



UNIVERSITY OF NAIROBI

**ANALYSIS OF THE FACTORS THAT INFLUENCE HOUSING AFFORDABILITY IN
KIGALI CITY**

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DECLARATION

I hereby declare that this research project is my own original work and it has never been presented for degree in any other institution.

.....

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DECLARATION BY SUPERVISORS

This research project has been submitted for examination with our approval as University Supervisor.

.....

DR. LUKE OBALA

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In the end, words will always be inadequate in thanking God for his blessings and for making everything possible.

DEDICATION

This research project is dedicated to my much-loved husband Evariste RAFIKI and my heavenly son Angel CYUZUZO.

ABSTRACT

Rwanda is one of developing countries facing the challenges associated with housing. Those challenges include among others, inadequate provision of housing especially for low income earners, infrastructure development, scarcity of land loans and mortgage availability.

The main objective of this research project was to analyze factors that influence housing affordability in Kigali City while specific objectives were to determine the level of housing supply and demand in Kigali City, to identify significant factors that influence housing affordability in Kigali City and to determine the contribution of each factor to housing affordability in Kigali City.

The methodology was based on a questionnaire survey distributed to households to collect primary data. A sample size of 93 households within the 3 Districts of Kigali City was targeted. A semi-structured questionnaire was administered to selected respondents of 93 heads of households. Household survey, field observation, key informant interviews and focus group discussions were used to complement questionnaire data. A desk-review was used to review documents at both global and country levels related to housing affordability for secondary data. The analyses were done using qualitative and quantitative approaches with the aid of the (SPSS) Statistical Package for Social Sciences software.

The study results revealed that the level of housing supply in Kigali City is low while the level of housing demand in Kigali City is high. Fifteen significant factors that influence housing affordability in Kigali City were identified and those are institutional structure affecting housing finance, cost and availability of finance for housing, income, household growth, interest rates and mortgage availability, property related taxes, child care, wealth, employment, infrastructure costs, costs and availability of land, cost of professional services and house price and rental costs, shopping facilities and finally tax concessions for both owner-occupied and rental housing.

The contribution of each factor to housing affordability in Kigali City was analyzed by a correlation analysis that indicated that there are 11 factors which contribute to housing affordability in Kigali City with respect to their relationship between those factors and housing affordability and those are wealth, household growth, cost of interest rates and mortgage availability, employment, infrastructure costs, property related taxes, income, cost and availability

According to the research findings, recommendations for policy makers were drawn whereby policy makers should promote the use of modern methods and construction materials which will contribute to providing high quality housing in a short time and for Kigali City managers, they should contribute in providing housing cooperatives to increase availability of finance for housing for low income earners. For further research, it would be necessary to do studies on whether homeowners and renters perceive their housing costs as affordable or unaffordable. This could be compared to quantitative data on housing cost and income to provide further insight in to the various housing affordability measures.

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ABBREVIATIONS AND ACRONYMS

EWSA	Energy, Water and Sanitation Authority
GoR	Government of Rwanda
HAI	Housing Affordability Index
KCMP	Kigali Conceptual Master Plan
MDGs	Millennium Development Goals
MININFRA	Ministère des Infrastructures (Ministry of Infrastructure)
NCS	National Census Service
NISR	National Institute of Statistics of Rwanda
OLS	Ordinary Least Squares
RAMA	Rwandaise d'Assurance Maladie
RHA	Rwanda Housing Authority
RLMUA	Rwanda Land Management and Use Authority
RoR	Republic of Rwanda
Rwf	Rwandan francs
SPSS	Statistical Package for the Social Sciences
UDF	Urban Development Fund
UK	United Kingdom
UN	United Nations
UN- HABITAT	United Nations Human Settlement Programme

CHAPTER ONE

GENERAL INTRODUCTION

1.1 Background to the study

To have a right to a suitable and affordable housing is a crucial for each human being and the community in general (ACOSS 2008 in Select Committee 2008). Lots of African developing countries are still facing important housing shortages. In practice, each developing country still faces housing deficits which in majority of cases is increasing. Conferring to UN-habitat (2011), estimations of housing shortages during the period of 2001 to 2011 have indicated that there is a need to construct over 60 million new buildings to face the rapid increasing of urban households in developing countries. The situation of housing is in general bad whereby a big number of dwellers live in informal settlements and slums. With the increasing urbanization, around 1.6 billion live in unaffordable housing; a hundred million do not have a house. The quantity of citizens staying in slums is 828 million in developing countries; all those countries don't have access to potable water and acceptable sanitation and live in distorted housing situations with no enough area where to live and secure tenure. Since 2002, greater than sixty million slum dwellers were added to the global urban population (Kothari & Shivani, 2012).

Sub-saharan Africa is at the top in the world with a slum growth rate of 4.53% per year. Moreover, Sub-saharan Africa had the biggest number of slum dwellers at a rate of 67.1% in 2010 (UN-habitat, 2011.) In 2014, 19 countries in the region housed more than half their population in urban settlements, with Réunion (95 per cent urban) and Gabon (87 per cent urban) observed to have the highest levels of urbanization in the region (World Urbanization Prospects: The 2014 Revision).

The country of Rwanda is among developing countries which are facing rapid urbanization and this country has problems of housing because of its nearly past and gallop growth of Kigali; its capital city (Muhoza, 2008). As way to ensure the Rwanda's future and sustainable development, the Government of Rwanda has established a series of urbanization policies not long time ago. Kigali Economic Development Strategy was formulated with the aim of "Building the foundation to compete in the Global Economy in the Future". This was done in 2002, two years after the publication of the Rwanda Vision 2020, taken as a road map for the development of the country.

The objective of this theme relays to the importance of housing in Kigali City (City of Kigali, 2002). In 2004, the Rwanda Settlement Policy and the Urban Infrastructure and City Management Program were completed. In 2007, the Rwanda National Urbanization Policy was published and all those policies focus on Kigali City housing. The Kigali Conceptual Master Plan (KCMP) projected in 2050 is being implemented.

There are many challenges facing Kigali City in providing houses for low income earners. These challenges include land scarcity and a fast-growing population among others. As a consequence of the rapid increase in population, there is a widening gap between housing supply and demand. According to Kigali City Council, a housing market study of 2012 has revealed that Kigali City will experience a supply gap of 344,068 housing units by the year 2022 in different housing typologies. These results lead to an average of over 30,000 units that need to be constructed every year so as to reach the required average (Kigali City Council, 2013).

This study focused on the availability of affordable housing in Kigali City. The research considered the factors that affect housing supply in Kigali, identification of significant factors that influence housing affordability in Kigali City and how they contribute to the housing affordability within Kigali City.

1.2 Problem statement

In Rwanda, land registration management policies have been established. Land tenure is legally certified for each Rwandan. But even though much has been done in this matter, the problems regarding housing affordability are still enormous given the rapid urbanization in the country. The movement of the population from rural areas to urban areas has greatly increased since 1990.

In 1970, the rate of urbanization was 3% and has increased to 5.6% in 1991. In 2002 the urbanization rate has increased to 16.9% [NCS], 2002 and about 19.3% currently. The process of urbanization has occurred in speedy and uncontrolled manner while social services, opportunities of employment and infrastructure are moving slowly. The growth of urban population has exacerbated informal settlements on land which is taken as not appropriate for expansion like steep hills or valleys with practically no existing facilities or infrastructure. This situation has constituted an obstacle to the

urban development, planning and upgrading because it has provoked further pressures on the already existing inadequate infrastructure.

The Government of Rwanda has projected an increase of urban population of about 30% in 2020. The goal of this projection is to always have updated master plans, and to develop basic infrastructure in cities to promote the living conditions of the growth of urban population and the country development in general (Government of Rwanda,2000)

In spite of all those policies and measures for implementation in place, it is evident that there has been uncontrolled urban growth in Kigali City. The size of the population of Kigali City continues to increase due to the continuous rural-urban migrations; this leading to scarcity of land and housing (Manirakiza, 2012).

As articulated by the UN Habitat, (2012), providing adequate and affordable housing stills a main concern for all countries. Nevertheless, sustainable housing stills needs to be walked upon due to its standing in developing countries. Social, cultural and economic structures of housing are seldom analyzed in a cohesive approach because of the challenges that cities face in the implementation of sustainable housing development.

1.3 Objectives of the study

1.3.1 General objective

The overall objective of this study was to analyze the factors that influence housing affordability in Kigali City.

1.3.2 Specific objectives

The specific objectives of this study were the following:

- a) To determine the level of housing supply and demand in Kigali City
- b) To identify significant factors that influence housing affordability in Kigali City
- c) To determine the contribution of each factor to housing affordability in Kigali City

1.4 Research questions and hypothesis

1.4.1 Research questions

- a) Which factors influence the level of housing supply and demand?
- b) What is housing affordability and which factors influence housing affordability?
- c) What is the contribution of each factor to housing affordability in Kigali City?

1.4.2 Hypothesis

The following hypotheses were tested in the study:

Null Hypothesis (H₀):

The cost and availability of land is not the most important factor influencing housing affordability in Kigali City.

Alternative Hypothesis (H_A):

The cost and availability of land is the most important factor influencing housing affordability in Kigali City.

1.5 Significance of the study

Kigali City population density is at high level and it is facing problems caused by that rapid growth of the population mostly land scarcity, propagation of unplanned settlements and degradation of the environment. Housing also holds the key to speed up the country development being a basic need for the urban population (National Urban Housing Policy for Rwanda, 2008).

Though different actions and involvements have been carried out for urban development, providing houses for low-income earners is still difficult. Moreover, the Master plan of Kigali City and all district plans provide areas for housing development; however a very high demand for land leads to the shortage of reasonable priced plots and this definitely causes shortages in housing.

This study was inspired by the fact that few studies have addressed the matter of housing affordability in Kigali City. The researcher hopes that this study will contribute towards filling the current literature gap in this area of housing affordability specifically in Kigali City and in Rwanda in general. Finally, this study is of benefit to policy-makers, development practitioners, managers of Kigali City and researchers as a reference material.

1.6 Limitations of the study

Firstly, given the scope and time/budget limitations, the focus of this analysis was confined to Kigali City and specifically its three Districts of Gasabo, Kicukiro and Nyarugenge. Secondly, this study is a general qualitative urban assessment on housing affordability, a step that will assist the City of Kigali in carrying out a more detailed demand-based quantitative analysis in the future.

1.7 Definition of key terms

Housing: Provision of dwelling units for accommodation. It involves construction, allocation and disposal/acquisition (Bhatta, 2010).

Affordability is about safeguarding approximately specified norms of housing with the price or/and price rent that does not force, in the eyes of some third party (commonly the government), an irrational burden on household income (Bramely, 1995);

Housing demand: Gebeyehu, et al. (2001) refers housing demand to the wish to own and the capacity to pay the price; and the concept of need refers to the inherent duality of dwelling-that is both an economic good subject to the market laws as well as a good or social services whose fulfillment depends on the support of the public operator and his resources.

Housing supply: is the flow of houses into the market either that offered for sale or rent at any one with changing prices. It mainly depends on the number of new housing units constructed by the concerned bodies.

1.8 Organization of the study

This study is organized in five chapters. Chapter one covers the general introduction of the study which covers the background to the study, the problem statement, the objectives of the study, the

questions of the research and hypothesis, the study significance, the research limitations, definition of key terms and finally the study organization. Chapter two provides the review of the literature for this research, an overview on housing affordability, measures of housing affordability, the major factors that influence housing affordability and the conceptual frame work which is a representation of variables and how they are related to each other. Chapter three covers the research methodology adopted to address the research questions and objectives of this study. Chapter four encompasses the description of the study area which is Kigali City in the country of Rwanda, the study design, target population as well as sampling, data collection tools and finally data analysis methods. Chapter four covers the data presentation, analysis and interpretation of data. And finally chapter five comprises a summary of the study findings, the conclusion, the recommendations and different suggested areas for further research.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section presents literature on theories and the various factors that have an impact on housing affordability with a focus on Kigali City. The general idea of this review is to go beyond the framework and by the necessary foundation to contextualize the urban housing affordability issues with reference to Kigali City in Rwanda as a case study. This chapter focuses on concepts such as affordability, housing and other related theories.

2.1 The concept of housing

Salau, (1992) has defined housing as the total residential neighborhood/environment or micro district including the physical structure, all necessary services, facilities and apparatus for the total health and social well-being of the individual and family. According to him, housing can be seen like the environment within which families and the basic units of the society need necessary to live and advance. Houses are inclusions where citizens are lodging for accommodation or which can even be their work places. Abrams, (1964) has noted that housing is also a part of material surrounding livelihood and the general social environment. Housing touches on several aspects of development and economic function. Consequently housing offers the social contacts, a good image, a common sense of being in the right place and an indication for social status.

From the above definitions, it can be considered that housing is the procedure of availing a great quantity of habitable houses on stable basis by means of suitable physical structures and social services in organized, appropriate, not dangerous and healthy zones to encounter basic and social requirements of the citizens and is envisioned to avail safety, wellbeing and expediency for users (Osuide, 2004).

In this regard housing can also be considered like a saving and it possess an important task to accomplish in the personal economy, local economy and national economy as well. As noted by Bello, (2003), housing comprises the main capital for investment and the life expectations of

citizens. The wish for individuals to own a house forms one of the biggest motivations for investment and formation of capital (Ozo, 1990).

For Lawrence (1995), the concept of housing is considered consumable goods. This is because he trusts that as families live in a house, households also interchange with the neighboring. Consequently the consumption is taking place. When households are consuming housing, they are purchasing or renting more than residence units and its characteristics, households are similarly in need of different elements such as health, privacy, security, neighborhood and social relations, community facilities and services, status, control over the environment and access to job. According to him, not having one of those elements may denote to be ill-housed. Typically housing is unique among consumers of goods.

2.2 The importance of housing

The 1948 United Nations Declaration of Humana Rights Article 11 recognizes a must to all the peoples to have acceptable conditions of living in the above terms: *“The right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to continuous improvement of living conditions”*.

According to Tshitereke (2008), absence of adequate housing does not only delay the development of the society, it also carries insecurity resulting from many social troubles which increase with homelessness. Having no right to acceptable accommodation, peoples are obliged to stay in bad environments and this has a negative impact on their health in general and this situation exposes them to many diseases. On the other hand, the availability of adequate housing protects citizens against myriad exposures. For the majority of the population, housing is at the same time their main source of investment or expense. Consequently, the supply of housing basically has an impact on the country’s social and economic development.

As stated by Seiders et al. (1997), housing sector in general counts between 10 and 20% of all the economic activity and between 20 to 50% of the country prosperity. In United States of America, consumer spending in houses building and products in relation to housing are more than other industrial sectors.

Zhou (1999) stated that the totality of macroeconomic sectors such as interest, savings and inflation rates, wage rates, unemployment and even the balance of payments are linked to the housing sector.

2.3 Meaning of housing affordability

Commonly, affordable housing means that all costs such as basic needs, maintenance, mortgages and rents of total applicable housing is smaller than 30% to 35% of the income of households as mentioned by Hulchanski (1995). Bhatta (2010) stated that affordable housing is that one believed affordable to households with a moderate income. Therefore, the ability of persons to pay for housing is referred to as housing affordability (Bhatta, 2010).

However, most of the literatures on housing affordability reveal the absence of compromise amongst experts in housing development and academicians on how housing affordability should be measured and defined. According to Gabriel et al. (2005), this lack of consensus could be a result of housing affordability being a disputed matter in which diverse people deal with to confirm their personal definition and explanation to the problematic. Quigley and Raphael (2004) stated that many different subjects such as distribution of housing quality, distribution of housing prices, the distribution of income, public policies affecting housing markets, ability of households to borrow, different choices that citizens do on how much housing to consume in relation to the other merchandises (Quigley and Raphael, 2004)

The most helpful definition meaning of housing affordability was given by MacLennan and Williams (1990) who said that as housing affordability is concerned with securing some given standard of housing at a price or a rent which does not impose, in the eye of some third party (usually the government) an unreasonable burden on household incomes. Households ought to be capable to inhabit houses which encounter sound housing standards of adequacy, given the category and the size of household, at a payment that leaves them with sufficient income to live on without falling under poverty standards (Bramley, 1990)

In general, all these definitions attempt to invoke around or all of the three standards on socially acceptable housing, housing cost and quality of life (King, 1994)

2.4 Measuring housing affordability

A general measure of affordability is the amount of homes which a household with a definite proportion of median income is able to pay for. For instance, in a perfectly balanced housing market, the median housing option, while those poorer than the median home designates a well-adjusted market (Bhatta, 2010). Assessing housing affordability is difficult and generally used housing expenditure to income ratio instrument has been challenged (Bhatta, 2010)

Yip (1995) suggested an excellent framework to present different measurement of affordability based on the previous definition and concept. The framework summarizes the measurement of affordability into three approaches which are namely normative approach, behavioral approach and subjective approach.

2.4.1 Normative approach

According to Yip (1995), normative approach refers to the parameters or rules of housing affordability related to definite threshold principles. The normative approach to housing affordability is concerned with norms or a general directive that tells agents what they ought or ought not to do. With the normative approach, a list of benchmarks is set to distinguish whether principles and standards of socialization act to motivate or enhance the activity of the society and the results that should happen in affordable housing. There are different types of norms set to identify affordability.

2.4.1.1 Traditional ratio measurement

The traditional measure articulates the housing costs of low-income households as a part of their income and then after, it makes a link of that part to certain accepted standards. The word housing stress is associated with the traditional ratio measure. According to Yates et al. (2006), if peoples are lower income households and that they are paying 30% and above of their household gross income in costs of housing they are experiencing housing stress.

2.4.1.2 Quality adjusted measurement

According to King (1994) and Karmel (1995), the quality adjusted measurement to housing affordability is principally concerned with the quality of housing and the households' suitability living in that housing.

Lerman and Reeder (1987) have argued that the traditional approach is not comprehensive enough and the quality of housing is not being covered. A common comparison of houses with same characteristics such size, location, the number of bedrooms etc. is important in studying housing cost in the area. Trade-offs must also be done by households between houses they want and what they can economically afford when they are looking for or moving to new housing because they are limited with their income. This situation sometimes leads to high ratio accompanied with households with solid taste for housing.

In a way to solve this constraint, Lerman and Reeder (1987) have modified the traditional approach and have made the approach to embrace the consideration of housing quality. This approach tries to differentiate households which possess low income to lease minimum adequate but however enough safe housing for households which income is enough sufficient to cover such costs. This measure indicates the income stages that separate households who are capable of keeping an adequate standard of life from households who are not able to keep it.

2.4.1.3 Core needs measurement

Sueke et al. (1981) have suggested core need measurement which considers the quality aspect, but it differs with the quality based measurement because it does not incorporate the quality aspect into the cost of acquisition at the minimally adequate quality; in contrast, the core need assessment treats housing quality as a separate dimension which includes physical quality of the dwelling as well as overcrowding. The core need measurement establishes three types of housing problem related to adequacy (physical condition of dwelling), suitability (too many people for size of unit and the number of bedrooms) and affordability. The core needs measurement also compares incomes of all households whose housing conditions fall below one or more standards with the incomes they would require to afford rental accommodation meeting all standards.

Households with rent to gross income exceeding 30 per cent are considered to be in core housing need. Therefore, a household is regarded as unaffordable to housing, or in core housing need, when

he is living in unsuitable housing irrespective of the percentage of the household income paid for accommodation (Yip, 1995).

2.4.1.4 Residual income measurement

The residual income measurement was firstly developed in UK in the late 1980s. According to Bramley (1990), residual income measurement means that housing is affordable if, after paying housing cost, households are left with the income that is sufficient to living minus ending up under the poverty standard.

Hancock (1993) extends residual income measurement to include any indication of housing quality. It considers households with affordability problem to the extent that consumption of commodities related to housing and those who are not related to housing are both not reaching the smallest level defined by the society. Nevertheless, to indicate the preference and constraint of the household in order to determine the affordability position of the household, further information is required.

Yip (1995) stated that it is difficult to distinguish preference from constraint; an extended definition of residual income approach is coined to revise the residual income approach. It defines household with either housing or non-housing consumption under the socially accepted minimum as experiencing unaffordable housing. Thalmann (2003) has given a clear distinction between ratio measurement and residual measurement of affordability. According to him, for residual income measurement housing is considered as affordable if the standard of living is respected after housing expenditure is deducted from the income of households. For the ratio measurement, if expenses on housing are not beyond a given share of income, housing is affordable.

2.4.2 Behavioral approach

Bramley (1994) said that concentrate on common housing decision, considering what households with a certain income and position, confronted to certain prices, prefer to use their income is necessary in order to assess housing affordability. One more behavioral approach is to look at the problem of mortgage arrears and repossessions, so as to investigate the household's affordability based on their decision.

Though different efforts have been found, no conclusions were made from the previous researches and studies on the understanding of affordability. While some scholars still believe that theoretically this approach is more accurate in demonstrating the expenditure pattern of household to the extent that affordability considered like a particular problem is addressed as a specific issue and existing facts are sufficiently rich accept that analysis (Yip, 1995).

2.4.3 Subjective approach

While both normative and behavioral approaches are regarded as an objective measurement by scientific research and objective data collection, Kearns et al. (1993) offered a completely different approach which is called subjective approach. Kearns et al. (1993) adopted subjective approach to study the housing in Scotland. That study simply required the respondent to answer the question about affordability in subjective evaluation of their own situation. The respondent was asked to answer in using a Likert scale starting on very difficult to afford to very easy to afford. Both qualitative and subjective measurements are checked against the financial position and additional quantitative factors. Data collected are applied to determine the inception level of households affordability on housing convinced that each person knows more than others their state of affairs (Yip, 1995)

2.5 Housing affordability problems

The problems related to housing affordability are complicated and varied and the main dynamic are found in the system of housing itself and out of the system as noted by (Yates et al. (2008).

The price of housing is affected by the relationship between demand and supply, and this in turn has an impact on affordability (O'Flynn, 2017). The equilibrium price is reached when the quantity of housing demanded equals the quantity supplied. O'Flynn (2017) has stated that for demand there are factors such as growth of households which can also be affected by birth, immigration and formation of household; health; income; concessions to first home buyers; tax concessions to both owner occupied and rental housing; cost and availability of finance for housing, return on alternative investment; and finally the institutional structure having an impact on housing finance.

On the side of demand there are factors that touch the cost of provision of houses like the land development processes and policies, the cost and availability of land, infrastructure costs which

comprise development charges, construction cost, professional services costs and taxes related to properties (O'Flynn 2011; Yale et al. 2017)

2.5.1 Economic rents and welfare implication

A further issue that needs to be taken into consideration is the interaction between economic rents, local government and housing. To demonstrate that lower elastic housing supply increases the government's capacities to extract rent payments, Diamond et al. (2015), used a spatial equilibrium model in "Housing supply elasticity and rent extraction by state and Local Governments". Accordingly, local governments' tax revenues, which public sector workers extract as rent in the form of increased compensation, as opposed to governments using the revenues to provide taxpayers with additional government services are increased by inelastic housing supply. The author draws a comparison between San Francisco and St. Louis that is useful to consider. Diamond et al. (2015) estimate that San Francisco's land unavailability is 2.9 standard deviations higher than St. Louis' and that, if San Francisco had the land availability of St. Louis, San Francisco could save over \$11,000 per city worker annually.

Affordable housing and low-income housing construction policies also contain potential welfare effects. The Low Income Housing Tax Credit (LIHTC) is one such policy. Analysis by Diamond and McQueen (2015) shows that LIHTC has spillover effects onto surrounding neighborhood residents. LIHTC development in low-income neighborhoods helps revitalize these areas, driving up housing prices, decreasing the rate of crimes, interesting peoples from different races and areas. Development of LIHTC in areas with bigger median incomes and smaller population shares, however, causes price depreciation.

Developing housing which is affordable for low income earners neighborhoods looks as a viable strategy for revitalizing these areas. These developments also seem to have large welfare impacts. In a city like San Francisco, that is facing growing income inequality and constrained housing supply, LIHTC or similar policies could increase support for rezoning and new development projects (Diamond et al. 2015).

Another welfare implication of zoning has to do with the wealth transfer that can occur with rezoning. Jeremy and Helland (2002) estimate the transfer of wealth between owners of existing homes when municipal zoning ordinances are created (Jeremy and Helland, 2002).

2.5.2 Housing prices, supply and demand

In addition to the demand-side issues of housing, the economic literature has also focused on increased housing prices and changes in housing supply. Glaeser et al., (2004) examined the cause of increasing housing prices in the United States of America. Glaeser et al. (2004) showed that, between 1950 and 1970, increases in housing prices reflected the increasing quality and costs of construction, but that from 1970, price increases grew due to the fact that it was difficult to obtain approval to construct new houses from the government (Edward et al.2005). Edward et al. (2005) pointed out that land; physical construction structure and approval by the government to develop buildings are the three elements on which housing supply depend. The increase of prices, therefore, traduces increasing land costs, construction expenses, and/or regulatory barriers to new construction.

Glaeser et al. (2004) also examine whether declining land supply are result of new construction limitations or limitations to new constructions. They find the high level of density cannot important in a way to explain huge decreasing in building houses. i.e., that permit-issuing and other regulatory barrier play a large role in construction declines.

Housing supply is also affected by new construction. In “A Dynamic Model of Housing Supply,” Murphy develops a model in which parcel owners choose the optimal scheduling and environment of construction while accounting for opportunities about future prices and costs. Murphy with the use of a dataset on parcel owners in the San Francisco assesses the model (Edward et al. 2005). While the author is primarily concerned with understanding when and where construction costs occur, the dataset he constructs and his model present a useful methodology, since the framework he applies analyzes how individual behavior can explain a collection of buildings and the prices perceived in macro data.

Inelastic housing supply is a recurring focus of economists studying urban economics, housing, and land use. Gyourko et al. (2015) document changes in house price increase in urban areas. They explain that this is the result of an inelastic supply of land, coupled with the acceleration of

households with high level of income. This situation provokes increased prices of houses and price to rent ratios, thus decreasing housing affordability. The authors find that aggregate demand drives income trends and local house price. While demand is relevant, the authors pointed out the necessity of also considering supply (Gyourko et al. 2015).

2.5.3 Residential sorting and housing affordability

The term “sorting” also has a strong role in urban economics. Diamond (2015) examines the implication of residential sorting along education, skill, and amenities. Although changes in local labor demand within cities impacts sorting along labor market skills, amenities in higher-skill cities also influence sorting (Diamond et al. 2015).

Changes in city amenities further exacerbate both sorting by education and inequality between high-school and college graduates. Using an equilibrium sorting model, Kuminoff et al. (2013) examine how households “sort” across neighborhoods according to their wealth and preferences for public and social goods. Both the Kuminoff et al. and Diamond (2013) papers are useful to consider in the case of San Francisco, which is attracting an increasingly educated population because of local labor demand and because of the amenities the city offers to the majority college-educated population that fills the local labor market demand (Nicolai et al. 2013).

Bayer et al. (2004) developed an equilibrium framework to analyzing residential sorting, using data on households the area of San Francisco Bay. The authors’ estimations have delivered characterizations for preferences on houses surrounding zones, demonstrating how the demand for certain cases changes according to the income of households, education, origin, and families’ organization. Bayer et al. (2004) also did test for the effects of an increase in income inequality. Households sort themselves amongst different existing housing typologies and places in the equilibrium model of an autonomous urban housing market. They also find that increased spending by the maximum of households is not shown by more spending in the local economy rather by higher housing prices.

2.6 Economic factors of housing affordability

2.6.1 House prices and rental costs

Housing affordability is often expressed in terms of income and rent. As rent defines the amount of money is necessary to afford a house, it is considered as relevant in affecting affordability. Income also as it defines the capacity of a household to acquire a house; it has a big impact on affordability. Few would doubt these two factors are strongly affecting one's affordability, but the discussion should not be stopped here. There are other factors affecting one's affordability in addition to income and rent. In addition to rent and income, housing expenses can have an impact on the level of affordability. Expenditures of housing denote money spent on housing needs, for example taxes, maintenance fee, management fee (Mostafa, 2008)

Normally, household's income for housing rent payment should be reduced by housing expenditures. Thus, if the amount spent on housing expenses could decrease affordability of households. While on the other hand, the maintenance fee and management fee items are two technical but complicated areas in terms of 'housing affordability' which should be further investigated in other research studies. Apart from housing expenditure, residual income measurement puts a lots concern on non-housing expenditure. That money spent elementary basic needs like foodstuff, schools, health and childcare can be operationalized as expenditures of non-housing activities (Mostafa, 2008).

2.6.2 Interest rates and mortgage availability

It is necessary that households are able to cover the daily costs of owning a house for housing to be accepted as affordable. A household's capacity to make savings and improve their future consumption is straightly influenced by payment of mortgages and interest rates (Mulliner and Maliene 2010).

2.6.3 Availability of rented accommodation and affordable home ownership

According to Winston (2008 et al.), for households who are looking for housing, supply constraints may be a challenge on the ability of a given area to offer housing for them. A given area may be deliberated as being affordable, but this factor alone is not sufficient except if accommodation at the market is adequate. Added on that, the social mix and community sustainability is ensured by an

adequate supply of affordable housing tenures. Khobetsi (2017), said that the normal proportion rent for local private renting is set up to 80 of the rent market encompassing all charges of service. This means that affordable housing costs less than private renting, however it is in general higher than any other type of associations of housing rent.

2.6.4 Employment

Fischer et al. (2009) noted when there opportunities of obtaining jobs in a certain area, it is a significant factor that will attract many people to live in and contribute in building affordable housing. Employment opportunities availability constitutes a major factor that need to be considered as it may require an influence on incomes of households. A place which is offering little or no employment at all can reduce the capacity of paying houses but added on that, doing long distances to reach their jobs will have a negative impact on income of households. It has also been noticed that peoples which cannot easily access to employment have little chance to get them in future (Aslund et al. 2006)

2.7 Socio-cultural factors of housing affordability

2.7.1 Safety

According to Winston (2008 et al.), affordability may be harmfully affected if many crimes are happening in a given area, and this might cause households to have a sensation that they are exposed in their houses and out of their houses. For those households who live in regions where there is a high level of crimes, there might be a need to spend more income to enhance the security and measures of safety, while households living in regions where the level of crimes is low they will not need to spend extra income. For it to be sustainable, housing would be placed in an environment considered as safe for residents.

2.7.2 Transport

Availability of means of transport is important for a place to be considered as livable and to form a prosperous society. An area which is close to adequate public transport constitutes housing demand sustainability (Winston 2010). It is important to improve infrastructures of transport to increase successfully the supply of housing with no need of rising commuting times (Robertson 2006)

2.7.3 Schools

According to Mulliner and Maliene (2010), a good accessibility to schools leads to prosperous and worthwhile communities. One of the elements peoples take into consideration when they choosing a place of living, is the availability and accessibility to schools. The person's upcoming plans and life quality may be affected by the power of education he has acquired.

2.7.4 Health service

Zhu at al. (2005) stated that access to health care services is of great importance for possible purchasers whole taking into consideration the locality of housing. In maintaining a neighborhood a suitable place to living and constructing communities which are durable, existence of health service has been recognized as an utmost aspect.

2.7.5 Leisure facilities

Mulliner and Maliene 2010) argued that for old and young people to live a healthy and comfortable existence, they might be able to have areas in which to occupy their holidays. The availability of such amenities contributes greatly in increasing interaction in societies and cohesion in communities. Conditions like location, social, sustainable environment and economic housing would not be put far from affordable housing.

2.7.6 Child care

When there no easy access to amenities for child care, this may have a negative consequence on housing affordability because households are obliged to go big distances to reach those services and it may otherwise have an impact on the ability of parents to work when child care services are unavailable (Mulliner and Maliene 2010)

2.7.7 Open green public space

According to Zhu et al. (2005), one of the elements that current buyers of houses take into consideration while deciding on where to purchase a house, is availability of parks in that area. Families would benefit green public spaces for the sustainability of housing and in a way to produce booming societies (Winston 2010). Furthermore, to encourage community cohesion, households

would pretend to public areas with high quality in which they might work together (Maliene and Malys 2009).

2.7.8 Shopping facilities

According to Samuels (2004); Zhu et al. (2005), for individuals to purchase houses, the existence of shopping facilities was perceived to be a source of motivation while choosing a place where to settle thus a factor that needs to be taken into consideration when estimating the housing affordability.

2.8 Environment factors of housing affordability

2.8.1 Waste management facilities

According to developers and experts in waste planning, an application for waste management facilities is a matter of what is required that they must consequently take into consideration. Claimants are not in general needed to make evident the necessity for the development proposed or otherwise debate on the qualities of other places aside from where an environmental statement is needed even though requirement might be an attention wherever planning material complaints are not overshadowed by other planned requirements. Waste management and amenities of minimization need to be designed for durable utilization for housing to be considered as affordable (Maliene and Malys 2009; Winston 2010). There has been a suggestion that resolution for management of water on behalf of newly constructions would be founded according to durable aspects in the line of the present social, financial and environmentally friendly effects, instead of simply added expenses or what designers want (Makropoulos et al.2006)

2.8.2 Energy efficiency of housing

According to Pullen et al. (2010), constructing buildings to the housing energy efficiency would deliver continuing economic advantages for households with lower income. As noted by Kibert, (2008); Larsen et al., (2008), dynamic and inactive procedures to decrease the consumption of energy and emissions of greenhouse gas of residents and characterizes the highest places wherever the housing could create an input to sustainable development. The possible processes for energy efficiency encompasses brilliant assessments, inactive plans plus the implementation of precise skills

like photovoltaic elements and heating solar water. Moreover, the measures of energy efficiency stay frequently understood as uneven with housing affordability. Nevertheless, improvement of continuing expenses to the energy of dwellers are affected by improvements on energy efficiency (Winston and Eastway, 2008)

2.8.3 Quality of housing

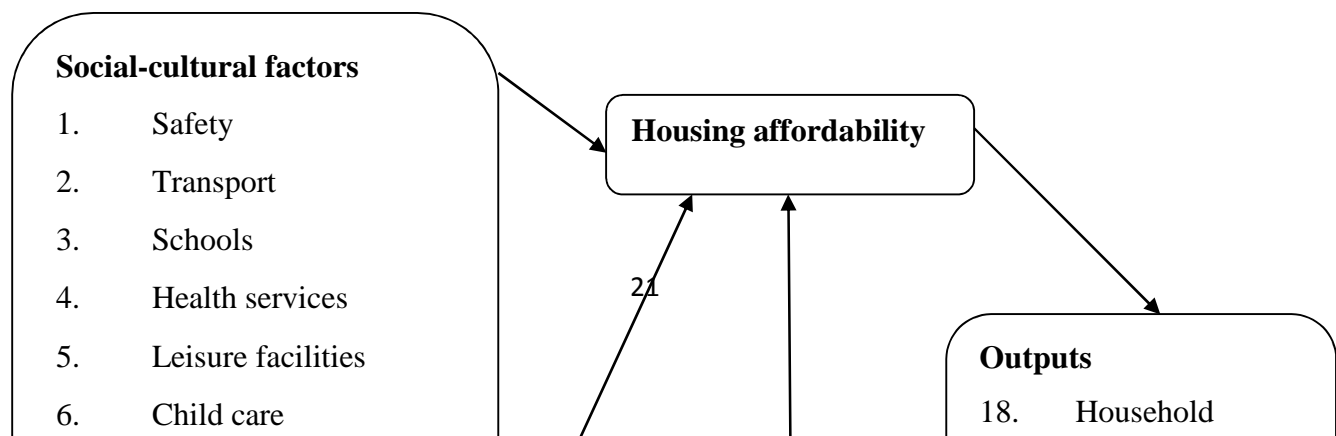
The quality of housing is a major element to care about when availing suitable and smart societies (Maliene and Malys 2009). Adequate housing that respond the needs of individuals should be delivered with quality, economic, designed aesthetically, in a comfy and comfortable state. Housing properties ought to be designed in respect of the requirements of the area and must respect procedures and sanitary laws and regulations set in the locality (Maliene and Malys 2009)

2.9 Conceptual model

A conceptual model is a representation that shows complex relations between different concepts so that they can be understood easily. It is a description of relationships of theoretical statements of factors or variables graphically. This model was constructed based on the interrelationships if factors that influence affordability. Affordability is specifically influenced by social-cultural factors such as schools, health care services, leisure facilities, child care, open green public space, and shopping facilities. Economic factors of housing affordability are household growth, income, property related taxes, return on alternative investments and employment. Housing affordability is also influenced by environmental factors such as quality of housing, energy efficiency and waste management facilities among other factors.

Therefore, housing affordability can be conceptualized as an outcome of economic, environment and socio-cultural factors and series of other factors which directly influence household income and poverty reduction.

Figure 1: Conceptual model



Author's conceptualization

Author's conceptualization

CHAPTER THREE

RESEARCH METHODOLOGY

This study provides a brief description of the study area and different methods and techniques used to carry out this research.

3.1 Description of the study area

3.1.1 The country of Rwanda

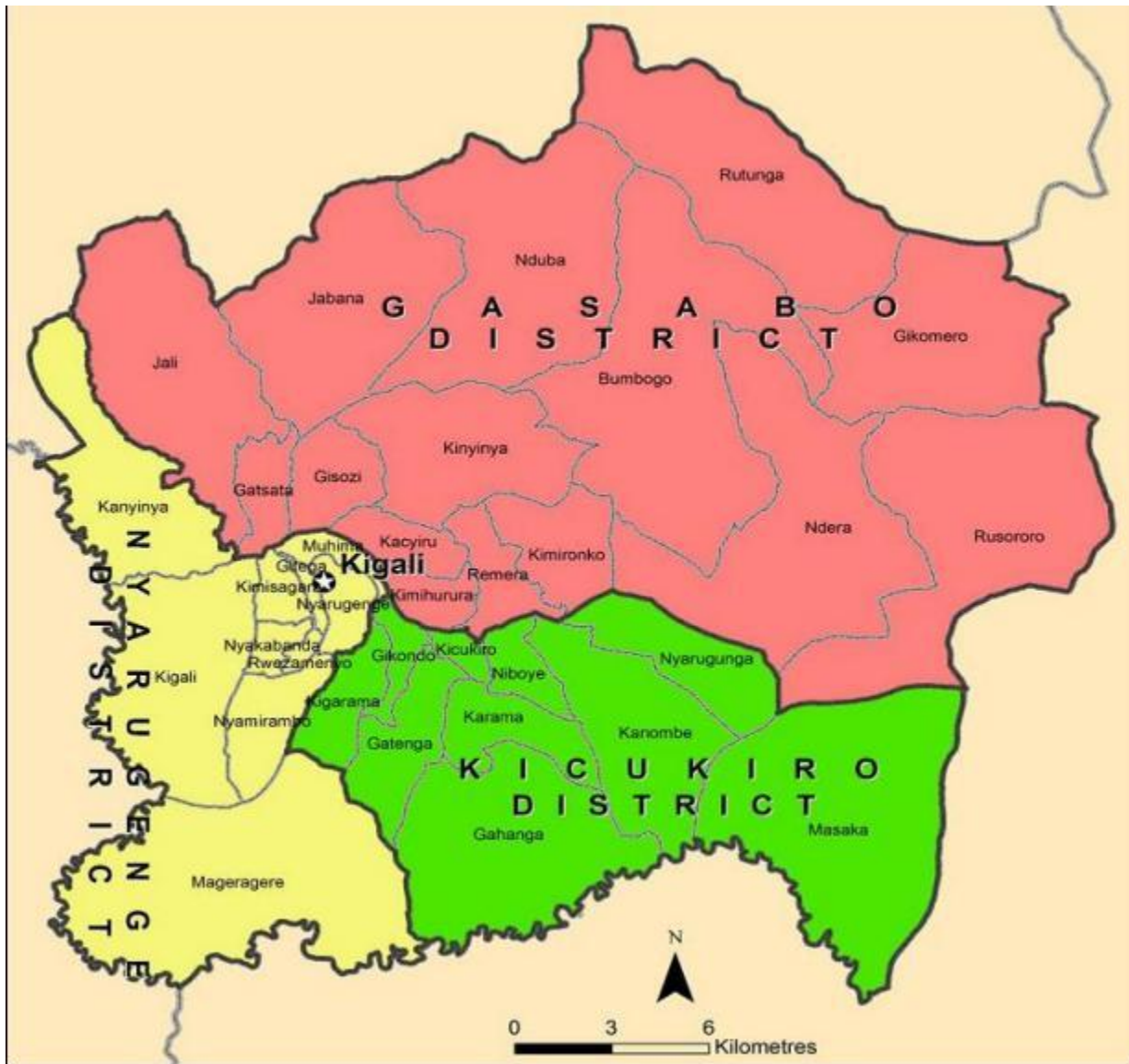
Rwanda is a country of equatorial East Africa and it covers 26,338 square kilometers. The country of Rwanda bounded by four countries which are Uganda to the North, the country of Burundi to the South, the country of Tanzania to the East and finally the Democratic Republic of Congo to the West. The altitude of the country of Rwanda ranges from 900 m to 4,500 above the sea level, the climate of Rwanda is temperate and has a proportional annual rainfall estimated at 1,200 mm.

3.1.2 Kigali City

The city capital and commercial center of the country of Rwanda is Kigali. Kigali City is ranging to an altitude of 1,850. Geographically Kigali is situated at the hearth of the country. The total surface of Kigali City is 730 square kilometers (Manirakiza, 2012)

Kigali City is administratively divided into three districts (See Figure 2) namely: Nyarugenge (2,124 inhabitants/ km²), Kicukiro (1,911 inhabitants/ square km), and Gasabo (1,234 inhabitants/ square km) (NISR, 2012). The districts are further divided into several sectors as follows: Nyarugenge District - Rwezamenyo, Nyarugenge, Nyamirambo, Nyakabanda, Muhima, Mageragere, Kimisagara, Kigali, Kanyinya and Gitega. While Kicukiro comprises of Nyarugunga, Niboye, Masaka, Kigarama, Kicukoro, Kanombe, Kagarama, Gikondi, Gatenga and Gahanga; and Gasabo district comprises of Remera, Kimironko, Kimihurura, Kacyiru, Rutunga, Rusororo, Nduba, Ndera, Kinyinya, Jabana, Gisozi, Gikomero, Jali, Gatsata and Bumbogo (NISR, 2012).

Figure 2: Map of Kigali City with its districts



Source: Field Work 2018

3.1.2 Housing development planning in Kigali City

According to Rwanda Environmental Management Authority (2012), Kigali City is comprised with four types of housing which are informal urban settlements, villages integrated in rural areas, rural settlements dispersed in undeveloped areas and housing which is well-planned houses for single family.

The important elements to focus on in the housing sector of Kigali City are the increase of informal settlements, land which is quite expensive, the materials used in construction, skilled manpower,

financial resources which are limited and credits for the purpose of housing, abundance of unplanned land main cities, lack of construction materials manufactured in the country, utility and water services poorly supplied, and inefficient garbage collection services (Kigali City Council 2013).

According to the 2012-22 projections, most housing demand in Kigali City will increase among the low-income groups, which will account for 78% of all housing demand in the city by the year 2022 (Kigali City Council 2013).

3.1.3 Education

Kigali City has almost reached the Millennium Development Goal regarding education which says that every person in the world should have access to primary education. According to Kigali City Council (2013), the rate of primary education in Kigali City is estimated at 94.1%, 41% for secondary school and the rate of high learning institutions is approximately 8.6%.

The delivery of education facilities in Kigali City will influence the housing trends because when the distance between schools and houses reduces, the attending rate increases. Hence, a big number of houses will be constructed closer to schools in the future.

3.1.4 Health

Availability of healthcare services in Kigali City has increased. Most residents of Kigali go to health care centers as they are estimated at 45% while residents who visit clinics are approximately 26%, 13% residents go to the dispensary, 12% are those who go to the hospital and around 0.5% visit pharmacies.

According to REMA (2012), the majority of residents of Kigali City possess health insurance; they are estimated at 73% whereby 60.55% is through mutual insurance, 0.4% is insured by the employer and 7.6% get their insurance from an agency called La Rwandaise d'Assurance Maladie (RAMA)

The existence of health services in Kigali City is influencing housing developments because people are disposed to settle in places where access to health services is easy.

3.1.5 Energy

About 67% of households have access to electricity. 67.1% of the private households use electricity by EWSA as the main source for lighting while 15.6% use kerosene lamp, 12.1% use candles in Kigali according to NISR, (2012). The main source of energy for cooking is charcoal and it is used by 67.4% of the private household in Kigali city. 26.8% use firewood, 1.4% use gas while 0.7% of the private residents consume electrical energy as the main source of energy (NISR, 2012). The housing affordability contributes highly to the energy sector because the population will quit rural areas looking to where those facilities are to improve their wellbeing.

3.1.6 Transport

According to Kigali City Council (2013), around 76% of Kigali City residents live far from main roads and have to use beyond 30 minutes before they can reach public transport while only 24% of residents walk on distances of less than twenty minutes to access the points for public transport. This situation leads to high cost of transport but also a loss of time from one stage to another increasing at the same time the living expenditures of residents in Kigali City. The housing movements in Kigali City are influenced by transport because houses tend to be constructed near the roads to reduce transport costs and the costs of living.

3.2. Study design

This study has used a cross-sectional design which utilized a survey approach to collect data. Kupeka (2013) has used this type of design in determining the factors indicating the sustainability of housing projects in Kenya (Kupeka, 2013). Proportionate sampling and systematic random sampling methods have been used to choose respondents for the administration of questionnaires.

The advantage of this design is that studies with a cross-sectional is fairly not expensive and does not take a long time to conduct and because a sample is drawn from a segment of the entire population, the frequency of results could be anticipated through cross-sectional studies. Regularly collected data in this study are enough facilities the activities of putting data together for even a wide target population. The cross-sectional is appropriate within the specific cross-section of Nyarugenge, Kicukiro and Gasabo districts.

Both qualitative and quantitative approaches were used. As explained by Waltz et al. (2010), a quantitative research design is utilized in experimental research methodologies whereby the examiner will use statistical and mathematical data collected to do analysis of the results obtained in the research. To get results which are fair, a researcher who is using a quantitative research in general will ask narrow closed ended questions to obtain results which are unbiased. Tashakkori and Teddlie (2010) have recommended that it should be admissible to employ quantitative data in case the researcher needs to make a comparison of data in a methodical manner or otherwise the researcher is trying to examine an idea which has hypotheses. The researcher has used a quantitative method to assemble statistical data which have given information about the age and educational level of respondents, household income distribution and household size.

According to O'Leary (2013), the qualitative research methods are in general exhaustive research methods used by the study to acquire complete information of the targeted market section. Qualitative research with households brought a clear understanding of this research. Through interviews it was possible to understand the level of housing supply and housing demand. This research collected data from the households from estates located in the Kigali City.

3.3 Target population

According to Mugenda and Mugenda, a target population is a whole set of persons, cases or items which have certain noticeable characteristics. Kigali City households through its 3 districts Nyarugenge, Kicukiro and Gasabo were targeted in this study. The common characteristic for the study was households which were either property owners or tenants. Due to the limitations imposed on the research, all households in Kigali City were not covered. The sample frame was constructed according to the number of households in each district whereby the population of Nyarugenge is bigger than the population of Kicukiro and Gasabo districts respectively (see description of the study area). Property owners were mostly targeted because they are believed to know the area better than tenants.

The table below shows the targeted population and their distribution in the three districts of Kigali City.

Table 1: Distribution of households in three districts of Kigali City

HOUSEHOLDS	DISTRICTS						Total	
	Nyarugenge		Kicukiro		Gasabo			
	Population	%	Population	%	Population	%		%
Property owners	240	51%	210	53%	220	58%	630	54%
Tenants	230	49%	190	47%	160	42%	620	46%
Grand Total	470	100%	400	100%	380	100%	1250	100%

Source: Field Work 2018

3.4. Sampling design

The basic part of the study sampling procedure is the household. This study referred to the explanation of household by Ellis (1993) as a group of individuals belonging in the same residential place where distinct activities of production and consumption occur simultaneously. The selected areas are within the three districts of Kigali City where 1250 property owners and tenants were selected. Samplings being a study method with which little selected objects are selected rather than the whole objects, that small number selected is known as sample (Grinnell and Unrau, 2010). According to Nasiurma (2000) formula of determining a sample size, from a population of 1250, a sample size of households (property owners and tenants) was determined.

The formula is as follow:

$$n = (NCv^2) / (Cv^2 + (N-1) e^2)$$

Where

n = Sample size

N = Total population

Cv = Coefficient of variation

e = Degree of tolerance at the desired level of confidence (0.005 at 95% confidence level) (Kim, 2009). When squared equals 0.0025

Therefore;

$$n = \frac{(1250 * 0.5^2)}{(0.5^2 + (1250 - 1) * 0.05^2)}$$

$$n = 92.66$$

n 93

With the population of 1250 households comprised with property owners and tenants, a sample size of 93 households was obtained.

3.5 Sampling techniques

A stratified sampling technique is a commonly used probability method that reduces sampling errors. A stratified sampling was used to avoid the possibility of sampling biases and it is a good representative of the entire population. The meaning of stratifying is to put into classes or separation of individuals in different groups according some common characteristics like for example sex, age, and gender. As a stratum is a subsection of a group that has at least some similar characteristics, the common characteristic for the study was households which were either property owners or tenants. Therefore, random sampling technique was applied to choose the required number of the population from each stratum. For a heterogeneous population of property owners and tenants, it helped out to produce a representative sample as it captures the information from different households of the study area. Fifty property owners were selected and forty three tenants were selected for a population of 93 households.

As described in the table below, a sample size for each district was calculated and distributed between property owners and tenants.

Table 2: Sample size distribution of households in each district

		Sample size distribution among households	
		Property owners	Tenants
Nyarugenge	35	18	17
Kicukiro	30	16	14
Gasabo	28	16	12
TOTAL	100	50	43

Source: Field Work 2018

3.6 Methods of data collection

3.6.1 Housing survey

A semi-structured questionnaire was administered to selected respondents of 93 heads of households. The questionnaire was considered based on the study variables. The researcher administered a questionnaire divided into two parties where part one consisted of general information whereby age, monthly income as well as gender of respondents are recorded and part two focused on the study variables.

3.6.2 Key informants

The purpose of key informant interviews were to collect data that could not be captured by the survey questionnaire and hence complement the questionnaire. The key informants were selected on the basis that they held a specific kind of information that could only be obtained from them by virtue of their rank in society or role in the housing sector management. A tailor-made key informant interview was used to capture data from them on one-on-one conversation. This allowed the

researcher to collect rich, reliable and accurate data needed to provide answers to the research questions and also for the achievement of specific objectives of the research.

3.6.3 Field observations

Observations were employed to collect data related to the physical state of houses and verified some of the information obtained by the answers of questionnaires, key informant interviews as well as focus group discussion. The observation schedule consisted of a checklist relating to the aspects of the study variables whose data could not be collected using either questionnaires or key informant interviews.

3.6.4 Focus group discussions

Focus groups were intended to corroborate data from key informant interviews and observation. Respondents were divided into groups of 10 to 12 households from sectors in the study area. A group leader guided the discussion with respect to the study topic. Group members were given a copy of the topic guide and the time to read and understand the content. After each group member was given a time to talk while others should follow respectively. The group discussions were recorded and analyzed for appropriate information. The study conducted 3 focus group discussions. The group discussion number one was conducted with property owners, the group discussion number two was conducted with tenants and the last group discussion was conducted with public sector (officials from the Rwanda Housing Authority, officers in charge of settlements and Rwanda Land Management and Use Authority (RLMUA) former Rwanda National Resources Authority (RNRA).

3.7 Secondary data

Secondary information for the study was obtained through desk-review as an important part of the assessment by collecting, organizing and synthesizing existing information. This study reviewed documents at both global and country levels related to the housing affordability from published documents and reports from different institutions like MININFRA (Ministry of Infrastructure), Kigali City development Plan, RHA (Rwanda Housing Authority) and Rwanda Land Management and Use Authority (RLMUA).

3.8 Data analysis

As it was indicated by Nasiurma (2000), the results of the research are related to the literature review to make them authoritative. The research data analysis was performed using Statistical Package for Social Sciences method was used to estimate the significant factors that influence housing affordability in Kigali City and the contribution of each factor to housing affordability in Kigali City. Descriptive statistics was used to provide summaries about means and the modules of the study variables. Correlation analysis was used on the variables both dependent and independent variables to show the relationship between the variables. Regression analysis was used in this study to determine the contribution of each factor to housing affordability.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

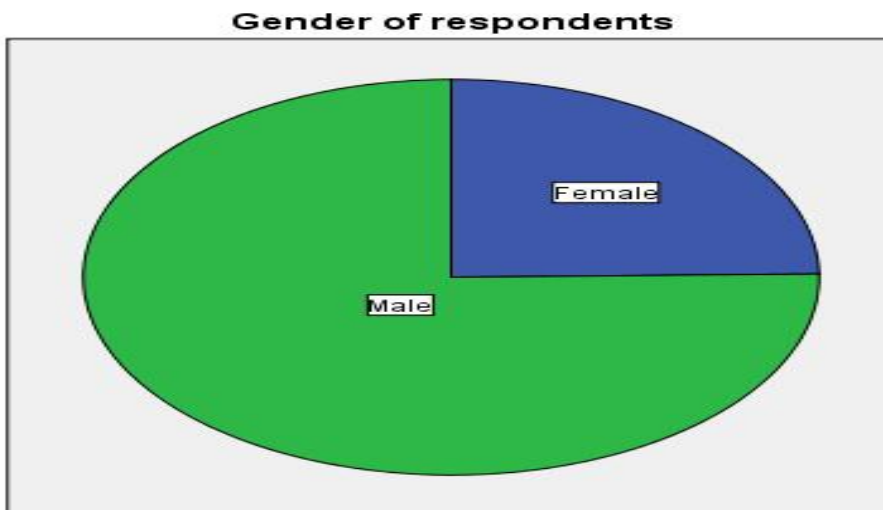
4.0 Introduction

The overall objective of this research was to analyze different factors that influence housing affordability in Kigali City. Specifically, this research sought to determine the level of housing supply and demand in Kigali City, to identify significant factors that influence housing affordability in Kigali City and determine the contribution of each factor to housing affordability in Kigali City. This section also contains the results of the study, their interpretation discussions-based research hypotheses and other related theories.

4.1. Characteristics of the household survey sample

This study identified respondents according to their age, their level of education and size of households and marital status, source of income, monthly income and household level. Among 93 respondents 70 are males and 23 females which constitutes 75% and 25% respectively.

Figure 3: Gender of respondents

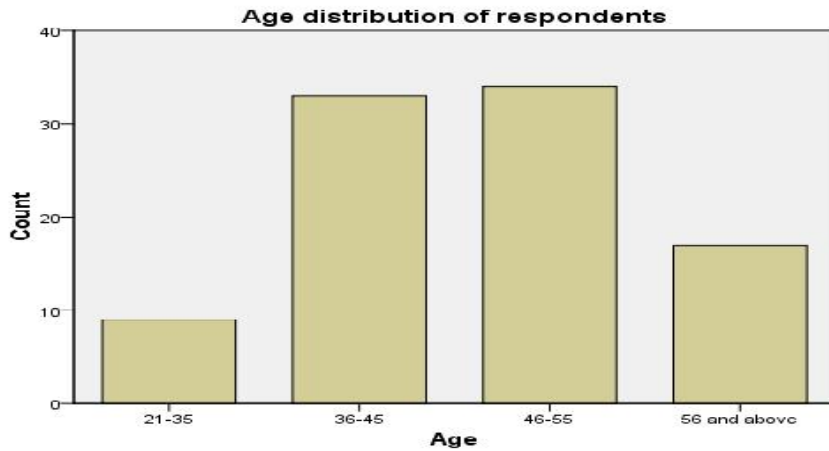


Source: Field Work 2018

As shown in the Figure 4 below, most of respondents were aged between 46 and 55 which is about 36.6% , followed by respondents aged between 36 and 45 which is about 35.5% and respondents

aged of 56 and above were about 18.3% and final respondents aged between 21 and 35 were about 9.7%.

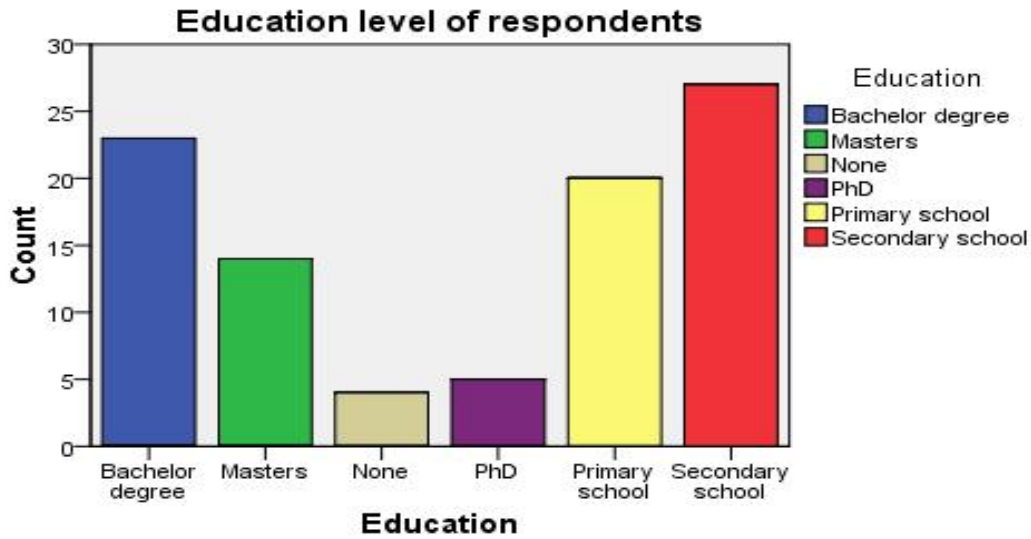
Figure 4: Age distribution of respondents



Source: Field Work 2018

The figure 5 below shows that respondents have different levels of education; 29% are at secondary level, 24.7% have a bachelor degree, 21.5% primary school, and 15.1% Master level followed by 5.4 with PhD and finally 4.3% those who have not attended any school.

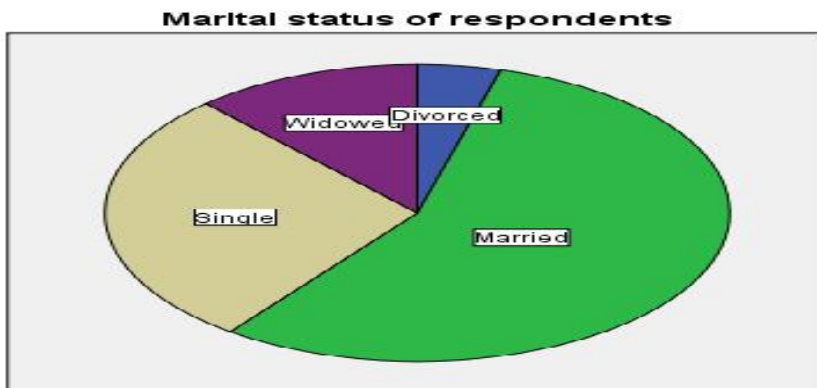
Figure 5: Education level of respondents



Source: Field Work 2018

The figure 6 below shows that 55.9% of respondents are married while 29% of respondents are single, 11.8% widowed and 4.3 have divorced.

Figure 6: Marital status of respondents

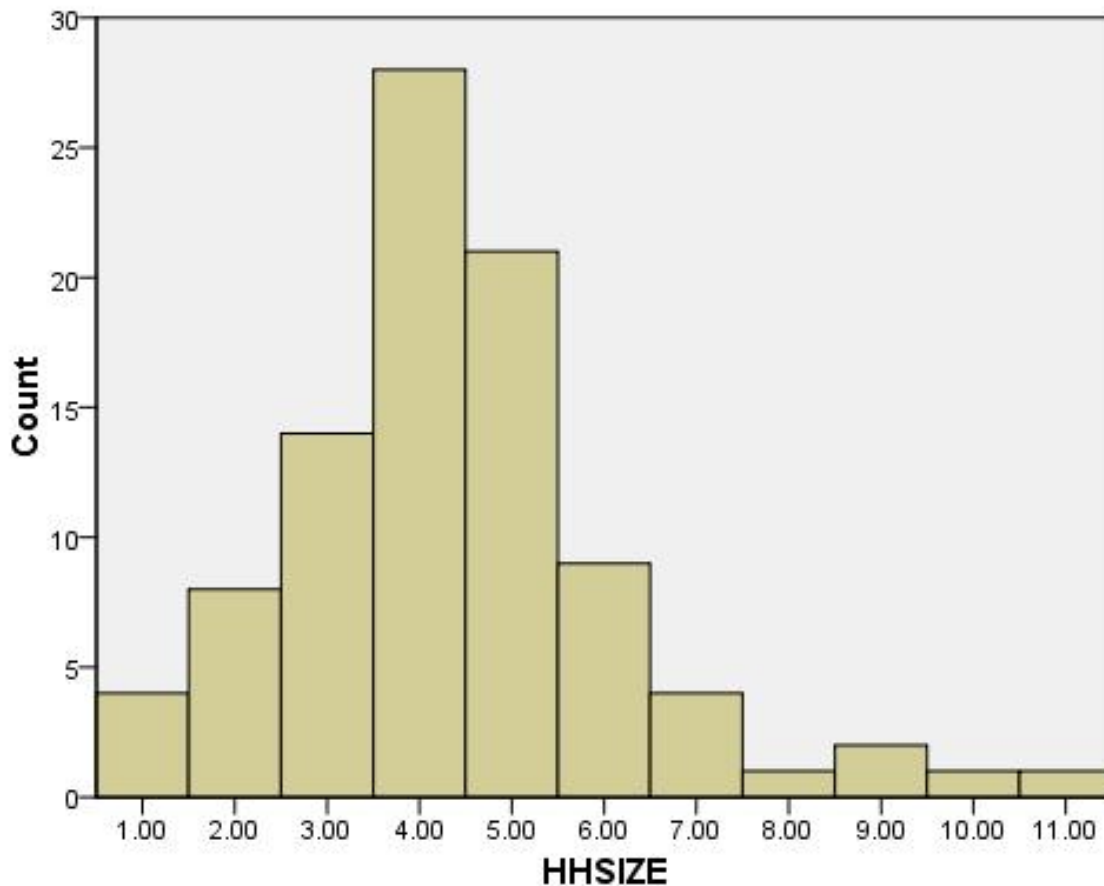


Source: Field Work 2018

As shown in the Figure 7 below, the size of households of the respondents is between 1 and 11 people which constitutes 4.3% and 1.1% respectively. The majority of houses are constituted by 3,

4 and 5 people who represent 15.1%, 30.1% and 22.6% respectively. The respondents argued that this is due to the fact that the area of the study is mainly composed by the young generation and those who are married are no longer willing to have many children.

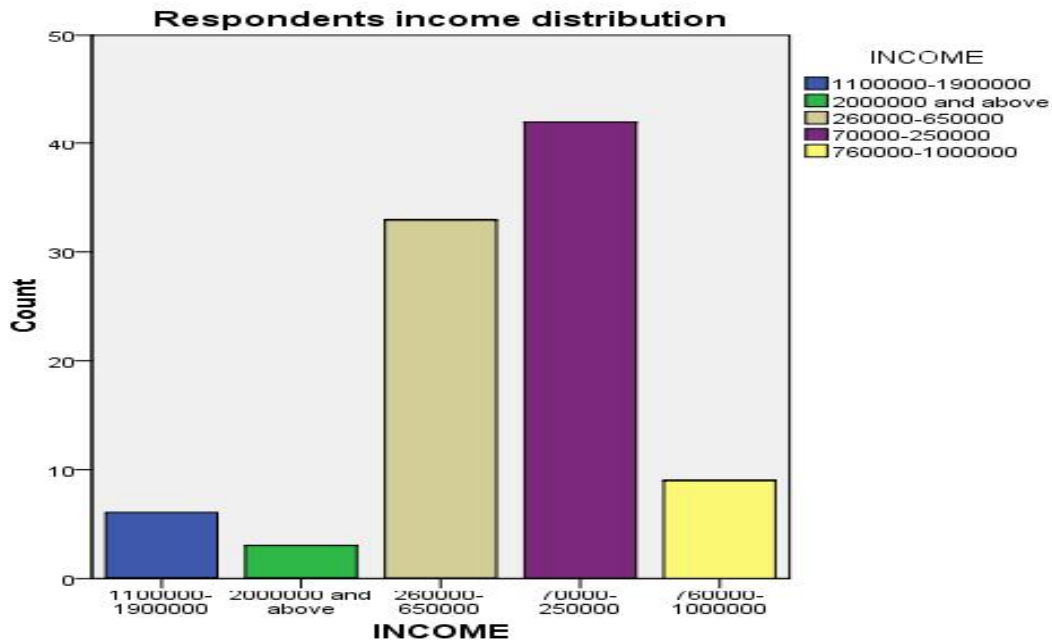
Figure 7: Household sizes



Source: Field Work 2018

The income distribution of respondents has shown that that most of them 45.2% had a monthly income comprised between 70,000 Rwf and 260,000 Rwf, while 35.5% had an income comprised between 260,000 Rwf and 650,000 Rwf followed by 9.7% of households who had an monthly income between 760,000 Rwf and 1,000,000, 6.5% of respondents who had an income comprised 1,100,000 Rwf and 1,900,000 Rwf and finally 3.2 % gained a monthly income of 2,000,000 Rwf and above as presented in the figure 8 below

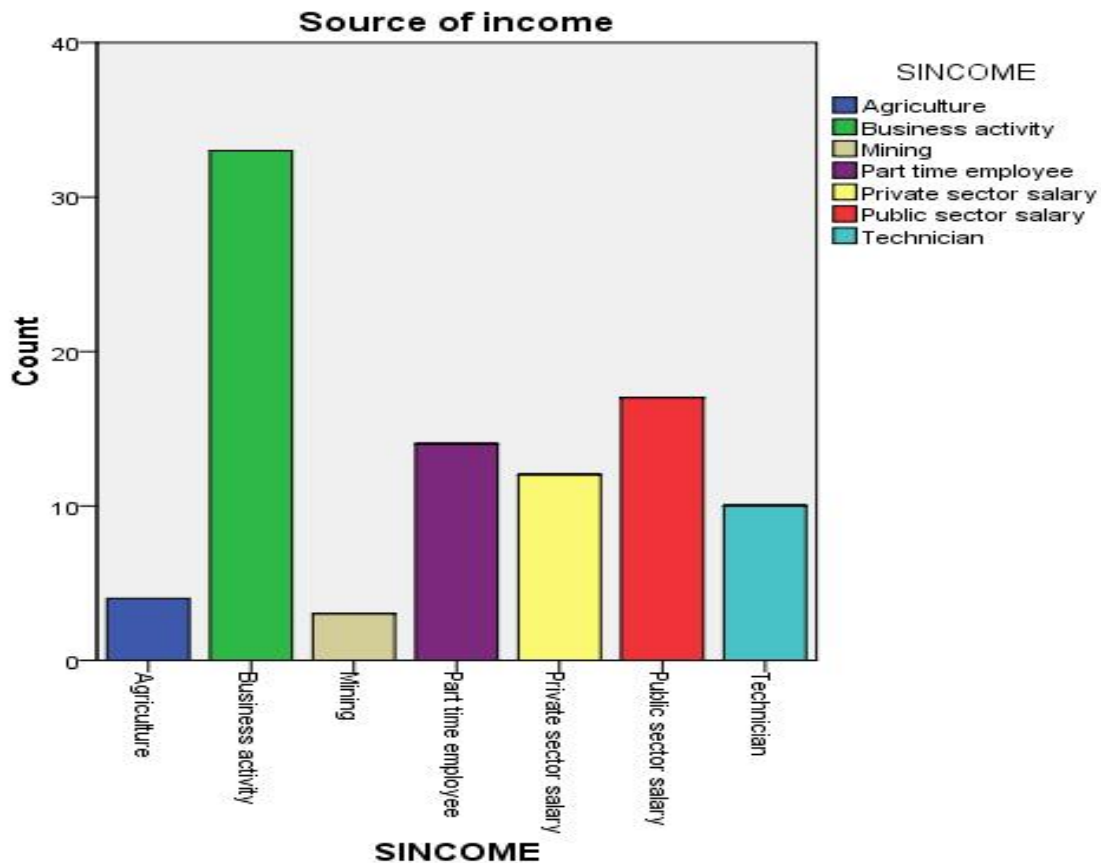
Figure 8: Income distribution



Source: Field Work 2018

As shown in the following figure 9, the main source of income of respondents comes from business activities mostly commerce which represents 35.5%, public sector salary 18.3%, part time employee 15.1%, private sector employee 12.9%, technicians 10.9%, agriculture 4.3% and finally mining 3.2%.

Figure 9: Source of income



Source: Field Work 2018

4.2 Level of housing supply and demand in Kigali City

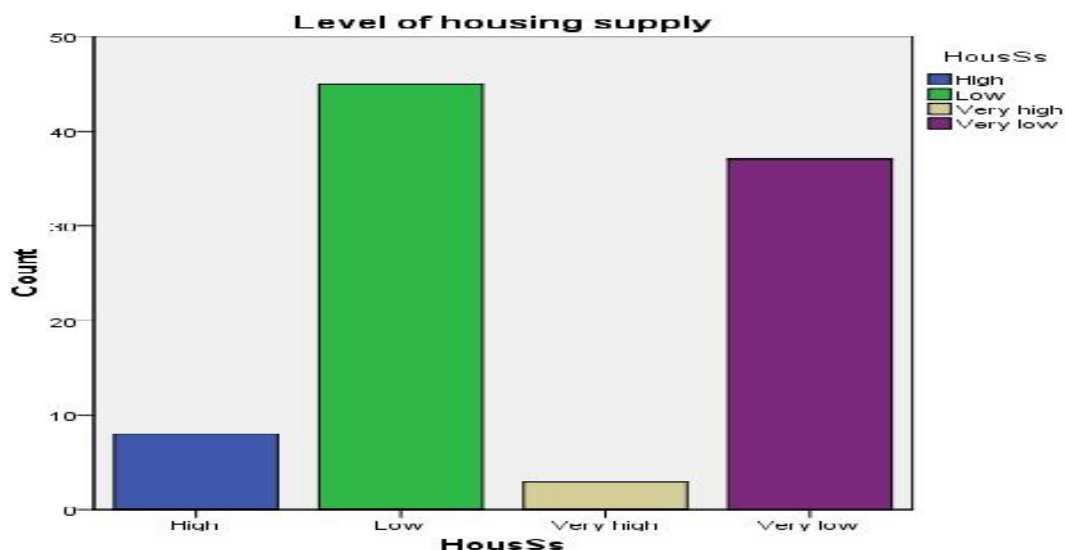
4.2.1 Level of housing supply in Kigali City

To know the level of housing supply in Kigali City, respondents were given structured questionnaires. On the basis of their views and the information they had about the level of housing demand and supply in Kigali City, respondents had to choose between ‘Very high’, ‘High’, ‘Low’ and ‘Very low’.

The results from respondents showed that there is a shortage of housing in Kigali City where most of respondents 48.4% said that housing supply is ‘Low’ followed by 39.8% of respondents who said

that housing supply is ‘Very low’. A small number of respondents 8.6% said that housing supply is ‘High’ and finally 3.2% respondents said that housing supply is ‘Very high’.

Figure 10: Level of housing supply



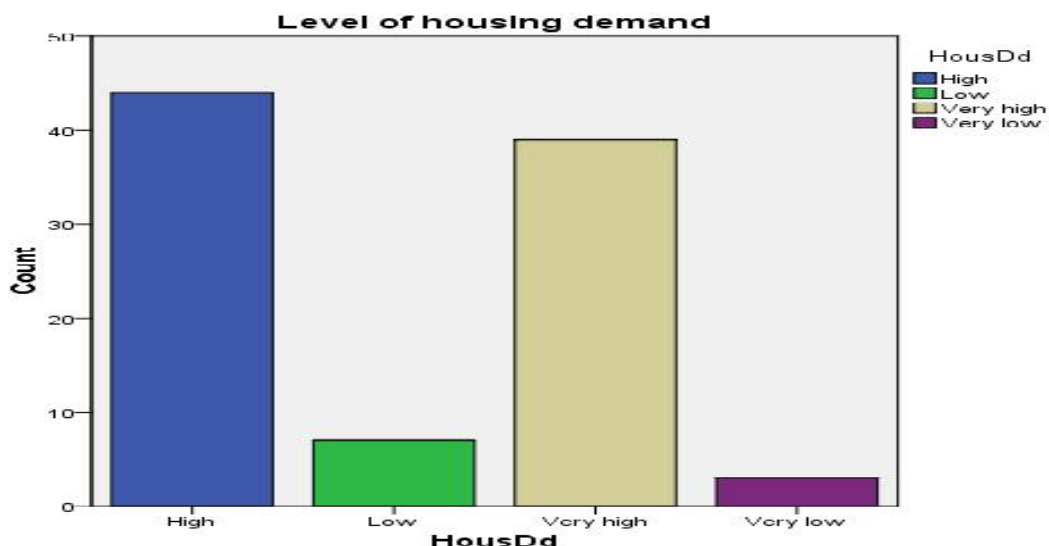
Source: Field Work 2018

4.2.2 Level of housing demand in Kigali City

About the level of housing demand in Kigali City respondents were given questionnaires and their answers consisted in saying if the housing supply in Kigali City is ‘Very high’, ‘High’, Low’ or ‘Very low’.

The study indicated that most of respondents believed that housing demand in Kigali is high which is represented by 47.3% of respondents followed by 41.9% of respondents who believed that the level of housing demand in Kigali City is ‘Very high’ followed by 7.5% of respondents who said that housing demand in Kigali City is ‘Low’ and finally 3.2% of respondents who said that housing demand in Kigali City is ‘Very low’ as shown in the figure below.

Figure 11: Level of housing demand



Source: Field Work 2018

4.2.3 Significant factors that influence housing affordability in Kigali City

The identified 28 factors that influence housing affordability in Kigali City were distributed to the respondents of this research by means of semi-structured questionnaires to be able to rate and rate them according to their level of importance. The horizontal numerical rating scale was used to rank these factors. According to the information found in the literature review and results from respondents, an horizontal numerical scale of 1 to 4 representative of the 2 extremes of very important and not important at all was developed as very significant, significant, less significant and not significant. A descriptive analysis was applied and based on the population mean score; and given that the entire population was supposed to follow a normal distribution, all the four probable scores of 1-4 in the developed numeric scale possessed the same chance of happening. In order to rank factors that influence housing affordability, the means of the value ratings were calculated for every single factor. The table 3 below is a representation of factors according the mean ranking of their importance, the minimum score designing the least value and the maximum score designing the biggest value and their standard deviation which designs the values 'score variation for every single factor.

Table 3: Factors that influence housing affordability mean rating

N	Housing affordability factor	Minimum	Maximum	Mean	Std. Deviation
		Statistic	Statistic	Statistic	Statistic
1	Institutional structure affecting housing finance	1.00	4.00	3.0860	.98528
2	Cost and availability of finance for housing	1.00	4.00	3.0645	.89451
3	Income	1.00	4.00	3.0430	.85864
4	Household growth	1.00	4.00	3.0215	.88439
5	Interest rates & mortgage availability	1.00	4.00	3.0215	.90864
6	Property related taxes	1.00	4.00	3.0000	.90889
7	Child Care	1.00	4.00	2.9892	.84048
8	Wealth	1.00	4.00	2.9785	.87201
9	Employment	1.00	4.00	2.9677	.87789
10	Infrastructure Costs	1.00	4.00	2.9570	1.00989
11	Cost and availability of land	1.00	4.00	2.9462	1.02539
12	Cost of professional Services	1.00	4.00	2.9355	.81836
13	House price and rental costs	1.00	4.00	2.8925	.92622
14	Shopping facilities	1.00	4.00	2.8172	.92014
15	Tax concessions for both owner occupied & rental housing	1.00	4.00	2.7312	.96841
16	Land development processes and policies	1.00	4.00	2.4086	.98064
17	Concessions to first home buyers	1.00	4.00	2.3978	.91056
18	Quality of housing	1.00	4.00	2.3333	.79855
19	Public transport	1.00	4.00	2.3226	.79620
20	Safety	1.00	4.00	2.3011	.95308
21	Availability of rented accommodation & affordable home ownership	1.00	4.00	2.2903	.90386
22	Leisure facilities	1.00	4.00	2.2796	.83881
23	Costs of construction	1.00	4.00	2.2688	.99061
24	Energy efficiency housing	1.00	4.00	2.1720	1.00676
25	Return on alternative investments	1.00	4.00	2.1613	.83783
26	Schools	1.00	4.00	2.1290	.84988
27	Health services	1.00	4.00	2.1183	.99836
28	Waste management facilities	1.00	4.00	2.0645	.86986

Source: Data analysis Results, 2018

The results of the Table 3 show how respondents ranked the factors that influence housing affordability in Kigali City. Respondents believed institutional structure affecting housing finance (mean=3.0860) to be the factor which mostly influence housing affordability. For respondents, if finance institutions are well organized, it can be easy for them to acquire affordable housing.

The second factor that influence housing affordability is cost and availability of finance for housing (mean=3.0645). This finding is related to the first in a way that if finance institutions are well organized and provide money for the population who need to use it, the costs associated to housing will reduce and this situation will have an important impact on housing affordability.

The third important factor that influences housing affordability according to respondents is income (mean=3.0430). The factor income plays an important contribution as primary determinant of whether a household needs affordable housing. According to respondents, if income of households increases, it is expected that the demand for housing will be higher. Prices of housing in the marketplace are affected by income.

Household growth (mean= 3.0215) was ranked as the fourth factor by respondents. If the number of households increases; this will likely increase the expenses of the family and therefore reduce the capacity of households to afford housing services. With household growth, households have said that in most cases they are obliged to give support to their aging parents and other family members who are poor and this situation is likely to provoke affordability problems.

Interest rates and mortgage availability (3.0215) and property related taxes (mean=3.000) were ranked fifth and sixth respectively. Respondents said that charged interest rates are still high and mortgage conditions from banks are challenging them. Interest rate affects significantly affordability since defines monthly repayments of the borrower. Instability of mortgage rates of interest influences income of households. Many respondents said that the rate of mortgage was estimated between 16% to 19% according to the bank in 2017 and 2018. The high rate of mortgage interest can thus be the cause respondents choose those factors as significant.

Child care with mean= 2.9892 was ranked as the seventh important factor of housing affordability by respondents. According to respondents, if they have to walk long distances to reach child care services, this will negatively impact household affordability; they will spend their income in

transport and some may not even go to work as they will be obliged to care after their children themselves.

The factor number eight as ranked by respondents is wealth (mean=2.9785). When a household has valuable possessions or much money, they will contribute a lot to affordable housing as he will not need to face the constraints loans. According to respondents, those who inherited from reach parents and who met prosperous businesses are those who have much money and that are why respondents considered it as a factor which affects housing affordability in Kigali City. Employment (2.9677) was ranked the ninth factor of housing affordability by respondents. If a household has got a job, he will be able to increase their affordability which is not the same case for a household who does not have a job.

According to respondents, the factors infrastructure costs, costs and availability of land, cost of professional services and house price and rental costs were ranked tenth, eleventh, twelfth and thirteenth with their respective mean ratings of 2.9570, 2.9462, 2.9355 and 2.8925. All those costs were considered to influence housing affordability because any cost that a household is facing will negatively affect his income and hence reduce affordability. A high cost of infrastructure, a high cost of land, professional that are highly paid high rental costs will have an influence on housing prices

Shopping facilities was ranked the fourteenth factor (mean=2.8172). If shops and markets are far from houses, other expenses such as transport etc. will occur and household's income will be affected hence reduce household's affordability. Tax concessions for both owner-occupied and rental housing, land development processes and policies, concessions to first home buyers were ranked as fifteenth, sixteenth, seventeenth and eighteenth with their mean ratings of 2.7312, 2.4086, and 2.3978 respectively. According to respondents, any act allowing paying fewer taxes could occasion savings on their income and likely influence household's affordability.

Quality of housing (mean=2.3333), public transport (2.3226), Safety (mean= 2.3011) were ranked nineteenth, twentieth, and twenty first respectively. Other factors such as availability of rented accommodation and affordable home ownership (2.2903), leisure facilities (2.2796), costs of construction (mean=2.2688), energy efficiency housing (mean=2.1720), return on alternative investments (mean= 2.1613), schools (mean=2.129), health services (mean=2.1183), wastes

management (mean=2.0645) were ranked by respondents as being signifying to housing affordability in Kigali City.

Variables mean rating by respondents has allowed the researcher to identify and rank factors that influence housing affordability. However, the population mean score needed to be done for the researcher to select significant factors in an objective way. For this analysis, a decision point was set and on the devised rating scale of 1-4, that population mean score is 2.5. If the mean value of a factor is higher than 2.5, it is significant. On the other side, if the mean score value is less than 2.5, it is considered as no significant. According to this analysis, 25 factors were identified as significant with their mean value scores superior to the population mean of 2.5.

As per the above table 3, fifteen significant factors that influence housing affordability are: institutional structure affecting housing finance (mean=3.0860), cost and availability of finance for housing (mean=3.0645), income (mean=3.0430), household growth (mean= 3.0215), interest rates and mortgage availability (3.0215), property related taxes (mean=3.000), child care mean= 2.9892, wealth (mean=2.9785), wealth (mean=2.9785), employment (2.9677), factors infrastructure costs (mean= 2.9570), costs and availability of land(mean= 2.9462), cost of professional services and house price and rental costs (mean= 2.9355), shopping facilities (mean=2.8172), Tax concessions for both owner-occupied and rental housing (mean= 2.7312)

The 13 remaining factors with a mean rating less than 2.5 were considered to be of small importance in influencing affordability. Those factors are: land development processes and policies (mean= 2.4086), concessions to first home buyers (mean= 2.3978), quality of housing (mean=2.3333), public transport (2.3226), Safety (mean= 2.3011), availability of rented accommodation and affordable home ownership (2.2903), leisure facilities (2.2796), costs of construction (mean=2.2688), energy efficiency housing (mean=2.1720), return on alternative investments (mean= 2.1613), schools (mean=2.129), health services (mean=2.1183), wastes management (mean=2.0645)

However, the above analysis was not conclusive in identifying significant factors that influence housing affordability. The confidence level of 99% needed to be set as it helps in eradicating or reducing errors that could happen in identifying those factors. The errors that might happen on whether a factor is considered as significant while it is not, or on whether a factor is considered as not significant while it is significant, the Z-test analysis was done to provide conclusive factors that

influence housing affordability. In this analysis, the one-tail Z-test was chosen because the population mean score of 2.5 was already considered as significant.

Therefore

$$z = (\bar{x} - \mu) / (\sigma / \sqrt{n})$$

Where

z is computed z-value

\bar{x} is the mean variable score for each variable

μ is the population mean score for subject population =2.5

n is the sample size

σ is the standard deviation

At a confidence level of 99%, there has been a comparison between the Z-value computed and the critical Z-value. The critical Z value in this analysis was 2.33 as it has been provided by Mark Sirkin (2006). There were 2 hypothesis whereby the null hypothesis (Ho) assumed that “factors of housing affordability are not significant” and the alternative hypothesis assumed that” factors of housing affordability are significant”. If Ho is not accepted, Ha is accepted and this would lead to the conclusion that that factor of housing affordability is significant. The Z-test was carried out only on those factors found to have an important average in housing affordability.

The following Table 4 represents the significant factors after Z-test statistical of significant factors

Table 4: Z-test of significant factors

N	Variable	Critical value at 99% confidence level	Calculated Z-value	Hypothesis	Conclusive remarks
1	Institutional structure affecting housing finance	2.33	6.71	H ₀ not accepted	The factor is significant
2	Cost and availability of finance for housing	2.33	6.56	H ₀ not accepted	The factor is significant
3	Income	2.33	6.55	H ₀ not accepted	The factor is significant
4	Household growth	2.33	6.11	H ₀ not accepted	The factor is significant
5	Interest rates & mortgage availability	2.33	5.95	H ₀ not accepted	The factor is significant
6	Property related taxes	2.33	5.70	H ₀ not accepted	The factor is significant
7	Child Care	2.33	5.693	H ₀ not accepted	The factor is significant
8	Wealth	2.33	5.691	H ₀ not accepted	The factor is significant
9	Employment	2.33	5.52	H ₀ not accepted	The factor is significant
10	Infrastructure Costs	2.33	4.69	H ₀ not accepted	The factor is significant
11	Cost and availability of land	2.33	4.51	H ₀ not accepted	The factor is significant
12	Cost of professional Services	2.33	4.49	H ₀ not accepted	The factor is significant
13	House price and rental costs	2.33	4.39	H ₀ not accepted	The factor is significant
14	Shopping facilities	2.33	3.57	H ₀ not accepted	The factor is significant
15	Tax concessions for both owner occupied & rental housing	2.33	2.47	H ₀ not accepted	The factor is significant

Source: Data analysis Results, 2018

The above results in Table 4 of Z-test of significant factors at confidence level of 99%, have provided a conclusion which shows that there are 15 factors which significantly influence housing affordability in Kigali City and those are *institutional structure affecting housing finance, cost and availability of finance for housing, income, household growth, interest rates and mortgage availability, property related taxes, child care, wealth, wealth, employment, factors infrastructure costs, costs and availability of land, cost of professional services and house price and rental costs, shopping facilities and finally tax concessions for both owner-occupied and rental housing*

After the identification of significant factors that influence housing affordability in Kigali City, the next step consisted in determining their contribution to housing affordability whereby the Multiple Regression Analysis was used. The Multiple Regression Analysis has allowed the researcher to measure the contribution of each significant factor to housing affordability.

4.2.4 Determination of the contribution of each significant factor to housing affordability

The determination of the contribution of significant factors to housing affordability was done by means of correlation and regression analysis techniques. Correlation analysis was used to measure the relationship between housing affordability and significant factors identified. The Multiple Regression Analysis (MRA) was chosen in regression analysis to measure the relative and marginal contribution of those factors to housing affordability. The multiple Regression analysis was performed for the purpose of identifying the relationship which exists between the dependent variable and independent variables. Identified 15 significant factors were independent variables while housing affordability was the dependent variable for this study. The Multiple Regression Analysis was performed with descriptive statistics, correlation analysis and regression analysis.

4.2.4.1 Descriptive statistics

The mean, mode, median, skewness, kurtosis, standard deviation, minimum and maximum were considered as important descriptive statistics for this research. The objective of this statistics was to know if they are following a normal distribution so that the assumption of Multiple Regression Analysis which considers that the normal symmetric distribution could be respected.

Table 5: Dependent variable descriptive statistics

N	93
Mean	0.3346
Median	0.3425
Mode	0.42
Std. deviation	0.19034
Skewness	0.710
Kurtosis	0.34
Minimum	0.01
Maximum	0.99

Source: Data analysis Results, 2018

According to the results of the descriptive statistics in the Table 5, the dependent variable which is housing affordability, the mean and the median are likely to be equal. This means that the value distribution of affordability is closer to the normal distribution. The housing affordability mean = 0.3346 expresses proportion of affordability ratio of households which means that households spent approximately 33% of their income on housing. The median =0.3425 specifies affordability proportion of the median household. A mode =0.42 means that the majority of respondents used their income on affordability. The value of Skewness =0.710 is close to normal distribution because it is inferior to 1.

Table 6: Independent variables descriptive statistics

Stat	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
N	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93
Mean	3	1.6 2	1.5 1	1.03	0.84	0.72 1	14. 32	55014	1.82	2800000	5200000	910.000	7.585.000	0.1113	32152
Median	3	3	2	1	1	0.9	15	33952	1	3900000	4500000	800.000	4.800.000	0.115	35222
Mode	3	3	1	2	1	0.7	10	99421	2	3100000	4.600000	760.000	600.000	0.141	34898
Std.Devi a	1.200	0.6 0	0.7 8	0.88	0.40	0.31	3.4 8	5623134 5	0.055	8200000	3.600.000	794.2000.101	7.500.000	0.089	35410
Minimu m	1	1	1	1	1	0.21	5	39420	2	600000	70.000	162000	150.000	0.104	31254
Maximu m	6	5	3	10	1	1.44	26		1	1500000 00	30.000.00 0	900.000	80.000	00.018.169	38942

According to the results of Table 6 representing the mean, mode, median and the standard of deviation of independent variables, it was noticed that they are all approximately the same. In case those values are not the same, they are close. This means that the independent variable respects the normal distribution. For instance for the independent variable number 1 which is institutional structure affecting housing finance, the value for the mean is 3 and the value for the median is 3. The mean and median for household growth which is represented as number are respectively 1.03 and 1. As the two values for household growth are close, this means that they follow the normal distribution. A mean of 3 for household growth denotes that respondent 'households increased on average of 3 households. When the number of households is increasing, it will have an impact on housing affordability which will essentially decrease because other expenditures not related to housing will increase. Households should thus make a balance between the number of households and the income they own.

4.2.4.2 Correlation analysis

The correlation analysis was achieved with the objective of rating housing affordability housing with an important relationship. Factors with a strong relationship are the ones to be used in the multiple regression function. A correlation analysis was performed on both variables; housing affordability as dependent variable and factors of housing affordability as independent variable. This statistical analysis was performed for the purpose of identifying the relationship between housing affordability and different factors of housing as per the literature review and field work results.

The coefficient of correlation is represented by R and the value of R ranges from -1 to +1 with both extremes indicating a perfect correlation. A positive sign of the correlation coefficient between the dependent variable and independent variable denotes a strong relationship between them (Eckert et al. 1990). The results on the correlation analysis for the contribution to housing affordability are in conformity with these literatures where the housing sector is considered to mainly contribute to the economic finance of the country. However, if the coefficient of correlation between the independent variables is greater than 0.80, multicollinearity might happen and this means that independent variables are highly correlated. The existence of multicollinearity was checked in this study on the variable data.

Table 7: Correlation analysis results

Affordability	R	1
	α	
Household Growth	R	.929**
	α	.000
Income	R	.705**
	α	.000
Wealth	R	.974**
	α	.000
Cost and availability of housing finance	R	-.027
	α	.497
Institutional structure affecting housing finance	R	.289**
	α	.005
Costs and Availability of land	R	.330**
	α	.001
Infrastructure Costs	R	.813**
	α	.000
Cost of professional services	R	.906**
	α	.000
Property related taxes	R	.759
	α	.000
House prices and rental costs	R	.906
	α	.000
Interest rates and mortgage availability	R	.869
	α	.000
Employment	R	.863
	α	.00
Child care	R	.325
	α	.001
Shopping facilities	R	.235
	α	.23
Tax concessions for both owner occupied & rental housing	R	.231
	α	.23

Source: Data Analysis Results, 2018

According to the results shown in Table 7, a correlation analysis has resulted in the correlation coefficient R and the level of significance α . The variables with very small level of significance i.e.

less than 0.5 are linearly correlated while those with a high level of significance i.e. greater than 0.5 are not correlated. The small level of significance for this analysis is 0.000 while the high level of significance is 0.497. This denotes a strong relationship between independent and dependent variables.

Accordingly, significant factors are wealth, household growth, cost of professional services, house prices and rental costs, interest rates and mortgage availability, employment, infrastructure costs, property related taxes, income, cost and availability of land, child care, shopping facilities, tax concessions to both owner occupied and rental housing, institutional structure affecting housing and finally cost and availability of finance for housing.

From the results of Table 7, multicollinearity was noticed for cost of professional services and house prices and rental costs, as they have the same $R= 0.906$, and shopping facilities with $R=0.235$ and tax concessions to both owner occupied and rental housing with $R= 0.231$ were not used in the following analysis. The Regression analysis was finally applied on 11 significant factors to identify the contribution of each variable to housing affordability.

4.2.4.3 Regression analysis

With the help of SPSS software, the regression analysis was used with ENTER and STEPWISE methods. ENTER contributed to the analysis of all affordability variables while STEPWISE removed the variables which are weak in contributing to housing affordability, With ENTER method of analysis, B coefficients which are unstandardized coefficients, were performed to explain how much the dependent housing affordability changes according to a unit change of the independent variable.

Coefficient of determination R square (R^2) and Adjusted R^2 which is explained as a proportion or percentage of change in the dependent variable and may be described by the influence of all predictor variables in regression model. R square variations range from 0 to 1. The factor housing affordability was explained by Multiple Regression analysis if R square equals 1 while if R^2 equals 0, all dependent available are not explained. R^2 is used to predict the fairness of a dependent variable that can be made by the independent variable knowledge. When R^2 approaches 1, it predicts better the dependent variable. However, this method has a tendency to be excessive in estimating, and that

is why Adjusted R^2 is also calculated. When R. square has a value of 0.5 or bigger than 0.5, it will be considered as explained the variable reasonably. For the results of Table 9, R.square has a value of 0.539 and adjusted R.square is 0.527

Table 8: Summary of regression results

Model	R	R.square	Adjusted R.square	Std. error of estimate
1	0.734	0.539	0.527	0.10211

Source: Data Analysis Results, 2018

According to the results in Table 9, R.square has a value of 0.539 means that housing affordability is explained by the housing affordability factors. The above results clearly demonstrate that all the eleven variables contribute at percentage of 53.9%, to housing affordability.

Eleven factors that contribute to housing affordability are *wealth, household growth, cost of interest rates and mortgage availability, employment, infrastructure costs, property related taxes, income, cost and availability of land, child care, institutional structure affecting housing and finally cost and availability of finance for housing.*

4.2 Testing the hypothesis

The overall objective of this study was to analyze the factors that influence housing affordability in Kigali City with specific objectives; to determine the level of housing supply and housing demand in Kigali City, to identify significant factors that influence housing affordability in Kigali City and to determine the contribution of each factor to housing affordability in Kigali City.

The null hypothesis for this study was that the cost and availability of land is not the most important factor influencing housing affordability in Kigali City while the alternative hypothesis was that the

cost and availability of land is the most important factor influencing housing affordability in Kigali City.

The results this study showed that the cost and availability of land is not the most important factor influencing housing affordability in Kigali City; thus the null hypothesis for this study was supported since though cost and availability of land was found to be one of the significant factors that influence housing affordability in Kigali City, it is not the most important. The alternative hypothesis which says that the cost and availability of land is the most important factor influencing housing affordability in Kigali City was refuted.

CHAPTER FIVE

SUMMARY OF STUDY RESULTS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter covers a summary of study results, the conclusion from the research findings and the recommendations on housing affordability to different concerned institutions among them Kigali City, training institutions and finally suggested areas for further researches

5.1 Summary of study results and conclusion

The general objective of this study was to analyze the factors that influence housing affordability in Kigali City. The specific objectives of this study were to determine the level of housing supply and demand in Kigali City, to identify significant factors that influence housing affordability in Kigali City and finally to determine the contribution of each factor to housing affordability in Kigali City. The objectives of this the study were achieved.

The results have shown that level of housing supply is low while the level of housing demand in Kigali City is high. The factors that influence housing affordability in Kigali City have been identified from the study results and include 15 factors that are the most significant in affecting housing affordability within Kigali City. The factors which significantly influence housing affordability are institutional structure affecting housing finance, cost and availability of finance for housing, income, household growth, interest rates and mortgage availability, property related taxes, child care, wealth, wealth, employment, factors infrastructure costs, costs and availability of land, cost of professional services and house price and rental costs, shopping facilities and finally tax concessions for both owner-occupied and rental housing.

The contribution of each factor to housing affordability in Kigali City was analyzed indicated that there are 11 factors which contribute to housing affordability in Kigali City. Those factors are wealth, household growth, cost of interest rates and mortgage availability, employment, infrastructure costs, property related taxes, income, cost and availability of land, child care, institutional structure affecting housing and finally cost and availability of finance for housing.

Based on the findings of this study, the null hypothesis for this study the cost and availability of land is not the most important factor influencing housing affordability in Kigali City was accepted

because although it was found to be one of the factors that influence housing affordability in Kigali City, it is not the most important. The alternative hypothesis which says that the cost and availability of land is the most important factor influencing housing affordability in Kigali City was refuted.

5.2 Recommendations

5.2.1 Recommendations for policy makers

The following recommendations to policy makers were made:

Firstly, policy makers should consider the use of modern methods and construction materials which will contribute to providing high quality housing in a short time.

Secondly, household growth affects significantly housing affordability; it is recommended that the efficient management of urban growth is necessary and will have a significant impact on the availability of affordable housing.

5.2.2 Recommendations for Kigali City

The majority of those in need of housing are in the low-income cadre and some require special housing programs to be able to afford decent housing. Therefore, Kigali City should organize housing cooperatives to increase availability of finance for housing for low income earners.

Kigali City should also undertake sensitization programs to create a new cultural mindset towards use of technologies in building materials like prefabricated materials to reduce the cost of building and not spend all their wealth or capital on housing.

5.2.3 Recommendations for further research

This study should be done in the whole country to come up with more generalized results and conclusions. This should help to better understand housing affordability in the country and show areas in need of intervention the most.

Secondly, it would also be of great importance to do survey whether homeowners and renters perceive their housing costs as affordable or unaffordable. This could be compared to quantitative

data on housing cost and income to provide further insight in to the various housing affordability measures.

APPENDICES

APPENDIX 1: SURVEY QUESTIONNAIRE

Dear Sir/Madam/Miss,

My name is IBARINDA Marie Benoitte. I am conducting a research on factors that influence housing affordability in Kigali City. I am kindly asking you to assist me by filling the following questionnaire. Filling the questionnaire would be greatly helpful. The information provided will stay confidential and will be used for academic purpose only.

Thank you in advance

IBARINDA Marie Benoitte

Identification

Code.....

Date of survey.....

Sector.....

Cell.....

Village.....

A. HEAD OF HOUSEHOLD CHARACTERISTICS (*Tick where appropriate*)

A.1. PERSONAL IDENTIFICATION

1. Gender of the respondent

Male=1

Female=0

2. Age of respondent.....years

3. Education

Education level

Response

1=None

2=Primary school

3=Secondary school

4=Bachelor degree

5=Masters

6=PhD

4. Civil Status of the respondent

1=Single

2= Married

3= Divorced

4= Widowed

A.2. HOUSEHOLD SIZE

5. The size of household (Members).....

A.3. SOURCE OF INCOME

7. What is other source of income apart of farming?

Source of income

Response

1=Public sector salary

2=Private sector salary

3= Business activity

4=Part-time employee

5=Technician

6=Fishing

7=Mining

7=Agriculture

B. PEOPLE RESPONSES TO THE LEVEL OF HOUSING

12.1. At which level is housing supply in Kigali City?

- Very High
- High
- Low
- Very low

12.2. At which level is housing demand in Kigali City?

- Very High
- High
- Low
- Very low

13. Do you think that the following factors affect housing affordability in Kigali City?

Put YES or NO

- 1) Household growth
- 2) Income;

- 3) Wealth;
- 4) Tax concessions to both owner occupied and rental housing;
- 5) Concessions to first home buyers;
- 6) Return on alternative investments;
- 7) Cost and availability of finance for housing;
- 8) Institutional structure affecting housing finance
- 9) The cost and availability of land,
- 10) Land development processes and policies,
- 11) Infrastructure costs,
- 12) The cost of construction,
- 13) Costs of professional services;
- 14) Property related taxes,
- 15) House prices and rental costs,
- 16) Interest rates and mortgage availability,
- 17) Availability of rented accommodation and affordable home ownership,
- 18) Safety,
- 19) Public Transport,
- 20) Employment,
- 21) Schools,
- 22) Health service,
- 23) Quality of housing,
- 24) Leisure facilities,
- 25) Child care,
- 26) Waste management facilities,
- 27) Energy efficiency of housing,
- 28) Shopping facilities
- 29) Others

14. Among the factors you have agreed that they influence housing affordability, which ones you think they most significant in housing affordability in Kigali i City?

Rank in a scale of 1, 2, 3 and 4 (1: Very significant, 2: Significant, 3: Less significant, 4: Not significant)

N.	Factor of housing affordability	Very significant	Significant	Less significant	Not significant)
1	Household growth;				
2	Income				
3	Wealth				
4	Tax concessions to both owner occupied and rental housing				
5	Concessions to first home buyers;				
6	Return on alternative investments;				
7	Cost and availability of finance for housing;				
8	Institutional structure affecting housing finance				
9	The cost and availability of land				

10	Land development processes and policies				
11	Infrastructure costs				
12	The cost of construction				
13	Costs of professional services				
14	Property related taxes				
15	House prices and rental costs				
16	Interest rates and mortgage availability,				
17	Availability of rented accommodation and affordable home ownership				
18	Safety,				
19	Public Transport				
20	Employment				
21	Schools				

22	Health service				
23	Quality of housing				
24	Leisure facilities				
25	Child care,				
26	Waste management facilities,				
27	Energy efficiency of housing				
28	Shopping facilities				

15. Is there any contribution of these factors to the housing affordability in Kigali City?

Yes

No

THANK YOU VERY MUCH FOR YOUR TIME!

APPENDIX 2: Key Informants Interview

The interview has the objective of getting information about housing affordability in Kigali City. This information will help to capture rich, reliable and accurate data needed to complete the findings of the survey questionnaire. This key informant questionnaire will help the research to obtain the current information of the housing sector in Kigali City.

This questionnaire is for research purpose only!

Interviewer:

Interviewee:

Position:

Date: / / 2017

1. At which level do you think is housing supply within Kigali City currently?

- Very High
- High
- Low
- Very low

2. At which level do you think is housing demand in Kigali City currently?

- Very High
- High
- Low
- Very low

3. What do you think are the factors that influence housing affordability within Kigali City?

4. How is each factor contributing to housing affordability in Kigali City?

- ✓ Very significantly?
- ✓ Significantly
- ✓ Not significantly
- ✓ Less significantly

5. Any comments and/or suggestions are welcomed!

.....
.....
.....

THANK YOU VERY MUCH FOR YOUR TIME!

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