of these basic attributes are taken care of in land provisioning. This is because it would go a long way to attract greater dividend.

These patterns of development in the city has therefore, encouraged a pattern of evolution/growth of unplanned settlements around government layouts (provided through the formal land market). This was with a view to take advantage of the attractive high value of the neighbouring planned area. That is, operators in the informal market have now devised a way of gaining from neighbourhood effect by acquiring farmlands close to the areas that have been earmarked formal land market layouts. This has occurred in places like New Gaskiya layout, Gonar Ganye, Zangon Shanu, Hayin Malan, New Mopol Barrack and others.

This implies that such formal land market provided layouts have now become sort of growth poles (or soft spots for land speculators) for the proliferation of locally designed plots. That is, urban growth in the area was unfolding in dual phases, at different locations – a planned phase (area) attracting (or serving as bait/magnet) to an unplanned phase (settlements). This, largely being as a result of higher values in the planned areas.

Also related to that, operators in the informal land market should realize that their local way of designing plots for business does not attract the well-to-do and consequently lower land value for such areas. This is especially due to poor accessibility and the absence of clear drainages associated with such areas. For the semiformal land market, where real estate agencies operate, it is evident that the non-pecuniary motive of some landlords does have an impact on the pattern of housing rental in the area. This is especially so in the

more traditional areas of the city, such as in the walled city. On the other hand, the more cosmopolitan areas have tended to attract high rental value. This means that investments in real estate ventures would yield greater dividends if properties are developed or obtained around such non-native areas.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

The study has, among other findings, demonstrated that the seven urban sub-centres and the CBD were located at spatially varying points. As expected, however, the CBD, which covered the area between PZ and S/Gari market, had the largest size of commercial land use, with about 55% (or 820, 566sq metres) of total commercial lands, while the least was the Palladan/Aviation sub-centre with about 2% (or 29, 463sq metres). The fact that the CBD takes such a huge chunk of commercial land implies that it would continue to attract business and consequently higher land value, due competition. Some of the features that distinguished the urban sub-centre areas are major road intersections, presence of a market (big or small), a motorpark (permanent or make-shift) and chain of retail shops along the road.

On the spatial pattern of commercial land value, it was found that the area with the highest mean commercial land value (for the period 1982 to 2014)was the PZ/CBD area, which had a value range of between N2, 500 to N3,000 per metre square. Centrality, accessibility and so forth were some of the reasons adduced for the high value the area enjoys. The area with the least value fell around Danmagaji and the Zaria walled city with a value of between N500 to N1, 000 per metre square. In order to test whether the observed spatial pattern of land value was in line with theories, such as that of Alonso (i.e. the land value theory), a hypothesis was tested to see whether land value actually decrease with distance from the seven identified sub-centre areas (and the CBD). Around the CBD and three sub-centres (Kofar Doka, Palladan/Aviation and Samaru), distance had a significant effect on the pattern of commercial land value, that is, land value decrease with distance from the centres. In fact, six out of the sub-centres show a negative relationship

between the two variables, meaning that they show a similar trend. The null hypothesis was therefore rejected. There is, therefore, a significant relationship between land value and distance away from the urban sub-centres.

In the case of residential land value, the study shows that the areas with the highest mean residential property value (for the period 1982 to 2014) were the GRA and Hanwa New Extension, with a value of between N2, 000 to N3, 000 per square metre. This was partly as a result of the high quality that the areas enjoy. And once again, the least was recorded in the old walled city. In trying to determine whether residential land values decreased with distance from the sub-centre areas, a similar approach, as done for commercial lands, was adopted. It revealed that in 6 of the sub-centres and the CBD (excepting one, Palladan), the relationship between distance from sub-centres and land value was not significant. The null hypothesis was accepted, as a result. In other words, residential land value was not significantly decreasing with distance from the sub-centres and the CBD.

The last type of land value studied was that of vacant lands in the area. The study revealed that the G.R.A. had the highest mean value of about N8, 000 per sq metre and above (for the period 1982 to 2014). It was followed by Hanwa New-Extension, with a value ranging between N6, 000 to N8, 000 per sq metre. Since these areas enjoy the advantage of high value for residential and commercial land values, this was bound to have a spill-over effect on neighbouring vacant lands. Some of the areas that had the least value (N1:00 – N2,000) included Nagoyi, Zabi and New Mopol Barrack.

Apart from the spatial dimension analysed, the study also touched on the temporal pattern of land value in the study area. The highest mean commercial land value of N5,761/m^2 was recorded in 2014, while least value of N4/m^2 was obtained in 1982, as expected. Using percentages, the results show that the highest rate of increase for

commercial properties was recorded between 1982 and 1992, with an overall mean of 2,865 percent increase. Devaluation of the country's currency under the SAP regime could be a reason for the high rate recorded. The rate of increase was subsequently, lower.

In the case of residential land value, the highest mean value of N4477/m^2 was recorded in 2014, while the least value of N2/m^2 was obtained in 1982. Similarly, in percentage terms, the pattern of residential properties had the highest rate of increase within the same period as the commercial lands. But in this case, it rose by a whopping 4,164 percent, between the same periods. In a nutshell, the trend for both commercial and residential land value was that of a continuous rise. The vacant lands however, presented a somewhat different picture. The highest mean value of N22,222/sq. metre in 2012 while the lowest mean vacant land value of N2.2/sq. metre was recorded in 1982. Thereafter there was a decline in the value of vacant lands, as the year 2014 recorded N17,777/sq. metre. That is, value dropped for vacant lands by about -20 percent. This was attributed to the security challenges (notably apprehension surrounding 2015 elections and Boko Haram insurgency) that the area, and indeed the country faced then. The study also shows that rental value (for commercial and residential land use types) are hardly affected by 'shocks' in the market, as we have seen in the case of security challenges, which has had a greater negative effect on vacant land value.

Again, attempt was made to compare the different facets of land value under study. The results show that commercial rental value was consistently higher than residential. For instance, the minimum commercial rental value recorded in 1982 was N4/m^2, which was twice that for residential during the same year. The trend continued like that up till 2014, when the minimum commercial land value recorded, N1,454/m^2, was still higher than the residential of N1,194/m^2 in the same year. Based on the rate of increase in value across the three facets, it shows that from 1982 to 1992, residential land value recorded the highest

rate of increase of about 4080%. It was followed by commercial land with 3022% rate of increase, while vacant lands went up by only about 286%. But between 1992 and 2012 the value of vacant lands maintained the highest rate of increase in value (about 983% at a time).

Having seen the spatial and temporal pattern of land value in the study area, the factors that help to explain the observed pattern were determined and our second null hypothesis tested. It revealed that there was a positive relationship between commercial property values and the explanatory variables (such as distance from the CBD=966.55, sub-centre areas=703.06 and high institutions= 942.95). This means that, *ceteris paribus*, as distance (per unit) from those locations increase, land value decreases. Therefore, the null hypothesis of no relationship was rejected, which imply that there was a significant relationship between commercial property values and the explanatory variables. Again the result for residential property value gave a similar outcome. This time around, however, things like neighbourhood quality (524.12), ethnic composition (466.81), proximity to high institutions (387.38) and water supply (254.44) had a stronger relationship with residential land value. In other words, as some of these qualities increase in an area, residential land value increases. Lastly, the result also revealed a positive correlation between vacant land values and explanatory variables. However, the variables that measured stronger included neighbourhood quality (5254.500), road quality (4227.593), development potentials (2172.0233) and ethnic composition (1035.554). In a nutshell, the hypothesis was rejected based on the outcomes of the three facets of land value analysed. So, the alternative hypothesis was adopted that there is a significant positive correlation between land value and the explanatory variables in urban Zaria. The study has observed that the pressure of rapidly increasing population is gradually changing the traditional non-pecuniary value attached to land. This is demonstrated by the positive relationship, albeit a weak one,

between rent/price of commercial, residential and vacant lands and some predictors/independent variables.

In order to further deepen our understanding of the intricacies behind the pattern of land value in the study area, the research tried to shed more light on the land market in Zaria and its influence on the land value. Three types of land market were identified, namely, the formal, informal and semi-formal. The supply of land by the Kaduna State government, through its Ministry of lands and Survey was considered as the formal, where the state Governor had the final say on land allocations. The study identified the bureaucratic procedures which individuals/organisations have to follow in order to obtain land, one of which could take between one to four years. Plot sizes allocated in the formal market ranged from 30m by 15m to 30m by 30m. And values, which were in the form of processing fees, were assigned based on the development potentials of an area, even within any of the three classified zones in the state.

The informal land market or the unofficial market on the other hand, is quite different from the formal in a number of respects. About 85% of the respondents obtained farmland for subdivision and sale to the public. Common dimensions for plots ranged from as little as 7.5m by 7.5m to 15m by 30m. Unlike in the formal arrangement, the land dealers and their agents/colleagues, whom hardly underwent any technical training in land survey, were the ones subdividing lands for sales. This was without regards to the formal ethics of doing the job. Such locally planned/designed areas were rarely attractive to the wealthy people in the society. Because of that, land values around such areas were comparatively lower than in government planned lay-outs. Again the lay-outs provided by government were realized to be much larger than the locally subdivided plots. This was largely due to efforts by the local land vendors to maximize returns on their investment. For that reason, even quarter-plots were also made available.

On the issue of seasonality of business, majority (66 or 74.2%) of the respondents maintained that seasonality was not affecting the tempo of activities in the land market. This could because the urban nature of the study area, where there is less over reliance on farming. Again, majority of the respondents (45%) believed that handwritten attestation was the best way to document land transactions. It also revealed that the major problem that has affected the business was civil or political unrest identified by 46% of the respondents. The next major problem was that of insincerity among colleagues which 38.2% of respondents identified.

The last of all was the semi-formal land market. This had to do with the activities of real estate agents and care-takers of properties. Three categories of actors were identified here, thus: Rent agencies/companies, caretakers and commission agents (popularly known in Hausa as 'Yan-sodoro'). It was also realized that the purpose for renting out properties differs and affects the rental charges. While some individuals saw the rent issue as a source of income/revenue, there were others that gave out there properties for renting solely for the purpose of asset-keeping for future use by their children. For the latter group, rental charges tend to be on the low side compared to the former. For most of the rent agencies a 10% commission of total rental revenue is what a landlord is expected to pay.

5.2 Conclusion

The urban sub-centres and CBD, which are the hubs of commercial activities in urban Zaria, are located in different parts of the urban area, but generally around major road intersections. This has therefore, had an impact on the pattern of commercial land value, in particular. This is because the pattern of commercial land value generally decreased with distance from the centre and sub-centres, while on the other hand residential land value was not significantly influenced by the sub-centres. In other words,

while commercial activities were attracted to such areas due to elements of competition for business space, which is in line with some theories, residential areas were not so attracted to such areas. Rather other factors like good quality neighbourhoods, access roads and others were the attraction. On the other hand, the value of vacant lands, located around the peripheral areas of urban Zaria, were largely influenced by the value of nearby commercial or residential lands i.e. due to a sort of 'nearest neighbor effect'(or neighbourhood quality, as seen in this study). Other key factors that influence vacant land value include road quality, ethnic composition and development potentials of an area. Over time, however, both the commercial and residential land values have a continuous trend of increase, all through the period under study (as rents were never reviewed downward by landlords), while the vacant land values were prone to 'shocks in the market', as values dropped by about -20%, on the average. This was due to security challenges (Boko Haram bombings and the apprehension about the possible outcomes of 2015 general elections) that affected activities, especially in this part of the country.

Three types of land market were identified- the formal, informal and semi-formal markets. The markets have indeed influenced the observed pattern of land value. While the formal market was responsible for providing lands (usually well planned) within and around areas like the GRA and Hanwa (New-Extension) - i.e. some of the areas having high value; areas like Zabi and parts of the old walled city that recorded low values, were more traditionally sold through the informal land market, as evidenced by their lack of proper planning. So, the nature or quality of plots and design of the areas by the two different markets had its effect on the eventual values of the areas. The temporal pattern may have to do with the fact there is greater security of tenure in the case of lands provided through the formal market, as there is the C of O, which guarantees ownership and protects one from any future decision that government might take on some built-up areas. This

could be one of the reasons that further attracted higher value for lands allocated through the formal market. As was noted earlier, lands provided through the informal market is sometimes based on a gentleman's agreement between the two parties. In the event of government wishing to require the use of such informally provided lands, compensations may not be anything to write-home about, if at all provided.

5.3 Contributions of the Study to Knowledge

An important finding of the study is that the CBD and sub-centres are located around major arterial road intersections and that the former has taken a disproportionate share of commercial land uses in urban Zaria. Part of the implication of this is that the area would continue to experience increased traffic hold-ups, as is being witnessed, because the increasing population would continue to impact on the demand for goods and services obtainable at the central area. Land value, especially commercial, may, therefore, continue to rise around the central area. There is therefore, the need for government to encourage, especially, the major business organisations in the area to establish business outlets and warehouses away from the central area, towards some of the sub-centres. That is, by way of providing the enabling environment through planning of such areas. This would go a long way to make for even development and improved intra-urban mobility.

Again the critical role that the urban centre and sub-centres play in terms of commercial activities that engaged a good number of people has been identified. Perhaps for this reason, they influence the pattern of commercial land value. The policy implication is that government should be proactive i.e. it should anticipate the emergence of such centres by making adequate planning arrangements/proposals, in order that it can maximally benefit through provision of lands for commercial activities around such areas.

The study also found that while commercial land values decay away from urban sub-centres, such was not the case for residential lands, which were rather influenced by

other factors. Part of the contribution of the this work, is that land values do not rise onlyaround the CBD, as maintained by classical submissions (e.g. Alonso, 1964), but there are other minor land value peaks around sub-centre areas forcommercial uses, as well others around areas having some environmental qualities for residential uses. A policy implication is that commercial uses require more spaces towards the centres and sub-centres (as mentioned above) than residential uses, which would require more spaces away from such centres. Government should take cognizance of this in its scheme for future developments, such that land provisioning, in this and other areas, can be staggered to favour each land use in its areas of greater need.

Another revelation of the study is the continuous rise in commercial and residential land value, in the form of rents. The implication is that there is little or no control over the activities of landlords-cum-rent-agencies. They have been allowed to operate as they wished, to the detriment of tenants. There is therefore, the need for government intervention, so that the less-privileged members of the society can have easier and less exploitative access to this basic necessity of life – housing. The high frequency of rent increments in the area is a serious source of concern.

The study also unraveled the critical role of infrastructural facilities provisioning in enhancing the value of both residential and commercial properties. The policy implication of this finding calls for the expansion and upgrading of live-enhancing infrastructural facilities all over the study area in order to increase real property values which, in turn, could help generate more revenue for the state in the form of higher property taxes.

Furthermore, it shows that Zaria has been experiencing rapid population growth which gives rise to the ever increasing demand for land for both residential housing and commercial uses. The inability of government to meet this demand has given a great impetus for the informal land market to thrive. Majority of the new housing developments

are taking place on lands that have been acquired through the informal land market. They are haphazard in nature, lacking essential infrastructures, because there are no development schemes to guide their construction. This finding has three broad policy implications. First, is the necessity for the government to engage in a long range housing development plan for urban centres like Zaria that are experiencing rapid population growth. This would require the state to develop land banks with well-articulated development schemes to guide the direction of future development of such towns. Such a long range plan has the potential of also mitigating sharp rises in land value as we have observed in this study of urban Zaria. Second, having developed land banks as proposed above, there would be the need to simplify the land allocation process so that from the time of submission of an application to the time of issuing the certificate of occupancy would not take longer than three to four months. Third, government lands should not be devoted to low density housing alone which currently characterizes GRAs. In other words, there should be a range of plot sizes for low, medium and high density housing targeted at high, medium and low income groups in the society. Rigorous pursuit of these three policies would take the wind out of the informal land market by stabilizing land prices and as people of all classes come to trust the formal land market to deliver the good to their satisfaction.

5.4 Recommendations

5.4.1 Policy recommendations

The outcomes of this study have highlighted the importance of planning or design in an urban environment. That is, it has shown that areas that were planned for settlements had the tendency to attract higher land value than those unplanned. This is apart from the several beneficial values associated or enshrined in planned areas. Based on the foregoing, the following are hereby recommended:

1) Since it has been found that owners of property arbitrarily increase tenement rates, often too frequently, there is the need for the Kaduna State Government to set certain limits of rent chargeable, based on the quality of areas and property. Rents should not be increased beyond 10% of existing amounts, and the interval between any subsequent increments should not be less than 10 years.

2) Infrastructural facilities, such as good roads and pipe-borne water should be made available by the State Government in all nooks and corners of the area and there should be periodic maintenance of such facilities; government can recoup back its resources by collecting taxes based on the land value of different areas. Yet, government can generate revenue through annual tax on land based on land value.

3) The two local governments (S/Gari and Zaria) can utilize such planned areas (as suggested in 2 above) to obtain lands for future sales or long term leasing to generate revenue. They can as well construct something like low-cost shopping stores around the sub-centres or those areas that have the potentials of being so. This could be a way to generate internal revenue. It would also help to create job openings for our teeming unemployed youths.

4) For investors and appraisers of potential locations for properties/lands, the issues of neighbourhood quality, accessibility, proximity to sub-centres and high institutions of learning should be given due consideration in their viability or feasibility studies, as they could impact a lot in terms of the rate of return on investment.

5) There is the need for the State Government in conjunction with the local governments (S/Gari and Zaria LGAs as well as the other 21 LGAs in the state)to utilise the local chiefs in ensuring the registration of land market prices and maintaining such documents on a regular basis. This would help improve land

management system and planning to improve future research in this area, as land registration system help in acquiring reliable data.

5.4.2 Recommendation for Further Research

Further studies in the area of land value can be focused on the pattern of agricultural land value in the area, especially as it relates to the activities of land speculators. Again the effect that lower level neighbourhood business districts (NBDs) on land value has also not received attention i.e. those small commercial activity centres, most often times located around major street/road intersections, popularly known as ‘Dandali’ in Hausaland.

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Appendix I

Questionnaire for Land/Estate Vendors, Agents, Dealers, Surveyors and Valuers

DearSir,

Thisquestionnaireisdesignedtoobtaininformationonthetopic,**''Spatio-temporal Pattern of Land Value in the Zaria Urban Area, Kaduna State, Nigeria''.** This isaresearchproject in Departmentof Geography,Ahmadu Bello University, Zaria, Kaduna State, Nigeria. Iassureyouthattheinformationprovidedwillbeusedstrictlyforacademicpurpose andkeptconfidential.

Kindly complete the blank spaces and put marks in the appropriate boxes as applicable.

Thankyou.

Shehu Abbas

2016

SECTION A

1. Locationof Office/Address:…….

2.Gender:

(a)Male ( )

(b)Female ( )

3.Qualifications: a) No formal education ( ) b) Primary school education ( )

c) Secondary School education ( ) d) Tertiary education ( ) e) Others, please state…….

4.For how long have you been in estate business/issues? Please state…….

5. Which of the following is your status in the estate business?

a) Estate agent/vendor ( ) b) Estate dealer ( ) c) Estate valuer/surveyor ( )

d) Rent collector ( ) e) Others, please specify…….

6. Which of the following land/property commodities do you deal in?

a) Vacant lands only ( ) b) Sales of developed properties only ( )

c) Rent collection only ( ) d) Sales of Vacant lands and developed properties ( )

e) Any others, please state……

7. To the best of your knowledge, which of the following marketing segment do you think people are more engaged in? a) Vacant lands only ( ) b) Sales of developed properties only ( ) c) Rent collection only ( )

d) Sales of Vacant lands and developed properties ( ) e) Any others, please state……

8. What in your opinion is the reason why people are more into the segment you ticked above? You can choose more than one option

a) It is more profitable ( )

b) There are greater business opportunities in that segment, due to availability of the commodity ( )

c) The segment is less risky and therefore more secured ( )

d) Others, please state ……..

SECTION B: The land market

9. If you are dealing in vacant land, how do you normally obtain the commodity?

a) Purchase of farmlands for further subdivision into plots ( )

b) Repurchase of government allocated plots for further sale ( )

c) Others, please specify……

10. How do you normally advertise land availability? Through

a) Colleagues in the business ( ) b) Village heads ( ) c) My boys in the business ( )

d) Town criers ( ) e) Others, please mention……

11. Around which of the following areas have you ever subdivided/demarcated and sold land. (*Please rank in order of frequency i.e. 1being the highest, 2 next, then 3to the last*)

S/N	Area	Ranking (frequency of land sold)
1.	PZ/S/Gari Area	
2.	Kwangila/Fly over Area	
3.	KofarDoka/Jos Road Area	
4.	Danmagaji/Gwargwje Area	
5.	T/wada/Kongo Area	
6.	Samaru	
7.	Palladan	
8.	Around Zaria city market	
9.	Gaskiya/NUBA Poly Area	
10.	ChikajiInds/Muchia market/Round-about	
11.	Dakace Industrial Area	
	Other areas, please mention	
12.		
13.		
14.		
15.		

12. Who normally assist you in subdividing the vacant lands when it is being prepared for business transaction/sale?

a) Professional surveyors ( ) b) By self ( ) c) My assistants/boys in the business ( ) d) Staff from the local government works department ( ) e) Others, please specify…….

13. What are the more common dimensions/sizes that you normally subdivide the land for final sales?

a) 100 by 50 ft ( ) b) 50 by 50ft ( ) c) 50 by 25 ft ( ) d) 100 by 100 ft ( ) e) others, please, specify ……..

14. Which of the following is the longest period that you sometimes keep vacant/farm land in anticipation of future business?

a) 1 – 4 weeks ( ) b) 2 – 6 months ( ) c) 7 – 12 months ( ) d) Above one year ( )

15. Is there any seasonality in the pattern of demand for land in the Zaria area?

a) Yes ( ) b) No ( )

16. If your answer is yes to the above question, when is the period of highest demand for vacant land in the area? a) Beginning of the year ( ) b) wet season ( ) c) dry season ( ) d) Towards the end of the year ( ) e) After farmers harvest season ( )

17. What do you think is the reason for the high demand during the period you indicated above? a) People have more money then ( ) b) The need for housing accommodation is better appreciated that time ( ) c) speculative motive is highest at that time ( )

d) Others, please state……

18. What are the factors that generally affect the value of land in Zaria? *Please rank in order of importance (1 being most important, 2 being next, then 3, 4 to the last)*

S/N	**Factor**	**Ranking**
1.	Economic/political situation of the country	
2.	Seasonality	
3.	Certificate of occupancy	
4.	Availability of social infrastructure in an area	
5.	Environment	
6.	Population density	
7.	Type of adjoining property	
8.	Accessibility of the area/Tarred road	
9.	Information about land availability	
10.	Security of the area	
11.	Nearness to major commercial centers	
12.	Legislation/government	

19. In the last 30years (from 1980s), has there been any differences in the price of land/plot/rent based on location?

a) Yes ( ) b) No ( )

20. If yes to the above, what was the average price of a plot of land during the following stated periods in the areas listed?

Location	**Average price of a plot(100x50ft)**				
	1982	**1992**	**2002**	**2012**	**2013**
1. PZ/S/Gari Area					
2. Kwangila/Fly over Area					
3. KofarDoka/Jos Road Area					
4.Danmagaji/Gwargwje Area					
5. T/wada/Kongo Area					
6. Samaru					
7. Palladan					
8. Around Zaria city market					
9. Gaskiya/NUBA Polytechnic Area					
10. ChikajiInds/Muchia market/Round-about					
11. Dakace Industrial Area					
Other areas known to you:					
12.					
13.					
14.					

21. What are some of the major problems associated with the estate business?

a) Government policies/activities ( ) b) Insincerity among colleagues ( ) c) Problems of litigation () d) Civil/political uprisings ( ) e) Lack of capital ( ) f) Seasonality ( )

22. Were you ever involved in sales of land around or near a major commercial centre in urban Zaria?a) Yes ( ) b) No ( )

23. If yes to the above question, which of the following plans did you have to comply with?

a) A certain government planned lay-out ( ) b) We simply subdivided the land and sold it ( ) c) Others, please specify…..

24. How is land transaction being attested?

a) Mere issue of receipt for money paid ( )

b) Hand-written attestation signed by the two parties, their witnesses and the village head() c) Letter-headed paper signed by the parties, their witnesses, village head, and the district head ( ) d) A paper signed by the two parties, local traditional chiefs and a lawyer ( )

e) Others, please state……..

Appendix II

Questionnaire for Rent Collectors/Agents

DearSir,

Thisquestionnaireisdesignedtoobtaininformationonthetopic, **''Spatio-temporal Pattern of Land Value in the Zaria Urban Area, Kaduna State, Nigeria''.** This isaresearchproject in Departmentof Geography,Ahmadu Bello University, Zaria, Kaduna State, Nigeria. Iassureyouthattheinformationprovidedwillbeusedstrictlyforacademicpurpose andkeptconfidential.

Kindly complete the blank spaces and put marks in the appropriate boxes as applicable.

Thankyou.

Shehu Abbas

2016

SECTION A

1. Locationof Office/Address:…….

2.Gender:

(a)Male ( )

(b)Female ( )

3.Qualifications: a) No formal education ( ) b) Primary school education ( )

c) Secondary School education ( ) d) Tertiary education ( ) e) Others, please state…….

4.For how long have you been in estate business/issues? Please state…….

5. Which of the following is your status in the estate business?

a) Estate agent/vendor ( ) b) Estate dealer ( ) c) Estate valuer/surveyor ( )

d) Rent collector ( ) e) Others, please specify…….

6. Which of the following land/property commodities do you deal in?

a) Vacant lands only ( ) b) Sales of developed properties only ( )

c) Rent collection only ( ) d) Sales of Vacant lands and developed properties ( )

e) Any others, please state……

7. To the best of your knowledge, which of the following marketing segment do you think people are more engaged in? a) Vacant lands only ( ) b) Sales of developed properties only ( ) c) Rent collection only ( )

d) Sales of Vacant lands and developed properties ( ) e) Any others, please state……

8. What in your opinion is the reason why people are more into the segment you ticked above? You can choose more than one option

a) It is more profitable ( )

b) There are greater business opportunities in that segment, due to availability of the commodity ( )

c) The segment is less risky and therefore more secured ( )

d) Others, please state ……

SECTION B: Commercial Property Values

9. If into commercial/residential property business, which of the following is your method of operation?

a) Build and sale ( ) b) Build and rent out ( ) c) Rent collection on behalf of landlords( )

d) Scout for lettable properties for prospective tenants ( ) e) All of the above ( )

10. In the case of obtaining lettable property for tenants, who pay pays for your allowance or commission?

a) The tenant ( ) b) The landlord ( ) c) Both ( )

11. What is the expected average commission charged per transaction? Please state……..

12. Have locations around major commercial centres positively affected commercial property values in Zaria urban area?

a) Yes ( ) b) No ( )

13. What is the average rent per shop in the following areas for the years indicated in the table below?

Location/Area	**Average rent per shop per annum**				
	1982	**1992**	**2002**	**2012**	**2013**
1. PZ/S/Gari Area					
2. Kwangila/Fly over Area					
3. KofarDoka/Jos Road Area					
4.Danmagaji/Gwargwje Area					
5. T/wada/Kongo Area					
6. Samaru					
7. Palladan					
8. Around Zaria city market					
9. Gaskiya/NUBA Poly Area					
10. ChikajiInds/Muchia market/Round-about					
11. Dakace Industrial Area					
12.					
13.					
14.					

14. How important are the under-listed factors affecting commercial property value in urban Zaria?

Factor	**Very important**	**Important**	**Undecided**	**Of less importance**	**Not important**
1. Distance from a major commercial centre.					
2. Nearness to a major road.					
3. Demand for commercial properties					
4. Nearness to road junction.					
5. Type of adjoining property.					

6. Condition of the property itself					
7. Distance from PZ					
8. Transport cost.					
9. Nearness to densely populated Areas.					
10. Competition among uses.					
11. Nearness to a motor park.					
. 12. Nearness to a market					

15. Please rate the factors influencing rental value in order of importance; *1 being the highest, 2 next, etc*

Factor	**Rating (please tick one point for each)**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1. Presence of social infrastructure										
2. Proximity to major commercial centres										
3. Security of the area										
4. Distance from major roads										
5. Quality of the environment										
6. Nearness to University/school campus										
7. Population density of the area										
8. Distance from good schools (prim./sec.)										
9. Distance from PZ										
10. Ethno-religious composition of an area										

16. Do your clients make demand for commercial properties around major commercial centres in Zaria?

a) Yes ( ) b) No ( )

17. If yes, please rank the following areas in terms of demand for commercial properties. *i.e. 1st being place with the highest demand, 2nd next on and on.*

Location/Area	**Rating (please tick one point for each)**												
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**			
1. PZ/S/Gari Area													
2. Kwangila/Fly over Area													
3. KofarDoka/Jos Road Area													
4. Danmagaji/Gwargwje Area													
5. T/wada/Kongo Area													
6. Samaru													
7. Palladan													
8. Around Zaria city market													
9. Gaskiya/NUBA Polytechnic Area													
10. ChikajiInds/Muchia market/Round-about													
11.													
12.													
13.													

18. Kindly express your opinion by responding to the questions in the Table below

Statement/Question	Response				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1.The value of commercial properties are higher around major commercial centers than elsewhere.					
2. Commercial property values decrease outwards with increasing distance PZ.					
3. Competition among land uses affects the value of commercial properties in Zaria.					
4. Location around institutions/corporate buildings will increase commercial property values.					
5. Characteristics of a neighborhood (population density, type and standard of property e.t.c) affects commercial property values.					
6. Physical attribute of commercial properties –land size, age, condition ect- affects their values.					
7. Locations at points where two or more roads meet have greater positive effects on commercial property values than locations farther from such areas.					
8. Access to road positively affects commercial property values.					
9. Commercial properties along main roads have relative advantages over those located off the roads.					
10. Location that is prone to attacks by criminals will reduce commercial property values.					
11. Areas that are known to be infested by law breakers (e.g. smokers of Indian hemp, sex offenders, etc) tend to negatively affect commercial property values.					
12. Locations near dumpsites tend to lower commercial property values.					

SECTION C: Residential Property Values

19. In the last about 30years (around 1980s), was there any differences in the price of land and or rent based on location?

a) yes ( )
b) No ( )

20. If yes to the above, please, state the average rent charged per a 2 bedroom flat and a room and parlour (per annum) in the following areas during the periods indicated

Location	**Average rent per annum (in Naira)**									
	1982		**1992**		**2002**		**2012**		**2013**	
	2Br.f	**R&p**	**2Br.f**	**R&p**	**2Br.f**	**R&p**	**2Br.f**	**R&p**	**2Br.f**	**R&p**
1.Samaru										
2. Zaria City										
3. SabonGari										
4. Hanwa/Graceland										
5. Tudun Wada										
6. TudunJukun										
7. Gaskiya/Tukur-Tukur										
8. Gyallesu/Kongo										
9. Dakace										
10. SabonGari										
11. Chikaji/Muchia										
12. Samaru										
13. ZangonShanu										
14. Kwangila										
15. Hanwa										
16. Wusasa/Danmagaji										
17. GRA										
18. Kabama										
19. Dogarawa										
20.										
21.										

Key: 2Br.f = 2 Bedroom flat; R&p = Room and parlour

21. Have major commercial centres (e.g. PZ and Hanwa fly-over) positively affected residential land value?

a) Yes ( ) b) No ( )

22. Which of the following locations attract the highest values? (*please rank them serially*)

Location/StreetName	**Rating (Pls. tickONE point foreachstreet)1=Best,2 =next etc**																		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**
1.Samaru																			
2. Zaria City																			
3. SabonGari																			
4. Hanwa/Graceland																			
5. Tudun Wada																			
6. TudunJukun																			
7. Gaskiya/Tukur-																			
8. Gyallesu/Kongo																			
9. Dakace																			
10. SabonGari																			
11. Chikaji/Muchia																			
12. Samaru																			
13. ZangonShanu																			
14. Kwangila																			
15. Hanwa																			
16.																			
17. GRA																			
18. Kabama																			
19. Dogarawa																			

23. Do clients make request for housing accommodation around major commercial centres in Zaria?

a) Yes ( ) b) No ( )

24. If yes what do you think is/are the advantage(s) derivable from residing around such areas? (you can choose more than one option)

a) Easy shopping ( ) b) Accessibility of the area ( ) c) Availability of transport to any location from the area ( ) d) The price of goods in the area are cheaper ( ) e) Proximity to place of business/work ( ) f) Security of the area ( ) g) Quality of residential buildings in the area ( ) h) Provides opportunities for other relations to engage in some business ( )

25. Please mention any two areas that you think have the lowest land/rent value in Zaria.

i……

ii……

26. What in your opinion are the reasons for such low value in the two areas mentioned above; state any two reasons

i…….

ii…….

27. Howimportant are theunder-listed factors affecting residential property valuesin urban Zaria?

Factor	**Very important**	**Important**	**Undecided**	**Of less importance**	**Not important**
1. Distance from a major commercial centre.					
2. Nearness to a major road.					
3. Demand for commercial properties					
4. Nearness to road junction.					
5. Type of adjoining property.					
6. Condition of the property itself					
7. Distance from PZ					
8. Transport cost.					
9. Nearness to densely populated Areas.					
10. Competition among uses.					
11. Nearness to a motor park.					
. 12. Nearness to a market					

28. What do you think the most important impact of each of these factors are on the value of residential property? *Please**tick one** impact**for each factor***

Factor	Impact		
	Positive	Negative	No impact
Nearness to commercial centres			
Social infrastructure.			
Accessibility High institutions of learning			
High population density			
Security			
Dumpsites			
Quality of environment			
Crimes			
Factories			
Highways			

Appendix III

Questionnaire for Occupiers of Commercial Properties

Dear Sir, Madam
This questionnaire is designed to obtain information on the topic, **''Spatio-temporal Pattern of Land Value in the Zaria Urban Area,Kaduna State, Nigeria''.** This isa research project in Department of Geography, Ahmadu Bello University, Zaria, Kaduna State, Nigeria.
I assure you that the information provided will be used strictly for academic purposes only and kept confidential.

Kindly complete the blank spaces and put marks in the appropriate boxes as applicable.

Thank you.
Shehu Abbas
2016

SECTION A

1. Location of shop/Office:_____

2.Gender:

(a)Male [ ] (b)Female [ ]

3.Type of Business/Occupation:

(a)Professional [ ] (b) Commerce [ ]

(c)Others, please specify_____

4. How long have you been in occupation of your present office/shop?_____

5.What is the net floor area that you are occupying? _____Square metres; and is it single or double? (Please underline)

6.How much areyou paying as rent?N_____per annum

SECTIONB

7. Has there been any increasein the rent since the amount paid at your first year of occupying the place?

8.If yes to the above question, please indicate the rent amount for the following periods, where applicable

Year	**Rent paid Per Annum (in Naira)**
1982	
1992	
2002	
2012	
2013	

9. Which of the following in your opinion are the reasons behind the rate of increase in rental charges? Rank in order of importance i.e. 1 being the major reason, 2 next major reason, etc

Factor(s)	**Rating (please tick one point for each)**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1. General inflation inThe country										
2. Location around a majorCommercial centre										
3. High demand for lettableShops										
4. High volume of businessactivities in the area										
5. Greed on the part of landlords										
6. Influence of estate agents										
7. Quality of the property										
8. Presence of infrastructure										
9. Nearness to a high institution										
10.Accessibility of the area										
11.Others, please state…… …….. ……										

10. What was the source through which you obtained the business premises/office

a) Through an estate agent ( )

b) Directly from the owner of the property ( )

c) It is an owner occupied property ( )

d) Others, please state…….

11. If it is through estate agent, what is your assessment off the role played by such agents

a) They are very useful ( )

b) They can be very exploitative ( )

c) No idea ( )

12. Would your business have performed better if you had located off the present location?

(a)Yes [ ] (b)No [ ]

13. Is your present space a purpose-built or converted commercial property?

(a)Purpose-built [ ]

(b)Converted [ ]

14. What factors influenced your choice of the present premises?*Pleaseselectas **MANY**options as possible*.

S/N	Factor	Pleaseselect HERE
1.	Location (relativeto major road)	
2.	Roadaccessibility (nearnessto road)	
3.	Nearness to areas of commercial activities	
4.	Competition ofuses(betweendifferenttypes of commercial uses)	
5.	Competition of uses(between commercial and other users like residential, etc)	
6.	Natureofbusiness – goods/servicesthat areprovidedto clients	
7.	Neighborhood characteristics(type and quality of adjoining properties,environmental quality ofthe area,etc)	
8.	Trafficcongestion(which increases/decreasecustomerpatronage)	
9.	Quality of roads(motor-ability, tarredsurface,width ofroad,etc)	
10.	Costofimprovement(amountspenttorepair,orupgradeexisting Propertyto modernstandard)	
11.	Demandfor commercialspace	
12.	Economicattributes(localandnationaleconomiccondition,and ability oftenants to pay)	
13.	Others, pleasestatethem:	

15. Have locations near major areas of commercial activities affected property values in Zaria?

(a)Yes [ ] (b) No [ ]

16. Do you think that nodal points (where two or more roads meets) give better advantage to business than any other locations?

(a)Yes [ ] (b) No [ ]

17. Please rate the following factors that might have dictated your choice of present location.(*1 stands for the best,2 nextetc*)

S/N	Factors	Rating (PleaseTickONE point foreachstreet)												
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
1.	Location (around a major commercial centre)													
2.	Roadaccessibility (nearnessto road)													
3.	Road network pattern in the area that makes movement easy													
4.	Competitionofuses(betweendifferenttypesof Commercialuses)													
5.	Competition of uses(between commercial and Otherusers likeresidential, etc)													
6.	Nature of business – goods/services that are provided to clients													
7.	Neighborhood characteristics(type and quality Ofadjoiningproperties,environmentalqualityof													
8.	Traffic congestion (which increases/decrease Customerpatronage)													
9.	Quality of roads(motor-ability, tarred surface, width of road,etc)													
10.	Costofimprovement(amountspenttorepair,or Upgradeexisting property to modernstandard)													
11.	Demandfor commercialspace													
12.	Economic attributes (local and national economic condition, and ability of tenants to pay)													
13.	Others, pleasestatethem:_____													

18. What will be the impact of each of the factors on commercial property value?

Pleasetickone impactfor eachfactor

S/N	Factor	Very important	Important	Undecided	Of less importance	Not important
1	Competitionamongst					
2	Type of adjoining Properties					
3	Trafficcongestion					
4	Nearnesstoroadjunction					
5	Nearnesstoaccessroad					
6	Demand for commercial					
7	Condition of the commercial					
8	Roadnetwork					
9	Neighbourhood					
10	Transportcosts					
11	Trafficcongestion					
12	Location					
13	Demand					
14	Accessibility					
15	IntensityofLand`Use					

Thank you.

Appendix IV

Questionnaire for Occupiers of Residential Properties and Vacant land owners

Dear
Sir/Madam,
This questionnaire is designed to obtain information on the topic, ‘‘**Spatio-temporal Pattern of Land Value in the Zaria Urban Area**, **Kaduna State, Nigeria’’.** This isa research project in Department of Geography, Ahmadu Bello University, Zaria, Kaduna State, Nigeria.
I assure you that the information provided will be used strictly for academic purposes only and kept confidential.
Kindly complete the blank spaces and put marks in the appropriate boxes as applicable.

Thank
you.
ShehuAbbas

2016

SECTION A

1.Location of residence/Plot:_____
2.Gender:
(a)Male [ ]
(b)Female [ ]
3.Occupation:
(a) Civil servant [ ]
(b) Business/trading [ ]
(c) Farming
Others, pleasespecify_____

SECTION B: For Property Owners

4. For how long have you been in possession of this House……
5. Through which of the following source did obtain your plot/land? a) Government allocated ( ) b) Inherited ( ) c) Bought vacant plot from private individual ( ) d) Bought the house ( ) e) Others, please state……
6.What is the net floor area that you are occupying? ___Square metres.
7Is there any significant difference between the price of land then (when you acquired it) and now? a) Yes ( ) b) No ( )

8. If yes to the above, rate the following factors in terms of their strength in influencing the price of land:

Factor(s)	**Rating (please tick one point for each)**											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1. General inflation in The country												
2. Location around a major Commercial centre												
3. High demand for residential accommodation												
4. Security of the area												
5. Greed on the part of landlords												
6. Influence of rent/estate agents												
7. Quality of the property												
8. Presence of infrastructure												
9. Nearness to a high institution												
10.Accessibility of the area												
11.Others, please state…… …….. ……												
12.												

SECTION C: For Tenants in Residential Property

9.How long have you been in occupation of your present residential accommodation?_____

10.What type of property are occupying now?

a) 2 bedroom flat ( ) b) 3 bedroom flat ( ) c) Room and parlour ( )

d) Others, please specify……..

11.How much areyou paying as rent?N_____per annum

12.Has there been any increasein the rent since the amount paid in your first year of occupying the place? a) Yes ( ) b) No ( )

13. If yes to the above question, please indicate the rent amount for the following periods, where applicable:

Year	**Rent paid Per Annum (in Naira)**
1982	
1992	
2002	
2012	
2013	

14. Which of the following in your opinion are the reasons behind the rate of increase in rental charges? Rank in order of importance i.e. 1 being the major reason, 2 next major reason, etc

Factor(s)	**Rating (please tick one point for each)**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1. General inflation in The country										
2. Location around a major Commercial centre										
3. High demand for lettable Shops										
4. High volume of business activities in the area										
5. Greed on the part of landlords										
6. Influence of estate agents										
7. Quality of the property										
8. Presence of infrastructure										
9. Nearness to a high institution										
10.Accessibility of the area										
11.Others, please state…… …….. ……										

15. What factors influenced your choice of the present residence? *Pleaseselectas **MANY**options as possible*.

S/N	**Factor**	**Pleaseselect HERE**
1.	Location (relativeto major road)	
2.	Roadaccessibility (nearnessto road)	
3.	Nearness to areas of commercial activities	
4.	Competition ofuses(betweendifferenttypes ofcommercialuses)	
5.	Competition of uses(between commercial and other users likeresidential, etc)	
6.	Security of the area	
7.	Neighborhood characteristics(type and quality of adjoining properties,environmental quality ofthe area,etc)	
8.	Predominance of my ethno-religious group	
9.	Quality of roads(motor-ability, tarredsurface,width ofroad,etc)	
10.	Development prospects of the area	
11.	Social class of people in the area	
12.	Presence of good schools in the area	
13.	Others, pleasestatethem:	

Thank you

AppendixV

Checklist for the Analysis of Variables Influencing Land Value in Urban Zaria

i) Distance from the CBD – measured in metres and kilometres.

ii) Distance from sub-centres – measuredin metres and kilometres.

iii) Neighbourhood quality – a) very good =1 b) good =2 c) fair =3 d) poor =4

iv) Population density – a)high density = 0 b) low density = 1

v) Proximity to the campuses of high institutions – a) very close =1 b) close =2 c) far =3 d) very far =4

vi) Availability of water supply –a) Very regular =1 b) regular =2 c) irregular =3 d) none at all =4

vii) Land use type – a) commercial = 1 b) residential = 0

viii) Topography -a) steep slope = 0 b) uniform or gently sloping area = 1

ix) Road quality a) Arterial (tarred) roads =1 b) tarred roads =2 c) tarred (potholed) roads =3 d) un-tarred =4

x) Development potential –a) highly developed = 1 b) highly undeveloped = 0

xi) Ethnic composition – a)non-cosmopolitan = 0 b)cosmopolitan = 1

xii) Season - a) dry season = 1 b) wet season = 0

AppendixVI

ANOVA Tables

ANOVA of the relationship between commercial land value and theexplanatory variables

Model	Sum of squares	Df	Mean square	F	P value
1 Regression	4.129E8	10	4.129E7	26.291	0.000
Residual	3.533E8	225	1570297.889		
Total	7.662E8	235			

R^2 = 73.9%
R^2 adjusted for df = 71.8%
Standard Error of Est. = 125.311

ANOVA of the relationship between residential land value and the explanatory variables

Model	Sum of squares	Df	Mean square	F	P value
1 Regression	4.117E7	11	3742990.510	10.541	0.000
Residual	3.835E7	108	355095.696		
Total	7.952E7	119			

R^2 = 71.8%
R^2 adjusted for df = 66.9%
Standard Error of Est. = 59.58990

ANOVA of the relationship between vacant land value and the explanatory variables

Model	Sum of squares	df	Mean square	F	P value
1 Regression	2.285E8	11	2.077E7	2.077E7	0.043
Residual	6.241E7	78	8915049.815		
Total	2.909E8	89			

R^2 = 78.5%
R^2 adjusted for df = 54.8%
Standard Error of Est. = 298.5808

AppendixVII

Minimum, Maximum and Mean Rental Values

Mean Commercial Rental Value by Years

S/No.	Year	Rent (in Naira/m^2)		
		Minimum	**Maximum**	**Mean**
1	1982	4	20	12
2	1992	20	800	410
3	2002	208	2594	1401
4	2012	1294	4733	3014
5	2014	1454	5761	3608

Source: Field work, 2016

Mean Residential Rental Value by Years

S/N	**Year**	**Rent (in Naira/m^2)**		
		Minimum	**Maximum**	**Mean**
1	1982	2	15	8.5
2	1992	32	597	315
3	2002	135	1351	743
4	2012	1194	3731	2463
5	2014	1194	4477	2836

Source: Field work, 2016

Table 4.32: Mean Vacant Land Value by Years

S/No.	**Year**	**Rent** (in Naira/m^2)		
		Minimum	**Maximum**	**Mean**
1	1982	0.6	55	27.8
2	1992	01	333	167
3	2002	33	4000	2033.5
4	2012	556	22222	11389
5	2014	444	17777	9110.5

Source: Field work, 2016

Sources of Vacant Land

Sourcing of vacant land dealers	**Frequency**	**Percentage**
Purchase of farmlands for further subdivision into plots	76	85.4
Repurchase of government allocated plots for further sale	13	14.6
Total	**89**	**100**

Source: Field survey, 2016