DETERMINANTS OF RENT RATES IN KENYA: A CASE OF KASARANI DIVISION IN NAIROBI COUNTY

BY

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A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF ARTS IN PROJECT PLANNING AND MANAGEMENT OF THE UNIVERSITY OF NAIROBI

2014
DECLARATION

This research project report is my original work and has not been presented for academic purposes in the University of Nairobi or any other University.

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This research project report has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

I dedicate this Research project report to my brother Frank Mochama, sister Edina Mochama, parents Peter and Loise Mochama.
ACKNOWLEDGEMENT

Appreciation goes to my supervisor Dr. Angeline Mulwa who without her guidance and insight this research project would not have been possible.

This project could not have been possible without availability of resources at the Nairobi University’s Jomo Kenyatta Memorial Library and therefore special appreciation goes to the staff that assisted me in locating materials relevant to the study.

Appreciation to my brother Frank Mochama, sister Edina Mochama, parents Peter and Loise Mochama for their moral support.

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# ABBREVIATIONS AND ACRONYMS

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<tr>
<td>CBD</td>
<td>Central Business District</td>
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<tr>
<td>CBOs</td>
<td>Community Based Organizations</td>
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<td>NGOs</td>
<td>Non-Governmental Organizations</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UN-DESA</td>
<td>UN Department of Economic and Social Affairs</td>
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<tr>
<td>UN-Habitat</td>
<td>United Nations Human Settlements Programme</td>
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ABSTRACT

The objectives of the study were to establish the influence of population increase on rent rates, determine how location of apartments and their proximity to the city influence rent rates, establish the influence of cost of construction on rent rates, assess the influence of structural characteristics of houses on rent rates and find out how supply of housing influence rent rates in Kasarani Division, Nairobi County. The design of this research was a descriptive survey research. The population for this study was composed of 1500 landlords, 6 representatives in the ministry of land and planning and 165 property managers. Simple random sampling technique was used to select 384 respondents from the sample. The study used a semi structured self-administered questionnaire to collect data from the landlords and property managers. The study also used interview guide to obtain answers from representatives in the ministry of land and planning. The collected data was analyzed using both quantitative and qualitative data analysis methods. Quantitative method involved descriptive analysis. Descriptive analyses such as frequencies, percentages were used to present quantitative data in form of tables and graphs. Data from questionnaire were coded and logged in the computer using Statistical Package for Social Science (SPSS V 21.0). Content analysis was used for the qualitative data and then presented in prose. The study deduced that cost of construction influence rent rates great extent. The study also established that supply of housing influences rent rates to a great extent. The study concluded that cost of construction influences rent rates to a great extent. This is because cost of land, inputs, specialized and casual labour is directly proportional to the cost of construction, hence, an increase in these costs raise the cost of construction. The study further concluded that location of apartments and their proximity to the city as indicated by distance from the CBD, distance from the main road, proximity to other residential buildings, site and location characteristics of the property and the cleanliness of the neighborhood has an influence on rent rates. The study recommended that the government should formulate policies to ensure that the cost of construction goes down. This is because as the government plans to ensure there is affordable housing in the country the same can’t be achieved when the cost of construction is still high. The study also recommended that the government should ease the limitations on urban land to ensure that developers have favourable conditions that will encourage building of more houses in urban areas to meet the high demand of the same. The tenants too should form a union to cater for their issues. The general public should be vigilant and allay any illegal rent rate rises to the authorities. The authorities should also enforce the laws governing rent rates to the fullest.
CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

This chapter gives a brief introduction of the research study by looking into factors influencing the rent rates. The chapter explores the objectives of this study while stating the research questions, which this study hopes to have answers to. The chapter also states the problem at hand and goes ahead to give the objectives of the study while at the same time giving the significance of this study.

1.1.1 Global Perspective

Far more people rent than own homes in developed cities in the world, especially among households who opt for apartments (Opoku and Abdul-Muhmin, 2009). About 90% of the residents in Berlin are renters, 85% in Geneva, about three-quarters of the population are renters in Vienna and Amsterdam, and in Paris, more than half the residents do not own their own homes (Benjamin, 2007). In Saudi Arabia, about 67% of low-income households livings in apartments prefer renting to buying their own house (Opoku and Abdul-Muhmin, 2009).

While much of the focus in property and real estate markets is consistently placed on financial returns, there has been increasing global attention placed on demographic characteristics such as projections for population growth, fertility rates, household formation rates and household income (Mengjie et al, 2008). The population profile of many developed countries has changed rapidly in recent years resulting to limited supply of houses and subsequently high rent rates. A landmark housing demography study which examined the links between demography and real estate was undertaken by Mankiw and Weil (1988) where the findings concluded an age dependant demand variable had a significant influence on the level of housing prices in the US. The study focused on demographic variables and forecast a 47% decline in house prices. In the housing demography literature there have been studies undertaken into individual countries. Applying the original Mankiw and Weil (1988) framework to Austria, Lee et al. (2003) argued the number of adults plus net migration is collectively a better demographic indicator for housing demand studies than simply examining the actual number of births that occurred 20 to 30 years
earlier. The same study also concluded the variables for income; finance costs and the jobless rate were all significant in the analysis of housing prices. With reference to Canada, the same methodology as the original Mankiw and Weil study was used but no significant relationships were identified (Engelhardt and Poterba, 2008). In a Germany study Maennig et al. (2007) analyzed the relationship between housing prices and demography in German cities; the model used a dummy variable to reflect cities which were growing or shrinking.

Napier (2006) and Rust (2006) show that in spite of the success recorded in the first 10 years in the provision of housing to the poor, there are a number of reasons impeding the provision of housing that have contributed to the decline in the number of units built annually since 2000 which translate to higher rent rates. These reasons for this decline as stated by UN (2004); Napier (2006); NDoH (2009) are highlighted below: the inability of the social housing programme to deliver at scale, non-creation of satisfactory integrated housing environments, the withdrawal of the large construction groups from the low income market, high land costs in advantageous locations, differences in the interpretation and application of the housing policy, high building costs in areas where land is more affordable but geological and topographical conditions are not ideal.

The bulk of rental housing across the world, has been provided by the private sector and increasingly by small investors. The exceptions are found in some Western European countries. In Denmark, Finland, Germany and Switzerland, some companies continue to put money into rental housing and in France, banks, insurance companies, pension funds and real estate companies rent out one eighth of the total housing stock (UN Habitat, 2003). This has contributed to increased rent rates.

Apart from public and private rental housing, other forms of tenure exist in some countries. After the Second World War, the Netherlands had to cope with a severe housing shortage. To deal with this problem, the Dutch government launched a broadly conceived subsidy programme to finance the construction of social housing. The housing associations were formed which played a major role. Approximately 500 housing associations still exist and they manage two million housing units, which is about 30% of the total housing stock. This makes the subsidized rented sector in the Netherlands far larger than in any other European country (Acioly, 2005). In many
countries varying government incentives have been introduced with the intention of bridging this gap by providing financial hand-outs although arguably this has indirectly contributed to even higher house prices and issues for social sustainability (Forster-Kraus et al. 2009). This was the scenario in Germany for example.

1.1.2 Regional Perspective

The housing crisis, especially in the developing world, is deteriorating by the day resulting in a situation whereby the efforts towards achieving adequate housing at cheaper rates is becoming a mirage in spite of the ambitious United Nations Millennium Development Goal 7 Target 11 (Tibaijuka, 2008). However, despite vast improvements in housing conditions, the situation leaves a lot to be desired in most parts of the world. Housing in developing countries as stated by Orbit (UN-Habitat, 2006), is seen as the world’s most unsolvable problem that is reflected in slums where the majority of the urban poor live. UN-DESA (2009) indicates that though positive achievements have been recorded in eradicating slums around the world, the housing crisis in developing countries might slow the progress and the positive trend could be reversed. Housing problems are far from being solved. These problems, according to Bourne (cited by UN-Habitat, 2008), vary from country to country and also over time, and the problems depend largely on a country’s social, economic and political conditions prevailing at a given time, as well as people’s attitudes towards living standards and their expectations for housing improvements. Apart from these, UN-Habitat (2008) states that policy objectives cannot be overlooked as most of the time government policies do not always match these objectives. Housing problems arise from mismatches between policy instruments and objectives, as well as from conflicts between various housing and non-housing objectives and also arising from conflicts between limited and competing resources and objectives.

UN-Habitat (2008) states that only a few areas affect human beings as much as housing does and that the importance of housing cannot be overemphasized. More than one billion of the world’s total urban population according to UN-Habitat (2007), live in inadequate housing, mostly in slums and squatter settlements of the developing world. According to Van (2009), most of the developing countries have to contend with housing backlogs and housing demand brought about due to population growth. Similarly, housing provision challenges in Africa and other developing countries, according to Ibem (2011), are on the increase due to the fact that the rate of production
has not kept pace with urban population growth. Close to 3 billion people, or about 40% of the world’s population by 2030, will need improved housing and basic infrastructure services. This translates into a need for a production rate of completing 96,150 housing units per day or 4000 per hour (UN-Habitat cited by UN21 Habitat, 2007). This challenge is daunting and all stakeholders must come together in order to find ways by which the challenge could be ameliorated.

South Africa has been very active in addressing significant issues in housing, including a severe shortage of housing stock which led to high rent rates and the low quality of living conditions. A national housing programme was introduced in 2010, which extended subsidies to low income households. This capital subsidy was sufficient for a secure plot, the installation of water and sanitation services and the construction of a basic house. This initiative resulted in the building of 1.5 million new housing units between 2010 and mid-2003, with a further 300,000 under construction at that point. More than 2.2 million houses were delivered up to 2009; this figure has since risen to 2.8 million units in 2010. Despite the success of this ambitious programme, the country continues to face a substantial housing deficit, with the backlog in provision estimated at 2.3 million South African households in mid-2003 while in early 2010, the backlog was 2.1 million (UN-DESA & UN-Habitat, 2004; UN-Habitat, 2008; Zuma, 2010).

At the turn of the millennium, there were about one billion people living in inadequate housing conditions in developing countries. The need for scaling up housing supply has become an urgent focus of policy debate, with the need to expand the role of private markets (Keivani and Werna, 2001). According to the UN-HABITAT, the incidence of renting in some parts of West Africa is also high. For example, 80% of households in Abidjan, Côte d’Ivoire, were tenants in the 1980s. In Port Harcourt, Nigeria, 88 percent of households were renting accommodation in 1984. In South Africa, almost 90 percent of migrants to Johannesburg either rented or shared accommodation upon arrival in the city (UN HABITAT, 2003).
1.1.3 Kenyan Perspective

Lack of housing availability and affordability has a great impact on lower income groups in Kenya and on their well-being physically and psychologically (Seelig et al., 2009). Without long term housing stability, such groups will find difficulties in achieving employment and community stability (Song, 2005).

The provision of adequate housing is a very integral part of the needs of every society and has great value for individuals, families, communities, and society at large (Opoku and Abdul-Muhmin, 2009). The housing system in Kenya can be broadly categorized into two types, namely the owner occupied and the rental housing. Owner occupied housing would mean that the owner owns and lives in that house, while the rental housing are those that are rented out and the household occupying the house pays a specific sum of money either on monthly basis or for a specific period of time. Roughly 40 percent of the world’s population lives in rental housing Malpezzi (2010). The rental housing is a rapidly growing trend in Kasarani Division. Nairobi being the administrative capital, most of the residents are civil servants and other people coming from different parts of the country for employment or business activities. This has led to a high demand in rental housing thus triggering higher rents charges for the newly constructed apartments than the old ones of the same category and quality since March 2005.

Kenya is experiencing rapid urban growth in a context of limited economic growth and restricted land supply. Rental housing is expanding as few people can afford their own homes. Rental accommodation in Kenyan towns has usually been associated with low-income households but it has also become the main form of housing for middle-income households and new urban residents of all income levels. In the 1980s, nearly 90 per cent of annual housing production in Thika, a typical small town, was private rental accommodation (Adreasen, 2008). Evans and Hartwich (2005) argued that at least since 1970, real house prices have fluctuated around an upward trend, which is generally attributed to rising demand for housing space linked to increasing per capita income, growing populations, supply factors such as land scarcity and restrictiveness of zoning laws, quality improvement and comparatively low productivity growth in construction. Over the last decade the construction of private rental apartments have increased significantly, but still the demand for houses far exceed the supply as a result the rents for the
private houses are rising rapidly and there is no mechanism to control the rents. Given the similar area and quality of a house, the increment in rent of the private houses has been twice as compared to the public housing. There have been many cases where the tenants are given very short notice to either accept a 10-20 or 50% rental increase in the rent level or move out and look for other alternatives.

Housing affordability not only relates to direct costs, but to the wider costs imposed on the wider community due to overcrowding and poor housing conditions. The land use planning system, which impacts on the availability of residential land, has been a key to the supply of affordable housing through the housing market. In addition, the planning system contributes to the preservation of existing sources of low cost accommodation, the design and configuration of new housing, and timing and costs associated with the development process (Milligan et al., 2004). In addition, the planning system can be used to promote and procure affordable housing through a mix of regulations and incentives. In some countries, these could include inclusive zoning requirement to allocate affordable housing in some (or all) locations or developments. Aversion of low-cost rental housing investment is an effect of ‘housing markets, investor economics, location choices, and … negative gearing’ (Seelig et al., 2009). Rental properties generally need to be close to transport and services so that potential tenants can maintain their capability of paying rental income. Only a small number of investors express some level of interest in low cost housing, such as community housing head lease schemes, and only if they can guarantee income return which it is not a long-term commitment (Seelig et al., 2009). The investors’ perception of low cost housing is lower vacancy rates and tenant turnover, or at best as tax relief.

On the supply side, the majority of research has concentrated on finding the cause of increasing housing costs. Some outcomes have suggested that the cost of developing new homes has increased mainly due to indirect costs, such as statutory and infrastructure charges (ACIL Consulting, 2002; Housing Industry Association Ltd, 2003) which have resulted to increased rent rates. In addition, limited land supply, detailed development assessment processes, planning strategies in the financial market and shifting demography have pushed up the total cost (Gurran, Ruming, Randolph, & Quintal, 2008). In order to cover the high cost of refurbishment or new construction to comply with tax and other statutory requirements (such as rising skilled labour and material costs, interest costs, GST, fire safety and other charges), investors push supply
towards the higher-end market which provides a better return for their investment (Susilawati, Armitage & Skitmore, 2005). Many of the current affordable housing owners or new investors convert old affordable housing stock to modern, expensive housing, such as higher density up-market apartment blocks in inner-city areas. Investors in rental housing seek both rental return and capital gain from their investments.

In recent years, rates of owner-occupancy have declined and more people now rely on rental units. With fewer households able to pay rents at market rates, units have become extremely competitive and rents have increased sharply. At the same time, housing conditions have deteriorated. The loss of existing affordable housing stock is exacerbated by the increase of market price where the rental income, as lower than market rent, cannot cover the maintenance cost and upgrading cost for older rental housing (Rengert, 2002). Moreover, alternative forms of low-cost housing, including boarding houses and caravan parks, have largely disappeared (Seelig, Burke, & Morris, 2005).

There is no explicit rental housing policy in Kenya. Rental housing issues are submerged in the overall national housing policy first formulated in 1966 in Sessional Paper No.5 (Rimer, and Abrams, 2012), which remains the basis for national housing policy in Kenya. This policy leaves local authorities, government departments and public corporations to design their own programmes for the supply of rental housing which affects the rent rates. The lack of specific consideration for rental housing in the national housing policy has been reinforced by more than three decades of centralized development models. As in most other African countries (Okpala, 2011) as well as in South America (Klaren and Bossert, 2012) and Asia, (Hee-Yun, 2008), the government followed a control-guidance development planning model throughout the 1960s, 1970s and 1980s in the belief that centralized government agencies, government officers and public sector resources were the key factors in development. A strategy of government intervention with the construction of units as well as the provision of infrastructure and services is a recurring theme in all the development plans. However, the actual supply of housing has always fallen short of market demand and particularly, of the needs of the urban poor. A review of the overall housing policy articulated in Sessional Paper No.5 has been on-going since 1981 but the process is still not complete. Recently, the government published a National Report and Action Plan on shelter and human settlements (Republic of Kenya, 2011). The stated goal of the
policy framework is to provide adequate shelter for all Kenyan citizens and sustainable human settlements in the context of an urbanizing world. However, the goal of adequate shelter at reasonable rates for all remains more a statement of social and political intention than a feasible objective in the foreseeable future.

In the eight years from 1985 to 2007, the numbers of housing cooperative societies increased from 108 to 227 (Republic of Kenya, 2010). There are also land-buying cooperative societies (LBCS) and land-buying companies which also contribute to housing production through the sale of plots at affordable prices.

The housing policy set out in Sessional Paper No.5 set a national production target of 7,600 units per year but this has never been realized. According to the 1976-1982 urban housing survey, average annual housing production was only 6,400 units per year with the public sector supplying 75 per cent and the formal private sector 25 per cent (Republic of Kenya, 2010). As the urban population grew, formal housing supplied fewer and fewer houses relative to demand. By 2008, demand had risen to 65,800 units yet housing production in the formal public sector further declined during the second half of the 1980s and the first half of the 1993s. In the nine years from 1993-2010, only 5,568 units were built (Republic of Kenya, 2011).

1.2 Statement of the Problem

In Kenya, it is difficult to generalize on the nature of rental housing. There are many actors within the informal and formal sectors involved in the supply of housing. There are also high levels of subsidy in the public housing sector which distorts the market, severe rent control laws which are rarely enforced and distorted land allocation practices, all of which limit access by poor urban residents to affordable, decent housing. These factors make it difficult to construct a coherent picture of the overall rental housing sector or to identify the entry point for development agencies to build partnerships with NGOs, CBOs or local authorities for improving the supply of rental accommodation.

The Kenya government’s official policy of financing, constructing and facilitating access to housing continued into the 1980s. However, the reality was not matched by the intention. Implementation has often been piecemeal and there are continuing house shortages. Lack of affordable housing supply has been the main cause of declining housing affordability and
associated problems. In addition, scarcity of land supply, limited government subsidies’ and an increase in housing costs have not offered incentives for investment in affordable housing thus resulting to increased rent rates.

Rapid urban growth is making more people reliant on rental housing for accommodation but housing production levels are not meeting demand either in terms of quantity or quality. Existing policies and laws do not cater sufficiently for the production of housing units, especially in the rental housing market. The rental market is further distorted by rent control and housing subsidies from government agencies and local authorities. There is a great deal of abuse of tenancy rights, including arbitrary rent increases and evictions, especially in informal tenancies, which urgently need addressing through policy and law reform.

The past couple of years have seen dramatic fluctuations in the demand and supply of houses for rent in Kenya (UN HABITAT, 2009). Revenue from rent serves as the main source of income for many real estate developers and house owners in Kenya. The attractive incomes from rent have led to the conversion of various structures into apartments for rent. Rent is becoming a major determinant of place of residence. The rent rates in Kasarani Division in Nairobi County have rapidly increased over the last five years at a higher rate compared to the other estates in Nairobi. Though there are differences in inter-city rents, very little is documented about the factors that determine the rental charges of apartments, which can constitute a source of distortion in the setting of rents. This study therefore sought to establish various factors influencing the rent rates in Kasarani Division Nairobi County. This study therefore sought to establish the determinants of rent rates in Kasarani Division, Nairobi County, Kenya.

1.3 Purpose of the study

The study aimed at assessing the determinant of rent rates in Kasarani Division, Nairobi County.

1.4 Objectives of the study

The study was guided by the following objectives;

1. To determine how population increase influences rent rates in Kasarani Division, Nairobi County
2. To determine how location of apartments and their proximity to the city influence rent rates in Kasarani Division, Nairobi County
3. To establish the influence of cost of construction on rent rates in Kasarani Division, Nairobi County
4. To assess the influence of structural characteristics of houses on rent rates in Kasarani Division, Nairobi County
5. To find out how supply of housing influence rent rates in Kasarani Division, Nairobi County

1.5 Research Questions

1. What is the influence of population increase on rent rates in Kasarani Division, Nairobi County?
2. How does location of apartments and their proximity to the city influence rent rates in Kasarani Division, Nairobi County?
3. In what ways does cost of construction influence rent rates in Kasarani Division, Nairobi County?
4. What is the influence of structural characteristics of houses on rent rates in Kasarani Division, Nairobi County?
5. How does supply of housing influence rent rates in Kasarani Division, Nairobi County?

1.6 Significance of the Study

The study shall be significant to people who rent houses as they will be in a position to understand their rights regarding renting houses. The study will be beneficial to investors who are interested in investing in housing; the study shall open their minds to issues affecting people living in rental houses, which is essential in making investment decisions. Through this study, the investors and the general public will be able to know and understand government policies and regulations regarding housing which can impact their investment decisions.

The study would benefit the government in developing policies and strategies that are directed towards enhancing good housing facilities to its citizens. The research findings will also provide vital information that will benefit future academicians and researchers on the factors determining rent rates, which will trigger their desire to research further.
1.7 Delimitations of the Study

This study focused on the factors determining the rent rates in Kasarani Division, Nairobi County. This county was chosen as the study area since it has many people who live in rental houses. The data was collected from the property owners, managers/caretakers, ministry of planning representatives in charge of housing in the division and investors/tenants in the division.

1.8 Limitations of the study

The study encountered unwillingness by respondents to reveal information which was classified as confidential. The researcher faced a challenge in securing the respondents precious time considering their busy working schedules. The researcher had to make proper arrangements with respondents to avail themselves for the study off-time hours and had to motivate them on the value of the study. The researcher also had to exercise utmost patience and care and in view of this the researcher made every effort possible and acquired sufficient data from respondents. The research was also constrained by a number of factors such as insufficient funds and time.

1.9 Definition of significant Terms

**Cost of construction** – Expense incurred by a contractor for labor, material, equipment, financing, services, utilities, etc., plus overheads and contractor's profit. These include

**Location of Apartments** – this depicts where the house it relative to the CBD or its nearness to various social amenities

**Population increase** – Growth in the number of people that reside in a country, state, county, or city. Population growth and rural urban migration has resulted in urban segregation

**Rent rates** – This is the amount of money that paid regularly to use a house or flat

**Structural characteristics of houses** – Characteristics relating to or affecting the structure of a house. This entails the size of the house/ number of rooms, technical condition of the house, space in the rooms, facilities and appearance of the house and also the type and quality of
building materials used.

Supply of housing – Number of houses available and factors influencing availability. This includes; land scarcity and restrictiveness of zoning laws, number of units built, pace of urban housing and zoning rules and regulations.

1.10 Basic assumptions of the Study
This study had the following assumptions: that the subjects of the study would be willing to respond to the questions raised in the questionnaire. It was also assumed that there would be no serious changes in the composition of the target population that would be fundamental enough to affect the effectiveness of the sample. That the study would be carried out as planned and the researcher would be in good health to accomplish all the objectives.

1.11 Organization of the Study
The study was organized into three chapters. Chapter one contained the introduction to the study. It presented background of the study, statement of the problem, purpose of the study, objectives of the study, research questions, significance of the study, delimitations of the study, limitations of the Study and the definition of significant terms. On the other hand, chapter two reviewed the literature based on the objectives of the study. It further looked at the conceptual framework and finally the summary. Chapter three covered the research methodology of the study. The chapter described the research design, target population, sampling procedure, tools and techniques of data collection, pre-testing, data analysis, ethical considerations and finally the operational definition of variables. Chapter four presented data analysis Presentation, Interpretation And Discussion of the study as set out in the research methodology. The study closed with chapter five which presented the summary, conclusion, and recommendations for action and further research.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

In this second chapter, relevant literature information that is related and consistent with the objectives of the study was reviewed. Important issues and practical problems are brought out and critically examined so as to determine the current facts. This section is vital as it determines the information that link the current study with past studies and what future studies will still need to explore so as to improve knowledge.

2.2 Theoretical Review

The study was underpinned in two theoretical models including Model of Net Flows of Construction by Maisel (1963) and Multi-Indicator Model by Dipasquale and Wheaton (2008).

2.2.1 Model of Net Flows of Construction by Maisel (1963)

Maisel (1963) uses the model of net flows of construction and depicts the housing market as a typical flow-feedback system. However, a number of studies show that housing markets are not efficient (Shen and Liu, 2004). By assuming that the market clears gradually rather than quickly, Dipasquale and Wheaton (2010) improve the traditional stock-flow model to be more consistent with the actual situations in housing markets.

Theoretically, general equilibrium is based on the hypothesis that housing markets are efficient. The early stock-flow model presented by Muth (1960) can be used to illuminate some basic reasons behind the efficiency problems. Muth develops a competitive theory of the housing market to estimate the demand function for housing service and simultaneously relates this demand to investments in new housing and the speed of adjustment to a long run equilibrium.

As pointed out by Hårsman and Quigley (2008), housing markets are regional or local in character, and the outcome of national policies will depend upon economic and demographic characteristics of the local environment. The regional economy is basically driven by two forces of the demand for outputs and the supply of inputs such as labor, finance and real estate. Clearly,
real estate is a primary factor required to produce output. To ensure sustainable economic growth, a region must be capable of expanding its supply of real estate; otherwise real estate prices will rise, causing the increases of labor wages and output costs. Such increases can weaken the competitive strength of a region’s output and eventually slow or even stop its long-run growth.

2.2.2 Multi-Indicator Model by Dipasquale and Wheaton (2008)

Dipasquale and Wheaton (2008) formulate a four-quadrant model to analyze the basic factors driving a regional or local housing market. From the demand-side, i.e. the upper half of the figure, the rent level, which shapes into the future income stream that housing assets earn, is a key determinant of housing prices. On the other hand, from the supply-side, i.e. the lower half of the figure, construction can influence housing prices and rent by increasing housing stock. As the regional economy fluctuates, the housing market also tends to grow or contract. Rent rates have a direct impact on the demand for housing and new construction will change the stock of housing. Factors like GDP, income and government regulations can be treated as exogenous variable of economy, while housing prices, rents, new construction and the housing stock are endogenous variables.

By analyzing the fundamental driving forces of demand and supply, we can look closer upon the potential indicators of price bubbles. The factors influencing demand may be classified into three categories. First, in the level of economic forces, income is a primary factor. Although each household desires to own a housing unit, it is the income that decides the consumption. Secondly, demographic factors such as the size of the population, the age distribution and the number of households are major factors influencing housing demand. Along with the fast urbanization in China, the number of urban households is growing rapidly and this of course generates a growing demand for housing. The factors covered by the first two categories can be considered as exogenous rather than endogenous. Finally, the third category includes include price, rent and the housing stock, that is variables that have to be treated as endogenous.

The supply of housing is significantly influenced not only by production cost, which includes the level of interest rates in the financial market, the cost of labor, land and building materials in the resource market, but also by the housing stock and price in the output market. As most
developers are excessively dependent on the bank loans in urban China, the funding cost is another key factor influencing housing supply. Moreover, during the housing development stage that lasts for about two years, the shift of interest rate level can have considerable impacts on the investment return of developers. The housing price, of course, has an overriding importance. Obviously, high price prompts developers to produce more housing and conversely, low price will decrease the supply of new housing.

To sum up, the equilibrium of housing market shifts consistently with the dynamic interaction between demand and supply. All else being equal, the increase of income and household numbers will drive the demand for housing, thus raising housing prices, whereas new investment in housing will increase housing stock, thus lowering prices. Therefore, it is reasonable to conclude that the fundamental determinants of a housing market are mainly composed of income and the number of households in the demand side, as well as new construction, the number of developers and input costs in the supply side, whilst the price of existing housing, stock, and interest rates have influence on both housing sides.

### 2.3 Increase in Population and its Influence in determining Rent Rates

In the developing countries such as Kenya, rapid urban growth which is due to both natural population growth and rural urban migration has resulted in urban segregation and exerted too much pressure on provision of housing and related services. Kenya has been experiencing rapid urbanization at an estimated rate of 7.3 percent per annum. The proportion of Kenyans living in urban centers (defined as towns with a population of 2000 or more inhabitants) increased from 18.3 percent in 2008 to 30 percent in 1999. Kenya has approximately 194 urban centres with a total population of about 10.0 million, representing 34.8 percent of the total population (Republic of Kenya, 2010). Of the total number of urban centres, it is estimated that approximately 45 percent of Kenya’s urban population lives in Nairobi. However, the rapid urban growth of the city of Nairobi, particularly in the last three decades, has brought about characteristic settlement problems resulting to high rent rates and, in some cases, environmental degradation.

The rapid rise of urbanization in most parts of Africa has presented the continent with a number of challenges and stripped its cities of their ability to provide for basic needs like shelter, infrastructure, education and health care. As cited by Tesfaye (2007), urbanization and demand
for houses are positively correlated and thus as the urban society of a city expands so does the needs for more housing. In the case of most developing countries, these needs have largely been unmet (Chirisa, 2008). Consequently, housing shortage in developing countries has escalated to unprecedented rates making the percentage of slum dwellers that reside illegally in a place without authorization and property rights extremely high (UNFPA, 2007). Demographic developments, over and above their influence through real disposable incomes can also raise housing demand, thereby increasing price levels (Cerny et al. 2005). In particular, high rates of net migration, declines in the average size of households and increases in population shares of cohorts of individuals in their thirties will boost housing demand by increasing the share of the population of household formation.

The housing sector, while addressing the needs for affordable housing of low-income groups, can enormously contribute in the development of African economies (Tipple, 2010). However, in most developing countries, few segments of the economy, as contributors to growth, have been as understudied as housing (Renaud, 2007). As a result, a sector largely missing in the economic plans of most developing countries is that of housing and housing-related activities (Munday et al., 2004). In the absence of an effective housing policy or enabling environment in the formal sector, the demand for housing by this increasing population could only be satisfied by informal settlements.

2.4 Cost of Construction and its effect in determining Rent Rates

The housing sector is one of the backbone sectors in the construction industry and determines the success and failure of this industry and plays a major role in the economy of many developed countries. Fluctuation and growth of construction activity are matters of concern in construction industries of many countries in the developing as well as in the developed world. The perceived inefficiencies emanate from among other things, increasing construction costs, conflicts and client dissatisfaction, the fragmented nature of the industry, low competition, cost overruns and delays (Lind, 2003).

Heavy land-use regulations in some US metropolitan areas have been associated with considerably lower levels of new housing construction due to high costs of construction which have restricted housing supply and thus increased house prices in the regulated municipalities as
well as in neighboring towns. Swedish housing construction costs have risen more than the rate of inflation during the last decade. Increasing construction costs affect households’ welfare in terms of housing affordability, weaken the relationship between developers and contractors, and destabilize the housing markets as well as the whole economy. Metropolitan regions of the country experienced higher construction cost increases while small regions showed less costs increases during economic booms. The effect of the construction costs escalation was not evenly felt in all regions and there was also an imbalance of housing stocks in various regions (Atterhög and Lind, 2004). The supply of new residential apartments stagnated at the same time as the construction costs were high particularly in the metropolitan regions where the housing demands were stronger (Mayer and Somervile, 2000).

While there is no notable disagreement about the consequences of high construction costs, much of the difference of opinions arises from the question of the real causes of higher construction costs (Saukkoriipi and Josephson, 2003). European Commission report (2003) emphasizes the consequences of this high construction cost on certain cities of Sweden by referring to the latest housing market survey of the Swedish Department of Housing that states that Sweden’s commercial centers suffer from an acute shortage of housing, and lack of student accommodation at university sites. One reason given for the low level of construction in Sweden was that the present production cost makes it almost impossible to build rental housing and make a profit and the few that are constructed have high rent rates. Interviews with municipalities (Boverket, 2003) indicate that many of them (over 80%) believe that higher production cost is one of the major obstacles in housing construction.

Blackley and Follain’s (2008) found out that housing prices were driven primarily by the cost of land and construction inputs and that causes of construction cost escalations can be numerous and any effort to ascertain them in order to explain regional disparities requires that all the major construction cost components affected by the increase must first be recognized. There is a large volume of literature dealing with the problems of high construction cost but only few studies tackle this issue within the context of changing economic conditions and the governance structure of construction firms. The type of relationship between developers and contractors, the firm structure such as developer-contractor or independent developer/contractor, and the level of
foreign supplier competition found in these various regions might, among others, explain the disparity in construction costs increase observed in these regions.

2.5 Supply of Housing and its effect in determining Rent Rates

House prices can also be affected by other features that are particular to the housing market. Of note are restrictions on the availability of land for residential housing development that can constrain the responsiveness of supply. These would include tough zoning rules, cumbersome building regulations, slow administrative procedures, all of which would restrict the amount of developable land. However, while the price of housing may be affected, measures like the price-to-rent ratio would not necessarily be, since such factors would presumably raise both prices and rents. In the United Kingdom, complex and inefficient local zoning regulations and a slow authorization process are among the reasons for the rigidity of housing supply, underlying both the trend rise of house prices and their high variability Barker (2004).

In Ireland and the Netherlands OECD (2006), similar factors affect house price dynamics. In Korea, government limitations on urban land supply (Restricted Development Zone) have been important causes of the rapid rise in housing prices (Gallent and Kim, 2001) and Hannah et al. (2010). According to Glaeser and Gyourko (2003), several studies of US regional housing markets have found that the low supply elasticity of housing units is an important factor behind the recent larger price increases in some urban markets. In particular, house prices are much higher than construction costs throughout parts of the Northeast and the West coast. Demographic developments, over and above their influence through real disposable incomes can also raise housing demand, thereby increasing price levels (Cerny et al. 2005). In particular, high rates of net migration, declines in the average size of households and increases in population shares of cohorts of individuals in their thirties will boost housing demand by increasing the share of the population of household formation.

There is a high and increasing demand for housing in the metropolitan areas, but the supply of apartments is growing very slowly (Turner, 2001). However, it could be argued that the supply of new homes could have a stronger effect on house prices. To use an analogy with labour market search theory, existing homes for sale are analogous to workers engaging in on the job search while new homes for sale are analogous to the unemployed.
A pool of unemployed workers may be more likely to accept jobs offering lower wages compared to workers engaged in on-the-job search. Similarly, those who have an empty or soon-to-be-completed new home available for sale may be more flexible in adjusting prices downward than those who are living in existing homes. House prices increase more where housing supply is slow to respond to demand and that housing supply may be constrained by both policy and non-policy factors (Gallent and Kim, 2001). Geographical and demographic conditions such as physical limitations on land for development and the degree of urbanization can restrict housing supply in certain areas. Indeed housing supply responsiveness tends to decrease as population density increases. Presently in the developed countries the policy of the government is from quantity to quality but in developing countries, meeting the demand of housing is still a challenge for the government as well as for the private sector. Sometimes the private rental sector is regarded as a sector where dwellings are distributed through the market. Access is allocated by ability to pay and rent level is determined by supply and demand. Rental housing is a very common phenomenon in most of the countries of the world, be it developed or in developing countries. In most of the developing countries the rental housing stock has increased over the past decades, but rental supply has not been able to keep pace with the demand.

2.6 Structural Characteristics of Houses and their effects in determining Rent Rates

The supply of informal rental housing built without following planning procedures or local authority by-laws is growing much faster than formal housing. House-building in the slums and squatter areas by either landlords or squatter families take place continuously. In the informal sector, house construction is done without regard to planning rules or construction standards. Growth appears to be fastest for site and service housing where construction of rental units frequently exceeds what is stipulated in purchase agreements. For example, in Mathare North and Kayole in Nairobi which are World Bank site and service schemes, construction of additional rooms have greatly exceeded the maximum two storey’s provided for in the purchase agreements. Some houses are now six, seven, eight and even ten storeys high. The urban housing survey of 1983, classified 41.5 per cent of all dwelling housing units in Kenya as semi-permanent or temporary structures (Kiamba, 2007).

Tenancy in these houses is as informal as the structures. Information on private rental housing is not easily available and information on the formal sector is also scanty as most developers do not
submit their plans for approval even in affluent Karen and Langata, in Nairobi, site plan approval and building plan approval were sought by only 41.7 per cent (Karen) and 50 per cent (Langata) of property owners (Mwangi, 2010). Old apartment buildings in general tend to come with lower monthly rents.

2.7 Location of Apartments and its effect in determining Rent Rates

Large cities are often associated with higher living expenses for workers and thus commensurate with higher wages. Shortage of easily constructible land, constrained construction-site accessibility that could increase material delivery costs as well as demand for on-site specific construction equipments and techniques due to close proximity of other buildings may also raise the level of building cost in many major cities. Thus, it is reasonable to assume that, in normal circumstances, large cities will experience higher construction costs as compared to small or medium sized cities which in turn results to higher rent rates. The amount of rent paid by tenants in small towns varies from one town to another and even within a town. In Mumias in Western Kenya, levels of rent are determined by the size of the house which determines the number of rooms available for rent, and the type of building materials used where the main consideration is whether the materials are permanent or semi-permanent. Levels of rent are also determined by the site and location characteristics of the property and the cleanliness of the neighborhood (Kipera, 2008). In small towns, tenancy arrangements are less complex and rents are generally lower.

New urbanism is a community design philosophy that favors the return to new home development mixed with multi-use buildings and housing clustered near commercial service areas. New urbanists claim substantial advantages for this approach to development, including lower over-all public infrastructure costs, and decreased automobile dependency. There are those who argue that mixed development - commercial and residential together - may actually enhance residential property values by reducing the inconvenience of routine trips and reducing trip cost. In fact, the notion of residential rent gradients decreasing as distance from the CBD increases, found in basic urban economic theory (Muth, 2009), flows from the this idea of convenience. The buffers, walls, and set-backs are required to protect the abutting homes from lights and noise pollution assumed to be generated by non-residential uses and further assumed to reduce the desirability of nearby homes.
Location has a universal role in determining property values in America’s cities and towns. Literature on urban economics dating back to Ricardo (1818) and Von Thunen (1826) is based on the fundamental idea that rents and property values of all property types have location components. The most basic and important aspect of location in a metropolitan area is distance from the central business district (CBD), as explained by Alonso (2009). Models of land and property gradients by Muth (2009) followed the basic notion of a monocentric city, and assumed the destination point for suburban residents was the CBD and that transportation costs were the same for suburban residents. Housing is primarily located in relation to employment and commuting distance. The standard explanation in urban economics is that intra-urban activities dominate the urban core because these land uses provide more in the way of rents than residences. Residential land use requires more space and people are willing to pay more in commuting costs for that space than for other uses. In addition to the primary rent/price gradient from the CBD, housing values have shown to be affected by proximity to thoroughfares that provide direct access to the CBD. Main routes into the CBD provide accessibility-related increasing rent/price gradients.
2.8 Conceptual Framework

The conceptual framework includes the independent variables (Cost of construction, Increase in population, location of apartments/ proximity to the city, structural characteristics of houses and supply of housing. Moderating variables (government policies and regulations, taxation policy). Dependent variable (rent rates). Intervening variables (public demand and age of apartment).

**Independent variables**

- **Increase in population**
  - Population growth
  - Urbanization/immigration

- **Location of apartments and their proximity to city**
  - Distance from the CBD
  - Distance from the main road
  - Shortage of easily constructible land

- **Cost of construction**
  - Cost of land
  - Cost of construction inputs
  - Cost of specialized and casual labour
  - Heavy land-use regulations

- **Structural characteristics of houses**
  - Size of the house/ number of rooms
  - Technical condition of the house
  - Space in the rooms
  - Facilities and appearance of the house
  - Type and quality of building materials

- **Supply of Housing**
  - Land scarcity and restrictiveness of zoning laws
  - Number of units built
  - Pace of urban housing
  - Zoning rules and regulations

**Moderating variables**

- Government policies and regulations
- Taxation Policy

**Dependent variables**

- **Rent rates**
  - Monthly pay
  - Change in house rent over time

- **Public demand**
- **Age of apartment**

**Intervening variables**

**Figure 1: Conceptual Framework**
2.9 Knowledge Gap

Although literature has been reviewed on determinants of rent rates showing how its various factors affect rent rates, most of these studies have been done in other countries whose strategic approach and financial footing is different from that of Kenya. None of them therefore focused on how these apply in the Kenyan case. It is evident therefore that a literature gap exists on the relationship between the various determinants and the rent rates paid. This study therefore seeks to fill this gap by focusing on the determinants of rent rates in Kenya with special focus on Kasarani Division in Nairobi County.

<table>
<thead>
<tr>
<th>Authors</th>
<th>Topic</th>
<th>Findings</th>
<th>Gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mengjie, L., Reed, R.G. and Wu, H.</td>
<td>Challenges facing housing affordability in Beijing in the 21st century</td>
<td>Demographic characteristics such as projections for population growth, fertility rates, household formation rates and household income affect the affordability of housing</td>
<td>This study only looked at demographic characteristics effect on cost of housing. The study was conducted in Beijing where there is a higher population than in Nairobi.</td>
</tr>
<tr>
<td>Mwangi, G. G.</td>
<td>Behavioural factors influencing investment decisions in the Kenyan property market.</td>
<td>Old apartment buildings in general tend to come with lower monthly rents</td>
<td>The study did not look at the factors influencing rent rates.</td>
</tr>
<tr>
<td>Shen, Y. and Liu, H.</td>
<td>Housing Prices and Economic Fundamentals: A</td>
<td>Housing markets are not efficient</td>
<td>This study was conducted in China whose housing</td>
</tr>
<tr>
<td>Cross City Analysis of China for 1995—2002</td>
<td>situation and characteristics are different from that of Kenya.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muth, R.</td>
<td>Cities and Housing</td>
<td>Residential rent gradients decreasing as distance from the CBD increases</td>
<td>This study delve on the distance from CBD and location and ignore other factors that influence rent rates.</td>
</tr>
</tbody>
</table>

**2.10 Summary of the Chapter**

This study was grounded on the model of net flows of construction and the multi-indicator model. The rapid rise of urbanization in most parts of Africa has presented the continent with a number of challenges and stripped its cities of their ability to provide for basic needs like shelter, infrastructure, education and health care. In particular, high rates of net migration, declines in the average size of households and increases in population shares of cohorts of individuals in their thirties will boost housing demand by increasing the share of the population of household formation.

The housing sector is one of the backbone sectors in the construction industry and determines the success and failure of this industry and plays a major role in the economy of many developed countries. Fluctuation and growth of construction activity are matters of concern in construction industries of many countries in the developing as well as in the developed world. The effect of the construction costs escalation was not evenly felt in all regions and there was also an imbalance of housing stocks in various regions. Housing prices were driven primarily by the cost of land and construction inputs and that causes of construction cost escalations can be numerous and any effort to ascertain them in order to explain regional disparities requires that all the major construction cost components affected by the increase must first be recognized.
House prices can also be affected by other features that are particular to the housing market. Noteworthy are the restrictions on the availability of land for residential housing development that can constrain the responsiveness of supply. High rates of net migration, declines in the average size of households and increases in population shares of cohorts of individuals in their thirties will boost housing demand by increasing the share of the population of household formation.

In the informal sector, house construction is done without regard to planning rules or construction standards. Growth appears to be fastest for site and service housing where construction of rental units frequently exceeds what is stipulated in purchase agreements. Shortage of easily constructible land, constrained construction-site accessibility that could increase material delivery costs as well as demand for on-site specific construction equipments and techniques due to close proximity of other buildings may also raise the level of building cost in many major cities. There are those who argue that mixed development - commercial and residential together - may actually enhance residential property values by reducing the inconvenience of routine trips and reducing trip cost. Residential land use requires more space and people are willing to pay more in commuting costs for that space than for other uses.
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter gives various stages that were followed in the study. This chapter covers research design, target population, data collection instruments, data collection procedures and finally data analysis.

3.2 Research Design

Cooper and Schindler (2003) summarizes the essentials of research design as an activity and time based plan; always based on the research question; guides the selection of sources and types of information; a framework for specifying the relationship among the study variables and outlines the procedures for every research activity. The design of this research was a descriptive survey research. This design refers to a set of methods and procedures that describe variables. It involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data. Descriptive studies portray the variables by answering who, what, and how questions (Babbie, 2002). This approach has been credited due to the fact that it allows analysis the relations of variables under study using linear regression as long as the sampling units for the study are many. It also allows greater flexibility in terms of money and time as well as avoiding the hardship of hunting for respondents more than once to produce high response rate. This method was suitable for the study because the study involved coming up with questions that are as precise as possible in getting accurate answers as (Kothari, 2004) advices.

3.3 Target Population

Mugenda and Mugenda (2003) described population as, the entire group of individuals or items under consideration in any field of inquiry and have a common attribute. The population for this study was composed of 1500 landlords, 6 representatives in the ministry of land and planning and 165 property managers as per data from department of housing, Nairobi County) (2010)
3.4 Sample Size and Sampling Procedure

3.4.1 Sample Size

According to Mugenda and Mugenda (1999), from normal distribution the population proportion can be estimated to be

\[ n = \frac{Z^2 P Q}{\alpha^2} \]

Where: \( Z \) is the \( Z \) – value = 1.96

\( P \) Population proportion 0.50

\( Q = 1-P \)

\( \alpha = \) level of significance = 5%

\[ n=\frac{1.96^2 \times 0.5 \times 0.5}{0.5^2} \]

\[ n= 384 \]

Adjusted sample size

\[ n'=\frac{384}{1+ (384/1500)} \]

Approx. = 312 respondents

Table 3. 1: Sampling Frame

<table>
<thead>
<tr>
<th>Population</th>
<th>Ratio</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landlords</td>
<td>1500</td>
<td>0.187</td>
</tr>
<tr>
<td>Property managers</td>
<td>165</td>
<td>0.187</td>
</tr>
<tr>
<td>Representatives in the ministry of land and planning</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>1671</td>
<td></td>
</tr>
</tbody>
</table>
3.4.2 Sampling Procedure

Ngechu (2004) underscores the importance of selecting a representative sample through making a sampling frame. From the population frame the required number of subjects, respondents, elements or firms will be selected in order to make a sample. Simple random sampling technique was used to select the sample. According to Cooper and Schindler (2003), simple random sampling frequently minimizes the sampling error in the population. This in turn increases the precision of any estimation methods used. The study also employed census approach for representatives in the ministry of land and planning and landlords in order to obtain a representative sample from the population.

3.5 Research Instruments

The study used a semi structured self-administered questionnaire to collect data from the landlords and property managers. Mugenda and Mugenda (2003) observed that, the pre-requisite to questionnaire design is definition of the problem and the specific study objectives. Questionnaires items were closed ended or open ended type. As regards to the former, the questions allowed specific types of responses while with respect to the open ended type, the respondents stated responses as they wished. Kothari (2004) observed that questionnaires are very economical in terms of time, energy and finances. Similarly, it yields, quantitative data which are easy to collect and analyze. The study also used interview guide to obtain answers from representatives in the ministry of land and planning.

3.5.1 Validity of Instruments

Validity is the degree to which results obtained from the analysis of the data actually represents the phenomenon under study. Validity was ensured by having objective questions included in the questionnaire and by pre-testing the instrument to be used to identify and change any ambiguous, awkward, or offensive questions and technique as emphasized by Cooper and Schindler (2003). Expert opinion was requested to comment on the representativeness and suitability of questions and gave suggestions of corrections that were made to the structure of the research tools. This helped to improve the content validity of the data that was collected.
3.5.2 Reliability of Instruments

Reliability on the other hand refers to a measure of the degree to which research instruments yield consistent results (Mugenda & Mugenda, 2003). The pre-testing was aimed at determining the reliability of the research tools including the wording, structure and sequence of the questions. The research instruments were subjected to overall reliability analysis using the split half method. This was done by collecting data from a given number of respondents into two halves (often odd-even). The two halves are correlated using Pearson's correlation. A coefficient of 0.7 or more implies that there is a high degree of data reliability (Trochim, 2005). The purpose was to refine the research tools so that respondents in the major study had no problem in answering the questions and examining whether the same response was obtained. The study obtained a coefficient of 0.832, which was considered adequate for this study.

3.6 Data Collection Procedure

Data collection is a very important and time involving activity. In this regard, the questionnaires were delivered to the respondents by researcher and were collected by research assistant. The method of hand delivery and collection on the following day was used. Face to face interviewing was adopted by the researcher to obtain answers from representatives in the ministry of land and planning. According to Mugenda and Mugenda (1999), a guided interview can be used to interview the respondents.

3.7 Data Analysis

The collected data was analyzed using both quantitative and qualitative data analysis methods. Quantitative method involved descriptive analysis. Descriptive analyses such as frequencies, percentages were used to present quantitative data in form of tables and graphs. Data from questionnaire was coded and logged in the computer using Statistical Package for Social Science (SPSS V 21.0). This involved coding both open and closed ended items in order to run simple descriptive analyses to get reports on data status. Descriptive statistics involved the use of absolute and relative (percentages) frequencies, measures of central tendency and dispersion (mean and standard deviation respectively). Frequency tables were used to present the data for easy comparison. Content analysis was used for the qualitative data and then presented in prose.
The study also conducted a Pearson’s correlation and regression analysis to establish the relationship between the variables.

3.8 Ethical Considerations

According to Kerridge, Lowe and McPhee (2005), ethics involves making a judgment about right and wrong behavior. Ethics as noted by Minja (2009) is referred to, as norms governing human conduct which have a significant impact on human welfare. Indeed as observed by Devettere (2000), ethics is about choice between good and bad. In this study, confidentiality was of concern as the information relevant to the study was of strategic importance. In this regard, the names of the respondents were not disclosed. In addition, where a response was attributed to specific individuals the said information was maintained in strict confidence.
### 3.9 Operational Definition of Variables

The operational definition of variables is shown in Table 3.2.

#### Table 3.2: Operational definition of variables

<table>
<thead>
<tr>
<th>Objective</th>
<th>Variable</th>
<th>Indicators</th>
<th>Measurement scale</th>
<th>Tools of analysis</th>
<th>Type of data analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>To establish the influence of population increase on rent rates in Kasarani Division, Nairobi County</td>
<td><strong>Independent:</strong> Increase in population</td>
<td>Population growth, Urbanization/immigration</td>
<td>Nominal, Ordinal</td>
<td>Mean, Percentage</td>
<td>Descriptive, Correlation</td>
</tr>
<tr>
<td>To determine how location of apartments and their proximity to the city influence rent rates in Kasarani Division, Nairobi County</td>
<td>Location of apartments/ proximity to the city</td>
<td>Distance from the CBD, Distance from the main road, Shortage of easily constructible land, Construction-site accessibility</td>
<td>Interval, Ratio, Nominal</td>
<td>Mean, Percentage</td>
<td>Descriptive, Correlation</td>
</tr>
<tr>
<td>To establish the influence of cost of construction on rent rates in Kasarani Division, Nairobi County</td>
<td>Cost of construction</td>
<td>Cost of land, Cost of construction inputs, Cost of specialized and casual labour, Heavy land-use regulations</td>
<td>Nominal, Nominal, Nominal, Ordinal</td>
<td>Mean, Percentage</td>
<td>Descriptive, Correlation</td>
</tr>
<tr>
<td>To assess the influence of structural characteristics of houses on rent rates in Kasarani Division, Nairobi County</td>
<td>Structural characteristics of houses</td>
<td>Size of the house/ number of rooms, Technical condition of the house, Space in the rooms, Facilities and appearance of the house, Type and quality of building materials used</td>
<td>Interval, Ordinal, Ordinal, Ordinal</td>
<td>Mean, Percentage</td>
<td>Descriptive, Correlation</td>
</tr>
<tr>
<td>To find out how supply of housing influence rent rates in Kasarani Division, Nairobi County</td>
<td>Supply of Housing</td>
<td>Land scarcity and restrictiveness of zoning laws, Number of units built, Pace of urban housing, Zoning rules and regulations</td>
<td>Ordinal, Interval, Ratio, Ordinal</td>
<td>Mean, Percentage</td>
<td>Descriptive, Correlation</td>
</tr>
</tbody>
</table>
CHAPTER FOUR
DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction
This chapter discusses the interpretation and presentation of the findings. This chapter presents analysis of the data on the determinants of rent rates in Kenya the case of Kasarani division in Nairobi County. The chapter also provides the major findings and results of the study.

4.2 Response Rate
The study selected a sample size of 318 respondents from which 273 filled in and returned the questionnaires making a response rate of 85.8%. This response rate was good and representative and conforms to Mugenda and Mugenda (1999) stipulation that a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent.

4.3 Demographic Characteristics
The study sought to establish the background information of the respondents and the companies including gender, age bracket, level of education and area of work.

4.3.1 Gender of the Respondents
The study sought to establish the gender of the respondents. The findings are as indicated in Table 4.1.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>154</td>
<td>56.4</td>
</tr>
<tr>
<td>Female</td>
<td>119</td>
<td>43.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>273</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

According to the findings in Table 4.1, majority of the respondents (56.4%) were male while 43.6% were female. This was attributable to the majority of the respondents who dominate the property industry as landlords and property managers in Kasarani Division, Nairobi County.
4.3.2 Distribution of the Respondents by Age

The study also sought to establish the age bracket of the respondents. The findings are as shown in Table 4.2.

Table 4.2: Age Distribution of the Respondents

<table>
<thead>
<tr>
<th>Age Bracket</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-30 years</td>
<td>23</td>
<td>8.4</td>
</tr>
<tr>
<td>31-40 years</td>
<td>89</td>
<td>32.6</td>
</tr>
<tr>
<td>41-50 years</td>
<td>115</td>
<td>42.1</td>
</tr>
<tr>
<td>Above 50 years</td>
<td>46</td>
<td>16.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>273</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

From the findings in Table 4.2, 42.1% of the respondents were aged 41-50 years as this are the established landlords and property managers, 32.6% were aged 31-40 years majority representing new property managers and landlords, 16.8% were aged above 50 years, and 8.4% were aged 21-30 years representing new firms of property managers.

4.3.3 Distribution of the Respondents by Level of Education

The study also sought to establish the respondents’ highest level of education. The findings are as expressed in Table 4.3.

Table 4.3: Respondents’ highest level of education

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postgraduate</td>
<td>27</td>
<td>9.9</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>59</td>
<td>21.6</td>
</tr>
<tr>
<td>Diploma</td>
<td>142</td>
<td>52.0</td>
</tr>
<tr>
<td>Secondary</td>
<td>45</td>
<td>16.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>273</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
According to the findings in table 4.3, the majority of the respondents (52.0%) had a diploma, 21.6% had an undergraduate degree, and 16.5% had secondary level of education while 9.9% of the respondents had a postgraduate level of education.

4.3.4 Area of Work of the respondents

The study also sought to establish the years of service/working period in the housing Industry

Table 4.4: Area of work

<table>
<thead>
<tr>
<th>Area of Work</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landlord</td>
<td>245</td>
<td>89.7</td>
</tr>
<tr>
<td>Property Manager</td>
<td>23</td>
<td>8.4</td>
</tr>
<tr>
<td>Representative in the ministry of land and planning</td>
<td>5</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td>273</td>
<td>100.0</td>
</tr>
</tbody>
</table>

On the area of work, Table 4.4 shows that 89.7% of the respondents were landlords, 8.4% property managers while 1.8% were representative in the ministry of land and planning.

4.4 Determinant of Rent Rates in Kenya

This section presents findings on the various determinants of rent rates in Kasarani Division, Nairobi County, Kenya. It specifically focuses on how population increase, location of apartments and their proximity to the city, cost of construction, structural characteristics of houses and supply of housing influences rent rates.

4.3.1 Cost of Construction

The study sought to find out the influence of cost of construction on rent rates in Kasarani Division, Nairobi County. The findings are as shown in Table 4.5.
Table 4.5: Extent to which the cost of construction influence rent rates

<table>
<thead>
<tr>
<th>Extent to which the cost of construction influence rent rates</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate extent</td>
<td>87</td>
<td>31.9</td>
</tr>
<tr>
<td>Great extent</td>
<td>135</td>
<td>49.5</td>
</tr>
<tr>
<td>Very great extent</td>
<td>51</td>
<td>18.7</td>
</tr>
<tr>
<td>Total</td>
<td>273</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Regarding the extent that cost of construction influence rent rates, Table 4.5 show that majority of the respondents (49.5%) indicated that cost of construction influence rent rates great extent, 31.9% said to a moderate extent while 18.7% of the respondents felt that cost of construction influence rent rates to a very great extent. This is undoubtedly a prerequisite for rent rates.

The study inquired the level of agreement with various statements on cost of construction. The findings are as shown in Table 4.6.

Table 4.6: Level of agreement with various statements on cost of construction

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of land raises the cost of construction</td>
<td>4.437</td>
<td>0.659</td>
</tr>
<tr>
<td>Cost of the construction inputs raises cost of construction</td>
<td>4.060</td>
<td>1.173</td>
</tr>
<tr>
<td>Housing affordability relates to the wider costs imposed on the community</td>
<td>3.955</td>
<td>0.893</td>
</tr>
<tr>
<td>due to overcrowding and poor housing conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of specialized and casual labour raises the cost of construction</td>
<td>3.910</td>
<td>1.011</td>
</tr>
<tr>
<td>High building costs in areas where land is more affordable but geological</td>
<td>3.746</td>
<td>0.893</td>
</tr>
<tr>
<td>and topographical conditions are not ideal limit housing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance costs and the jobless rate causes many people to live in rented</td>
<td>3.598</td>
<td>0.892</td>
</tr>
<tr>
<td>houses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy land-use regulations cause lower levels of new housing construction</td>
<td>3.451</td>
<td>0.891</td>
</tr>
<tr>
<td>due to high costs of construction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low-income households living in apartments prefer renting to buying their</td>
<td>3.303</td>
<td>0.715</td>
</tr>
<tr>
<td>own house</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
On the level of agreement with various statements on cost of construction, Table 4.6 show that the respondents agreed to a great extent that cost of land raises the cost of construction as indicated by a mean score of 4.437, cost of the construction inputs raises cost of construction as shown by a mean score of 4.060, housing affordability relates to the wider costs imposed on the community due to overcrowding and poor housing conditions as indicated by a mean score of 3.955, cost of specialized and casual labour raises the cost of construction as shown by a mean score of 3.910, high building costs in areas where land is more affordable but geological and topographical conditions are not ideal limit housing and finance costs and the jobless rate causes many people to live in rented houses as indicated by a mean score of 3.746 and 3.598 respectively.

The respondents also indicated that to a moderate extent heavy land-use regulations cause lower levels of new housing construction due to high costs of construction as shown by a mean score of 3.451 and low-income households living in apartments prefer renting to buying their own house as indicated by a mean score of 3.303.

These findings are in line with Blackley and Follain’s (2008) who found out that housing prices were driven primarily by the cost of land and construction inputs and that causes of construction cost escalations can be numerous and any effort to ascertain them in order to explain regional disparities requires that all the major construction cost components affected by the increase must first be recognized. Atterhög and Lind (2004) argue that increasing construction costs affect households’ welfare in terms of housing affordability, weaken the relationship between developers and contractors, and destabilize the housing markets as well as the whole economy.

**4.3.2 Supply of Housing**

The study further sought to find out the influence of the supply of housing influence on rent rates in Kasarani Division, Nairobi County. The findings are as shown in Table 4.7.
Table 4.7: Extent to which the supply of housing influence rent rates

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate extent</td>
<td>63</td>
<td>23.1</td>
</tr>
<tr>
<td>Great extent</td>
<td>176</td>
<td>64.5</td>
</tr>
<tr>
<td>Very great extent</td>
<td>34</td>
<td>12.5</td>
</tr>
<tr>
<td>Total</td>
<td>273</td>
<td>100.0</td>
</tr>
</tbody>
</table>

From the study findings portrayed in Table 4.8, most of the respondents (64.5%) indicated that supply of housing influence rent rates to a great extent, 23.1% said to a moderate extent while 12.5% of the respondents were of the view that supply of housing influence rent rates to a very great extent.

The researcher also wanted to establish the level of agreement with various statements on supply of housing. The findings are as shown in Table 4.8.

Table 4.8: Level of agreement with various statements on supply of housing

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land scarcity and restrictiveness of zoning laws influence rent rates</td>
<td>4.227</td>
<td>0.671</td>
</tr>
<tr>
<td>The decline in the number of units built annually translate to higher rent rates</td>
<td>4.072</td>
<td>1.185</td>
</tr>
<tr>
<td>Government has limitations on urban land supply</td>
<td>3.967</td>
<td>0.905</td>
</tr>
<tr>
<td>Building of housing has not kept pace with urban population growth</td>
<td>3.922</td>
<td>1.023</td>
</tr>
<tr>
<td>Cumbersome building regulations affect supply of housing</td>
<td>3.627</td>
<td>0.903</td>
</tr>
<tr>
<td>Slow administrative procedures affect the amount of developable land</td>
<td>3.610</td>
<td>0.904</td>
</tr>
<tr>
<td>Tough zoning rules affect supply of housing</td>
<td>3.515</td>
<td>0.727</td>
</tr>
</tbody>
</table>
According to the findings in Table 4.8, the respondents indicated that to a great extent land scarcity and restrictiveness of zoning laws influence rent rates as shown by a mean score of 4.227, the decline in the number of units built annually translate to higher rent rates as indicated by a mean score of 4.072, government has limitations on urban land supply as shown by a mean score of 3.967, building of housing has not kept pace with urban population growth as expressed by a mean score of 3.922, cumbersome building regulations affect supply of housing as shown by a mean score of 3.627, slow administrative procedures affect the amount of developable land as indicated by a mean score of 3.610 and tough zoning rules affect supply of housing as shown by a mean score of 3.515.

These findings correlate with Barker (2004) who states that house prices can also be affected by other features that are particular to the housing market. Of note are restrictions on the availability of land for residential housing development that can constrain the responsiveness of supply. These would include tough zoning rules, cumbersome building regulations, slow administrative procedures, all of which would restrict the amount of developable land. However, while the price of housing may be affected, measures like the price-to-rent ratio would not necessarily be, since such factors would presumably raise both prices and rents. He goes ahead to indicate that in the United Kingdom, complex and inefficient local zoning regulations and a slow authorization process are among the reasons for the rigidity of housing supply, underlying both the trend rise of house prices and their high variability. In Ireland and the Netherlands OECD (2006), similar factors affect house price dynamics. In Korea, government limitations on urban land supply (Restricted Development Zone) have been important causes of the rapid rise in housing prices (Gallent and Kim, 2001).

4.3.3 Location of Apartments and their proximity to the City

The study further sought to establish how location of apartments and their proximity to the city influence rent rates in Kasarani Division, Nairobi County. The findings are as indicated in Table 4.9.
Table 4.9: Extent to which the location of apartments and their proximity to the city influence rent rates

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate extent</td>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td>Great extent</td>
<td>78</td>
<td>28.4</td>
</tr>
<tr>
<td>Very great extent</td>
<td>191</td>
<td>70.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>273</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

From the findings as shown by Table 4.9, 70.1% of the respondents indicated that location of apartments and their proximity to the city influence rent rates to a very great extent, 28.4% said to a great extent while 1.5% said location of apartments and their proximity to the city influence rent rates to a moderate extent.

The study sought to establish the level of agreement with the following statements on the location of apartments and their proximity. The findings are as shown in Table 4.10.

Table 4.10: Level of agreement with the following statements on the location of apartments and their proximity

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential rent gradients decreases as distance from the CBD increases</td>
<td>4.239</td>
<td>0.683</td>
</tr>
<tr>
<td>Distance from the main road decreases the rent rate</td>
<td>4.084</td>
<td>1.197</td>
</tr>
<tr>
<td>Proximity to other residential buildings affect the rent rates</td>
<td>3.979</td>
<td>0.917</td>
</tr>
<tr>
<td>Site and location characteristics of the property and the cleanliness of the neighborhood influences the rent rate</td>
<td>3.934</td>
<td>1.035</td>
</tr>
<tr>
<td>Shortage of easily constructible land raise the level of building cost and therefore increase in rent</td>
<td>3.639</td>
<td>0.915</td>
</tr>
<tr>
<td>Construction-site accessibility affect the rent rates</td>
<td>3.622</td>
<td>0.916</td>
</tr>
<tr>
<td>Large cities experience higher construction costs as compared to small or medium sized cities which in turn results to higher rent rates</td>
<td>3.527</td>
<td>0.739</td>
</tr>
</tbody>
</table>

The study as portrayed in Table 4.10, found that the respondents agreed to a great extent that residential rent gradients decreases as distance from the CBD increases as expressed by a mean score of 4.239, distance from the main road decreases the rent rate as shown by a mean score of
4.084, proximity to other residential buildings affect the rent rates as expressed by a mean score of 3.979, site and location characteristics of the property and the cleanliness of the neighborhood influences the rent rate as indicated by a mean score of 3.934, shortage of easily constructible land raise the level of building cost and therefore increase in rent as expressed by a mean score of 3.639, construction-site accessibility affect the rent rates as indicated by a mean score of 3.622 and large cities experience higher construction costs as compared to small or medium sized cities which in turn results to higher rent rates as expressed by a mean score of 3.527.

The findings are in line with Muth (2009) who argues that the notion of residential rent gradients decreasing as distance from the CBD increases, found in basic urban economic theory, flows from the this idea of convenience. Kipera (2008) states that shortage of easily constructible land, constrained construction-site accessibility that could increase material delivery costs as well as demand for on-site specific construction equipments and techniques due to close proximity of other buildings may also raise the level of building cost in many major cities. Thus, it is reasonable to assume that, in normal circumstances, large cities will experience higher construction costs as compared to small or medium sized cities which in turn results to higher rent rates. The amount of rent paid by tenants in small towns varies from one town to another and even within a town.

4.3.3 Structural Characteristics of Houses

The study sought to assess the influence of structural characteristics of houses on rent rates in Kasarani Division, Nairobi County. The findings are as presented in Table 4.11.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate extent</td>
<td>29</td>
</tr>
<tr>
<td>Great extent</td>
<td>65</td>
</tr>
<tr>
<td>Very great extent</td>
<td>179</td>
</tr>
<tr>
<td>Total</td>
<td>273</td>
</tr>
</tbody>
</table>
As shown in Table 4.11, majority of the respondents (65.6%) indicated that structural characteristics of houses influence rent rates to a very great extent, 23.8% said it influences to a great extent, while 10.6% of the respondent indicated that structural characteristics of houses influence rent rates to a moderate extent.

The study also sought to find out the level of agreement with the following statements on the structural characteristics of houses. The findings are as presented in Table 4.12.

Table 4.12: Level of agreement with various statements on the structural characteristics of houses

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of the house determines the number of rooms available for rent and therefore the rent</td>
<td>4.251</td>
<td>0.695</td>
</tr>
<tr>
<td>The type and quality of building materials used determines the house rent</td>
<td>4.096</td>
<td>1.209</td>
</tr>
<tr>
<td>The technical condition of a house influence its rent rate</td>
<td>3.946</td>
<td>1.047</td>
</tr>
<tr>
<td>The facilities in the dwelling itself and the dwelling’s appearance influence the rent rate</td>
<td>3.651</td>
<td>0.927</td>
</tr>
<tr>
<td>Size of the rooms in a house influence its rent rate</td>
<td>3.539</td>
<td>0.751</td>
</tr>
</tbody>
</table>

On the level of agreement with various statements on the structural characteristics of houses, Table 4.12 show that the respondents said that to a great extent size of the house determines the number of rooms available for rent and therefore the rent as shown by a mean score of 4.251, the type and quality of building materials used determines the house rent as indicated by a mean score of 4.096, the technical condition of a house influence its rent rate as shown by a mean score of 3.946, the facilities in the dwelling itself and the dwelling’s appearance influence the rent rate and size of the rooms in a house influence its rent rate as expressed by a mean score of 3.651 and 3.539 respectively. The findings concur with Mwangi (2010) who posits that old apartment buildings in general tend to come with lower monthly rents. It also follows that houses that do not follow the formal structure as those in the slums also have lower rent rates.
4.7 Increase in Population

The study sought to find out the influence of population increase on rent rates in Kasarani Division, Nairobi County. The findings are as indicated in Table 4.13.

Table 4.13: Extent that the increase in population influence rent rates

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate extent</td>
<td>21</td>
<td>7.7</td>
</tr>
<tr>
<td>Great extent</td>
<td>78</td>
<td>28.6</td>
</tr>
<tr>
<td>Very great extent</td>
<td>174</td>
<td>63.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>273</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

From the findings in Table 4.13, majority (63.7%) of the respondents indicated that increase in population influence rent rates to a very great extent, 28.6% to a great extent while 7.7% were of the view that increase in population influence rent rates to a moderate extent.

The study sought to establish the level of agreement with various statements on increase in population. The findings are as indicated in Table 4.14.

Table 4.14: Level of agreement with various statements on increase in population

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population growth leads to rising demand for housing</td>
<td>4.314</td>
<td>0.598</td>
</tr>
<tr>
<td>increasing the rent rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urbanization increases demand for houses leading to higher rent rates</td>
<td>4.213</td>
<td>0.703</td>
</tr>
</tbody>
</table>

On the level of agreement with various statements on increase in population, Table 4.14 show that the respondents indicated that to a great extent population growth leads to rising demand for housing increasing the rent rate and urbanization increases demand for houses leading to higher rent rates as shown by a mean score of 4.314 and 4.213 respectively.

These findings are in line with RoK (2010) which states that the rapid urban growth of the city of Nairobi, particularly in the last three decades, has brought about characteristic settlement
problems resulting to high rent rates and, in some cases, environmental degradation. Tesfaye (2007) indicates that urbanization and demand for houses are positively correlated and thus as the urban society of a city expands so does the needs for more housing. In the case of most developing countries, these needs have largely been unmet (Chirisa, 2008). Consequently, housing shortage in developing countries has escalated to unprecedented rates making the percentage of slum dwellers that reside illegally in a place without authorization and property rights extremely high (UNFPA, 2007).

4.5 Pearson’s Correlation Analysis

The data presented before on cost of construction, supply of housing, location of apartments and their proximity to the city, structural characteristics and increase in population were computed into single variables per variable by obtaining the averages of each variable. Pearson’s correlations analysis was then conducted at 95% confidence interval and 5% confidence level 2-tailed.

Table 4.15: Correlation matrix

<table>
<thead>
<tr>
<th></th>
<th>Rent rates</th>
<th>Cost of construction</th>
<th>Supply of housing</th>
<th>Location of apartments and their proximity to the city</th>
<th>Structural characteristics</th>
<th>Increase in population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent rates</td>
<td>Pearson Correlation</td>
<td>.713</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2tailed)</td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of construction</td>
<td>Pearson Correlation</td>
<td>.702</td>
<td>.674</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2tailed)</td>
<td>.000</td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply of housing</td>
<td>Pearson Correlation</td>
<td>.694</td>
<td>.692</td>
<td>.507</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sig. (2tailed)</td>
<td>.005</td>
<td>.000</td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location of apartments and their proximity to the city</td>
<td>Pearson Correlation</td>
<td>.725</td>
<td>.508</td>
<td>.641</td>
<td>.627</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural characteristics</td>
<td>Pearson Correlation</td>
<td>.731</td>
<td>.686</td>
<td>.515</td>
<td>.593</td>
<td>.709</td>
</tr>
<tr>
<td>Sig. (2tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>
Table 4.15 indicates the correlation matrix between various determinants (cost of construction, supply of housing, location of apartments and their proximity to the city, structural characteristics and increase in population) and rent rates in Kenya. According to the table, there is a positive relationship between cost of construction and rent rates of magnitude 0.713, Supply of housing of magnitude 0.702, location of apartments and their proximity to the city of magnitude 0.694, structural characteristics of magnitude 0.725 and increase in population of magnitude 0.731 respectively. The positive relationship indicates that there is a correlation between the determinants and rent rates. This infers that increase in population have the highest effect on rent rates while supply of housing having the lowest effect on the rent rates. This notwithstanding, all the variables were significant (p values < 0.05).

4.6 Regression Analysis

Table 4.16: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.809</td>
<td>0.655</td>
<td>0.609</td>
<td>0.195</td>
</tr>
</tbody>
</table>

Table 4.16 below is a model fit which establish how fit the model equation fits the data. The adjusted $R^2$ was used to establish the predictive power of the study model and it was found to be 0.609 implying that 60.9% of the variations in rent rates are explained by cost of construction, increase in population, location of apartments and their proximity to the city, structural characteristics of houses and supply of housing leaving 39.1% percent unexplained. Therefore, further studies should be done to establish the other factors (39.1%) affecting Rent rates.

Table 4.17: ANOVA results

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>3.041</td>
<td>5</td>
<td>0.608</td>
<td>14.409</td>
<td>6.356E-08</td>
</tr>
<tr>
<td>1</td>
<td>1.604</td>
<td>267</td>
<td>0.042</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4.645</td>
<td>272</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The probability value of 6.356E-08 indicates that the regression relationship was highly significant in predicting how cost of construction, increase in population, location of apartments and their proximity to the city, structural characteristics of houses and supply of housing affected rent.

Table 4.18: Coefficients of Determination

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.351</td>
<td>0.432</td>
<td>3.127</td>
<td>3.38E-03</td>
</tr>
<tr>
<td>Cost of construction</td>
<td>0.627</td>
<td>0.196</td>
<td>3.684</td>
<td>7.13E-04</td>
</tr>
<tr>
<td>Increase in population</td>
<td>0.613</td>
<td>0.113</td>
<td>5.867</td>
<td>8.66E-07</td>
</tr>
<tr>
<td>Location of apartments and their proximity</td>
<td>0.589</td>
<td>0.148</td>
<td>5.899</td>
<td>7.84E-07</td>
</tr>
<tr>
<td>city</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural characteristics of houses</td>
<td>0.634</td>
<td>0.162</td>
<td>3.154</td>
<td>3.14E-03</td>
</tr>
<tr>
<td>Supply of Housing</td>
<td>0.702</td>
<td>0.185</td>
<td>3.254</td>
<td>2.39E-03</td>
</tr>
</tbody>
</table>

The established model for the study was:

\[ Y = 1.351 + 0.346 X_1 + 0.326 X_2 + 0.245 X_3 + 0.392 X_4 + 0.442 X_5 \]

The regression equation above has established that taking all factors into account (cost of construction, increase in population, location of apartments and their proximity to the city, structural characteristics of houses and supply of housing) constant at zero rent rates will be 1.351. The findings presented also show that taking all other independent variables at zero, a unit increase in the Cost of construction would lead to a 0.346 increase in the scores of rent rates and a unit increase in the scores of increase in population would lead to a 0.326 increase in the scores of rent rates. Further, the findings shows that a unit increases in the scores of Location of apartments and their proximity to the city would lead to a 0.245 increase in the scores of rent rates. The study also found that a unit increase in the scores of structural characteristics of houses
would lead to a 0.392 increase in the scores of rent rates and a unit increase in the scores of supply of Housing would lead to 0.442 increase in the scores of rent rates. Overall, supply of housing had the greatest effect on the rent rates, followed by structural characteristics of houses, then cost of construction and increase in population while location of apartments and their proximity to the city had the least effect to the rent rates. All the variables were significant (p<0.05).
CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction
This chapter presented Summary of key data findings, conclusion drawn from the findings highlighted and recommendation made there-to. The conclusions and recommendations drawn were focused on addressing the objective of the study.

5.2 Summary of Findings
The study sought to assess the Determinants the rent rates in Kasarani Division, Nairobi County.

5.2.1 Cost of Construction
The study deduced that cost of construction influence rent rates great extent. The study also established that cost of land raises the cost of construction as indicated by a mean score of 4.437, cost of the construction inputs raises cost of construction as shown by a mean score of 4.060, housing affordability relates to the wider costs imposed on the community due to overcrowding and poor housing conditions as indicated by a mean score of 3.955, cost of specialized and casual labour raises the cost of construction as shown by a mean score of 3.910, high building costs in areas where land is more affordable but geological and topographical conditions are not ideal limit housing and finance costs and the jobless rate causes many people to live in rented houses as indicated by a mean score of 3.746 and 3.598 respectively.

5.2.2 Supply of Housing
The study further established that supply of housing influence rent rates to a great extent. The study also deduced that land scarcity and restrictiveness of zoning laws influence rent rates as shown by a mean score of 4.227, the decline in the number of units built annually translate to higher rent rates as indicated by a mean score of 4.072, government has limitations on urban land supply as shown by a mean score of 3.967, building of housing has not kept pace with urban population growth as expressed by a mean score of 3.922,cumbersome building regulations affect supply of housing as shown by a mean score of 3.627, slow administrative procedures
affect the amount of developable land as indicated by a mean score of 3.610 and tough zoning rules affect supply of housing as shown by a mean score of 3.515.

5.2.3 Location of Apartments and their proximity to the City
The study established that location of apartments and their proximity to the city influence rent rates to a very great extent. The study also deduced that residential rent gradients decreases as distance from the CBD increases as expressed by a mean score of 4.239, distance from the main road decreases the rent rate as shown by a mean score of 4.084, proximity to other residential buildings affect the rent rates as expressed by a mean score of 3.979, site and location characteristics of the property and the cleanliness of the neighborhood influences the rent rate as indicated by a mean score of 3.934, shortage of easily constructible land raise the level of building cost and therefore increase in rent as expressed by a mean score of 3.639, construction-site accessibility affect the rent rates as indicated by a mean score of 3.622 and large cities experience higher construction costs as compared to small or medium sized cities which in turn results to higher rent rates as expressed by a mean score of 3.527.

5.2.4 Structural Characteristics of Houses
This study also revealed that structural characteristics of houses influence rent rates to a very great extent. The study further established that size of the house determines the number of rooms available for rent and therefore the rent as shown by a mean score of 4.251, the type and quality of building materials used determines the house rent as indicated by a mean score of 4.096, the technical condition of a house influence its rent rate as shown by a mean score of 3.946, the facilities in the dwelling itself and the dwelling’s appearance influence the rent rate and size of the rooms in a house influence its rent rate as expressed by a mean score of 3.651 and 3.539 respectively.

5.2.5 Increase in Population
The study deduced that increase in population influence rent rates to a very great extent. The study also established that population growth leads to rising demand for housing increasing the rent rate and urbanization increases demand for houses leading to higher rent rates as shown by a mean score of 4.314 and 4.213 respectively.
5.3 Conclusion

From the findings the study concludes that cost of construction influence rent rates great extent. This is because cost of land, inputs, specialized and casual labour is directly proportional to the cost of construction, hence, an increase in these costs raise the cost of construction. As a consequence the rent rates are bound to rise with increase in construction cost.

The study concludes that supply of housing as influence by land scarcity and restrictiveness of zoning laws, government limitations on urban land and decline in the number of units built annually lead to an increased rent rate.

The study further concludes that location of apartments and their proximity to the city as indicated by distance from the CBD, distance from the main road, proximity to other residential buildings, site and location characteristics of the property and the cleanliness of the neighborhood has an influence on rent rates.

The study also concludes that structural characteristics of houses influence rent rates to a very great extent. These characteristics include size of the house, the type and quality of building materials used, technical condition of a house, facilities in the dwelling itself and the dwelling’s appearance and size of the rooms in a house.

Finally the study concludes that population growth leads to rising demand for housing increasing the rent rate and urbanization increases demand for houses leading to higher rent rates.

5.4 Recommendations

From the study findings and conclusions, the study recommends that the government should formulate policies to ensure that the cost of construction goes down. This is because as the government plans to ensure there is affordable housing in the country the same can’t be achieved when the cost of construction is still high.

The study also recommends that the government should ease the limitations on urban land to ensure that developers have favourable conditions that will encourage building of more houses in urban areas to meet the high demand of the same. This will ensure that there is adequate housing as a result reducing the rent rates.
The study further recommends that the government should build more roads and ensure that the residential areas in the country are well lit and secure. This will open up the areas and make them more accessible thus this will encourage people to take up houses in the areas that are perceived as not favourable for settlement.

The study also recommends that the government should encourage more investors to build houses to cater for the rising population in the urban due to the high rates of rural urban migration. This will have a positive impact on the rent rates. The tenants too should form a union to cater for their issues. The general public should be vigilant and allay any illegal rent rate rises to the authorities. The authorities should also enforce the laws governing rent rates to the fullest.

5.5 Suggestion for Further Studies

1. Another study should be done to investigate the factors influencing the challenges facing the supply of housing in Kenya and its effect on the rent rates.
2. A similar study should also be done in other Counties to establish whether it will yield the same results.
3. Further studies should be done on the influence of government policies on housing in Kenya.
REFERENCES
Berry, M. (2001). Why is it important to boost the supply of affordable housing in Australia and how can we do it?. Urban Policy and Research, 21(4), 413-435.


APPENDICES

Appendix 1: Transmittal Letter

Justine Otwoma Mochama

P.O. Box 5108-00100

Nairobi.

September, 17th, 2014

Dear Sir/Madam,

RE: REQUEST FOR PARTICIPATION IN A RESEARCH STUDY

I am a final MA degree student at the University of Nairobi. My area of specialization is project planning and management. I am currently undertaking a research on “Determinants of Rent Rates in Kenya. A case of Kasarani Division Nairobi County”.

I would be grateful if you could spare some time from your busy schedule and complete the enclosed questionnaire. All the information provided will be used purely for academic purposes only and will be treated with utmost confidentiality.

Thank you for your cooperation.

Yours faithfully,
Appendix II: Research Questionnaire

Kindly answer the following questions by writing a brief answer or ticking in the boxes provided.

**PART A: BACKGROUND INFORMATION**

1. What is your gender?
   a. Male □  b. Female □

2. In which of the following age brackets do you belong?
   a. 21-30 years □  b. 31-40 years □  c. 41-50 years □  d. Above 50 years □

3. What is your education level (state the highest level?)
   a. Primary □  b. Secondary □  c. Diploma □
   d. Undergraduate □  e. Post Graduate □  f. Other ___________

4. What is your area of work?
   a. Landlord □  b. Property Manager □
   c. Representative in the ministry of land and planning □

**PART B: Cost of construction**

5. To what extent does cost of construction influence rent rates?
   d. Great extent □  e. Low extent □

6. What is your level of agreement with the following statements on cost of construction?
<table>
<thead>
<tr>
<th>Cost of land raises the cost of construction</th>
<th>Very great extent</th>
<th>Great extent</th>
<th>Moderate extent</th>
<th>Low extent</th>
<th>Very low extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of the construction inputs raises the cost of construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of specialized and casual labour raises the cost of construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low-income households living in apartments prefer renting to buying their own house</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy land-use regulations causes low levels of new house construction, due to high costs of construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High house construction costs causes many people to live in rented houses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing affordability relates to overcrowding and poor housing conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High building costs in areas where land is more affordable, but geological and topographical conditions are not ideal, limit housing supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PART C: Supply of Housing

7. To what extent does the supply of housing influence rent rates?
   a. Very great extent  
   b. Moderate extent  
   c. Very low extent  
   d. Great extent  
   e. Low extent  

8. What is your level of agreement with the following statements on supply of housing?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very great extent</th>
<th>Great extent</th>
<th>Moderate extent</th>
<th>Low extent</th>
<th>Very low extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land scarcity and restrictiveness of zoning laws influence rent rates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The decline in the number of units built annually translate to higher rent rates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building of housing has not kept pace with urban population growth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tough zoning rules affect supply of housing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumbersome building regulations affect supply of housing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slow administrative procedures affect the amount of developable land</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government has limitations on urban land supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PART D: Location of Apartments and their proximity to the City

9. To what extent does location of apartments and their proximity to the city influence rent rates?
   a. Very great extent  
   b. Moderate extent  
   c. Very low extent  
   d. Great extent  
   e. Low extent  
10. What is your level of agreement with the following statements on the location of apartments and their proximity?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very great extent</th>
<th>Great extent</th>
<th>Moderate extent</th>
<th>Low extent</th>
<th>Very low extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential rent gradients decreases as distance from the CBD increases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance from the main road decreases the rent rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site and location characteristics of the property and the cleanliness of the neighborhood influences the rent rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large cities experience higher construction costs as compared to small or medium sized cities which in turn results to higher rent rates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shortage of easily constructible land raise the level of building cost and therefore increase in rent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction-site accessibility affect the rent rates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proximity to other residential buildings affect the rent rates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PART E: Structural Characteristics of Houses**

11. To what extent do structural characteristics of houses influence rent rates?

   d. Great extent □       e. Low extent □
12. What is your level of agreement with the following statements on the structural characteristics of houses?

<table>
<thead>
<tr>
<th></th>
<th>Very great extent</th>
<th>Great extent</th>
<th>Moderate extent</th>
<th>Low extent</th>
<th>Very low extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of the house determines the number of rooms available for rent and therefore the rent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The type and quality of building materials used determines the house rent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The technical condition of a house influence its rent rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size of the rooms in a house influence its rent rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The facilities in the dwelling itself and the dwelling’s appearance influence the rent rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PART F: Increase in Population**

13. To what extent does the increase in population influence rent rates?

a. Very great extent  

b. Moderate extent  

c. Very low extent  

d. Great extent  

e. Low extent  

14. What is your level of agreement with the following statements on increase in population?

<table>
<thead>
<tr>
<th></th>
<th>Very great extent</th>
<th>Great extent</th>
<th>Moderate extent</th>
<th>Low extent</th>
<th>Very low extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population growth leads to rising demand for housing increasing the rent rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urbanization increases demand for houses leading to higher rent rates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**THANK YOU**
Appendix III: Permit

THIS IS TO CERTIFY THAT:

MR. JUSTINE ONYANG'OMA MOCHAMA
of UNIVERSITY OF NAIROBI, D-100
Nairobi, has been permitted to conduct
research in Nairobi County

on the topic: DETERMINANTS OF RENT
RATES IN KENYA. A CASE OF KASARANI
DIVISION, NAIROBI COUNTY

for the period ending:
5th December, 2014

Signature

National Commission for Science,
Technology & Innovation

CONDITIONS

1. You must report to the County Commissioner and
the County Education Officer of the area before
commencing research. Failure to do so may lead to
the cancellation of your permit.
2. Government Officers will not be interviewed
without prior appointment.
3. No questionnaire will be used unless it has been
approved.
4. Excavation, filming and collection of biological
specimens are subject to further permission from
the relevant Government Ministries.
5. You are required to submit at least two (2) hard
copies and one (1) soft copy of your final report.
6. The Government of Kenya reserves the right to
modify the conditions of this permit including
its cancellation without notice.

RESEARCH CLEARANCE
PERMIT

Serial No. A 3535

CONDITIONS: see back page
Appendix IV: Letter of Introduction

TO WHOM IT MAY CONCERN

RE: JUSTINE OTWOMA MOCHAMA - REG NO L50/71028/2011

This is to confirm that the above named is a student at the University of Nairobi College of Education and External Studies, School of Continuing and Distance Education, Department of Extra-Mural Studies pursuing Master of Arts in Project Planning and Management.

He is proceeding for research entitled “determinants of rent rates in Kenya; A case of Kasarani Division in Nairobi County.

Any assistance given to him will be highly appreciated.

DR. JOHN MBUGUA
RESIDENT LECTURER
NAIROBI EXTRA MURAL CENTRE
Appendix V: Map of Kasarani Division