HOUSING QUALITY AS A DETERMINANT OF RESIDENTIAL RENTAL VALUE IN BENIN CITY

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A PROJECT WORK SUBMITTED TO THE DEPARTMENT OF GEOGRAPHY AND REGIONAL PLANNING, FACULTY OF SOCIAL SCIENCES, UNIVERSITY OF BENIN, BENIN CITY.
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CERTIFICATION

This is to certify that this work was carried out by **OKIKIOLA OLAMIDE FAMESO** with matriculation number **SSC1205561**, in the Department of Geography and Regional Planning, University of Benin, Benin City, under my supervision.

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DEDICATION

This work is dedicated to God almighty for his protection and overwhelming guidance over the years of my studies. And also to my loving mother, sister and best friend, Mrs. Olaitan Fameso for her love and support throughout my stay in University of Benin.

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ABSTRACT

This study examines housing quality as a determinant of residential rental value in Benin City,Edo state. The study was carried out using both primary and secondary data. In all 308 questionnaires were administered in 20 zones of the three residential areasmapped out in the study area and respondents were randomly selected along major streets. But only 280 questionnaires were returned valid for analysis. Using the statistical packages for social sciences (SPSS),various statistical techniques and presentations were employed in analyzing the data. The hedonic regression model was used to test the first hypothesis of the study. The result showed that there was a significant relationship between housing quality and residential rental value in the study area with 50% of type of floor finish having the highest beta coefficient at -.215. The second hypothesis was tested with analysis of variance(ANOVA) technique and the result showed a P-Value of .000which indicated a significant difference in the yearly rent of the zones mapped out in the study area. The third hypothesis was tested with the use of the spearman's rank order correlation coefficient and the result showed that the r_s *(coefficient) is 0.75 this shows thathousingrent increases as distance increases from the CBD. The study therefore, is of the view that housing quality determines residential rental value in the study areaand poor quality housing can be improved upon through policy implementation by the federal, state and local governments.*

CHAPTER ONE

1.0 INTRODUCTION

1.1BACKGROUND TO THE STUDY

Housing is considered a basic necessity of life – the third after food and clothing. Housing is defined to encompass the shelter and facilities / services that make up the living environment to make life meaningful and comfortable for people (UN, 1970). Man is a socio-economic being seeking to dwell in residential units that provide him the maximum supply of the necessary facilities at affordable costs. In this light, facilities that would enhance the living condition of residents in a building within a neighborhood are very essential. This alongside other parameters such as security, accessibility, location etc. makes up the totality of housing quality. However, housing facilities for the purpose of this study consist of the structural form of the house and internal facilities which include bathroom/toilet, kitchen, and water supply among others affect rental value of residential property in a city. Over the world, renting offers a more affordable way for many people to gain access to accommodation. The provision of adequate housing of good quality is a very integral part of the needs of every society and has great value for individuals, families, communities, and society at large.

The manner in which a city grows has significant influence on land value pattern which in turn affect the property values and also the rent on such properties (Nzau, 2003). Since housing provide man with a better quality of life, it can therefore

be said that a good urban form provides higher quality of life, the monetary value of this effect will be reflected in the property price, in addition to the value of structural attributes and neighborhood characteristics of a city. For the purpose of this research, this monetary value is known as rent. Rental value of properties vary from place to place in an urban space depending on various factors among which the quality of the house stand prominent. Most often, when people talk of the factors determining rental values of residential properties, the most commonly discussed factors are location, quality of building, demand and supply rate, etc. Little or no regard is given to how the urban form determines the residential rental prices of houses. Different theories were developed in the early and mid1950s to explain how cities grow. Notable among these theories are the Burgess concentric model of 1925 put forward the idea of concentric circle pattern of urban land uses with emphasis on residential areas. Hoyts theory of 1939 revealed that the highest rent areas of a city are generally situated in one or more sectors each having a gradation of rental prices downwards from these high rental areas. The Alonso's theory of 1964 has based on bid rent theory; Alonso emphasized the spatial characteristics of the urban area. Emphasis of Alonso's theory has been upon residential land use. Some of these theories have been applicable in cities that have the concentric pattern of urban form.

In cities such as Benin and Uyo, the urban housing rent seems to be highest at the city center. It has been observed that even when the housing quality is sub-standard with inadequate facilities, the rental value seem to be high (Eghagha, 2014).

This is due to the influxes of people to the city center (Udida and Ofem, 2014). These influxes have been for the purposes of carrying out commercial, industrial, institutional, administrative and other activities. The influxes alongside the natural process of population growth have brought about a rapid growth in the urban population(Udida and Ofem, 2014).This leads to competition for accommodation at the city center and this has led to the outrageously high rent .Studies have shown that houses at the city center in Benin city is characterized with poor structural facilities and inadequate internal facilities, many of the dwelling unit go varying distances to get water for use, some of these residential unit do not have exclusive bathrooms ,toilet facilities etc. Despite the depressing housing condition of the poor households in these neighborhoods ,high rental value relative to quality as well as income have continued to worsen their quality of life(Eghagha,2014).

The centripetal nature of cities creates intense pressure on spatial structure of urban systems at expanding rates slower than the rate of growth of urban population. These intense pressure created by market forces of demand and supply especially on land influences variation in rental values in urban areas. This variation is usually highly pronounced in residential land areas. The way residential areas are structured in cities affect the rental value of residential units in a city. This research therefore attempts to show that urban form alongside the quality of houses in the urban space determines residential rental prices.

1.2 STATEMENT OF THE RESARCH PROBLEM

The land use in cities could either be residential, recreational, institutional etc. Out of all these, residential land use seems to take a large proportion of the land use. This is because as cities grows and sprawls, the need for residential land use increases. Studies have been carried out on the variations of residential rental value determined by the facilities present in the building and the structure of the building .Some of these studies include researches done by Choumert *et al,* (2014) who studied the determinants of rental values in urban housing markets with particular reference to access of piped water in Kigali, Rwanda. Ibrahim (2011) in Ilorin carried out his research on property rental values and focused extensively only on the available public infrastructural facilities in selected neighbourhoods. Olujimi and Bello (2009) in Akure evaluated only the effects of available infrastructure in residential property on the rental values.

However, these studies have limited their scope only to the facilities or the structure of the house. To properly assess the rental values of residential houses, it is essential to analyze the various attributes of housing qualities which form the bedrock of house prices determination. The physical and structural characteristics of a dwelling as well as the location of residential property are among the factors that should be critically examined and analyzed in order to ascertain the fair rental value of a given house or dwelling unit. This gap is what the study intends to fill.

1.3 RESEARCH QUESTIONS

This research is propelled by the primary quest of identifying housing quality as a determinant of residential rental value in Benin City .This research therefore hopes to answer the following questions.

1. What is the quality of housing in the various neighborhoods in Benin City?
2. What is the effect of housing quality on residential rental value?
3. What effect does the location of the neighborhood in the city have on housing rental price?
4. What are the rental values in the various residential neighborhoods in Benin City?

1.4 AIM AND OBJECTIVES

The aim of this research is to examine the relationship between housing quality and residential rental value in Benin City. In order to evaluate this aim, below are the following objectives.

1. To ascertain the quality of housing in Benin City
2. To determine the impacts of housing quality on residential rental value in Benin City
3. To investigate the differences in rental value between and within the various residential neighborhoods in Benin City

1.5 RESEARCH HYPOTHESIS

1. There is no significant relationship between housing quality and housing rental value in Benin City.
2. There is no significant difference in housing rental value in the various residential neighborhoods in Benin City.
3. Rents paid on housing do not increase with distance from city Centre.

1.6 SIGNIFICANCE OF THE STUDY

The relevance of this research is to provide the knowledge of variations in rental value of residential property; this research also uniquely establishes a relationship between residential rental price, location, availability of amenities and the existence of facilities within a particular piece of accommodation. This research also strives at analyzing the quality of residential units. As cities grow and sprawl to the hinterland, the physical character of the city tends to influence rental prices of property. Since residential land use is one of the important use to which land is put, a study of this nature is therefore significant to explain the differences in residential rental value determined by the quality of the housing units in Benin City, Edo state.

1.7 SCOPE OF THE STUDY

This research intends to focus on the residential zones in Benin City. They are; the core, intermediate, peripheral and planned settlements. However, the study focuses on only the first three of these residential zones. The research also intends to look into the rent of dwelling units found in these residential zones in Benin City, the study seeks to capture the view of residents or occupants in these various dwelling

unit by interviewing the tenants or owners of the house who were in the best position to provide reliable information on the research.

The study also seeks to examine the quality of houses and the spatial structure of the Benin metropolis. In terms of housing quality, the research limits its scope to the facilities that are present in the building and the structural facility of the building; these facilities include the water supply, the toilet and bathroom facilities, the kitchen facilities, electricity supply, type of doors, type of windows, type of floor finish, type of wall finish, roofing materials, ceiling materials, state of compound and state of security.

1.8 STUDY AREA

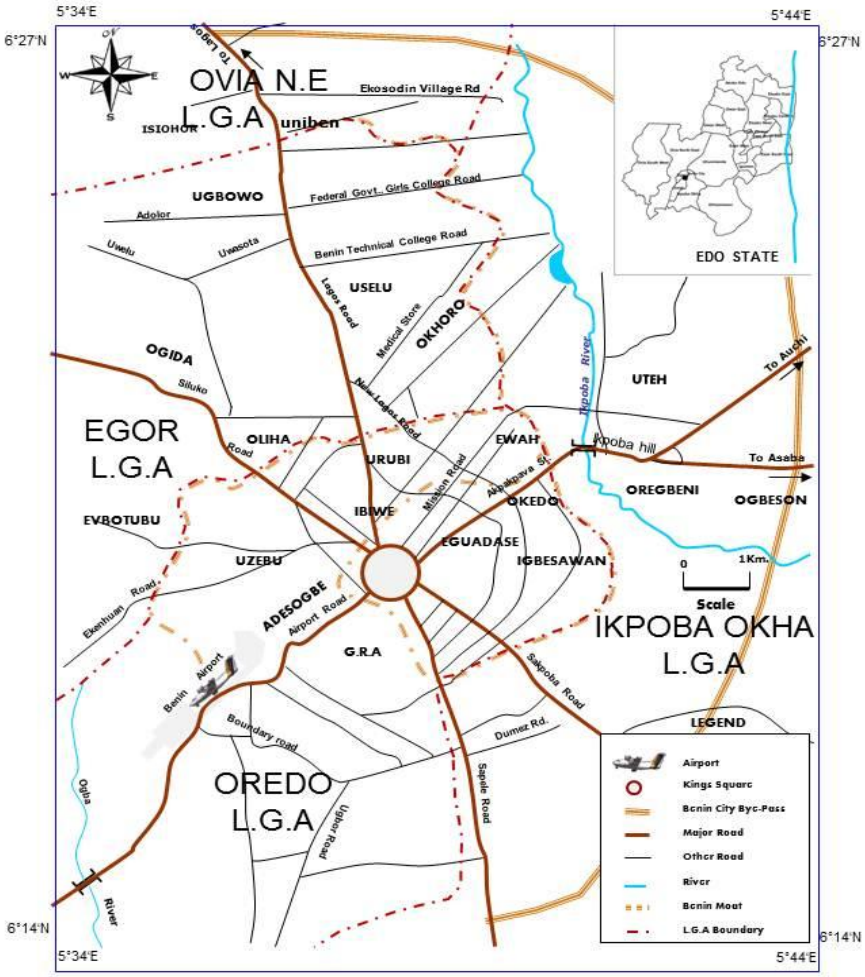


Figure 1.1 Study area

Source: Ministry of Lands and survey, 2015

The metropolitan city of Benin is located in the South-South Geo-political Zone of Nigeria. Geographically, the city lies between Latitudes 6°12′ N and 7º13′ N of

the Equator, and between Longitudes 5º 35′ E and 5º 45′ E. Benin City is the capital and largest urban center in Edo State. The study area Benin City is an emerging metropolitan city in southern Nigeria. This metropolitan city comprises four local government areas which are; Ovia North –East, Oredo, Egor and Ikpoba-Okha Local Government Areas. It is a city approximately 40 kilometers (25 mi) north of the Benin River. Strategically placed as a gateway to the four corners of the country, the city is linked by road to the West (Lagos), East (Onitsha), North (Abuja), and South (Warri).Oredo is both the administrative capital of Edo State and a local government area with the secretariat located at the city's CBD. Oredo is located in the south central part sharing boundaries with Egor to the north, Ikpoba-Okha to the east and Ovia North-East to the west. Egor has its local government secretariat in Uselu, a major suburb of Benin City that has grown from a small agricultural village to a sprawling urban center. Egor is bordered by Ovia North-East to the north and west, Oredo to the south and Ikpoba-Okha to the east.

1.8.1 RELIEF

Benin stands on a slightly elevated piece of flat land about 85m above sea level, with the eastern edge steeply tilted towards Ikpoba River that drains the eastern portion of the city, while the western edge slopes gently towards Ogba River that drains the western portion of the city. The lowlands are part of the vast coastal plains which form the southern fringe of Nigeria, and are generally below 150m in height.

1.8.2 DRAINAGE AND VEGETATION

The area is drained by series of incised rivers and small streams, flowing mainly in a north-south direction (Abu, 1990). The natural vegetation is the rainforest, though there is the presence of savanna grassland in areas of urban expansion and bush fire amongst other factors.

1.8.3SOIL

The soil in Benin City is mainly lateritic i.e. rich in iron and alumina. The soil is reddish brown in colour and has been referred to as the Benin formation, the soil is usually water logged and poorly drained.

1.8.4 CLIMATE

The average annual rainfall can be as much as 2000 to 2500mm. The average daily temperature is about 27° C. There is seasonal variation, with a wet season from July to September and a dry one from December to February (Ben-Amos, 1996, 2015).

1.8.5DEMOGRAPHY

During the last five decades, Benin City has witnessed a tremendous growth in population and areal extent. The first population census of Benin, made during the period of British colonial rule in Nigeria, took place in 1931 and thus put the number of people living in the city that year at 11,000. By 1952, the population of the region was 53,753. In 1963, a Nigerian census indicated that the city had a population of 100,694. The urban population was similarly estimated at 201,000 in 1972, and by 1976 at 314,219, indicating a growth rate of 8.5% for that period, on the basis of

which Ikhuoria (1984) estimated the city's 1980 population at 425,000 (Ben-Amos, 1996, 2015). By 1991 Census, the population of Benin rose to 801,622. The 2006 Census, which is the most recent, recorded the population of the metropolitan city as 1,147,188 (Wikipedia, 2016). According to Sada, (1984) as cited in Abu (1990), migration to Benin City continues to increase its population, which doubles in size every decade, as young people from the rural areas, as well as from different ethnic groups, come to seek employment.

1.8.6 ECONOMY

Rubber processing and the preparation of tropical hardwoods are major industries in the state of which Benin City is the capital (Ben-Amos, 1996, 2015). As Makinwa (1981) in Ben-Amos, (1996, 2015) notes, Benin City's unique position as the state capital, coupled with the discovery of oil and a tremendous increase in its production in the late 1960s and early 1970s, drew financial resources and industries to Benin. However, today the urban economy is dominated by government in the formal sector and trade in the informal one. Because Benin is the capital of Edo State, the government and its agencies are the main employers for the wage-earning portion of the population. At least half of the urban workforce is in clerical and, especially, sales-and-service professions. Men are typically involved in tailoring, carpentry, or electrical and mechanical repairs and women tend to be hairdressers, dressmakers and petty traders. Women dominate in the street and local markets in the city. Youth unemployment has become a growing problem as the influx of

migrants from the villages and other parts of Nigeria steadily increases (Ben-Amos, 1996, 2015).

1.8.7 LAND USE PATTERN AND ZONING

Benin city has extended from radius of 6.4cmm in 1968 to 15km in 1981 (Omiunu, 1988).Benin city has expanded from 220km ^{2} in 1987 to 359km ^{2} in 2013 with a mean annual growth of 1.5%(Odjugo*et al,* 2015). It has been recorded that Benin City has had tremendous increase in the spatial expanse of the various land use commercial, recreational, agricultural and residential land use. The city serves as an administrative capital of defunct mid-western states in 1963 and the Bendel State in 1976 and presently Edo state capital since 1991.The residential land use is the largest single land use type in Benin City with over 60 percent of the developed area devoted to it. The contemporary residential district in Benin City emerged from two major growth processes; the first was the internal re-organization of the pre-colonial residential areas in the town. This processes led to the replacement of traditional compound in the town by smaller houses (Mabogunje, 1962). The second process of residential land use in Benin City has been growth by spatial expansion.

Studies have shown that Benin City consist of four distinct residential zones. The zones are the traditional core area, intermediate area, urban fringe and planned settlement areas (Eghagha, 2015). The traditional/core area is in the inner most and oldest part of the city, and highly populated by the natives. It has the highest population and residential land use densities. Residential land use density in the core

area was intensified by fission and infilling (Ogu, 2005). On the other hand, the intermediate zone has a lower residential land use and population density than the core area due to its substantial migrant population. Though the structural quality of housing in the intermediate zone is generally higher than the core area of the city, it is equally characterized by inadequate housing, public facilities and environmental conditions. The urban fringes were largely developed in the early 1970s and have become part of the city as a result of the urban expansion that has occurred in the last few decades. In Benin City, the peripheral area experienced urban encroachment and invasion as the suburbanization process continued. Though the houses in this zone may be structurally fit, they lack basic urban facilities such as drainage, good roads, waste disposal and adequate security. Some of the localities in this zone were formerly isolated villages incorporated by the rapidly expanding city. Others have grown spontaneously through the process of succession and infilling, following the establishment of educational institutions in the suburb. The last zone is associated with low to medium residential land use and population densities.

CHAPTER TWO

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

2.0 INTRODUCTION

This research work reviews relevant concepts on housing quality as determinants of residential rental value. These related literature and concepts are; the concept of quality, housing, housing quality, the concept of value, rent, rental value, the reviewed theories include the hedonic pricing theory, Bid rent theory, concentric zone theory, and the sector zone theory will be examined in this chapter.

2.1 CONCEPTUAL FRAMEWORK

2.1.1 CONCEPT OF QUALITY

Quality of life is a widely used term, quality of life in relation to individuals can be the degree to which a person enjoys the important possibilities of his or her life, this result from both the opportunities and limitations each person has and reflect the interaction of personal and environmental factors. Quality of life to the community is the livability of communities through a combination of subjective life-satisfaction surveys and objective determinants. Quality is a product of the interplay among social, health, economic and environmental conditions which affect human and social development, of which housing and neighborhoods are key aspects. Quality of life is therefore a multi-dimensional construct which may be measured by objective analysis of environmental characteristics and by subjective analysis of people's perception (Pacione, 2003).Housing is a basic component of quality of life. Without appropriate dwelling, people can hardly meet their other basic needs and participate adequately in society. In the field of housing, quality of life may address environmental quality such as quality of dwelling, air, water, and neighborhood

environment or human aspects such as health, education, income, and ownership status .Quality of life in a neighborhood goes beyond just economic prosperity, other factors such as safety, services, environmental cleanliness, and the availability of parks and recreational areas have an impact on how people feel about their houses (Pacione, 2003). .

2.1.2 CONCEPT OF HOUSING

According to Ozo (2005), housing is a physical and social necessity of life and plays a number of fundamental- social, economic, psychological, environmental and health roles in the wellbeing of the people and the economy .Generally, housing refers to the social problem in a country whereby the government of the country is burdened with the task of ensuring that members of the society have a home in which to live, whether it is a house or some other kind of dwelling, lodging or shelter.

2.1.2.1 TYPES OF RESIDENTIAL PROPERTY OR HOUSE TYPES

Residential properties are majorly the houses provided for dwelling purposes. Below are the types of dwelling units relevant to this study.

The traditional compound

This house-type started around 19th century, the floor plan of the traditional compound house has only one courtyard which can be either closed-end/open-ended. In Benin City, the traditional courtyard house is divided into the following; family compound, adapted family compound and hybrid family compound courtyard house-type. The courtyard is usually surrounded by paved walkways with sitting room and

bedrooms of different sizes. Around the compound are long verandas from front to back sections. This is typical of the traditional courtyard house in Benin City. (Ekhaese*et al*, 2014).The traditional compound is the most common housing type in Benin City.

Blocks of flats

Blocks of flats are dwelling units usually containing two, four or six flats with each flat providing accommodation for a household. Each flat provides almost a complete privacy with shared open outdoor space; flats have common features like entrance door and staircase which are used by the inhabitants of such dwelling unit. Sub-categories of flats are one bedroom flat, two bedroom flat, three as well as four bedroom flats. Usually, flats are situated in a building that is split up into multiple living areas for different residents. Housing facilities such as kitchen, toilet and bathroom are within the building (Ibrahim, 2011).

Duplex

The duplex is a type of dwelling unit that provides accommodation on two floors. This means the ground floor and the first floor. Features of the ground floor include a lounge, dinning, kitchen, toilet and sitting room, while first floor contains the living rooms and bathrooms. The duplex houses commonly refer to two separate residences, attached side by side, but the term is used sometimes to mean stacked apartments on two different floors. The duplex can appear as a single townhouse

section with two different entrances, though the normal duplex is with a shared common entrance (Akinlolatan, 2014).

Rooming or the corridor house-types (face- me-i- face- you)

This type of house is a corridor house (otherwise known as “face me i face you”). This type of dwelling unit has a long internal corridor with rooms on either side and it is terminated at his the back by kitchens, stores, toilets and bathrooms. The corridor house type is accessed from a small terrace at the entrance. All rooms in the house are accessed from the corridor and it is called "face me i face you" because all rooms doors on one side of the corridor faces all room doors on the other side (Ekhaese*et al,* 2014).

Bungalow

The bungalow is a house type which provides a self-contained accommodation on one floor. All the housing facilities necessary for human habitation are provided within the building. Most bungalows have built-in garage, and few have boys’ quarters attached to them. The most common types of this house type are two, three and four bedroom bungalows (Ibrahim 2011).

Self-contain

This type of dwelling unit is mostly of two types; the room and parlor self-contain and a room self-contain. The features common to both are the bathroom, toilet and kitchen facilities which are found in the room and not shared.

2.1.3 CONCEPT OF HOUSING QUALITY

The concept of housing quality or qualitative housing is generally subjective in nature and a function of many variables, ranging from the design to the condition of housing, and the relative environment in which the housing unit is part (Odekunle and Agbadi, 2014). This subjective aspect of housing quality causes considerable debate among researchers on the issue of defining the concept (Morris & Winter, 1997).According to Agbola (1973), the concept of "a habitable home" or "an ideal home" is related to the physical, architectural, and engineering component of the home, and also the social, cultural, and personal characteristics of the inhabitants; the component of the environment of which the home is a part; and the nature of the institutional arrangement under which the house is managed. Housing has to be adequately quantitative and qualitative in order to fulfill its basic purposes (Barlowe, 1978).

Housing quality is a composite concept that comprises several characteristics (Fiadzo*et al*, 2001). Housing quality is difficult to measure directly, because quality can be laden with physical, economic and cultural dimensions which are difficult to capture. quality has been described as the extent to which a product fulfills the requirements set for it; and "the structural quality" as an umbrella term, covering

various aspects of quality, such as aesthetic, functional (efficiency), and cultural value (Voordt*et al,* 2005).In the developing world, two major approaches have been suggested in the literature for the assessment of residential quality, the economic and the noneconomic measures of quality (Ogu, 2002). The economic measure entails property-market evaluation, involving the neo-classical, microeconomic trade-off models, such as the hedonic price theory (Arimah, 1992). The non-economic approach to quality evaluation may involve the techniques to assess residents' satisfaction with housing (Awotona, 1998); and normative evaluation techniques for appraisal of housing quality (Ozo, 1987; Ogu, 1994).The characteristics embedded in the quality of a house will vary with the house hold's socio economic status and capacity to afford the best of the facilities in the dwelling unit. Although, everyone needs a house for shelter but not everyone gets the same income from jobs, therefore there will be variation in the standard of housing and will consequently vary in quality identified by the conditions of their houses (Eghagha, 2014).This variation in housing quality is what leads to the differences in rental prices of residential units in the urban space. The quality of housing encompasses many factors, this include the physical condition of the building and other facilities that enhances the living standard of people in an area. Housing quality within a neighborhood should be affordable to all categories of household(Okewole and Aribigbola, 2006).It is important to note that the measurement of housing quality cannot be limited to the physical characteristics of the dwelling unit, but must include the neighborhood

characteristics where such house is located. The conditions for good housing not only require certain amenities and facilities such as toilet, bathroom ,kitchen ,energy supply ,refuse and sewage disposal ,portable water supply ,there must also be all the ancillary facilities which are important to the wellbeing of residents.(Orobuloye, 1993).Some of these are indicators of housing quality even though there are no globally acceptable set of indicators with which to attribute a standard house (Ikoh 2014).

2.1.4 CONCEPT OF VALUE

The words worth, price and value are found to be described as similar terms or to have interchangeable definitions. Price is the actual observable money exchanged when a property investment is bought or sold. In most other markets price is given, but in the property market every property interest is different and requires an individual estimate of value to guide the buyer and seller in their negotiations to agree a price. Price can be fixed by negotiation, through tender bids or at auction (Aliyu, 2012). The relationship between worth and value are fundamental issues to price within the operation and regulation of real estate markets. However, for the purpose of this study, the term value will be considered. Value relates to the worth of a commodity. In economics, value can be said to be a measure of preference, Value in economics is also the esteem in which something is held or can be exchanged under current market conditions. The higher its esteem is, the greater its exchange. Value is an estimation of the likely selling price. In other markets, where

homogenous goods are sold, the price is not estimated but is determined from market trading and is usually used to describe an assessment of worth (Hanemann, 2013)

The works of David Ricardo, Karl Marx, Piero Sraffa, Ratcliff, William Stanley Jevons, Léon Walras and Carl Menger, have explained value in various field especially in economics. Value in Marxist context refers to the consequence of an effort to provide a commodity (Verheye, 1997). Value in Ricardo's context relates to a fair or proper equivalent in money, commodities e.t.c for something sold or exchanged. The worth of a thing in money or goods at a certain time ,market price ,the quality of a thing according to which it is thought of as being more or less desirable ,useful ,important e.t.c (Sraffa and Dobb, 1951). The word value can be used to describe different but related concepts in terms of real estate .A commodity which is abundantly available has no direct value, but when that same commodity becomes short in supply or is not homogenous or when different users are competing for it, it gets an (exchange) value .Housing facilities are not evenly spread over an urban space therefore the dwelling units with abundance of facilities becomes of high value for renters. The concept of value involves two main conditions .It must be related to a desire and there must be a certain difficulty to obtain it (Verhye, 1997). As population pressure increases in urban areas, housing demand increases.

The concept of value is a subjective term and has various meaning depending on the context in which it is used for. A single property can therefore have different values such as sales value, rental value, and mortgage value amongst others

(Oyebanji, 2003). The value of a housing unit is the asset price associated with the net rental flow it generates. The concern of land economists and appraisers is with the economic and market values. Valuer uses the word "value" to depict "market value" (Adegoke 2005; Millington 1979). For the purpose of this study, the rental value of residential properties will be of importance. Chun –Chang and Hui –Yu (2014) stated that prices of houses are subject to the influence of various neighborhood characteristics, such as the quality of nearby schools, the quality of the community environment, the development of neighboring lands, and the status of public utilities and infrastructure. Olusegun (2003) identified factors determining rental values under three major groups; they include the external factors, internal factors and economic factors. the external factors include location and accessibility, internal factors include the individual features of the property such as number of bedrooms, plot size garage, number of toilet, bathroom facilities, and so on, economic factors include individual's purchasing power, the level of interest and inflation rates in the country. An earlier study of Haig (1926) has confirmed that accessibility has important roles to play in the determination of rental value. Kim and Nelson (2009) posited that the assessment of rental value of residential property is a challenging and complex process to both valuers and academicians because it involves analyzing the value of the property through the neighborhood characteristics and market conditions; this may be due to the subjective nature of the concept of value. It is however necessary to analyze the influence of housing facilities and

locational externalities of residential property on rental value. A residential property user may be prepared to pay a high value for a property depending on his consideration for basic facilities such as accessibility, water and electricity (Harvey,1993). Litchfield (1974) also observed that neighbourhood with basic facilities such as access roads, good drainage, electricity; public water supply and telephone would attract high property values.

2.1.5 CONCEPT OF RENT

Rent according to the universal dictionary of English language is the regular payment made for the use of land or buildings that belongs to someone else. In the field of economies, rent can be defined as "the revenue from land resources that is equal to the value of its marginal services rendered in a productive process" (Litchfield, 1974). Lawal (1997) explained economic rents as the rent that will be expected from the occupier of a complete dwelling; rent is a monetary compensation or regular payment made to the owner of the property by the user or occupier as return for his occupancy. Rent is an annual or periodic payment for the use of land or buildings (Britton, 1989).In fixing the rent of a property, a valuer is largely influenced in practice by the evidence he can find, the rent actually paid, not only for the property being valued but also for comparable properties in the same vicinity or district. The rent payment could be weekly, monthly, quarterly or yearly depending on the terms and conditions of the tenancy. The rent for a housing unit equals the price per unit of housing services multiplied by the number of units of housing

services the unit contains. If the unit is an apartment, this rent is equivalent to the annual contract rent. Rent reflects the valuation of individual buyer (tenant) of a particular set of attributes of each house unit.

2.1.6 CONCEPT OF RENTAL VALUE

In real estate, value means the worth of an interest in land or, land and building or claims on chattel assessed by appropriate method of valuation. Rental value is defined as the amount a property is eligible to get had it been rented out as per the prevailing situations existing in that place for similar property. Rental value is the fair market value of property while rented out in a lease. Rental value may be the consideration paid under the lease for the right to occupy, or the royalties or return received by a lessor (landlord) under a license to real property. (UNO, 1970) .Value is normally expressed in monetary terms, which indicates the power of a commodity to command other commodities in exchange (Thorncroft 1965, Adeniyi, 2000). Housing can then be seen as an asset that may have social, financial and economic value. Housing is to be considered as a combination of service and must be purchased as a package. Therefore it is expected that the availability of these facilities whether structurally or internally, will reflect high rental value of a residential property (Eghagha, 2014). Real property can only be significant only when it satisfies effectively the needs and the desire of man. The desire of man for real property therefore gives rise to value.

2.1.7 BID RENT THEORY

It is widely recognized that many theories have been formulated in the study of urban systems. These theories are both descriptive and quantitative in nature. Among the models that have helped to explain city morphology are the Burgess (1925) concentric zones model; Hoyt's (1939) sector model; and Harris and Ullman's (1945) multiple nuclei model. The principle of bid rent functions was established by Hunt in 1903.The bid rent theory was first developed in an agricultural context. One of the first theoreticians of bid rent effects was probably David Ricardo, according to him the rent on the most productive land is based on its advantage over the least productive, the competition among farmers insuring that the full advantage goes to the landlords in the form of rent. (Igwe and Mbee, 2015)

The bid rent theory is primarily attributed to Alonso, 1969.The bid rent theory models the relationship between distance from the city center and house prices. The theory states that rent are upwards close to the city center as households attempt to minimize transportation costs. Conversely, rents are lower away from the city center because transportation cost for residents are high. Thus, through competition to minimize transport cost, rents become a negative function of distance from the city. Since the modern bid rent gradient is complex, urban economists use multivariate and hedonic models to test the existence of a bid rent gradient.

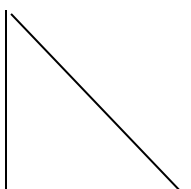


Figure 2.1: Illustration of the basic bid-rent function

As the simple model in figure 2.1 implies, rents are high near the city center or the core and low in the periphery. By living farther away, residents suffer high transportation cost in exchange for lower rents per units of housing.

The bid-rent function, according to Alonso, is a hypothetical space profit function showing how land use is ultimately determined by the relative efficiency of the ability of a use to extract economic utility from a site. The use that can extract the greatest return from a given site will be the successful bidder. Consequently, there emerges an ordinary pattern of land use, spatially organized to perform most efficiently the economic functions that characterizes urban life. Therefore, the city spatial structure depicts functional ability to pay rent against distance from a single most accessible core (Oduwaye, 2009).Many of the theoretical models of the bid rent gradient such as Alonso's assumes that cities are monocentric. The monocentric city

grows evenly away from a central business district, with population density continuously falling as distance increases (Trusell, 2010).This theory can be applied to Benin City as a monocentric city, with rents of housing units decreasing as distance from the city center increases.

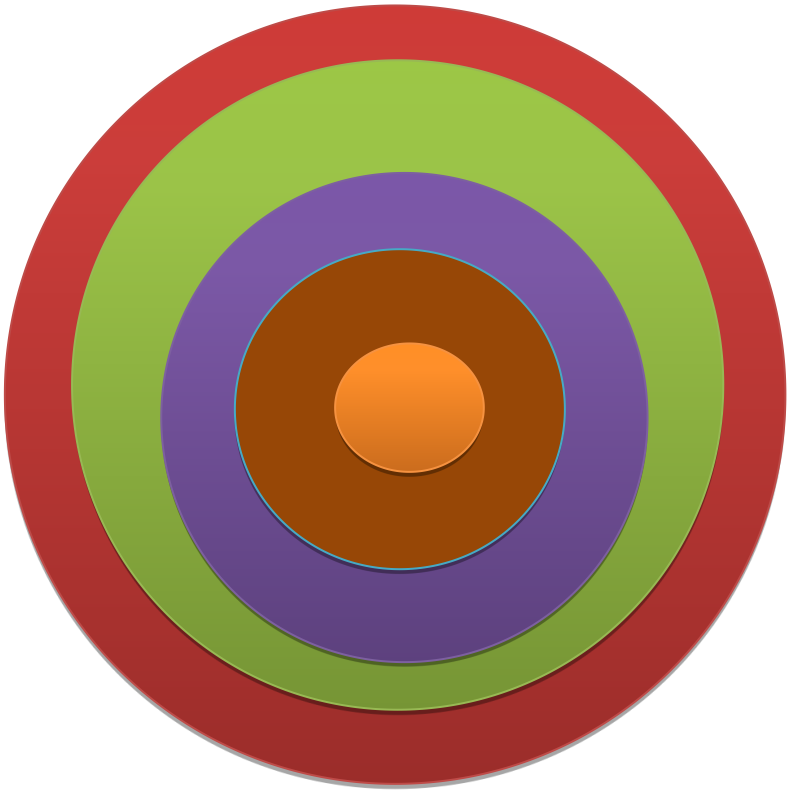
The earlier studies of economists have worked on Alonso's bid-rent theory and they have quickly started to produce their own extensions. Much of this work on the theory was devoted to the field of locational interdependencies, which focused upon the examination of interrelated variables affecting land value which Alonso's theory did not explicitly address (Bohland and Levy, 1985). Muth in his study of the bid rent theory maintained that the Alonso model should be extended to account for other determinants of residential land-use including the age of buildings and neighborhoods and housing preference (Muth, 1969).Also, Mills, (1967) posited that the bid-rent model could be used to provide explanations of congestion within cities and that the most critical determinants of residential rent and use was distance from the CBD. Together, the works of Alonso, Muth, and Mills formed the crux of bid-rent theory (Bochnovic, 2014).

2.1.8 CONCENTRIC ZONE THEORY

The concept was developed by a sociologist Ernest W. Burgess in 1923. The concentric rings concept tries to explain urban structure in terms of growth and expansion. Burgess illustrated the processes of expansion of the city by a series of concentric circles, which may be numbered to designate both the successive zones of

urban extension and the types of areas differentiated in the process of expansion. The concentric circles identified by Burgess are as follows and illustrated in figure B below;

1. The center is the central business district (CBD).
2. The transition zone of mixed residential and commercial uses which is also known as the zone of transition. This is also known as the fringe of the CBD
3. Working class residential homes also known as the zone of independent working home or the inner city. Business and light manufacturing activities encroach into this area.
4. Zone of better housing also known as the outer city for middle class home.
5. Commuter's zone which is the outermost part of the city.



KEY

- Central business district (CBD)
- Transition zone
- Working class
- Zone of better residence
- Commuters zone

Figure 2.2: Concentric theory by Burgess

The Burgess concentric rings model of city development and expansion will be adopted in this study this because Benin city seem to have a concentric ring which radiates outward from the city center. One major deduction from the burgess model of concentric zone is the emphasis he placed on the quality of houses found in the various neighbourhood. The model implies that the houses found encircling the CBD are rundown houses of poor quality with no or inadequate infrastructural facilities

and more distance from the CBD outward, there are houses that are of good quality and still further out beyond the city limits are the houses that are of better quality with standard housing facilities. The distance of the concentric rings from the city center has determined rent charged on housing in these rings. Based on the bid rent theory, the major determinant of rent on housing for residential use is its level of infrastructural development. This translates infrastructural development to land value and housing rent which is highest at the city center and the immediate rings due to the presence of infrastructure in such locations. Environment standards or quality of housing facilities is greatly influenced by location, and in itself influences the rent charged on housing facilities (Udida and Ofem, 2014). The concentric pattern of city development has been confirmed by Alonso's bid-rent theory. Studies have empirically confirmed the negative relationship between rent and distance i.e. land rent and rent per unit of housing services declines with increasing distance from the city center (Lewis and Kapp, 1999).

2.1.9 THE SECTOR THEORY

The sector theory by the economist Homer Hoyt in 1939 complements the argument given by E.W. Burgess. Using rental value as a surrogate of housing quality, Hoyt demonstrated how residential land uses tended to be arranged in a sectorial fashion. Although the Hoyt model is primarily concerned with the movement of high rent neighbourhoods, it has implications for the other types of housing as well. (Onokerhoraye and Omuta, 1994).Also like the concentric zone

model, there sectors of residential land use radiates outwards from the city center along the transport routes. In Hoyts argument he maintained that there are variations in residential rental value from the highest rental areas that are located in the peripheral locations, that the middle rental areas are located on the periphery of the low rent residential areas and that the low rent areas are found in a more central location. Although Hoyt placed the basis of his model on directional element of residential land use as a result of communication axes and transportation routes that produces sectors, he however did not discount the distance variable in determining the urban land use structure of cities which serves as a factor that determines the residential rental value.

Earlier studies on Benin City have shown that the city consist of four district residential zones. The common unifying attributes include the age of buildings, location attributes, available infrastructural and housing facilities. These zones are the traditional core area, intermediate/ transition area, urban fringe and planned settlement areas. For the purpose of this study, the first three zones will be relevant. The houses found in each zones represent houses built at different periods in the development of the city. The core zone houses are oldest while planned estates and suburbs are the newest.

The core-The traditional/core area is in the inner most part of the city, and has a high population of the natives in Benin City. This area is dominated by old structures, whose construction predates the colonial period in Nigeria. The core area

is the oldest part of the city with the highest population and residential land use densities mixed with a large number of commercial activities. A large number of the residential properties in the core area are generally old, poorly ventilated, dilapidated, and squalid and lacks infrastructural facilities. Residential land use density in the Benin City core area was intensified by fission and infilling (Ogu, 2005).Although there is no definite boundary for the core area in the city. The core area radiates around the king-square axis and this includes neighbourhoods such as Urhubi, 5 junction axis, TV road axis, Ogbe, Commercial avenue area, Igun area, Ikpokpan, and First east circular area.

Transition/intermediate-The intermediate or transition zone is characterized by lower residential land use and population density when compared to the core area due to its substantial migrant population. This is a zone of extensive post-colonial development, spreading to all directions from the boundary of the city core (Akinbamijo and Fasakin, 2006).The intermediate zone has good structural quality; it is however characterized by inadequate housing, public facilities and poor environmental conditions. This can be an effect of the migration of people from the core areas. The intermediate areas in the city identified by this research work are Uselu, Iyesigie, Textile mill axis, Eweka, 3rd east circular, Isibor, Adesuwa/GRA, Ivbiotor, Gorretti, Ehenede and Uzebu.

Peripheral areas-This is also known as the urban fringe, they are areas on the outskirts of the City. Most of the residential properties found in this area were built

on approved private residential layouts. As a result of the urban expansion that has occurred in the last few decades, the urban fringe has become part of the city. The intensity of suburbanization process has led to urban incursion in the peripheral areas in Benin City. The infrastructural facilities in most of these areas is community-based and mostly of individual efforts. Neighborhoods in this zone were formerly isolated villages that have been incorporated by the rapid expansion of city. Some have developed spontaneously through the process of succession and infilling. These areas include Ekae 2,faith drive, Divine wisdom, country home, Oka, Popular lane, Ehigie, Isihor, Evuotubu, Ekosodin and Evboriaria.

2.1.10 HEDONIC PRICING THEORY

Housing is an important aspect to the welfare of a society and also the level of aggregate economic activity. in all economies, the share of income spent on housing represents a very large fraction of the total expenditure .It is thus to be expected that economist would devote considerable effort towards understanding the structure of the demand for housing and equilibrium in the housing markets.(Sheppard 1997). Economic price theory is the most unique theory that explains price variation in real estate market. A well-known valuation practice is the decomposition of price using valuation models which in turn aims at measuring the influence of dominant attributes in terms of a component of price (Mills, 1972, Muth, 1979). Two classes of techniques can be classified according to the method used for valuation i.e. market based and non-market based. Market based methods are based

on direct observable market interactions while the non-market based methods are based on a detailed description of the good under consideration and interviewees are then asked what they would be willing to pay .This detailed description involve all the characteristics of that good (Haripriya and Vinish, 2004). The model that Rosen (1947) presented provides the theoretical underpinnings for hedonic valuation. One area in which the hedonic pricing model has been beneficial to researchers, practitioners and policy makers in the housing market is the area of assessing the value of properties, especially for rating purposes. estimating or assessing the value of properties have traditionally focused on the use of conventional valuation methods like the comparable method, the income/investment method, the profit method, the residual/development method, and the contractor's/cost method. However, the use of the hedonic pricing model in assessing property values is now very common in most developed countries (Ansah, 2012).

The hedonic pricing model can be used as a technique for the description of the non-market based methods. In real estate valuation and house market research, house prices and rental value are generally analyzed by hedonic model based on micro economic theory (Selim, 2009). In hedonic studies, it is assumed that the housing prices are reflecting the tendency of potential buyers for having different facilities inside and outside of their houses (Akbari *et al,* 2004). The hedonic pricing method is known as an important development in the field of environmental and natural resources economics because of its ability to measure, from observed

behaviors, values that households allocate to various amenities. The hedonic pricing method allows monetizing non-market goods (water access, air quality, landscape amenities, noise) by observing the behavior of households on the real estate market. The important work of Griliches and Griliches did much to introduce hedonic analysis for dealing with commodity heterogeneity to a wider audience of economists. Griliches and many others have rightly referred to the work of court as an early pioneer in the application of these techniques (Araghi and Nobahar, 2013). The word "hedonic" comes from a Greek origin, which means, "pleasure". (Haripriya, 2004).Therefore, the pleasure derived from a good in relation to its price is central to the hedonic pricing model. Hedonic pricing model theory is based on the assumption that the price of a property such as (office, house, and rent price) is a direct function of a fixed number of characteristics measured by quantities (Limsombunchai*et al*., 2004 and Hamid, 2006). Hence the hedonic pricing model decomposes the transaction price into various components or characteristics.

Hedonic price function

A hedonic price function describes the equilibrium relationship between the economically relevant characteristics of a product or service (or bundle of products) and its price. (Linneman, 1980).The hedonic price function is assumed that the structural characteristics of houses are constant in their functional relationships across different neighborhoods. Those location characteristics are treated independently of housing characteristics, which imply the same marginal

contribution despite a change in geographical location. (Can, 1990). Hedonic studies generally use a statistical tool called multiple regression analysis.

Hedonic function in a mathematical form which links the characteristics, collectively defined as x to the price of the real estate product, P. thus:

$P=H(x)$

Where H(x) is a linear function

$$p=a_0 +a_1 x_1 +a_2 x_{2+.....+} a_k x_k \quad (1)$$

Where X_I through x_k are the attribute levels for k selected attributes, and a_1 through a_k are the weights assigned to the particular attribute. Suppose that x_1, the first characteristic is yard area, or lot size. The linear function (1) implies that if x_1 goes up by one square foot, the price of the property rises by a_1 naira (Coulson, 1990). The use of the hedonic price model to examine housing market dynamics has been very encouraging, with some of the studies coming from Latin America and Asia. Pasha and Butt (1996) for instance empirically analyze the demand for housing attributes in Pakistan by using the hedonic method and among other things find plot size, living space, number of rooms occupied by the house, number of bathrooms in a house and quality indicators to influence house prices in Pakistan.

2.2 LITERATURE REVIEW

In previous studies, various researchers in the field of housing regarding the quality, attributes and rental value have studied, examined and analyzed the effect of the attributes and quality of the house on rental prices. Adeoye, (2012) has observed that developing countries of the world experience increase in population growth which leads to urbanization, urbanization is one of the factors that result in land use in cities, urbanization is an increase in size and proportion in urban settlements (Odjugo *et al* 2015).Rapid urbanization as observed by Skole and Trucker1993,Perkin, 2013 has led to the cause of social ,environmental and economic challenges and other issues related to the concentration of human activities. The significant rise in population number and size of Nigerian cities have led to the acute shortage and poor quality of available housing units for dwellers, resulting in overcrowding high rents, poor urban living conditions and low infrastructure services (Agunbiade, 1983). Individuals and groups long for better and comfortable dwelling places with basic housing facilities and pleasing environment. In this light, neighborhoods that offer a good quality of available housing units are more sought after thereby attracting a number of potential residents (Ibrahim, 2011). Residential properties transcend ordinary shelter and thus comprise of the housing facilities and other aspects of the social environment such as security and ease of movement. These properties form the basic component of residential neighborhoods in any urban

center and as such play a critical role in human development. This is more the reason why their form, structure and challenges have being of great interest to urban geographers, policy makers and urban dwellers. The interest of the later may however rest upon the fact that, the affordability of these properties by and large is determined by their rental value. More so, the availability of standard housing facilities in a property also has its ripple effect on the neighborhood it is located. Environment standards or quality of housing facilities is greatly influenced by location, and in itself influences the rent charged on housing facilities(Udida and Ofem, 2014) All other things being equal, it is said that the more the presence of structurally sound property characterized by standard housing facilities, the higher the residential land use value of the neighborhood (Eghagha, 2015). It is a common knowledge that dwelling characteristics and the influence of location externalities are critical to the formation of residential property prices. the physical and structural attributes of dwellings such as the age of building, quality of design, size of rooms, number of toilets and bathrooms, quality of constructional materials and the layout plan of dwellings impact positively or negatively on house prices (Musa *et al*, 2015). Housing facilities attract rent; occupations by lease and for a specific period, as well as for a specific purpose and also for fixed payments referred to as rent (Obialo, 2005). That is, the rent of an accommodation that takes into account cost of the land, and cost of developing the land as well as distance of the structure from the city center (Udida and Ofem, 2014).

In the study examined by Jones *et al*, (2005), land use as an urban form measure had residential land use to be the dominant land use. The focus of the research was purely on distance to the city center as it relates to the position of houses. Through the use of hedonic price modeling and sub –market models, the research ascertained that urban form had impacts on the local housing markets in three British cities. also, Kotharkar *et al*,(2014) carried out a study in India and examine the urban context of Nagpur city by interpreting the data collected through the use of tables, graphs and other statistical measures such as dispersion index and congestion index was used in analyzing the compactness of the city ,from the research, residential land use was seen as the highest land use .after analyzing the form of Nagpur city, the city is found to have a mono-polycentric urban form with a dominant center and some sub centers where the city experienced simultaneous radial and random movement in the urban area. The research conclusively stated that the city is moving towards a dispersed urban form where there maybe increase in travel distance, lower densities at the core and intermediate areas. This overtime may take effect on rental values of residential units.

To evaluate the effects of distance to the central business district (CBD) on rental pattern in Port Harcourt, Igwe and Mbe, (2015) showed that rent does not decrease with distance from CBD. Through the use of simple regression statistical analysis, the study carefully evaluates the effect of distance to the CBD on the pattern of residential rent. They stated that within the monocentric urban form of Port

Harcourt, house rent was very much dependent upon the location relative to the CBD .the study however from the empirical result showed that rent does not decrease with distance from CBD in Portharcourt.

Amenya and Fletcher, (2013) explored the impact of location and apartment characteristics on rental prices in Accra. The use of the two –way contingency table was used to explore the impact that exists. ANOVA was used to determine the existence of a significant difference in mean rental prices across the study locations .the study found out that apartment characteristics and location characteristics have significant impact on residential rental prices. The study revealed that location, number of bedrooms, availability of amenities and facilities, and sharing of facilities are significant in determining residential rental prices.

The relationship between distance and housing rent in Uyo urban area examined by Udida and Ofem (2014) revealed that rent paid on housing facilities does not decrease as distance from the city center increases. With the use of spearman's rank correlation analysis and the two –tailed test, a pattern was found where rents increased as distance from city center increased and reduced at the suburb. The research also found that housing facilities were concentrated more in the center of the city and thinned out with increasing distance from the city center.

The effect of infrastructural facilities and their effects on rental values of residential properties in Ilorin metropolis was surveyed by Ibrahim (2011) , revealed that the presence of public facilities generates high preference ,keen competition for

properties and thus high rental values .the study showed that if infrastructural facilities keep causing discriminating rental values within the city among residential properties ,it may eventually lead to gentrification .to analyze the data collected ,the study used frequency distribution and percentages.

Olujimi and Bello (2009) attempted a study of effects of infrastructural facilities on rental values of residential property in Akure and found out that infrastructural facilities contributed 30.50% in the determination of rental values of residential buildings in Akure .The rental values of the core ,transitional ,peripheral and public housing was considered with wall fence and burglary proof playing the most important of determination of rental values .multiple regression analysis was used to analyze the data collected .

In a study of the effects of housing facilities on residential property in Nigeria, using Benin city as a case study, Eghagha, (2014) showed that the different locations of neighborhoods in the city i.e the core, the transitional zones and the periphery areas of the city had effect on rental value of residential units as the availability of the facilities therein determined the prices of residential property. Through the use of ANOVA and regression, the study found that the higher the structural quality and availability of internal facilities in a residential property, the higher its rental or property value. The study also showed that the rental value of a property does not only reflect its structural and facility adequacy but also the neighborhood it is located in.

Through the use of multiple regression and descriptive statistics, Nwosu (2014) assessed the effects of urban infrastructure as a tool for enhancing residential property values in Akure and found that provision of infrastructural facilities such as electricity, water supply, road network, drainage, waste disposal, parking space streetlight and security had effect on the residential rental value of the selected areas. The study further discovered that the demand pressure for properties contributed to rent increase because of the urban infrastructures .also through the use of time series analysis, the study was able to investigate the rental variation of the study areas between2000-2001 and concluded that the rents passing on the residential property in the areas were relatively stable. the study also revealed that two of the variables electricity and street light are significant in Isolo/Araromi/Odokoyi while water ,road , drainage, waste disposal, and parking space is not significant in determining rental values.

Oduwole and Eze(2013) studied the factors that influence the residential rental prices in Abuja satellite and found that the premise that rent apartment prices are influenced by a combination of attributes was significant .through the use of hedonic model, a sample of 289 rent apartment in three satellite town (Bwari, Karshi and Kuje). Out of the seventeen explanatory variables used in the analysis, about ten of them show positive signs of considerably impact on rent apartment price. variables like lot size, room size , number of rooms , number of bathroom/toilet major access road, presence of government establishment were statistically significant at 1% and

5% significance level .The study also showed that the population influx in the FCT is probably is the cause high rent apartment price being greatly influence by lot size than any other variable.

Araghi and Nobahar(2013) studied the determinant factors of the housing prices for the city of Tabriz, and found out that through the use of hedonic price analysis ;a spatio- economic approach, the results shows that physical characters have effects on the prices .among the physical characters, are lobby, swimming pool, number of rooms and the age of the buildings are the most important characters that determine the housing prices of the city of Tabriz. The estimation of hedonic price function with spatial regression shows that 20 characteristics out of 29 characteristics which have been have meaningful effects on the prices of apartments.

The earlier work of Ansah (2012) through the use of hedonic housing method analyzed the impact of the findings from the method on property rating in Ghana. the study revealed from the analysis that: the number of rooms, floors, and property age; location of the property; availability of garage, fence wall and swimming pool; and land registration all influence residential property values in urban Ghana. The study also showed that the residential area where the property is located has the greatest impact on residential property values. The values of properties located in first class residential areas are about 234% and 149% higher than values of properties located in third class and second class residential areas respectively. Also, properties located in the second class residential areas are about 85% higher than similar properties

located in the third class residential areas. Number of floors is also found to have the lowest effect on property values. The number of bedrooms affects property values more than the other rooms like kitchen, bathrooms, etc.

Okorie (2015) researched housing infrastructural facilities as determinants of rental values of residential properties in Oshogbo, and indicated that there is a high positive correlation between the variables implying that there is a strong positive relationship between rental values and availability/condition of housing facilities. Through the use of descriptive statistics (frequency, percentages, weighted mean score) and inferential statistics (spearman's rank correlation and multiple linear regression analysis) the study was able to examine the relationships between rental values and the predictor variables infrastructural facilities. the study also showed that out of the eight predictors; water, electricity, refuse dump, access road, burglary proof, drainage channel, fence and kitchen only refuse disposal facility does not significantly influence rental values.

In the work of Kemiki *et al*(2015) in Minna, the study identified the key determinants of rental value within the study area as; access road, land size, internal wall, waste disposal, water source and sewage system. The research result showed that internal wall had more impact on rent than all the other variables .The linear model and the polynomial models were used in the study and found that the polynomial model was better than the linear model.

Ajibola *et al*(2013) studied the effects of infrastructure on property values in unity estate, Lagos, Nigeria and through the use of frequency tables and percentages, the study showed that the study revealed that water ,electricity) and roads (rii = 2.40) are ranked as the most important facilities required inthe estate that affect rental value.

Zietz, *et al* (2007) researched the relationship of particular housing characteristics with the selling price. The research found that characteristics do not have the same price across a given distribution of house prices. The study utilized quartile regression analysis to examine the issue and found that variables such as age also played significant role in evaluating house prices.

Mba (1997)studied urban infrastructural facilities and urban residential housing values in Enugu and found that property values in Enugu neighborhoods are highly correlated to the quality of infrastructural facilities in respective neighborhoods Through the use of statistical tables ,the study was able to prove that urban housing values are influenced and determined by the quality of infrastructural facilities .The facilities taken into consideration include water supply in the house ,electricity supply, sewage disposal and refuse disposal.

Musa *et al,*(2015) stressed that the physical and structural attributes of dwellings such as the age of building, quality of design, size of rooms, number of rooms, number of toilets and bathrooms, quality of construction materials and the layout plan of dwellings impact positively or negatively on house prices. Through a

critical review of series of literature, the study affirms that the location and dwelling characteristics of a dwelling unit affect the rental value of such residential unit.

In developed countries of the world, residential values are mainly differentiated on the basis of the socio –economic status of the residents. However, in developing countries, residential values are differentiated on the basis of the levels of facilities available .This explains why similar properties in different neighborhoods are assumed to be varying on the value scale.(Mba, 1997).Although ,the assumptions above are accepted in Nigeria, there exist very little empirical evidence to substantiate these assumptions especially in Benin city Therefore, there is a call for research into the variation of residential rental value as determined by the housing facilities. This will help improve and sustain the facilities put in a neighborhood

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 INTRODUCTION

Research methodology is a systematic way to solve a problem; it is a science that studies how research is to be carried out, the procedures by which researchers go about describing, explaining and predicting phenomena are called research methodology. It is also defined as the study of methods by which knowledge is gained (Rajasekar *et al,* 2006).

Research methodology involves the various methods, procedures, schemes and algorithms used in the research process, Research methodology are principles underlying any given research which logically entails obtaining information through field work, data collection, sample size and frame, sampling procedure, data requirements through primary sources and secondary sources and method of data analysis. These methods are essentially planned, scientific and value-neutral. They include theoretical procedures, experimental studies, numerical schemes, statistical approaches, e. t. c

3.1 RESEARCH DESIGN

The research design specifies the procedures and the methods for collection, measurement and analysis of data. This is a cross-sectional survey type of research design that involves the collection of data from sampled population; where data is obtained at one point in time from a determined sample and is used to draw inference

from the entire population. Structured questionnaires were administered to obtain information through a field survey that was conducted in Benin City. Information was collected on the central theme of this research project which is housing quality as a determinant of residential rental value in Benin City.

3.2 POPULATION OF THE STUDY

The population of the study refers to that group about whom we want to draw conclusions. The population is the study of elements been studied and to which the conclusions or generalization of the results will apply. The population that will be of interest in this research work will consist of the residential houses in the selected neighborhoods in Benin City. From each of the residential units, the owners or landlords as well as the tenants form the population of people that the study covered. These are the set of people that can provide first-hand reliable information on the research topic. The population of this research work was derived from the combination of the household unit for Egor, Oredo, Ikpoba-Okha and Ovia LGAs in the study area which amounted to a total of 248,621(NPC 2006).

3.3 SOURCES AND TYPES OF DATA

The data used for this research were drawn from both the primary and secondary sources. The primary data used was obtained through organized field work comprising of personal observations, questionnaire administration and personal interviews with the respondents. The secondary data sources used were obtained

through published materials; journals, articles, previous research work, internet sources and other documents relevant to this research project.

3.4 RESEARCH INSTRUMENT

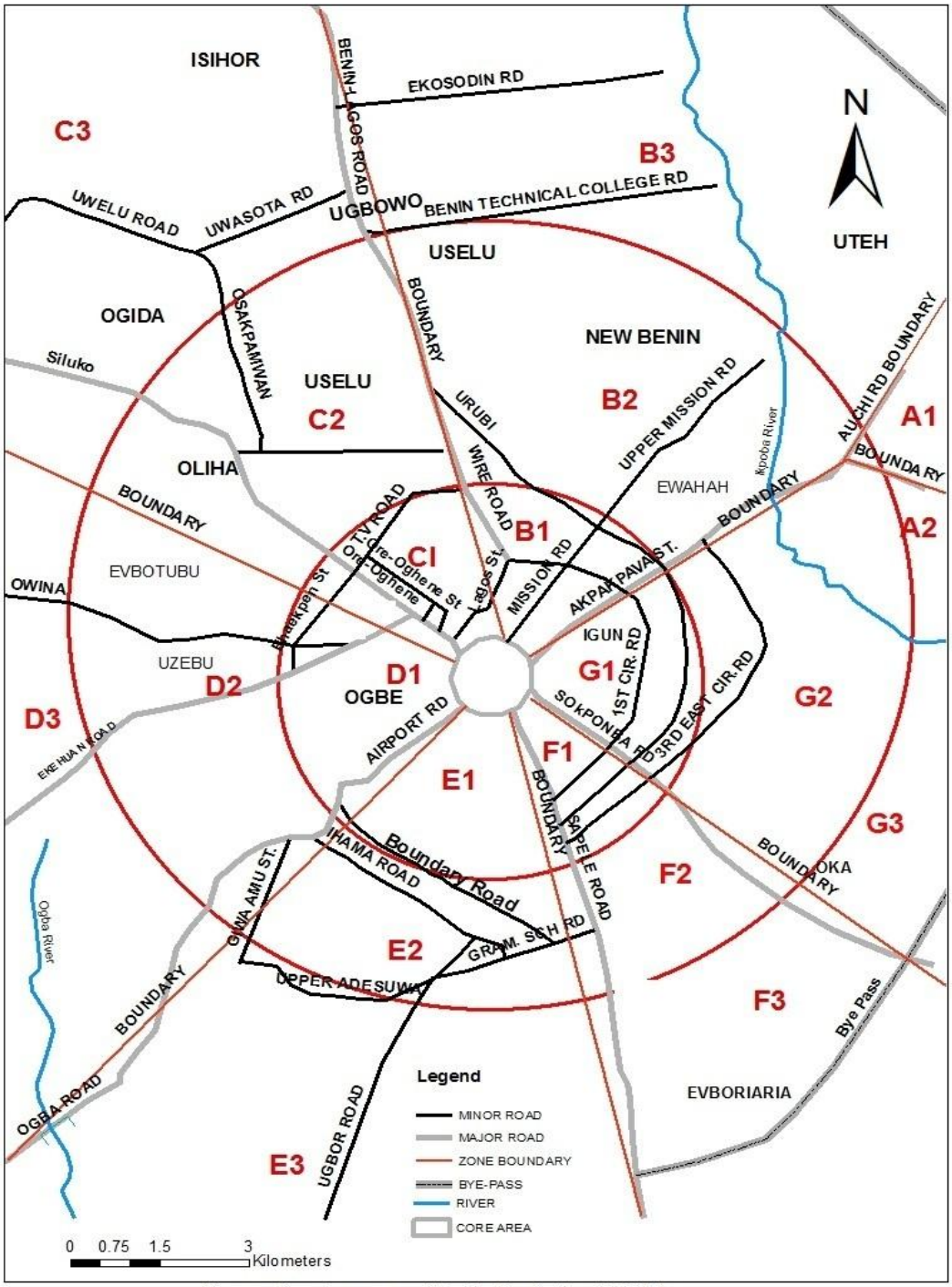
The questionnaire is the primary research instrument that is used for the collection of data in this research work. The questionnaire was structured to contain open and closed ended questions. The close ended questions enabled the respondents select the most appropriate option from a given checklist while in the open ended questions, respondents filled the required Information. The questionnaire is divided into three sections; the socio economic data of the respondents were gathered in section A; section B collected information on locational characteristics and section C collected information on the housing quality.(See Appendix –A) for questionnaire.

3.5 SAMPLING METHOD

The stratified random sampling method which is a probabilistic sampling method was used in this research work where a stratified sample of the households in Benin City was obtained by organizing the city into zones and then into neighbourhoods. The zones are then represented in the 3 residential areas that cut across the local government areas in Benin City. Consequently, each residential area bounded a couple of zones. Zones with 1 represent sections of the sector within the core, zones with 2 represent sections of the sector within the intermediate areas and zones with 3 represent sections of the sector within the peripheral areas. Figure 3.1 illustrates this method of sampling.

Appropriate numbers were randomly drawn from households in the neighbourhoods in the various zones that have been captured by the circles. The random selection was based on the relative proportion of the population of household units in each concentric circle. For more details on the neighbourhoods and quarters that make up these zones (see Appendix –B).

The questionnairewas administered to one household in one residential unit. In a case where more than one household dwells in a residential unit, only one household was interviewed. The interview aimed at the landlords or tenants (household heads). In administering the questionnaire to the residential property in Benin City, the city was divided into three residential zones or areas. These are the core, the intermediate and the periphery, the questionnaire was administered based on the population density of residential units in the neighborhoods delineated by each concentric circle, this was in the ratio of 54:102:152 respectively. Consequently, 9 copies of questionnaire was administered to each neighborhood in the core, 17 copies to each neighbourhood in the intermediate zone and 19copies of questionnaire to the fringe or peripheral areas. In all, 308copies of structured questionnaire were administered to the households in the neighborhoods. However, only 280 questionnaires were returned completed and valid for inference and analysis. Table 3.1 gives a clear breakdown of the sampling by zones.



Source: Google map modified by the Author (2016)

Figure 3.1: Sampling map

3.6 SAMPLE SIZE

A sample size is the representative of the population from which it is drawn. The result or inferences obtained from the sample drawn are then generalized to the whole population (Agbonifoh and Yomere 1999).A sample of the population is important because it is generally not feasible to study the entire population. The determination of the sample size of a population has always been a problem in research because no universal method exists in determining sample size. It is however important that the sample should be a number that best represent the population. The samples used for this study are residential units or dwellings in the stratified neighborhoods in the study area.in determining the sample size that is sufficient for this research work, the study sought to define a sample population of Benin city household which is put at 248,621(NPC 2006) to ensure at least 94% level of confidence and that probable error of using a sample rather than surveying the whole population did not exceed 0.06

To determine an adequate sample size, the formula in equation (2) given by the famous Japanese statistician Yamane Taro, (1967) will be used

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

Where,

n =sample size (the number of subjects to draw from the population)

N =population size

e=sampling error or level of significance

$$n=\frac{248621}{1+248621(.06)^2} \quad =\frac{248621}{1+\ 248621(0.0036)} \ =\frac{248621}{895.0392} = 277.776661$$

The formula in equation (3) for the final sample size, given an estimated 10% non- response rate is given as follows (Smart methodology, 2012).

$$nf \ = \frac{n}{1-NRR}$$

(3)Where

n= Minimum sample size

nf = Final sample size

NRR= Non- Response Rate

Substituting into the formula

$$nf = \frac{277.77}{1-0.1} = \frac{277.77}{0.9} = 308.633$$

The total sample size of households to be used in this study is 309.

Table 3.1 –Sample sizes by zones

Residential zones or area	Number of zones	Number of administered questionnaires	Number of valid retrieved questionnaires	Number of invalid retrieved questionnaires
Core	6	54	71	17
Transition	6	102	89	13
Peripheral	8	152	120	32
Total	20	308	280	62

Source-Researcher's field work, 2016

3.7 DEFINITION OF VARIABLES

Table 1.2 shows the description of variables used in the study. The three hedonic variable types are; neighbourhood, locational and Structural characteristics. These variables could be dummy or continuous. The dependent variable is the yearly rent i.e. RENTPR, while others are the independent variables.

Note: NC (neighbourhood characteristics), LC (locational characteristics), SC (structural characteristics).

Table 3 .2- Definition of variables used.

S/N	Classification	Variable name	Variable code	Description of variable(Most desirable)
1	NC	Level of security	SECTY	Very secure
2	NC	Rate of flooding	FLOOD	None
3	NC	Regularity of electricity supply	ELECT	Regular (50% and more everyday
4	NC	Source of water supply	WATER	Government pipe borne water
5	LC	Size of plot	PLTSIZE	The size of the whole residential apartment measured in Ft
6	LC	Size of apartment	APRTSIZE	The size of the apartment measured in m2
7	LC	Distance from CBD	Dcbd	Distance from CBD in km
8	SC	Age of building	AGEBUIL	
9	SC	Type of house	TYPHOU	Mansion/ duplex
10	SC	Wall material	WALLMAT	Cement block(external interior plastered)
10	SC	House painting	HOUPAINT	Fully painted
11	SC	Roof materials	ROOFMAT	Aluminum
12	SC	Type of ceiling	TYPCEIL	POP
13	SC	Type of window	TYPWIND	Casement window
14	SC	Ventilation	VENTL	Very well ventilated
15	SC	Floor finish	FLOORFIN	Marble
16	SC	Paved compound	CPAVED	Interlocking tiles
17	SC	Fenced compound	CFENCED	Fully fenced with gate
18	SC	External doors	EXTDOORS	Foreign made bullet proof doors
19	SC	Burglary proof	BUGPROOF	Burglary proof(all doors and windows)
20	SC	Kitchen type	TYPKIT	In-house exclusive
21	SC	Bathroom facilities	BATHFAC	Bath tub/ Jacuzzi
22	SC	Toilet facilities	TOILFAC	WC, in house exclusive
23	SC	Number of bathrooms	NUMBATH	Total number of bathrooms in the apartment
24	SC	Number of toilets	NUMTOIL	Total number of toilets in the apartment
25	SC	Number of bedrooms	NUMRMZ	Total number of rooms excluding bathroom and kitchen
26	Dependent	Yearly rent	RENTPR	Rent price per year in Nigerian currency(naira)

Source- Researcher's field work, 2016.

3.7 METHOD OF DATA ANALYSIS

In order to fulfill the stipulated objectives of the research, the data collected from the questionnaire administered was analyzed using descriptive statistics such as the frequency counts, percentages, ranking, tables, etc. The multiple regression analysis was used to test the first hypothesis of the study which states that there is no significant relationship between housing quality and housing rental value in Benin City, The second hypothesis which states that there is no significant difference in housing rental value in the various residential neighborhoods in Benin City was tested through the use of the analysis of variance (ANOVA).Finally, the third hypothesis which states that rent paid on housing do not increase with distance from the city center was tested through the use of the spearman's rank-order correlation coefficient. The frequency distribution tables were used to present the number of respondents interviewed their socio economic data, demographic data. The responses gathered from the questionnaires enhanced the comparison on their socio economic background and their general opinions on the theme of the research work which is housing quality as a determinant of residential rental value.

3.7.1 Bar and pie charts

A bar chart is a way of summarizing a set of categorical data. The bar charts displays data using a number of bars that are of the same width, each of the bars represent a particular category. The bar chart as a statistical tool in this research wok

has been used to supplement the data from the frequency table thereby showing the pictorial meaning of the data analyzed in the frequency table.

3.7.2 Frequency distribution table

In statistical analysis, a frequency distribution can be described as an arrangement of the values that one variable or more than one variable takes in a sample. Each entry of a variable in the table contains the frequency or count of the occurrences of values within a particular group or interval, through this, the table summarizes the distribution of values in the sample. Cross tabulation has also been uses to show data on housing characteristics, rent and income of respondents in this research work.

3.7.3 Multiple regression model

The term regression was coined by Francis Galton in the 19thcentury. Regression analysis is used when it is possible to predict the scores of the dependent variable from the scores of the independent variable (Avwokeni, 2004). Regression according to Gupta (2001) is the measure of the average relationship between two more variables in terms of the original units of the data.The regression model assumes that variations in rent are due to variations in housing quality. The earliest form of regression was the method published by Legendre in 1805 and also by Gauss in 1809.Although the parameters of a regression model are usually estimated using the least square method; other methods have been used such as the hedonic regression model which is used in statistically determining the quality of a house or

residential unit. The basic assumption of the multiple regression model used in this research is that the price of residential units reflects embodied characteristics valued by some implicit or shadow prices, these implicit prices are what form the coefficient that relates price and attribute in the regression model.

The multiple regression model is not only capable of handling the problems of interactions among the independent variables but is also capable of showing the contribution or the importance of each variable to the explanation of the variation of the dependent variable. The multiple regression analysis was used to test the first hypothesis of this research which states that there is no significant relationship between housing quality and housing rental value in Benin City. Also, in order to determine the impacts of housing quality on residential rental value in Benin City, the multiple regression model in equation (4) was employed.

Y is the (dependent variable) on X_1, X_2, X_3, X_4 …….Xn, X (independent variables).The multiple regression models is given as

$$Y = a+bx = b_2x_2+b_2x_2 \text{ ……..} b_nx_n+e \quad (4)$$

Where:

Y = Rental value/ price

“a” = An error term which points to a proportion of the variance in the dependent variable

b_1, b_2…..b_n = The regression coefficients which determines the contribution of the independent variable. (The slope of the regression line relative to x-axis)

X_1, X_2.…X_n = the independent variables

The application of the multiple regression model to this research work shows that:

$$Y=a+b_1SECTY+b_2FLOOD+b_3ELECT+b_4WATER+b_5PLTSIZE+b_6APRTSIZE+b_7AGEBUIL+b_8TYPHOU+b_9WALLMAT+b_{10}HOUPAINT+b_{11}ROOFMAT+b_{12}TYPCEIL+b_{13}TYPWIND+b_{14}VENTL+b_{15}FLOORFIN+b_{16}CPAVED+b_{17}CFENCED+b_{18}EXTDOORS+b_{19}BUGPROOF+b_{20}TYPKIT+b_{21}BATHFAC+b_{22}TOILFAC+b_{23}NUMBATH+b_{24}NUMTOIL +b_{25}NUMRMZ$$

3.7.4 ANOVA (Analysis of variance)

Analysis of variance is a parametric statistical procedure developed by biologist Ronald Fisher (1950) and is used to test the degree to which two or more groups vary or differ in an experiment. It is a collection of statistical model that is used to analyze the differences among group means and their associated procedures such as “variation” among and between groups. ANOVA in this research work has been used to investigate the differences in rental value between and within the various residential neighborhoods in Benin City

ANOVA shows statistical significance in a regression analysis. Below are the assumptions of the analysis of variance according to Rogerson (2001);

1. The observation between and within samples are random and independent
2. That observations in each category are normally distributed and,
3. That the population variances are assumed equal

The analysis of variance consists of computing two independent estimates of the population variance. The first is the variance brought about by the differences between or among groups; the other is the differences brought about by differences within each group (Owie, 2006). ANOVA (Analysis of variance) will be used to test the second hypothesis which states that there is no significant difference in housing rental value in the various residential neighborhoods in Benin City. ANOVA in this research work shows the variance between the rents of the residential units in the residential zones and the variance among the residential unit is each residential zone.

$$F = \frac{\text{larger of two variances}}{\text{smaller of two variances}} = \frac{s^2 1}{s^2 2}$$

To test for statistical significance, the F-ratio is computed. The F- ratio of the two variance estimates (between-group and within-group) is expressed as;

$$F = \frac{\text{between} - \text{group variance}}{\text{within} - \text{group variance}}$$

3.7.5 Spearman's rank- order correlation coefficient

Correlation is used when the interest of the researcher is concerned more with association. Correlation methods are often used when the researcher intends to compute the strength of association between two different variables, one of the several methods for when the data generated from one or both variables are in rank

order (Owie, 2006). Before computing the spearman's rank correlation coefficient, all data must be expressed in ordinal scale. This method of correlation is symbolized by *r* or rho. The spearman's rank correlation coefficient will be used to test the third hypothesis of this research work which states that rent paid on housing do not increase with distance from the city center.

The general formula in equation (5) is used for computing spearman *r* which is:

$$\text{Spearman } r \text{ or rho} = 1-\frac{6\Sigma D^2}{N(N^2-1)} \qquad (5)$$

Where; N= the number of pairs

Rho= spearman rank –order correlation

D=difference between each X score and each Y score

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS

4.0 INTRODUCTION

This chapter deals with the analysis of the primary data sourced from field survey; it seeks to give the statistical form of the spatial relationship of the derived information from the respondents on the field to arrive at the stated objectives of the research and portrays the central theme of this study which is to examine the housing quality as a determinant of residential rental value in Benin city, Edo state.

4.1 SOCIO-ECONOMIC CHARACTERISTICS

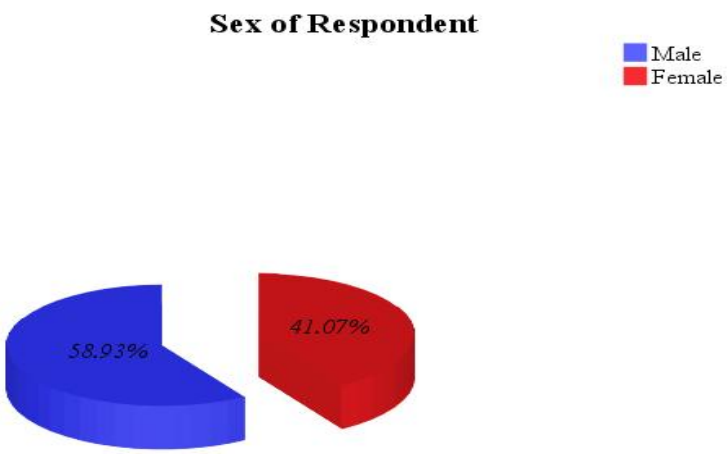


Figure 4.1: Sex of respondents
Source: Researcher's field work, 2016

Figure 4.1 shows that of the 280 respondents surveyed in this study, 115(41.07%) were female 165(58.93%) were male. A notable fact from this statistics that most of the respondents surveyed are males.

Table 4.1: Age of Respondents

Age of respondents	FREQUENCY	PERCENTAGE
Under 26years	97	34.6
26-35 years	64	22.9
36-45 years	50	17.9
46-55 years	25	8.9
56-65 years	30	10.7
Above 65 years	14	5.0
Total	280	100.0

Source: Researcher's field work, 2016

Table 4.1 reveals that 34.6% of the respondents are below 26 years, 22.9% are 26-35 years, 17.9% are 36-45 years, 8.9% are 46-55 years, 10.7% are 56-65 years, and 5.0% are above 65 years. This analysis shows that the bulk of the respondents surveyed are young people and a major part of the labour force.

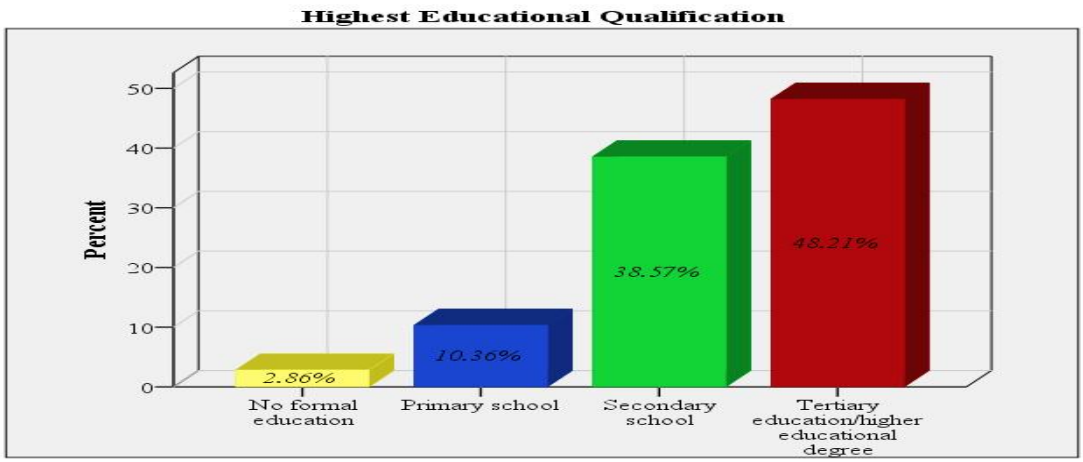


Figure 4.2: Highest educational qualification
Source: Researcher's field work, 2016.

Figure 4.2 shows that 2.86% have no formal education, 10.36% of the respondent's highest educational qualification is primary school, 38.57% of the respondents are secondary school leavers while 48.21% of the respondents have attained tertiary / higher educational status. This data clearly shows that a large percentage of the respondents surveyed are educated.

Table 4.2: Occupation of Respondents

Respondents Occupation	FREQUENCY	PERCENTAGE%
Civil servant	33	11.79
Self employed	132	47.14
Retired	19	6.79
Unemployed	56	20.00
Others	40	14.29
Total	280	100.0

Source: Researcher's field work, 2016.

Table 4.2 shows that 11.79% of the respondents are civil servants, 47.14 are self-employed, 6.79% of the respondents are retired, 20.00% are unemployed, and 14.29% are engaged in other forms of occupation. This reveals that a large percentage of the respondents are self-employed. This means that they are engaged in different forms of business where they are their own boss; some are vocational workers and traders.

Table 4.3 : Distribution of Respondents By Income and Rent Paid Yearly

Yearly Rent	Monthly Income						Total
	25,000 And Below	25,001-50,000	50,001-100,000	100,001-150,000	150,001-200,000	Above 200,000	
30,000 and below	69.2%	11.5%	13.5%	1.9%	1.9%	1.9%	100.0%
30,001-60,000	48.9%	23.4%	25.5%	-	-	2.1%	100.0%
60,001-90,000	61.3%	6.5%	25.8%	6.5%	-	-	100.0%
90,001-120,000	45.0%	25.0%	20.0%	-	5.0%	5.0%	100.0%
120,001-150,000	52.9%	35.3%	11.8%	-	-	-	100.0%
150,001-180,000	45.5%	9.1%	27.3%	18.2%	-	-	100.0%
180,001-210,000	25.0%	12.5%	37.5%	12.5%	6.2%	6.2%	100.0%
210,001-240,000	41.7%	33.3%	16.7%	-	8.3%	-	100.0%
240,001-270,000	40.0%	20.0%	40.0%	-	-	-	100.0%
270,001-300,000	-	25.0%	25.0%	25.0%	-	25.0%	100.0%
300,000 and above	7.7%	7.7%	7.7%	23.1%	15.4%	38.5%	100.0%
Total	49.6%	17.5%	21.1%	4.8%	2.6%	4.4%	100.0%

Source: Researcher's field work, 2016

The juxtaposition of yearly rent and monthly income of respondents revealed in Table 4.3 that 62.9% which represents the bulk of those that pay less than ₦30,000 as rent earn ₦25,000 And Below monthly, 48.9%, 61.3%, 45.0%, 52.9%, 45.5% of the respondents all earn between ₦25,000 and ₦100,000 and yearly pay ₦30,00=-1-N60,000, ₦60,001-N90,000, ₦90,001-₦120,000, ₦120,001-₦150,000, ₦150,001-₦180,000 respectively, ₦50,001-₦100,000 is earned monthly by 37.5% of the respondents that pay between ₦180,000-₦210,000 yearly.₦210, 000-₦270,000 is made as yearly payment for rent for those that earn ₦25,000- ₦100,000 monthly, the bulk of those that pay ₦270,000- ₦300,000 as rent earn between ₦25,000 - above ₦200,000 while those that earn between ₦100,000-₦ 200, 000 pay

as much as above ₦300,000 for rent. A major observation from this is that a large percentage of respondents live in houses that have rent prices higher than the income they earn.

Table 4.4: Yearly Rent of Respondents By Zones

Zones	Yearly Rent											Total
	30,000 And Below	30,001-60,000	60,001-90,000	90,001-120,000	120,001-150,000	150,001-180,000	180,001-210,000	210,001-240,000	240,001-270,000	270,001-300,000	300,000 And Above	
A1	33.3%	58.3%	8.3%	-	-	-	-	-	-	-	-	100.0%
A2	16.7%	8.3%	-	8.3%	-	-	25.0%	8.3%	-	8.3%	25.0%	100.0%
B1	50.0%	25.0%	25.0%	-	-	-	-	-	-	-	-	100.0%
B2	-	10.0%	10.0%	30.0%	-	10.0%	-	-	10.0%	10.0%	20.0%	100.0%
B3	18.8%	50.0%	18.8%	-	6.2%	-	-	6.2%	-	-	-	100.0%
C1	58.3%	33.3%	8.3%	-	-	-	-	-	-	-	-	100.0%
C2	60.0%	6.7%	6.7%	-	-	-	13.3%	-	6.7%	-	6.7%	100.0%
C3	20.0%	13.3%	6.7%	6.7%	20.0%	13.3%	-	20.0%	-	-	-	100.0%
D1	16.7%	58.3%	8.3%	16.7%	-	-	-	-	-	-	-	100.0%
D2	33.3%	40.0%	13.3%	-	-	6.7%	6.7%	-	-	-	-	100.0%
D3	-	-	20.0%	-	-	-	20.0%	40.0%	13.3%	6.7%	-	100.0%
E1	-	-	-	-	8.3%	25.0%	16.7%	-	-	16.7%	33.3%	100.0%
E2	7.1%	-	28.6%	21.4%	7.1%	-	14.3%	7.1%	-	-	14.3%	100.0%
E3	-	7.1%	14.3%	21.4%	-	7.1%	14.3%	14.3%	7.1%	-	14.3%	100.0%
F1	25.0%	25.0%	-	25.0%	16.7%	8.3%	-	-	-	-	-	100.0%
F2	12.5%	31.2%	37.5%	6.2%	-	-	6.2%	-	6.2%	-	-	100.0%
F3	-	-	13.3%	13.3%	53.3%	20.0%	-	-	-	-	-	100.0%
G1	66.7%	22.2%	-	11.1%	-	-	-	-	-	-	-	100.0%
G2	41.2%	23.5%	23.5%	-	-	5.9%	-	-	5.9%	-	-	100.0%
G3	17.6%	23.5%	5.9%	23.5%	11.8%	5.9%	11.8%	-	-	-	-	100.0%
Total	23.2%	21.7%	13.2%	8.8%	6.6%	5.1%	6.6%	5.1%	2.6%	1.8%	5.1%	100.0%

Source: Researcher's field work, 2016

On the basis of data collected, Table 4.4 presents the distribution of rent in the different zones in the study area. This statistics shows that majority of the respondents earn between ₦30,000-₦90,000. As much as 66.7% of the respondents in zone G1 pay less than N30, 000 yearly while zone E2 at 7.1% records the lowest percentage of respondents that pay ₦30, 000 yearly. Zone E1 had the largest percentage of respondents that earn ₦300,000 and above while zone C2 had the

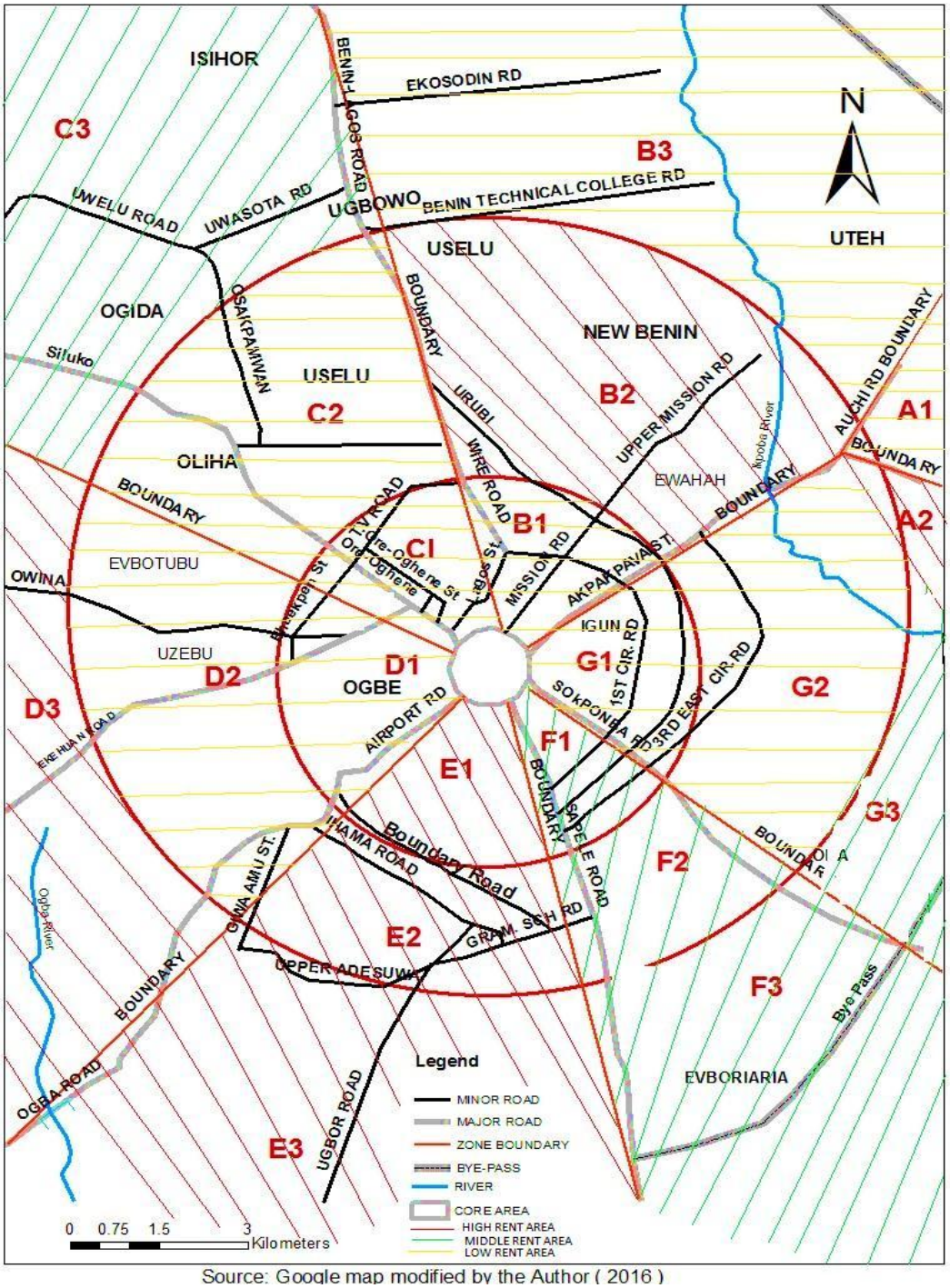
lowest at 6.7% of respondents that earn above ₦300,000.The table clearly reveals that those that pay lower rent are more at the core areas than the intermediate areas and the peripheral areas, and that some sectors of the City have high rental areas than some sectors.

Table 4.5: Distribution of the zones by rental class

High 210,000-≥ 300,000	E1	E2	A2	B2	D3	E3			
Medium 90,000-210,000	F1	G3	F3	C3	F2				
Low ≤ 30,000- 90,000	A1	B1	G1	C1	D2	G2	C2	B3	D1

Source: Researcher's analysis, 2016

Table 4.5 explicitly displays the rental class of each of the zones and it can be deduced that there is variation of rent across the zones such that some zones pay higher than the neighboring zone. However, the table proves that low rental areas are more in the core and high rent areas are more in the periphery and the intermediate areas. Figure 4.3 shows variation in rent in Benin City.



Source: Google map modified by the Author (2016)

Figure 4.3: Benin City showing variation in rent

4.2: HOUSING CHARACTERISTICS

Data in Table 4.6 revealed the distribution of types of material used for roofing the houses in the different neighbourhoods in the zones.

Table4.6 : Material Used For Roofing The House

Zones	Roof Type					Total
	Aluminum	Asbestos	Corrugated Iron Sheets	Concrete (Decking)	Others	
A1	75.0%	-	25.0%	-	-	100.0%
A2	41.7%	25.0%	33.3%	-	-	100.0%
B1	25.0%	8.3%	41.7%	8.3%	16.7%	100.0%
B2	20.0%	30.0%	50.0%	-	-	100.0%
B3	43.8%	18.8%	25.0%	12.5%	-	100.0%
C1	16.7%	41.7%	8.3%	8.3%	25.0%	100.0%
C2	23.5%	5.9%	47.1%	5.9%	17.6%	100.0%
C3	56.2%	12.5%	25.0%	6.2%	-	100.0%
D1	25.0%	8.3%	8.3%	8.3%	50.0%	100.0%
D2	6.7%	-	33.3%	6.7%	53.3%	100.0%
D3	26.7%	26.7%	26.7%	13.3%	6.7%	100.0%
E1	50.0%	-	50.0%	-	-	100.0%
E2	14.3%	42.9%	14.3%	14.3%	14.3%	100.0%
E3	58.8%	23.5%	17.6%	-	-	100.0%
F1	8.3%	8.3%	25.0%	-	58.3%	100.0%
F2	12.5%	18.8%	25.0%	-	43.8%	100.0%
F3	13.3%	-	86.7%	-	-	100.0%
G1	18.2%	-	-	9.1%	72.7%	100.0%
G2	17.6%	11.8%	11.8%	11.8%	47.1%	100.0%
G3	17.6%	29.4%	-	-	52.9%	100.0%
Total	28.6%	15.7%	27.5%	5.4%	22.9%	100.0%

Source: Researcher's field work, 2016

Table 4.6 unveiled that the aluminum roofing type which has the highest quality is the most widely used roof type in all the different neighbourhoods in the zones. Consequently, neighbourhoods in zone A1 had the highest percentage of houses with the aluminum roofing type at 75%. With a value of 6.7%, this type of roof material was recorded to be the least used in zone D2. The least used which is also of the lowest quality roof type in the study area is the concrete decking but this however stands prominent at 14.3% in neighbourhoods found within zone E2 and

lowest in zone C2 at 5.9%. Zones F, A1, A2, B2, E1, E3, and G3 had no house with this type of roofing material.

Table 4.7: Types of Bathroom Facilities Available In the House

Zones	Bathroom Facilities					Total
	Bath Tub/Jacuzzi	Shower In-House Shared	Outside Bathroom	No Bathroom	Others	
A1	8.3%	58.3%	16.7%	16.7%	-	100.0%
A2	50.0%	33.3%	-	16.7%	-	100.0%
B1	16.7%	25.0%	16.7%	33.3%	8.3%	100.0%
B2	30.0%	-	20.0%	50.0%	-	100.0%
B3	25.0%	56.2%	18.8%	-	-	100.0%
C1	8.3%	50.0%	-	33.3%	8.3%	100.0%
C2	5.9%	47.1%	11.8%	35.3%	-	100.0%
C3	12.5%	62.5%	18.8%	-	6.2%	100.0%
D1	-	75.0%	8.3%	16.7%	-	100.0%
D2	6.7%	46.7%	6.7%	40.0%	-	100.0%
D3	13.3%	60.0%	-	26.7%	-	100.0%
E1	91.7%	8.3%	-	-	-	100.0%
E2	42.9%	50.0%	-	7.1%	-	100.0%
E3	23.5%	41.2%	11.8%	23.5%	-	100.0%
F1	8.3%	33.3%	-	41.7%	16.7%	100.0%
F2	12.5%	62.5%	-	18.8%	6.2%	100.0%
F3	-	66.7%	33.3%	-	-	100.0%
G1	18.2%	18.2%	18.2%	36.4%	9.1%	100.0%
G2	17.6%	29.4%	11.8%	35.3%	5.9%	100.0%
G3	11.8%	35.3%	17.6%	35.3%	-	100.0%
Total	19.3%	44.3%	10.7%	22.9%	2.9%	100.0%

Source: Researcher's fieldwork, 2016

The study discovered in Table 4.7that the most widespread bathroom facility found across all the zones is the shower in-house that is shared with other tenants of the house. This type of bathroom facility is however prominent at 75% in zone D1, less used in zone E1 at 8.3% and not used at all in zone B2.At 91.7%, zone E1 had the highest proportion of houses that had bathtub/ Jacuzzi which is the bathroom facility with superior quality; the least zone that had bathtub/ Jacuzzi is C2 at 5.9%,

zones D1 and F3 however recorded no use of the bathtub / Jacuzzi. 50.0% of the houses found in zone B2 have no bathroom which is the bulk of houses that have no bathroom facility at all, this is the poorest of bathroom type; in contrast, zone E2 at 7.1% recorded the lowest number of houses that had no bathroom facility at all and B3, C3,F3 and E1 do not have houses with this poor condition of bathroom facility.

Residential dwelling units often have different type of floor finish to suit a particular segment of the house. Consequently, different areas of the house have one or more of a particular type of floor finish. Table 4.8 disclosed the type of floor finish used for 50% or more of the house.

Table4.8:Type of Floor Finish Used For 50% or More of the House

Zones	Floor Finish						Total
	Marble	Ceramic Tiles	Terrazzo	Rubber Tiles	Cemented	Others	
A1	25.0%	16.7%	-	16.7%	41.7%	-	100.0%
A2	8.3%	66.7%	-	-	25.0%	-	100.0%
B1	-	16.7%	8.3%	-	75.0%	-	100.0%
B2	-	10.0%	40.0%	30.0%	20.0%	-	100.0%
B3	-	50.0%	18.8%	-	31.2%	-	100.0%
C1	8.3%	16.7%	16.7%	8.3%	50.0%	-	100.0%
C2	-	35.3%	-	17.6%	41.2%	5.9%	100.0%
C3	6.2%	43.8%	25.0%	12.5%	12.5%	-	100.0%
D1	-	25.0%	-	-	75.0%	-	100.0%
D2	-	20.0%	-	-	80.0%	-	100.0%
D3	6.7%	33.3%	26.7%	-	33.3%	-	100.0%
E1	50.0%	33.3%	16.7%	-	-	-	100.0%
E2	7.1%	7.1%	35.7%	7.1%	35.7%	7.1%	100.0%
E3	-	64.7%	11.8%	-	23.5%	-	100.0%
F1	-	33.3%	8.3%	-	58.3%	-	100.0%
F2	-	12.5%	18.8%	-	62.5%	6.2%	100.0%
F3	-	53.3%	6.7%	6.7%	33.3%	-	100.0%
G1	9.1%	9.1%	-	9.1%	63.6%	9.1%	100.0%
G2	5.9%	23.5%	5.9%	5.9%	58.8%	-	100.0%
G3	-	35.3%	11.8%	5.9%	47.1%	-	100.0%
Total	5.7%	31.4%	12.5%	5.7%	43.2%	1.4%	100.0%

Source: Researcher's field work, 2016

On the basis of the data collected, Table 4.8 shows that the most common type of floor finish used for 50% or more of the houses in the various zones in the study area are the cemented floor which is of low quality and the least common and best quality floor type is the marble. This table revealed that zone E1 at 50.0% had the bulk of the houses that have marble floor finish; the least of this type of floor finish was recorded in zone G2 at 5.9%, zones B, F, G3, E3, D1, D2 and C2 had nomarble type of floor finish.

Table 4.9: Materials Used For the construction of the Walls of the house

Zones	Wall Construction Material						Total
	Cement Blocks(External/Interior Plastered	Cement Block Not Fully Plastered	Cement Block Un-Plastered	Mud Wall(External/Interior Plastered)	Mud Wall Not Fully Plastered	Others	
A1	75.0%	8.3%	16.7%	-	-	-	100.0%
A2	66.7%	33.3%	-	-	-	-	100.0%
B1	75.0%	-	-	25.0%	-	-	100.0%
B2	80.0%	20.0%	-	-	-	-	100.0%
B3	62.5%	31.2%	6.2%	-	-	-	100.0%
C1	75.0%	-	-	25.0%	-	-	100.0%
C2	70.6%	11.8%	5.9%	11.8%	-	-	100.0%
C3	87.5%	6.2%	6.2%	-	-	-	100.0%
D1	91.7%	-	-	8.3%	-	-	100.0%
D2	86.7%	-	-	6.7%	6.7%	-	100.0%
D3	73.3%	20.0%	-	6.7%	-	-	100.0%
E1	100.0%	-	-	-	-	-	100.0%
E2	85.7%	14.3%	-	-	-	-	100.0%
E3	88.2%	-	5.9%	5.9%	-	-	100.0%
F1	58.3%	-	-	41.7%	-	-	100.0%
F2	93.8%	-	-	6.2%	-	-	100.0%
F3	93.3%	6.7%	-	-	-	-	100.0%
G1	45.5%	9.1%	-	36.4%	-	9.1%	100.0%
G2	88.2%	5.9%	-	5.9%	-	-	100.0%
G3	100.0%	-	-	-	-	-	100.0%
Total	80.7%	8.2%	2.1%	8.2%	0.4%	0.4%	100.0%

Source: Researcher's field work, 2016

Of all the type of materials used for wall construction in the study area, the cement block was the most common and the highest in terms of quality. This is D2 at 80.0% and lowest in zone C3 at 12.5%. Despite the prevalence of the cemented floor, zone E1 had no apartment with this type of floor finish. The zone with the highest cemented floors was zone statistically proven in Table 4.9 where zones E1 and G3 had 100% of the apartments having cement block walls that is plastered both externally and internally. At 45.5%, G1 had the lowest of apartments that had cement block wall. The mud wall not fully plastered in this category is the wall material of poor quality and6.7% of the houses that had mud walls but not fully plastered are found in the fringes of zone D1 and transitions into zone D2 where this is prominent. Consequently, all other zones in the study area do not have this type of material this can be as a result of the modernization and urbanization process in the study area. Plate 4.1 shows an example of a mud wall house.

The aluminum sliding window is the extensively used window type in all the zones .it therefore means that this type of window is found in all the zones in the study area. This type of window spread across the zones. The casement window is the window type of highest quality while the wooden window which is the least used type of window in all the zones is of a poor quality. Table 4.10 presents the distribution of the type of windows used in the various apartments in the study area.

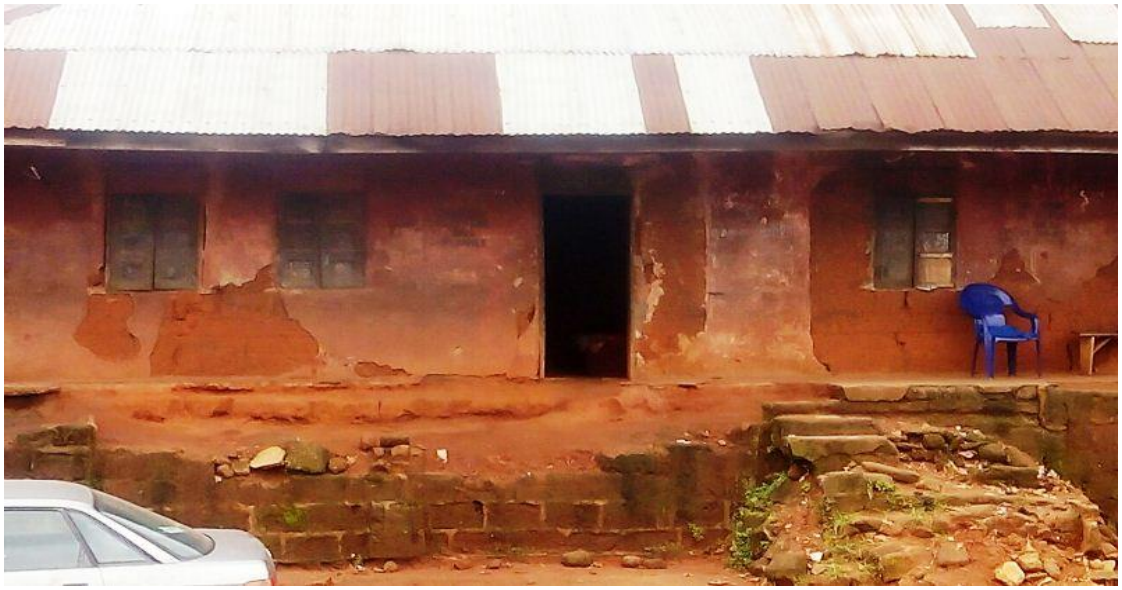


Plate 4. 1: Mud wall bungalow found in zone C1 off ring road. (Poor quality house)
Source: Researcher's field work, 2016

Table 4.10: Type Of Windows In The House

Zones	Window Type					Total
	Casement Window	Aluminum Sliding Window	Louvered	Wooden Window	Others	
A1	-	50.0%	33.3%	16.7%	-	100.0%
A2	16.7%	50.0%	8.3%	25.0%	-	100.0%
B1	16.7%	41.7%	16.7%	25.0%	-	100.0%
B2	-	10.0%	30.0%	60.0%	-	100.0%
B3	-	50.0%	43.8%	-	6.2%	100.0%
C1	-	33.3%	25.0%	41.7%	-	100.0%
C2	-	58.8%	17.6%	23.5%	-	100.0%
C3	18.8%	68.8%	12.5%	-	-	100.0%
D1	-	25.0%	33.3%	33.3%	8.3%	100.0%
D2	-	46.7%	26.7%	26.7%	-	100.0%
D3	20.0%	60.0%	13.3%	6.7%	-	100.0%
E1	41.7%	58.3%	-	-	-	100.0%
E2	-	50.0%	35.7%	14.3%	-	100.0%
E3	11.8%	58.8%	23.5%	5.9%	-	100.0%
F1	-	25.0%	25.0%	41.7%	8.3%	100.0%
F2	-	37.5%	31.2%	31.2%	-	100.0%
F3	6.7%	60.0%	33.3%	-	-	100.0%
G1	9.1%	18.2%	36.4%	36.4%	-	100.0%
G2	17.6%	29.4%	23.5%	23.5%	5.9%	100.0%
G3	-	41.2%	23.5%	35.3%	-	100.0%
Total	7.9%	45.0%	24.6%	21.1%	1.4%	100.0%

Source: Researcher's fieldwork, 2016

From the distribution in Table 4.10, the zone with the least percentage of aluminum sliding window is zone B2 at 10% and highest in zone D3 and F3 at 60%. The casement window type at 41.7% was highest in apartments in zone E1 and lowest at 6.7% in zone F3, zones A1, B2, B3, C1, C2, D1, D2, E2, F1, F2 and G3 had no casement window type. The wooden window type which is the lowest in terms of quality is prominent in zone B3 at 60% and lowest at 6.7% in zone D3.However zones F3, E1, C3 and B3 do not have apartments with this type of window.

External doors are the first contact to a home and can come in various aesthetically pleasing forms. They therefore add value to the house. This study has been able to identify four different types of external doors which include the foreign made bullet proof doors which is the highest in terms of quality, the local metal /iron doors which is the prevalent type of door in the study area, the glass in iron cast doors and the wooden doors found mostly in sectors at the core and some sectors at the suburb.

Table 4.11: Type Of External Doors In The House

Zones	External Doors					Total
	Foreign Made Bullet Proof Doors	Local Metal /Iron Doors	Glass In Iron Cast Doors	Wooden Doors	Others	
A1	33.3%	-	-	66.7%	-	100.0%
A2	33.3%	50.0%	16.7%	-	-	100.0%
B1	16.7%	25.0%	8.3%	50.0%	-	100.0%
B2	-	-	10.0%	80.0%	10.0%	100.0%
B3	31.2%	43.8%	12.5%	12.5%	-	100.0%
C1	33.3%	16.7%	8.3%	41.7%	-	100.0%
C2	11.8%	47.1%	-	41.2%	-	100.0%
C3	12.5%	50.0%	18.8%	18.8%	-	100.0%
D1	25.0%	25.0%	-	50.0%	-	100.0%
D2	13.3%	26.7%	6.7%	53.3%	-	100.0%
D3	13.3%	60.0%	-	26.7%	-	100.0%
E1	41.7%	58.3%	-	-	-	100.0%
E2	21.4%	50.0%	14.3%	14.3%	-	100.0%
E3	23.5%	29.4%	23.5%	23.5%	-	100.0%
F1	25.0%	16.7%	8.3%	50.0%	-	100.0%
F2	6.2%	37.5%	6.2%	50.0%	-	100.0%
F3	13.3%	80.0%	6.7%	-	-	100.0%
G1	9.1%	18.2%	18.2%	45.5%	9.1%	100.0%
G2	-	47.1%	-	52.9%	-	100.0%
G3	5.9%	23.5%	11.8%	52.9%	5.9%	100.0%
Total	17.9%	36.8%	8.6%	35.7%	1.1%	100.0%

Source: Researcher's fieldwork, 2016

The study revealed that a larger percentage of houses in the zones have doors made out of local metal or iron .Zone F3 with a value of 80.0% had the highest number of houses that had external doors made out of local iron or metal, this type of door is lowest in zone F1 at 16.7%.Zone A1 and B2 did not have this type of door at all. Zone E1 at 41.7% had the largest number of houses that have foreign made bullet proof doors, and lowest in zone G3 at 5.9% with zone G2 and B2 having no record of this type of door. Zone B2 had more wooden doors at 80.0% than E2 that had the

lowest wooden doors at 14.3%.A2, E1 and F3 did not have apartments with wooden doors at all.

Table 4.12: Type Of Kitchen Available In The House

Zones	Type Of Kitchen						Total
	In-House Exclusive	In-House With Running Water But Shared	In-House Excusive Without Running Water	In-House Shared Without Running Water	Outside The House	No Kitchen	
A1	66.7%	-	-	16.7%	16.7%	-	100.0%
A2	66.7%	16.7%	-	16.7%	-	-	100.0%
B1	16.7%	58.3%	-	-	8.3%	16.7%	100.0%
B2	-	10.0%	30.0%	20.0%	10.0%	30.0%	100.0%
B3	37.5%	43.8%	-	6.2%	12.5%	-	100.0%
C1	41.7%	16.7%	8.3%	8.3%	25.0%	-	100.0%
C2	23.5%	23.5%	17.6%	-	29.4%	5.9%	100.0%
C3	50.0%	12.5%	18.8%	12.5%	6.2%	-	100.0%
D1	25.0%	50.0%	-	8.3%	-	16.7%	100.0%
D2	13.3%	40.0%	13.3%	6.7%	13.3%	13.3%	100.0%
D3	60.0%	13.3%	6.7%	-	20.0%	-	100.0%
E1	91.7%	8.3%	-	-	-	-	100.0%
E2	57.1%	21.4%	7.1%	7.1%	7.1%	-	100.0%
E3	64.7%	5.9%	11.8%	5.9%	11.8%	-	100.0%
F1	8.3%	41.7%	8.3%	33.3%	-	8.3%	100.0%
F2	37.5%	37.5%	-	6.2%	18.8%	-	100.0%
F3	53.3%	46.7%	-	-	-	-	100.0%
G1	9.1%	27.3%	9.1%	36.4%	9.1%	9.1%	100.0%
G2	5.9%	29.4%	11.8%	11.8%	17.6%	23.5%	100.0%
G3	41.2%	35.3%	5.9%	-	11.8%	5.9%	100.0%
Total	38.9%	27.1%	7.5%	8.9%	11.4%	6.1%	100.0%

Source: Researcher's field work, 2016

The statistical report from Table 4.12 shows that there are more of the in house exclusive kitchen types in the zones. This is a type of kitchen where the tenants or occupants of the house have their own personal kitchen in their apartment. This type of kitchen is highest in zone E1 at 91.7% and lowest in neighbourhoods found in zone G2 at 5.9%. Zone B2 had no kitchen in the house that was exclusive to

the occupant. Zone B2 had the bulk of houses that have no kitchen at all at 30% and this scenario which is the poorest quality of kitchen in a house is lowest in G3 at 5.9%.

Table4.13 Type Of Toilet Facilities Available In The House

Zones	Type Of Toilet Facilities					Total
	WC, In-House Exclusive	WC, In-House Shared	WC, Outside The House Shared	Pit Toilet	None	
A1	75.0%	-	8.3%	16.7%	-	100.0%
A2	75.0%	-	-	25.0%	-	100.0%
B1	41.7%	8.3%	16.7%	33.3%	-	100.0%
B2	40.0%	-	40.0%	20.0%	-	100.0%
B3	56.2%	31.2%	12.5%	-	-	100.0%
C1	41.7%	16.7%	16.7%	25.0%	-	100.0%
C2	52.9%	5.9%	23.5%	17.6%	-	100.0%
C3	62.5%	18.8%	12.5%	6.2%	-	100.0%
D1	75.0%	8.3%	8.3%	-	8.3%	100.0%
D2	53.3%	13.3%	13.3%	20.0%	-	100.0%
D3	60.0%	13.3%	-	26.7%	-	100.0%
E1	91.7%	8.3%	-	-	-	100.0%
E2	85.7%	-	7.1%	7.1%	-	100.0%
E3	58.8%	17.6%	5.9%	17.6%	-	100.0%
F1	41.7%	-	25.0%	33.3%	-	100.0%
F2	56.2%	12.5%	12.5%	18.8%	-	100.0%
F3	60.0%	26.7%	13.3%	-	-	100.0%
G1	36.4%	9.1%	-	45.5%	9.1%	100.0%
G2	35.3%	17.6%	11.8%	29.4%	5.9%	100.0%
G3	58.8%	11.8%	5.9%	23.5%	-	100.0%
Total	57.9%	11.8%	11.4%	17.9%	1.1%	100.0%

Source: Researcher's field work, 2016

The study unveiled in Table 4.13 that zone E1 at 91.7% had the bulk of WC (water closet), in- house exclusive type of toilet facility. Although this type of toilet facility is common in all the zones, it has recorded the lowest use in zone G1 at 36.4%. It is also evident from Table 4.13 that there is little variation in the toilet in house shared and outside shared in the study area. Pit toilet, a poor quality toilet

facility is high in zone G1 and low in zone C3 at the respective values 45.5% and 6.2%. Houses with no toilet at all, the poorest quality of toilet facility are also found in zones G1 at 9.1%, and low in zones

Provision for security is measured in terms of the extent to which there is burglary proof in a particular house. The distributions of burglary proof in some houses are not equal. Most houses with burglary proof at every necessary part of a house tend to have more value than those that do not have especially when the house will be occupied exclusively by tenants. Table 4.14 uncovered the statistics of each zone on the provision for security. The table then shows that all the zones constitute of apartments that have burglary proof on all the doors and the windows which indicates the highest quality of provision for security example is shown in plate 4.2, contrary to this is a situation where there is no burglary proof at all in the apartment, this also indicates the poorest quality house in terms of security.

Table 4.14 Provision For Security In The House

Zone	Provision For Security				Total
	Burglary Proof(All Doors And Windows)	Burglary Proof(Some Doors And Windows)	No Burglary Proof	Others	
A1	16.7%	16.7%	58.3%	8.3%	100.0%
A2	50.0%	33.3%	16.7%	-	100.0%
B1	50.0%	25.0%	8.3%	16.7%	100.0%
B2	50.0%	30.0%	20.0%	-	100.0%
B3	37.5%	31.2%	25.0%	6.2%	100.0%
C1	41.7%	16.7%	33.3%	8.3%	100.0%
C2	23.5%	35.3%	41.2%	-	100.0%
C3	50.0%	12.5%	31.2%	6.2%	100.0%
D1	41.7%	-	58.3%	-	100.0%
D2	53.3%	6.7%	33.3%	6.7%	100.0%
D3	86.7%	13.3%	-	-	100.0%
E1	91.7%	8.3%	-	-	100.0%
E2	57.1%	21.4%	21.4%	-	100.0%
E3	52.9%	29.4%	11.8%	5.9%	100.0%
F1	33.3%	33.3%	25.0%	8.3%	100.0%
F2	43.8%	25.0%	31.2%	-	100.0%
F3	80.0%	20.0%	-	-	100.0%
G1	36.4%	27.3%	27.3%	9.1%	100.0%
G2	41.2%	23.5%	35.3%	-	100.0%
G3	76.5%	17.6%	5.9%	-	100.0%
Total	51.1%	21.4%	23.9%	3.6%	100.0%

Source: Researcher's field work, 2016.

Zone E1 at 91.7%, had the highest apartments in terms of houses that had burglary proof on all windows and doors and the lowest of houses with burglary proof on all windows and doors are found in zone A1 at 16.7% .The bulk of houses that have burglary proof on some of the doors and windows were found in zone C2 with a value of 35.3% while this was low in zone D2 at a rate of 6.7%. At 58.3%, which was the highest, zone A1 and D1 had houses that had no burglary proof at all while this scenario was lowest in zone G3 at 5.9%.

Pavements are form of interior compound/flooring made out of stone. There are different types of compound pavements they include the interlocking tiles ;highest quality pavement and cemented German floor, the poorest quality type

of compound is one without any form of compound paving. Table 4.15 presents the distribution of the types of compound paving in the various zones in the study area.

Table 4.15 Type Of Pavement in Compound.

Zones	Compound Pavement				Total
	Interlocking Tiles	Cemented German Floor	None	Others	
A1	41.7%	16.7%	41.7%	-	100.0%
A2	25.0%	33.3%	41.7%	-	100.0%
B1	-	41.7%	50.0%	8.3%	100.0%
B2	10.0%	30.0%	50.0%	10.0%	100.0%
B3	18.8%	37.5%	31.2%	12.5%	100.0%
C1	8.3%	33.3%	58.3%	-	100.0%
C2	-	47.1%	52.9%	-	100.0%
C3	31.2%	25.0%	37.5%	6.2%	100.0%
D1	8.3%	8.3%	83.3%	-	100.0%
D2	-	20.0%	66.7%	13.3%	100.0%
D3	40.0%	20.0%	40.0%	-	100.0%
E1	50.0%	50.0%	-	-	100.0%
E2	7.1%	28.6%	64.3%	-	100.0%
E3	23.5%	23.5%	47.1%	5.9%	100.0%
F1	-	41.7%	50.0%	8.3%	100.0%
F2	18.8%	6.2%	75.0%	-	100.0%
F3	-	60.0%	33.3%	6.7%	100.0%
G1	9.1%	27.3%	63.6%	-	100.0%
G2	5.9%	17.6%	76.5%	-	100.0%
G3	-	29.4%	70.6%	-	100.0%
Total	14.6%	29.6%	52.1%	3.6%	100.0%

Source: Researcher's fieldwork, 2016

The study in Table 4.15 revealed that as much as 50% of the houses in zone E1 have the highest interlocking tiles while as low as 5.9% of the houses in zone G2 have the lowest percentage of interlocking tiles. Zones B1, C2, D2, F1, F3, and G3 had no interlocking tiles. Zone F3 at 60% had the bulk of the distribution of the cemented German floor while the least was zone F2 at 6.2% .The bulk of the respondents live in houses that neither had the interlocking tiles or cemented German floor. This was evident in zone D1 at 83.3% which had the highest number of houses

that had no compound pavement at all and the least was recorded in zone B3 at 31.2%. However, zone E1 did not record this poor quality at all.

Plate 4.2: (Good quality house) Flat in zone F3 off, Sapele road.
Source: Researchers field work, 2016

House types instantly depict the rental value of houses and the neighbourhood characteristics that one would expect from such house. Table 4.16 shows the various house types in the study area. With the king square at the center of the city ,house types within the study area tend to radiate around the palace and graduate from ancient to modern outwards from the core area to the fringe. However, from the field survey, some ancient houses were seen in some sectors at the peripheral areas.

Table 4.16: Types of house

Zone	House Types						Total
	Mansion/Duplex	Bungalow	Flats	Traditional Compound	Rooming	Others	
A1	8.3%	16.7%	50.0%	16.7%	8.3%	-	100.0%
A2	16.7%	16.7%	50.0%	-	16.7%	-	100.0%
B1	-	8.3%	16.7%	25.0%	41.7%	8.3%	100.0%
B2	10.0%	50.0%	10.0%	10.0%	20.0%	-	100.0%
B3	25.0%	12.5%	18.8%	6.2%	37.5%	-	100.0%
C1	-	25.0%	41.7%	33.3%	-	-	100.0%
C2	-	29.4%	35.3%	29.4%	-	5.9%	100.0%
C3	6.2%	25.0%	62.5%	6.2%	-	-	100.0%
D1	-	8.3%	50.0%	8.3%	33.3%	-	100.0%
D2	-	13.3%	33.3%	-	53.3%	-	100.0%
D3	6.7%	20.0%	53.3%	20.0%	-	-	100.0%
E1	41.7%	50.0%	8.3%	-	-	-	100.0%
E2	-	35.7%	35.7%	-	28.6%	-	100.0%
E3	-	11.8%	70.6%	11.8%	5.9%	-	100.0%
F1	-	16.7%	16.7%	41.7%	16.7%	8.3%	100.0%
F2	12.5%	6.2%	18.8%	-	62.5%	-	100.0%
F3	26.7%	-	46.7%	-	26.7%	-	100.0%
G1	9.1%	18.2%	18.2%	36.4%	18.2%	-	100.0%
G2	-	29.4%	23.5%	11.8%	35.3%	-	100.0%
G3	5.9%	17.6%	41.2%	-	35.3%	-	100.0%
Total	8.2%	20.0%	36.1%	12.1%	22.5%	1.1%	100.0%

Source: Researcher's field work, 2016

From table 4.16, we can deduce that flats cut across all the zones in the study area, also that the highest percentage of flats which is 70.6% was found in neighbourhoods within zone E3, while the lowest percentage of flats which is 8.3 % was found in neighourhoods in zone E1; this zone also has the highest percentage of mansion / duplex at 41.7% which is the superior quality house type in the study area. As low as 5.9% of mansion and duplex are found in zone G3, zones B1,C1,C2,D1,D2,E2,E3,F1 and G2 did not have this type of house at all. The traditional compounds have significant proportions in zones F1 at 41.7%, the proportion is lowest in zones B3 and C3 both at 6.2% .The face- me- I- face- you

(rooming) type of house is highest in zones F2 at 62.5%, D2 at 53.3% and low in zones E3 at 5.9% and A1 at 8.3% and totally absent in Zone C, D3 and E1.

Table 4.17: Respondent's Perception on Regularity of Electricity Supply

Zone	Regularity Of Electricity Supply				Total
	Regular(50% And More Everyday)	Irregular(Less Than 50%)	Very Irregular(Few Hours In A Week)	Others	
A1	8.3%	41.7%	50.0%	-	100.0%
A2	33.3%	58.3%	8.3%	-	100.0%
B1	8.3%	25.0%	66.7%	-	100.0%
B2	10.0%	-	90.0%	-	100.0%
B3	6.2%	56.2%	37.5%	-	100.0%
C1	25.0%	16.7%	58.3%	-	100.0%
C2	5.9%	29.4%	64.7%	-	100.0%
C3	-	25.0%	50.0%	25.0%	100.0%
D1	66.7%	33.3%	-	-	100.0%
D2	73.3%	6.7%	20.0%	-	100.0%
D3	-	-	100.0%	-	100.0%
E1	-	41.7%	58.3%	-	100.0%
E2	-	57.1%	35.7%	7.1%	100.0%
E3	5.9%	88.2%	-	5.9%	100.0%
F1	66.7%	33.3%	-	-	100.0%
F2	37.5%	25.0%	31.2%	6.2%	100.0%
F3	-	100.0%	-	-	100.0%
G1	18.2%	18.2%	63.6%	-	100.0%
G2	5.9%	64.7%	29.4%	-	100.0%
G3	41.2%	35.3%	23.5%	-	100.0%
Total	20.0%	39.3%	38.2%	2.5%	100.0%

Source: Researcher's field work, 2016

The data in table 4.17 uncovered that respondents adjudged neighbourhoods in zones D2, F1 and D1 to experience regular (50% or more everyday) electricity supply at 73.3% and 66.7%, this regularity of electricity can be as a result of the commercial activities in the core area. However, respondents in zones F3, E2, E1, D3 and C3 do not experience this regularity in power supply. Also 100% very

irregular electricity supply is experienced in zone D3.zones D1,E2, E3,F1,F3 do not experience this irregularity in power supply. It can also be deduced from Table 4.17 that the bulk of respondents in the zones in the study area experience irregular supply of electricity.

The age of a residential apartment determines its quality and consequently determines its rental value. Older houses tend to have lower rent when compared to the modern houses as a result of the depreciation in the quality of the house. Table 4.18 shows the age of dwelling units in each zone.

Table 4.18: Age of Dwelling

Zones	Age Of Dwelling						Total
	0-5 Years	6-10 Years	11-20 Years	21-30 Years	31-50 Years	Above 50 Years	
A1	8.3%	66.7%	16.7%	8.3%			100.0%
A2	33.3%	33.3%	33.3%				100.0%
B1	16.7%		8.3%		41.7%	33.3%	100.0%
B2		10.0%	10.0%	20.0%	60.0%		100.0%
B3	37.5%	31.2%	18.8%	6.2%	6.2%		100.0%
C1		8.3%	16.7%	33.3%	8.3%	33.3%	100.0%
C2	23.5%	5.9%		17.6%	5.9%	47.1%	100.0%
C3	18.8%	31.2%	31.2%	18.8%			100.0%
D1	33.3%	25.0%	25.0%	8.3%	8.3%		100.0%
D2	20.0%		26.7%		6.7%	46.7%	100.0%
D3	20.0%	13.3%	53.3%	13.3%			100.0%
E1	16.7%	16.7%	33.3%	33.3%			100.0%
E2		7.1%	21.4%	42.9%	28.6%		100.0%
E3	11.8%	41.2%	29.4%	11.8%	5.9%		100.0%
F1	16.7%	8.3%	16.7%		16.7%	41.7%	100.0%
F2	25.0%		31.2%	6.2%		37.5%	100.0%
F3	13.3%	33.3%	53.3%				100.0%
G1	18.2%	9.1%	18.2%	18.2%	18.2%	18.2%	100.0%
G2	17.6%	5.9%	5.9%	23.5%	35.3%	11.8%	100.0%
G3	29.4%	5.9%		11.8%	23.5%	29.4%	100.0%
Total	18.6%	17.5%	22.5%	13.6%	12.5%	15.4%	100.0%

Source: Researcher's field work, 2016

Table 4.18 revealed that majority of houses below 5 years are found in zone B3 with a value of37.5%, this can be as a result of the majority of occupants in this zone

being students and this prompts the landlords to erect new structures to meet the ever growing accommodation needs of the students particularly University of Benin students, the least of the zone that had houses below 5 years is zone A1 at 8.3%. From table 4.18, it can be deduced that there are more of modern houses in Benin City between the ages of 0-5 years - 30 years. At 47.1%, zone C2 had the highest number of houses with old structures while at 11.8%, Zone G2 had the lowest of neighbourhoods with houses of this age class.

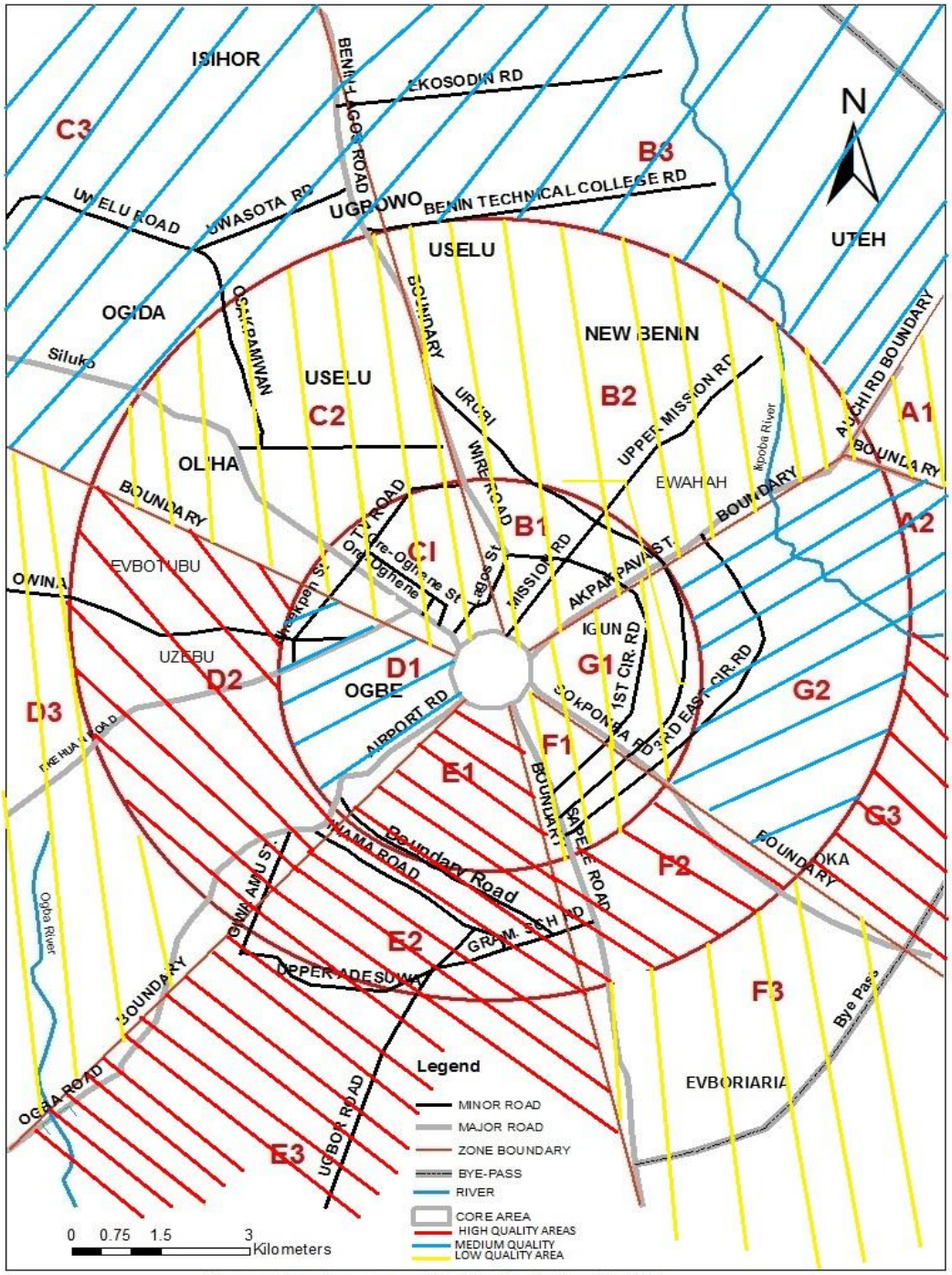
4.3 HOUSING QUALITY IN BENIN CITY

The cross tabulations give the summary of the zones with the various housing characteristics particularly the structural characteristics and variation in housing quality which is evident in all the different sectors of the zones .The quality of housing in Benin City can therefore be ranked in terms of the zones that have the highest and lowest quality , this ranking as determined by the quantity of houses that have the highest quantity or lowest quantity of facilities considered to be the most preferred or the most desirable as earlier stated in Table 3.2. Therefore, zones that have neighbourhoods with the highest percentage of facilities that is most desirable ranked 1 while other zones follow behind, for more details on the rank of all the 20 sampled zones, (see Appendix-C). Using the rank of the zones, housing quality map of the study area was produced. Consequently, the quality interval class was produced in table 4.19.

Table 4.19: Housing Quality interval class

Quality Class	**Zones**
1-5(High quality)	E3, E1, G3, D2, F2, E2,
6-10(Medium quality)	C3, B3, G2, D1, A2
11-17(Low quality)	F1,F3,D3, C2, B1, A1, C1, G1,B2

Figure 4.4illustrates the variation in housing quality among the sampled zones



Source: Google map modified by the Author (2016)

Figure 4.4 Benin City showing variation in housing quality

4.4 HOUSING QUALITY AND RENT

Through the use of the multiple regression analysis, the relationship between the housing quality and the yearly rent was established. Below are the results and interpretation from the regression analysis.

The model summary box labeled table 4.20 below shows the R Square value and explains how much of the variance in the yearly rent of respondents is explained by the model. Here, the value is .426 and when expressed as a percentage (multiplying by 100 by shifting the decimal point two places to the right), this means that the model explains 42.6% of the variance in the yearly rent.

Table 4.20 :Model summary box

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.652[a]	.426	.366	2.339

Source: Researcher's analysis, 2016.

From the observation in the regression model, the type of floor finish for 50% or more of the house with -.215has the highest value of the beta coefficient. This means that it made the strongest unique contribution to explaining the dependent variable (yearly rent) when the variance explained by all the other variables in the model is controlled for. As floor type takes the leading position, it was followed by -.199 for type of kitchen available, -.176 for type of ceiling for 50% or more, -.170 for rate of flooding, 146 for type of toilet facility, -.143 for provision of security(burglary proof). The beta coefficient for house painting is .019 indicating that it made the lowest of all the unique contributions. Following are -0.23 for source

of water supply, .035 for type of window,-.039 for number of bathrooms, .058 for number of toilets.

Statistically, amongst all the independent variables, the variables that made the most significant contributions are the type of floor finish used for 50% or more of the house, type of kitchen available, type of ceiling used for 50% or more of the house, rate of flooding, type of toilet facility, and the provision for security. As a result of the overlapping of the independent variables, they however did not make much significant contribution to the yearly rent of respondents.

4.5 DIFFERENCES IN HOUSING RENT

The one way analysis of variance (ANOVA) is used to show the differences in housing rent between and among the various neighbourhoods in Benin City. Below are the results from the analysis of variance.

Table 4.21 ANOVA TABLE

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1052.971	19	55.420	10.869	.000
Within Groups	1284.911	252	5.099		
Total	2337.882	271			

Source: Researcher's analysis, 2016

The ANOVA table labeled 4.21 shows a P-Value of .000, this means $P \leq 0.05$ and there was a significant difference in all the yearly rent.

As a result of the significant difference in the yearly rent between groups, the means must be examined in order to determine the nature of the effects. To

determine the nature of the effects, the descriptive statistics shows that the differences in the yearly rent of the different zones were found to be statistically significant at 0.05 level of significance. This variation may have resulted from the incomplete number of yearly rent by respondents that did not give responses.

Table 4.22: Descriptive statistics from one way ANOVA

Zones	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
A1	12	1.75	.622	.179	1.36	2.14	1	3
A2	12	6.67	3.846	1.110	4.22	9.11	1	11
B1	12	1.75	.866	.250	1.20	2.30	1	3
B2	10	6.40	3.502	1.108	3.89	8.91	2	11
B3	16	2.56	1.750	.438	1.63	3.50	1	8
C1	12	1.50	.674	.195	1.07	1.93	1	3
C2	15	3.20	3.468	.895	1.28	5.12	1	11
C3	15	4.33	2.582	.667	2.90	5.76	1	8
D1	12	2.25	.965	.279	1.64	2.86	1	4
D2	15	2.40	1.805	.466	1.40	3.40	1	7
D3	15	7.07	2.251	.581	5.82	8.31	3	10
E1	12	8.42	2.429	.701	6.87	9.96	5	11
E2	14	5.29	3.074	.822	3.51	7.06	1	11
E3	14	6.21	2.966	.793	4.50	7.93	2	11
F1	12	3.08	1.782	.514	1.95	4.22	1	6
F2	16	3.13	2.094	.523	2.01	4.24	1	9
F3	15	4.80	.941	.243	4.28	5.32	3	6
G1	9	1.56	1.014	.338	.78	2.33	1	4
G2	17	2.47	2.125	.515	1.38	3.56	1	9
G3	17	3.53	2.004	.486	2.50	4.56	1	7
Total	272	3.91	2.937	.178	3.56	4.26	1	11

Source: Researcher's analysis, 2016

Table 4.22 provides information on the statistical significant difference of each zone. All the zones at 95% confidence interval and 0.05 alpha levels had different mean, standard deviation, standard error and minimum and maximum

values. For example, Zone A1 had a mean of 1.75^{ab} with standard deviation of 0.62, the mean lies within 1.36 to 2.14.

4.6: RELATIONSHIP BETWEEN RENT PAID ON HOUSING AND DISTANCE FROM CBD

Relationship between rent paid and distance from the city center has been established using the manual general formula for computing spearman *r* or rho which is;

$$\text{Spearman } r \text{ or rho} = 1-\frac{6\Sigma D^2}{N(N^2-1)}$$

Where; N= the number of pairs

Rho= spearman rank –order correlation

D=difference between each X score and each Y score

For the purpose of investigating the relationship between housing and rent, various distances away from the city (ring 1-3) as well as the rents charged in each of these rings was used to establish if rents relate significantly with distances from the city center to the surroundings. For uniformity, a 2 bedroom bungalow was chosen for assessment in all the rings designated

Table 4.23: Rent and Distance Relationship

Rings	Distance (K)	Rents (₦)
1	≤10minutes	100,000
2	11-20minutes	250,000
3	21-30minutes	300,000

Source: Researcher's analysis, 2016

Variables used: Average Distance (K) and Rent (₦)

From the table, the highest distance and highest rent rank 1 in ring 3,ring 2 distance and rent rank 2 while ring 3 distance and rent rank 3,since D is the difference between ranks, D^2 for each score is 0 therefore sigma D^2 is also 0. The number of pairs used is 3. Substituting into the formula given above,

$$\text{rho or } r = 1 - \frac{6 \times 0}{3(3^2 - 1)}$$

$$= \frac{6}{24}$$

$$=1-0.25$$

$$=0.75$$

Therefore $r_{s\ (coefficient)} = 0.75$ or $p = 0.75$

This value indicates a strong positive relationship between distance to the CBD and rent. This value also means that the higher the distance to the CBD,the higher the rent charged on a house

4.7 HYPOTHESIS TESTING

In this section, attempt was made to determine the objectives of the research. This was carried out in order to ensure that there is logical consistency between the findings of this research project and the aim and objectives stated. It is in this light that the hypotheses earlier formulated are re-stated as follows;

H_{01} - There is no significant relationship between housing quality and housing rental value in Benin City;

Table 4.24: Regression

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	976.817	25	39.073	7.145	.000[b]
	Residual	1317.931	241	5.469		
	Total	2294.748	266			

Table 4.24 shows the F-ratio is 7.145 and has a P-value of 0.000, which is less than 0.05. The F-ratio therefore falls in the rejection region. This signifies that the null hypothesis which states that "There is no significant relationship between housing quality and housing rental value in Benin City" is therefore rejected while the alternative hypothesis which states that "There is significant relationship between housing quality and housing rental value in Benin City" is accepted.

H_{02} - There is no significant difference in housing rental value in the various residential neighborhoods in Benin City.

The ANOVA table labeled 4.5.1 shows that a P-Value of .000, this means $P \leq 0.05$ and there was a significant difference in all the yearly rent. Therefore, the null hypothesis which states that "There is no significant difference in housing rental value in the various residential neighborhoods in Benin City" is rejected and the

alternative hypothesis which states that *"*There is a significant difference in housing rental value in the various residential neighborhoods in Benin City" is accepted

H_{03}- Rents paid on housing do not increase with distance from city Centre.

From the computation of the spearman's rank correlation coefficient in table 4.6.1, a value of 0.95 signifies a strong positive relationship between the y score and the x scores. Therefore, the null hypothesis which states that "Rents paid on housing do not increase with distance from city Centre" is rejected and the alternative hypothesis which states that *"*Rents paid on housing increases with distance from city Centre" is accepted.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter states the inferences drawn from the data analysis and the clarity of the research findings; this is followed by a chance for advancement on the research topic through identification of opportunities for research in the future, conclusions and recommendations. The deductions from this research have been stated in this chapter in such a way that the findings are both productive and of benefit for policy implementations.

5.2 RESEARCH FINDINGS

Various deductions were made from the analysis provided in the previous chapter. These research findings are highlighted as follows;

- ✓ The research found that the general quality of housing in Benin City is low and not evenly spread as there is more poor quality of housing facilities and infrastructures than the good ones. Majority of neighbourhoods in zone B1, C1, D1 that generally make up the core have more of the poor facilities and Zone E1 that had the highest of the best quality still lacked regularity of power supply.
- ✓ The study also found out that there is a significant positive relationship between housing quality, distance and rental value in some sectors of the zones such that

the higher the structural quality and availability of internal facilities in a residential property, the higher the distance away from the city center and the higher its rental or property value.

- ✓ The study also found out that the urban structure of the city have significant effect on land values and therefore affects the property values and consequently affects price of rent. Because of the monocentricity of the study area, residential activities that move farther away from the center attract higher rent. The rental value of a property reflects its structural and facility adequacy as well as the neighbourhood it is located in.
- ✓ The major housing characteristics which tend to determine house rents are type of floor finish used for 50% or more of the house, type of kitchen available, type of ceiling used for 50% or more of the house, type of toilet facility, and the provision for security.
- ✓ The study found out that the majority of the tenants that reside at the city center pay for accessibility at the expense of standard housing facility as a result of the available opportunities at the city center.
- ✓ The poor quality of hosing at the city center can be attributed to the large number of occupants at the core which leads to pressure on the quality of housing. The buildings at the core and the intermediate are old of

- ✓ The study also found out that the cause of poor housing at the core is as a result of illiteracy and nonchalant attitude on the part of both owners and tenants towards maintenance of the house.

5.3DISCUSSION OF FINDINGS

This research has been able to prove that rent paid on housing increase with increasing distance from the city center, this was affirmed in the study of Uyo urban area examined by Udida and Ofem (2014) through the use of spearman rank correlation coefficient. The study in Uyo also found that housing facilities were concentrated more in the center of the city and thinned out with increasing distance from the city center but this is the opposite in this research work.

The study through multiple regression analysis was able to establish that 50% of floor finish and kitchen type had significant contribution to rental value, this is in contrast to the work of Olujimi and Bello (2009) in Akure, Okorie, (2015) in Osogbo where they both found out that wall fence as well as water, electricity and burglary proof played the most important roles in determining rental values.

This research is also in consonance with the study of Eghagha, (2014) in Benin City where the use of ANOVA and regression was used to study the structural quality and availability of internal facilities in relation to the core, the transitional zones and the periphery areas of the city. This research has also been able to establish the fact that the neighbourhood of a dwelling affects its rental value. This was also established in the study by Eghagha (2014).

5.4 RECOMMENDATIONS

The nature of this study tends to tackle the problems of poor housing quality and arbitrary fixing of rent, there is therefore no doubt that this study has vast policy implications. The responsibility of tackling such problems rests on the shoulders of various key players such as the Federal government, the Edo state government, tenants, landlords, property and estate valuers, and urban planners. The following are recommended;

- ✓ The construction of good quality housing should be implemented through the enforcement of standards for housing which stands as a yardstick to which the minimum conditions of a standard house can be measured and adhered to strictly. These standards comprise the rules, laws and regulations that govern the development of good quality of housing. The conducts and ethics embedded in the standards should be followed such as the setbacks of a building should be followed with strict monitoring and compliance.
- ✓ . The government should make concentration of housing development a priority and intensify development of good housing on poor neighbourhoods at the city center.
- ✓ Laws should be put in place to curb the arbitrary fixing of rent by estate valuers and developers so as to ensure that people can live in good quality housing at an affordable rate.

- ✓ Because the demand for rented apartment is very high especially in the core neighbourhoods of the city, there should be emphasis on the development of government-owned, multiple-household rental apartments. This will help in the maintenance of the housing quality.
- ✓ Building materials and internal house fittings should be subsidized and affordable to enable private firms and individuals build and maintain the quality of housing.
- ✓ Efforts should be made by the residents of the neighbourhoods at the core to loose their hold on the traditional over attachment to the old structures so as to give room for better structures to be replaced. They should also inculcate the habit of regular replacement and maintenance culture.
- ✓ The government should time to time carry out detailed survey on the various neighbourhoods in the city. This will help in the identification of problems and setting up of objectives to tackle problems.
- ✓ The study also recommends urgent improvement of quality and provision of facilities through public private partnership (PPP) to help eradicate poor housing quality.

5.5 CONCLUSION

Conclusively, the study has investigated housing quality as a determinant of residential rental value in Benin City and acknowledges the fact that the quality of housing takes effect on rental value. The study also found out that poor quality of

housing is found at the city center and that the farther away from the city center, the more the rent and the better the quality of housing.

The study therefore comes to a conclusion that the practical solution to poor quality of housing is for all the key actors and players at all levels to be involved in the improvement of housing quality in the city . This can be achieved through the measures that have been highlighted above.

5.5 SUGGESTIONS FOR FURTHER RESEARCH

This study is probably the most recent research that has assessed not only the quality of housing on residential rental value but has also been able to establish the quality of houses at different sectors and zones of the study area. Further research effort need to be carried out in other urban areas in Nigeria especially in cities that have the concentric pattern of development such as Benin City. This is to establish the applicability of the research findings in other cities.

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APPENDIX - A

QUESTIONNAIRE

DEPARTMENT OF GEOGRAPHY AND REGIONAL PLANNING

FACULTY OF SOCIAL SCIENCES

UNIVERSITY OF BENIN

BENIN CITY

Dear respondent,

I am an undergraduate student of the above named department and university. I am undertaking a research project on *Housing quality as a determinant of residential rental value in Benin City.* Kindly provide information on this topic. Information provided will be treated with strict confidentiality and used for the stated purpose only.

Thanks for your cooperation.

Kindly tick and make comments where necessary

SECTION A (Socio-economic characteristics)

1. Sex of respondent? a) male b) female
2. Age of respondent? a) Under 26 yrs. b) 26-35 yrs. c) 36-45 yrs. d) 46-55 yrs. e) 56- 65 yrs. f) Above 65 yrs.
3. What is your highest educational qualification? a) no formal education b) primary school c) secondary school d) tertiary/higher educational degree
4. What is your occupation? a) Civil servant b) self-employed c) retired d) unemployed e) others (specify)……..……..
5. For how long have you lived in this neighborhood? a) less than 5yrs b) 5-10yrs c)11-15yrs d)above 15yrs.
6. What is your monthly income? a)25,000 and below b) 25,0001-50,000 c)50,001-10,0000 d)10,0001-150,000 e)150,001-200,000 f) above 200000

SECTION B (Locational characteristics)

7. Name of street? …….…….
8. Name of neighborhood? …….
9. Local government area? ……
10. Is your place very accessible to the hospital? a) yes b) no
11. How accessible is your place to Ring Road in a car? a) very accessible b)accessible c)fairly accessible d) not easily accessible

12. About how many minutes does it take you to get to ring road from your house in a car?
    a) 0-10 mins b) 11-20 mins c) 21-30 mins) 31-40 mins
    e) above 40mins
13. What is the distance to ring road in kilometers from your house? a) 0-5km b) 5-10km c) 10-15km d) 15-20km e) 20km and above

SECTION C (Housing characteristics)

14. What type of house do you live in? a)mansion /duplex b)bungalow c)flats d) traditional compound e) rooming f) others (specify)……
15. How long have you lived continually in this house? a)less than 5yrs b) 6-10yrs c)11-15yrs d)above 15yrs
16. What is the tenure structure of your house? a)fully renter- occupied b)mixed owners /renters c) others (specify) …….
17. How old is the house? a)0-5yrs b) 6-10yrs c)11-20yrs d)21-30yrs e) 31-50yrs f)above 50yrs
18. What materials are used for the construction of the walls of the house?
    a) cement blocks(external /interior plastered) b)cement block not fully plastered c) cement block un plastered d)mud wall (external /interior plastered) e)mud wall not fully plastered f) mud wall un-plastered
    g)others (specify) ……..……
19. What is the approximate size of the plot on which your house is built?
    a) 50x100 ft b) 100x100 ft c) 150x100 ft d) 100x200 ft
    e) others (specify)……...……
20. What is the size of your apartment? a)25sqm b) 45sqm c)65sqm d)80sqm e)100sqm
21. Is the house painted? a) fully painted (external /interior) b) not fully painted c) not painted at all
22. What material is used for roofing the house? a) aluminum b)asbestos
    c) corrugated iron sheets d)concrete (decking)
    e)others (specify) ……..…..
23. What type of ceiling is used for 50% or more of the house? a) POP
    b) treated /fancy wood c) PVC d) asbestos ceiling board
    e) improvised f)none
24. What type of window does your house have? a) casement window
    b) aluminum sliding window c)louvered d) wooden window
    e) others (specify) ……..
25. How would you describe the ventilation of your house? a)very well ventilated
    b) well ventilated c) fairly well ventilated d)poorly ventilated
    e) very poorly ventilated

26. What type of floor finish is used for 50% or more of the house? a)marble b)ceramic tiles c)terrazzo d) rubber tiles e) cemented f)others (specify) ……
27. Is your compound paved? a)interlocking tiles b)cemented German floor c)none d)others (specify)……
28. Is your compound fenced? a)fully fenced with gate b)fully fenced no gate c) not fenced
29. What types of external doors are in the house? a) foreign made bullet proof doors b) local metal /iron doors c) glass in iron cast doors d)wooden doors e) others (specify) ……..….
30. What is the provision for security in the house? a) Burglary proof (all doors and windows) b) burglary proof (some doors and windows) c) no burglary proof d) others (specify) ……..…
31. How would you rate the level of security in your neighborhood? a) very secure b) secure c) indifferent d) insecure e) very insecure
32. Which type of kitchen is available in the house? a) in –house exclusive b)in –house with running water but shared c)in –house exclusive without running water d)in-house shared without running water e)outside the house f)no kitchen
33. What type of bathroom facilities is available? a)bath tub /Jacuzzi b)shower in –house exclusive c)shower in- house shared d)outside bathroom e)no bathroom f) others (specify)…….…….
34. What type of toilet facilities is available in the house? a) WC ,in –house exclusive b) WC, in house shared c)WC outside the house shared d) pit toilet e)none
35. How would you rate flooding in your neighborhood? a)very bad b) bad c) fair d) none
36. What is the source of water supply in your house? a)government pipe borne water b)borehole water in house c)borehole water (outside compound) d)welle) overhead tank f) others (specify)……..……..…
37. How would you describe the regularity of electricity supply in your house? a) Regular (50% and more everyday) b) irregular (less than 50%) c) very irregular (few hours in the week) d) others (specify)……..…
38. How would you rate the state of security of your neighborhood? a)very safe b)relatively safe c) safe d) not very safe e) not safe
39. What is the number of bedrooms in your apartment? a) 1 b) 2 c) 3 d) 4 e) 5 f) others (specify)…….……
40. How many bathrooms do you have in your house? a)1 b)2 c)3 d)4 e)5 f)others (specify).....

41. How many toilets do you have in your house? a) 1 b) 2 c) 3 d) 4 e) 5 f) others (specify)……
42. Please indicate your yearly rent? a)30000 and below b)3,0001-60,000 c)60,001-90,000 d)90,001-120,000 e)120,001-15,000 f)150,001-180,000 g)180,001-210,000 h)210,001-240,000 i)240,001-270,000 j) 270,001-300,000 k)300,000 and above
43. Is your rent proportionate with the housing quality? a) yes b)no
44. Zone a) A1 b)A2 c)B1 d)B2 e)B3 f)C1 g) C2 h)C3 I)D1 J)D2 k)D3 l)E1 m)E2 n)E3 o)F1 p)F2 q)F3 r)G1 s)G2 t)G3

APPENDIX - B

ZONES	COMMUNITIES/NEIGHBOURHOOD THAT MAKE UP THE ZONES
A1	**Iwogban, Aduwawa, Bypass, Tenboga, F.H.E(federal housing estate).**
A2	**Ikpobahill, Ramat park,**
B1	**Urhubi, Ihyeya Lane,**
B2	**New benin, Akugbe**
B3	**Ekosodin, Evbuomore**
C1	**Oro lane, popular lane**
C2	**Uselu /textile mill ,TV road axis**
C3	**Isihor, Ehigie.**
D1	**Ogbe, Ehenede**
D2	**Uzebu, Isibor, Owina ,**
D3	**Evuotubu**
E1	**Adesuwa, Liberty avenue, Oni road, Oba eweka lane, Omorogbe, commercial avenue**
E2	**Owen ,G.R.A, Faith drive, Country home**
E3	**Ekae 2, Divine wisdom avenue**
F1	**Igun street**
F2	**Ivbiotor, uwa, Goretti axis, omogun,**
F3	**Evboriaria**
G1	**First east circular, Parozzi**
G2	**Eweka, Third east circular, Iyesigie**
G3	**Oka ,Ewuare,**

APPENDIX –C1
HOUSING QUALITY INDEX

	A1		A2		B1		B2		B3		C1		C2		C3		D1		D2	
INDICES	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R
Level of Security	3.1	**12**	3.1	**12**	4.7	**8**	0.8	**13**	3.1	**12**	4.7	**8**	4.7	**8**	6.2	**6**	7.8	**3**	8.6	**2**
Regularity of Electricity supply	1.8	**8**	7.1	**5**	1.8	**8**	1.8	**8**	1.8	**8**	5.4	**6**	1.8	**8**	0.0	**15**	14	**2**	19	**1**
Wall Material	4.0	**10**	3.5	**12**	4.0	**10**	3.5	**12**	4.4	**9**	4.0	**10**	5.3	**6**	6.2	**4**	4.9	**8**	5.8	**6**
House Paint	3.3	**13**	2.9	**15**	5.3	**6**	2.9	**15**	5.7	**4**	4.8	**8**	5.3	**6**	3.8	**10**	5.3	**6**	6.7	**3**
Roof Type	11	**3**	6.2	**7**	3.8	**10**	2.5	**12**	8.8	**5**	2.5	**12**	5.0	**8**	11	**3**	3.8	**10**	1.2	**1**
Window Type	0.0	**10**	9.1	**5**	9.1	**5**	0.0	**10**	0.0	**10**	0.0	**10**	0.0	**10**	14	**2**	0.0	**10**	0.0	**10**
Floor Finish	18	**2**	6.2	**3**	0.0	**5**	0.0	**5**	0.0	**5**	6.2	**3**	0.0	**5**	6.2	**3**	0.0	**5**	0.0	**5**
External Doors	8.0	**3**	8.0	**3**	4.0	**7**	0.0	**11**	10	**1**	8.0	**3**	4.0	**7**	4.0	**7**	6.0	**5**	4.0	**7**
Burglary Proof	1.4	**16**	4.2	**10**	4.2	**10**	3.5	**12**	4.2	**10**	3.5	**12**	4.2	**10**	3.5	**12**	2.8	**14**	5.6	**6**
Kitchen Type	7.3	**4**	7.3	**4**	1.8	**11**	0.0	**15**	5.5	**7**	4.6	**8**	3.7	**9**	7.3	**4**	2.8	**10**	1.8	**11**
Bathroom Facilities	1.9	**10**	11	**2**	3.7	**8**	5.6	**6**	7.4	**4**	1.9	**10**	3.7	**8**	5.6	**6**	7.4	**4**	1.9	**10**
Toilet Facilities	5.6	**4**	5.6	**4**	3.1	**7**	2.5	**9**	5.6	**4**	3.1	**7**	5.6	**4**	6.2	**3**	5.6	**4**	4.9	**6**
Score		95		82		95		128		79		97		89		75		81		68
RANK (R)	14		10		14		17		7		16		13		6		9		4	

APPENDIX- C2

	D3		E1		E2		E3		F1		F2		F3		G1		G2		G3	
INDICES	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R
Level of Security	1.6	**15**	1.6	**15**	6.2	**6**	4.7	**8**	7.0	**5**	7.8	**3**	2.3	**14**	7.0	**5**	5.5	**7**	9.4	**1**
Regularity of Electricity supply	0.0	**15**	0.0	**15**	0.0	**15**	1.8	**8**	14	**2**	10	**4**	0.0	**15**	3.6	**7**	1.8	**8**	12	**3**
Wall Material	4.9	**8**	5.3	**6**	5.3	**6**	6.6	**2**	3.1	**14**	6.6	**2**	6.2	**4**	2.2	**15**	6.6	**2**	7.5	**1**
House Paint	4.3	**10**	5.7	**4**	5.7	**4**	4.3	**10**	4.8	**8**	7.2	**2**	4.8	**8**	3.3	**13**	5.7	**4**	8.1	**1**
Roof Type	5.0	**8**	7.5	**3**	2.5	**12**	12	**1**	1.2	**1**	2.5	**12**	2.5	**12**	2.5	**12**	3.8	**10**	3.8	**10**
Window Type	13	**4**	23	**1**	0.0	**10**	9.1	**5**	0.0	**10**	0.0	**10**	4.5	**7**	4.3	**8**	14	**2**	0.0	**10**
Floor Finish	6.2	**3**	37	**1**	6.2	**3**	0.0	**5**	0.0	**5**	0.0	**5**	0.0	**5**	6.2	**3**	6.2	**3**	0.0	**5**
External Doors	4.0	**7**	10	**1**	6.0	**5**	8.0	**3**	6.0	**5**	2.0	**9**	4.0	**7**	2.0	**9**	0.0	**11**	2.0	**9**
Burglary Proof	9.1	**1**	7.7	**4**	5.6	**6**	6.3	**5**	2.8	**14**	4.9	**8**	8.4	**3**	2.8	**14**	4.9	**8**	9.1	**1**
Kitchen Type	8.3	**3**	10	**1**	7.3	**4**	10	**1**	7.3	**4**	10	**1**	7.3	**4**	0.9	**13**	0.9	**13**	6.4	**6**
Bathroom Facilities	3.7	**8**	20	**1**	11	**2**	7.4	**4**	1.9	**10**	3.7	**8**	0.0	**12**	3.7	**8**	5.6	**6**	3.7	**8**
Toilet Facilities	5.6	**4**	6.8	**2**	7.4	**1**	6.2	**3**	3.1	**7**	5.6	**4**	5.6	**4**	2.5	**9**	3.7	**6**	6.2	**3**
Score		86		54		74		55		85		68		95		116		80		58
RANK(R)	12		1		5		2		11		4		14		16		8		3	