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**ADDIS ABABA UNIVERSITY COLLEGE OF
TECHNOLOGY AND BUILT ENVIRONMENT, SCHOOL
OF BUILT ENVIRONMENT**

PROPERTY VALUATION AND MANAGEMENT

**Modelling Determining Factors of Private Residential House Rental
Values Using a Hedonic Pricing Model: The case of Lemi Kura
Woreda 10, Addis Ababa**

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APPROVAL SHEET

This thesis is submitted to Ethiopian Institute of Architecture, Building Construction and City Development (EiABC), Addis Ababa University, in partial fulfillment of the requirements for the degree of Masters of Arts in Urban Land and Property Valuation.

Title of Thesis: Modelling Determining Factors of Private Residential House Rental Values Using a Hedonic Pricing Model: The case of Lemi Kura Woreda 10, Addis Ababa

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DECLARATION

I declare that, this thesis prepared for the partial fulfillment of the requirements for the degree of Masters of Arts in Urban Land and Property Valuation entitled “**Modelling Determining Factors of Private Residential House Rental Values Using a Hedonic Pricing Model: The case of Lemi Kura Woreda 10, Addis Ababa**” is my original work, and it has not been submitted by any other person for an award of a degree in any other University or Institutions and that all sources of materials used for the thesis have been properly acknowledged.

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CONFIRMATION

I state that Elsa Abdissa has carried out this research work on the topic entitled “Modelling Determining Factors of Private Residential House Rental Values Using a Hedonic Pricing Model: The case of Lemi Kura Woreda 10, Addis Ababa” under my supervision and it is sufficient for submission for the partial fulfillment for the award of master’s degree in Urban Land and Property Valuation.

Advisor

Name Signature Date

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Table of Contents

APPROVAL SHEET	I
DECLARATION	II
CONFIRMATION	III
ACKNOWLEDGEMENT	IV
ACRONYMS	X
ABSTRACT	XI
CHAPTER ONE	1
1. INTRODUCTION	1
1.1. Background of the Study	1
1.2. Statement of the Problem	3
1.3. Research Questions	5
1.4. Objectives of the Study	5
1.4.1. General Objective	5
1.4.2. Specific Objectives	5
1.5. Significance of the Study	5
1.6. Scope of the Study	6
1.7. Limitations of the Study	7
1.8. Operational Definitions of Terms	7
1.9. Organization of the Study	8
CHAPTER TWO	9
2. REVIEW OF LITERATURE	9
2.1. Conceptual Review	9
2.1.1. Property	9
2.1.2. Property Valuation	10
2.1.3. Determinants of Value	11
2.1.4. Highest and Best Use	11
2.1.5. Housing and Value Notions	12
2.1.6. Rental Value	14
2.2. Theoretical Review	14
2.2.1. Market Approach	15

2.2.2.	Income Approach.....	15
2.2.3.	Cost Approach	15
2.2.4.	Hedonic Pricing Method	15
2.3.	Empirical Review.....	17
2.3.1.	Determinants of Market Rent in Developing Countries and Addis Ababa	17
2.3.2.	Housing Market in Addis Ababa	18
2.3.3.	Rental Policies	19
2.3.4.	Rental Taxation Issues	20
2.4.	Conceptual Framework.....	22
CHAPTER THREE		24
3.	METHODOLOGY	24
3.1.	Site Description of the Study	24
3.2.	Research Approach	26
3.3.	Research Design.....	26
3.4.	Population, Sample, and Sampling Technique	27
3.5.	Data Type and Sources	28
3.6.	Data Collection Instruments	29
3.7.	Definition of Variables	29
3.8.	Methods of Data Analysis and Presentation	30
CHAPTER FOUR.....		33
4.	RESULTS AND DISCUSSIONS.....	33
4.1.	Introduction.....	33
4.2.	Residential Property Rent in the Study Area	33
4.2.1.	The Characteristics of Population and Rent.....	33
4.2.2.	The Property Characteristics.....	35
4.2.3.	Agents and Participants on Rent System Between Tenants and Owners: The Local Experience.....	36
4.3.	Determinant Factors Descriptive Statistics and Relative Importance Analysis.....	37
4.3.1.	Relative Importance Index (RI) Analysis	37
4.3.2.	Descriptive Statistics of Determinant Factors.....	39
4.3.3.	Proximity to Road	40

4.3.4.	Construction Material Type	40
4.3.5.	Finishing Material Type.....	40
4.3.6.	Number of Bedrooms.....	41
4.3.7.	Floor Area	41
4.3.8.	Access to School	41
4.3.9.	Access to Health Center.....	42
4.3.10.	Access to Utility Service.....	42
4.3.11.	Security of the Compound	42
4.3.12.	Agglomeration of the Business Area	42
4.3.13.	Neighborhood Quality and Architectural Style	43
4.4.	The Potential Impacts of Determinant Factors on the Rental Value HPM.....	43
4.4.1.	Variable Test.....	43
4.4.2.	Regression Result.....	47
4.4.3.	The Influence of Determinant Variables Relative to Others' Findings	51
CHAPTER FIVE		52
5.	CONCLUSIONS AND RECOMMENDATIONS	52
5.1.	Conclusion	52
5.2.	Recommendations.....	55
REFERENCES		56
APPENDICES		62
Questionnaire		62
Publishable Manuscript.....		67

LIST OF FIGURES

Figure 2.1. Conceptual framework of the study	23
Figure 3.1. Map of Study Area I	24
Figure 3.2. Location Map of the Study Area II.....	25
Figure 3.3. G+1 Residential Homes.....	25
Figure 3.4. Apartment Homes.....	26
Figure 4.1 Normal p-p plot of regression standardized residual.....	44
Figure 4.2 Scatter plot of the regression analysis	45

LIST OF TABLES

Table 2.1. The Summary of empirical studies on the rental values of residential property	21
Table 3.1. Data Collection Instrument.....	29
Table 3.2 Definition of variables	30
Table 4.1. Relative Importance Index Analysis.....	38
Table 4.2 Descriptive statistics	39
Table 4.3 Multicollinearity analysis	45
Table 4.4 Model summary table of the regression.....	47
Table 4.5 The coefficient table of the determinant variables.....	48

ACRONYMS

ETB	Ethiopian Birr
HDM	Hedonic Demand Model
IAAO	International Association of Assessing Officers
IVSC	International Valuation Standards Council
RICS	Royal Institution of Chartered Surveyors
RII	Relative Importance Index
SPSS	Statistical Package for Social Science
UN	United Nations
VIF	Variance Inflation Factor

ABSTRACT

In the Lemi Kura Woreda 10 of Addis Ababa city, the tenants are not clear in determining the rental value of the properties as the market condition, demand, and preference change over time. The purpose of this study, therefore, was to analyze the determinant factors of the rental value for the private residential house in Addis Ababa and the Lemi Kura Woreda 10 in particular. To undertake the study both qualitative and quantitative approach was used. The target population for the study was private residential properties from which 131 samples were selected. Questionnaires, interviews, focused group discussions, and observation were used for collecting data for the study. Relative importance index and multiple regression analysis were used for analyzing the quantitative data and descriptive analysis was used for qualitative data. The result of the study revealed that the amount of rental value of the properties was solely dependent on the determinant variables. Determinant variables such as proximity road, finishing materials of the properties, floor area, and architectural style were found significant. Besides, the study recommended for the need of upgrading systems for accessing information, attention by the government for the uncontrollable rental increase, revision of housing policy and infrastructure development by the government.

Key Words: *Property Valuation, Rental Value, Determinant Factors, Residential Properties*

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

Many literatures show different types of values of the property. The most commonly described and which stand for different value is market/true/present value. For this particular thesis, value is considered as the highest price a willing buyer would pay to a willing seller, when both are fully informed and acting in freedom, without duress or unusual financing (International Valuation Standard Committee (IVSC, 2017) (Wyatt, 2013). In property valuation, besides market value, Reservation Price or investment value, Exchange value, Liquidation Value, going concern value or Use value, Equilibrium value, and Highest and best use are types of value to which appraisals can be applied (RICS professional standards, 2017).

The efficiency of the property market is indicated in its valuation and hence a reflection of how information is treated. The quantitative (physical dimension) and qualitative (subjective attribute) criteria of the property have input the various approaches to the valuations of real estate (Ling and Archer, 2018). The value of the property can be positively or negatively affected by the forces of value which can be emanated from the economic, physical, environmental, legal, and political factors. An appraiser, in this regard, can observe the contributing influences of the factors to the value of the property through different analysis methods.

To analyze the potential influence of factors on the value of the property, the hedonic pricing method is used by many scholars. The underlying goal when generating a hedonic pricing model is to create an accurate predictive model (Monson, 2009); (Rosato *et al*, 2017)). Unlike groceries, the value of individual features within a building cannot be directly observed (e.g. the value of a building's atrium relative to the overall value of the building). Hedonic pricing models, however, can be used to measure the influencing effect of the characteristics on the overall transaction price (Monson, 2009) This model can be developed by using the coefficients generated from a regression analysis. This relationship between variables (characteristics) can be described as "market price is a function of each tangible & intangible building characteristic and other outside influencing factors."

Globally, empirical studies using hedonic and multiple regression models demonstrate that rental value is primarily determined by property characteristics (size, age, design), locational attributes (accessibility, neighborhood quality), and external market conditions (inflation, demand–supply imbalance) (Ling & Archer, 2018; Wyatt, 2013; Gyourko & Sinai, 2022). In cities such as London, New York, and Singapore, regression analyses reveal that proximity to amenities, transport nodes, and employment centers significantly increases rental prices (Malpezzi, 2019; Hui & Yu, 2021). These findings underscore the global shift toward data-driven valuation models that integrate spatial and socio-economic variables to predict rental outcomes more accurately (Kauko, 2020; Ling & Archer, 2018).

Across African cities, rapid urbanization and informal housing markets have created heterogeneous rental patterns. Studies in Nairobi, Accra, and Lagos show that location, infrastructure quality, and neighborhood security are statistically significant predictors of rental value (Akinyemi & Adegboye, 2020; Olanrewaju & Abdul-Aziz, 2021; Osei-Kyei & Chan, 2018). Regression analyses in these contexts highlight that poor urban planning and weak regulatory frameworks distort rental pricing, leading to speculative valuation and affordability crises (Kamau, 2019; Banks, Hulme, & Edwards, 2015). Moreover, African housing markets often lack standardized valuation procedures, making multiple regression models essential for isolating the effects of property and locational variables on rent determination (Mawdsley, Townsend, & Porter, 2020; Diallo & Thuillier, 2005).

In Ethiopia, the rental housing sector dominates urban tenure, yet valuation practices remain largely informal and inconsistent (Belete & Yilma, 2020; Tesfaye, 2018). Regression-based studies in Addis Ababa reveal that bedroom count, floor area, balcony access, security, and proximity to main roads significantly influence monthly rent (Belete & Yilma, 2020; Akalu, 2022). The absence of standardized valuation guidelines and the asymmetry of market information exacerbate rent disparities between neighborhoods such as CMC, Jemo, and Kazanchis (Wyatt, 2013; Ling & Archer, 2018). Empirical evidence further shows that government-administered apartments have lower average rents than private units, reflecting inefficiencies in public housing management and taxation policy (Belete & Yilma, 2020; Amanuel, 2021).

The Woreda 10, one of Addis Ababa's fastest-growing residential zones, exemplifies the challenges of urban rent determination. Regression analyses conducted by Belete and Yilma (2020)

identify nine significant variables affecting rental value, including property size, number of bedrooms, access to utilities, and neighborhood infrastructure quality. The area's high concentration of private developers and expatriate tenants has led to price escalation and spatial inequality, with rents rising faster than income levels (Akalu, 2022; Tesfaye, 2018). Current challenges include unregulated market practices, inconsistent property taxation, and limited professional valuation capacity, which hinder accurate rent estimation and fair market competition (Belete & Yilma, 2020; Amanuel, 2021).

1.2. Statement of the Problem

Globally, housing markets have become increasingly complex, with rental values influenced by a combination of structural, locational, and socio-economic factors that vary across urban contexts. Regression-based valuation models have proven effective in isolating these determinants, offering empirical clarity for policy and investment decisions (Ling & Archer, 2018; Wyatt, 2013; Hui & Yu, 2021). In rapidly urbanizing cities, such as Addis Ababa, understanding these determinants is critical for addressing affordability, market inefficiency, and spatial inequality (Malpezzi, 2019; Kauko, 2020).

In the African context, urban housing markets are characterized by informal valuation systems, weak regulatory enforcement, and speculative pricing, which distort rental values and exacerbate inequality (Akinyemi & Adegboye, 2020; Olanrewaju & Abdul-Aziz, 2021; Osei-Kyei & Chan, 2018). Empirical studies in Nairobi, Accra, and Lagos have shown that regression analysis helps quantify the influence of location, infrastructure, and neighborhood quality on rent, providing evidence for more transparent market regulation (Kamau, 2019; Banks, Hulme, & Edwards, 2015; Mawdsley, Townsend, & Porter, 2020).

In Ethiopia, the rental housing sector is expanding rapidly, yet valuation practices remain inconsistent and largely informal, resulting in unreliable pricing and limited policy guidance (Belete & Yilma, 2020; Tesfaye, 2018; Akalu, 2022). In Debre Birhan Town of Ethiopia (Abebaw, 2021) the access to water, age of the house, near to amenities, floor material of the house number of bedrooms, access to the toilet, and land are found as determining variables of the rental value of residential properties. Addis Ababa's housing market, particularly in high-growth areas like CMC, faces challenges of unregulated rent escalation, inadequate data for valuation, and weak institutional capacity to monitor market trends (Amanuel, 2021; UN-Habitat, 2023). In Addis

Ababa, the rental value of private residential apartments is a function of the different independent variables that can be categorized as the physical attributes of the property, amenities, services, and location factors (Masresha, 2018).

Despite the growing body of research on housing valuation, empirical gaps persist in the Ethiopian context, particularly regarding private residential rental markets. Most existing studies focus on public housing, affordability, or construction cost analysis, with limited attention to the micro-level determinants of private rental values (Belete & Yilma, 2020; Tesfaye, 2018; Akalu, 2022). Furthermore, previous research often relies on descriptive or comparative methods rather than quantitative regression models that can isolate the relative influence of each determinant (Ling & Archer, 2018; Kauko, 2020).

At the sectoral level, there is a lack of localized empirical evidence for specific urban zones such as CMC, which has unique socio-economic and infrastructural characteristics compared to other districts of Addis Ababa (Belete & Yilma, 2020; Amanuel, 2021). Existing valuation studies tend to aggregate data across the city, obscuring spatial variations in rental determinants. This gap limits policymakers' ability to design context-specific interventions for rent stabilization, taxation, and housing supply management (UN-Habitat, 2023; Tesfaye, 2018).

Moreover, the absence of standardized valuation frameworks and reliable market data has led to inconsistent rent estimation and speculative pricing, creating inefficiencies in both the private and public housing sectors (Belete & Yilma, 2020; Wyatt, 2013; Ling & Archer, 2018). Regression analysis can bridge this empirical gap by providing a statistically robust model to quantify the impact of structural, locational, and socio-economic variables on rental value, thereby enhancing transparency and predictability in the housing market (Hui & Yu, 2021; Kauko, 2020). This research is, therefore, commenced to identify and model determining variables (factors) of rental values of residential houses in the stated location.

1.3. Research Questions

Based on the aforementioned research problems, this research asks the following questions:

1. What is the status of rent on the private residential property value around the Lemi Kura Woreda 10?
2. What are the determinant factors and their implications on the rental value of residential property in the study area?
3. What is the extent of the influence of determining factors of rental values of the private residential property around Lemi Kura Woreda 10?

1.4. Objectives of the Study

1.4.1. General Objective

The main objective of the study was to analyze and model the determinant factors of the rental value of private residential houses in Lemi Kura Woreda 10 in Addis Ababa.

1.4.2. Specific Objectives

The study was geared to answer the following specific objectives.

1. To assess the rent on the private residential property value around the Lemi Kura Woreda 10.
2. To identify the determinant factors of rental value in residential property of the study area.
3. To analyze the extent of the influence of determining factors of rental values of the private residential property around Lemi Kura Woreda 10.

1.5. Significance of the Study

For Scholars: This study contributes to the academic discourse on urban housing economics and property valuation by providing localized empirical evidence from Woreda 10 of Lemi Kura an understudied context in global housing research. By integrating structural, locational, and socio-economic variables into a regression framework, the study enriches comparative literature on housing valuation and offers a methodological reference for future research in similar developing-country contexts.

For Policy Makers: For urban planners, housing authorities, and municipal regulators, the study provides evidence-based insights into the determinants of rental value, enabling more rational

policy formulation. Understanding how factors such as proximity to road, construction material type, finishing material type, number of bedrooms, floor area, security of the compound, agglomeration of the business area, and neighborhood quality influence rent can guide taxation, zoning, and rent control policies. The regression findings will also support the development of standardized valuation guidelines and improve transparency in the real estate market.

For Existing Literature: The study fills a critical empirical and contextual gap in Ethiopian housing research. By applying regression analysis to the Lemi Kura Woreda 10, this research extends the literature on data-driven property valuation in developing economies, offering a replicable model for future studies in other urban zones. It also bridges global and local perspectives, linking international valuation theory with Ethiopia's evolving housing market realities.

1.6. Scope of the Study

Methodological Scope

This study employs a quantitative research design using multiple regression analysis to identify and measure the determinant factors influencing the rental value of private residential houses in the Lemi Kura Woreda 10. The methodology integrates both primary and secondary data primary data collected through structured questionnaires and interviews with property owners, tenants, and real estate agents, and secondary data drawn from municipal housing records and real estate listings. The regression model included variables such as proximity to road, construction material type, finishing material type, number of bedrooms, floor area, security of the compound, agglomeration of the business area, and neighborhood quality, following established valuation frameworks. Data analysis was conducted using SPSS, ensuring statistical validity through tests for multicollinearity, heteroscedasticity, and model fit.

Geographical Scope

The geographical focus of the study is Lemi Kura Woreda 10, located in the eastern part of Addis Ababa, Ethiopia. This area represents one of the city's fastest-growing residential zones, characterized by mixed land use, rapid real estate development, and high rental demand from middle-income and expatriate residents. The choice of CMC is justified by its unique socio-economic and infrastructural profile, which differs from other districts such as Bole or

Kazanchis making it an ideal microcosm for studying urban rental dynamics under Ethiopia's evolving housing market conditions.

Conceptual Scope

Conceptually, the study is anchored in urban housing economics and property valuation theory, focusing on the determinant factors of rental value. It examines how structural attributes (e.g., size, design, age), locational factors (e.g., accessibility, neighborhood quality), and socio-economic variables (e.g., income level, demand pressure) interact to shape rental prices. The conceptual framework integrates hedonic pricing theory and real estate market equilibrium models, positioning rental value as a function of measurable property and environmental characteristics.

Time Scope

The study covers the period from 2020 to 2026, capturing both pre- and post-pandemic housing market dynamics in Addis Ababa. This timeframe allows analysis of recent shifts in rental demand, inflationary pressures, and urban development trends that have influenced property values in the Lemi Kura Woreda 10. Data collection focused on the most recent three years (2023–2026) to ensure relevance and accuracy, while historical data from 2020–2022 was used to observe trends and validate regression outcomes.

1.7. Limitations of the Study

While observing this research, the readers might notice limitations regarding the quality of the with respect to the questionnaires as they may not be filled properly due to respondents' commitment, knowledge gap, shortage of time and confidentiality on the utilization of the information. The finding of this study may not represent the entire cub city of Lemi Kura and the rest of the city, to investigating the detrmining factors of the rental value of private residential houses may be affected by other aspects which are not included in this thesis.

1.8. Operational Definitions of Terms

Determinant factors of value: are independent variables that can negatively or positively influence the dependent variables. They are predictor factors of the dependent variables.

Property valuation: Property valuation (real estate appraisal) is a professional practice that entails the determination of the value/prices of real estate assets.

Rental value: the amount of money that property owners receive from the tenant for the service that their property provides in a specific period.

Residential property: a house built for the purpose of shelter. It can be built with cement, mud and wood, or any other modern materials.

Value: is the present monetary worth of future benefits of property, goods and services that provides to the people.

1.9. Organization of the Study

This research paper is organized in five chapters while answering the research questions of the study. The first chapter deals with presenting the general introduction of introduction containing on the background of the study, statement of the problems, basic research questions, objectives of the study, significant of the study, and others. Chapter two comprises reviews of the related literatures presenting the conceptual and theoretical review, empirical review and policy review. In the third chapter, the methodological approaches, design of the study, population, sample and sampling techniques, methods of data analysis are going to be discussed. Chapter four contains the data presentations, analysis and discussions; and finally, chapter five provided summaries of major findings, conclusions and recommendations.

CHAPTER TWO

2. REVIEW OF LITERATURE

2.1. Conceptual Review

2.1.1. Property

Property is traditionally understood as a bundle of rights including the right to use, exclude, and transfer rather than the physical asset itself (Honoré, 1961; Snare, 1972). This conceptualization highlights property as a relational construct between people and resources, mediated by legal and social norms. Hart (1968) classified property issues into three dimensions: definition, justification, and distribution, with definition being logically antecedent to the others (Zambon, 2019).

Zambon (2019) argues that property, in its minimal sense, consists of deontic modalities (permissions, obligations, prohibitions) that regulate relations between persons in connection with goods. This distinguishes property from related concepts such as ownership, contract rights, and possession. Property thus represents a normative framework that defines who can do what with a resource, under what conditions, and with what limitations.

Economists conceptualize property as a system of rights that enables efficient allocation of resources. Property rights reduce transaction costs, provide incentives for investment, and facilitate market exchange (Demsetz, 1967; Alchian & Demsetz, 1973). In housing markets, property is defined not only by physical attributes (size, design, location) but also by the legal certainty of ownership and transferability, which directly influence value (Ling & Archer, 2018; Wyatt, 2013).

Property is also a social institution, reflecting power relations and cultural norms. Macpherson (1978) emphasized that property embodies social expectations about entitlement and distribution. Contemporary scholarship highlights property's role in shaping urban inequality, access to housing, and land use conflicts (Blomley, 2004; Malpezzi, 2019).

In real estate and housing studies, property is conceptually defined as the intersection of physical characteristics, legal rights, and market conditions. Regression and hedonic pricing models operationalize property by decomposing rental or sale values into measurable attributes such as floor area, number of bedrooms, proximity to amenities, and neighborhood quality (Belete &

Yilma, 2020; Hui & Yu, 2021). This empirical approach links the abstract concept of property to practical valuation and policy analysis.

2.1.2. Property Valuation

Property valuation is the process of determining the fair market value of real estate assets, serving as the basis for transactions, taxation, insurance, and investment decisions. It is conceptually understood as both a science and an art science because it applies statistical and economic models, and art because it requires professional judgment in interpreting market signals (Wyatt, 2013; Ling & Archer, 2018).

Valuation theory is rooted in neoclassical economics, where property value is determined by supply, demand, and utility. Recent scholarship emphasizes integrating heterodox perspectives, such as behavioral economics and spatial econometrics, to capture the complexity of modern housing markets (Springer, 2022; Kummerow, 2013). Hedonic pricing models, widely used in regression analysis, conceptualize property valuation as the decomposition of total value into measurable attributes such as floor area, number of bedrooms, proximity to amenities, and neighborhood quality (Hui & Yu, 2021; Belete & Yilma, 2020).

Property valuation is inseparable from the legal framework of property rights. Accurate valuation requires clarity of ownership, transferability, and enforceability of rights (Honoré, 1961; Demsetz, 1967). Valuation is also a social institution, shaping access to housing, credit, and urban development. Transparent valuation practices promote equity and efficiency, while weak or informal systems exacerbate inequality and affordability crises (Blomley, 2004; UN-Habitat, 2023). In rapidly urbanizing cities like Addis Ababa, valuation is critical for guiding rent control, taxation, and housing policy (Belete & Yilma, 2020).

Empirical studies in Addis Ababa highlight that valuation practices remain inconsistent, with private rental markets often relying on informal estimates rather than standardized models. Regression analysis has proven effective in identifying determinants of rental value, making property valuation both a methodological and policy tool for addressing affordability and transparency challenges (Belete & Yilma, 2020; Ethiopian Civil Service University, 2025).

2.1.3. Determinants of Value

Value influencing property characteristics can be property-specific or market wide: the former refers to the spatial, physical and legal attributes of the property itself and the latter refers to the characteristics of the market as a whole or the market sector in which the property operates. Fundamentally, the market value of a property reflects its capacity to fulfill a function. If the property is a shop for example, then its value will be determined by factors such as trading position, length of frontage, accessibility, planning restrictions and tenure. This is not an easy task and provides substance to the argument that valuation is as much an art as it is a science (Wyatt, 2013).

In the appraising of the property value, the importance of property location is influenced by various factors: distance to work, proximity of health institutions and other important facilities, proximity of public transport, good traffic connection, parking, quiet neighborhood, view, orientation, tidiness of neighborhood, and green environment (Appraisal Institute, 2013).

A very important factor in the property appraising is the traffic connection between the property location and town center or other business and shopping centers as well as work location. The influence of this factor on rent and consequently on the value of residential properties was proven through hedonic regression analysis by Frew & Wilson (2002) in Portland, Oregon.

2.1.4. Highest and Best Use

The highest and best use for a property is that use which will produce the highest net return to the land for a given period of time within the limits of those uses which are economically feasible, probable and legally permissible. On a community wide basis, the major determining factor in highest and best use is the maximum quality of land that can be devoted to a specific use and still yield a satisfactory return. Once a suitable basic use has been chosen for a specific property, each increment of capital investment to the existing or planned improvement will increase the net return to the land only up to a certain point; the net return to the land begins to diminish. This is the point at which the land is at its highest and best use (County, 2017).

The appraiser applies four accepted tests in arriving at the highest and best use for a property. The use must be legally permissible; physically possible; economically feasible; and the most productive use. There may be two highest and best uses, one with the site vacant and the other as improved. These must be reconciled into a final highest and best use determination for the property

being appraised. Determining highest and best use includes assessing potential buyers' motives, the existing use of the property, potential benefits of ownership, the market's behavior, community or environmental factors, and special conditions or situations which come to bear on appraisal conclusions of value (IVS, 2003).

2.1.5. Housing and Value Notions

Housing can be defined as the construction and assigned usage of houses or buildings individually or cooperatively, for the purpose of shelter which ensures the people the place to live. As it gives shelter for households, housing can bring rent for investors. According to Wickramaarachchi (2016) it is a property that varies in quality and quantity as well as the bundle of rights that is attributed to it. This variety of housing attributes is then reflected to differences value of the property too. For the occupier, housing should provide adequate protection, be secured from danger and physical failure, be supplied with services like utility services, and ensure that residence enjoy adequate space and privacy.

The concept of value is broad as the purpose of property; basis of value and heterogeneous characteristics of real estate is different. Moreover, the observation a particular market participant or stakeholder based on the interactions within housing market is perceived value of the property. the value determined in this way can better reflect the market perception of value for the particular property. This perceived value is well described by Zeithaml (1988) as a value which is low price, the value that an owner wants from his product, the utility and service substitute to the paid price and the value that someone get for what he/she gives.

In numerous instances, frequently, terms like price, cost, market, and value are interchangeably used. This is particularly a problem where words interchangeably used in a language have their own respective specific meanings within a given discipline. Which is why terms of sort of which are difficult to understand by the average people, often defined whenever used for valuation purposes.

According to IVS (2003) these terms are defined as follows. *Price* is a term used for the amount asked, offered, or paid for a good or service. Since it is publicly disclosed or kept confidential, it is possible to say price is an historical fact. *Cost* is the price paid for goods or services or the amount required to create or produce the good or services. The price considered under a certain circumstance is its cost to the buyer. Cost can be taken as a total expenditure to produce and create

a property. As UN Land Administration Guideline (1996) states, the term cost is used by appraisers in relation to production, not exchange; cost may be either an accomplished fact or a current estimate. Appraisers distinguish among several types of costs: direct costs, indirect costs, construction costs, and development costs. A *market* is a set of arrangements in which buyers and sellers are brought together through the price mechanism. A market may be defined in terms of geography, products or product features, the number of available buyers and sellers, or some other arrangement of circumstance. A real-estate market is the interaction of individuals who exchange real-property rights for other assets, such as money. *Value* can have many meanings in real-estate appraisal; the applicable definition depends on the context and usage. In the market-place, value is commonly perceived as the anticipation of benefits to be obtained in the future. Because value exists at a given moment, an appraisal reflects value at a particular point in time. The Oregon Department of Revenue (2007) defines value as the value of real property for tax purposes is what a willing buyer would typically pay a willing seller for it. In general, value can be defined as the present worth of future benefits of property, goods and services that can be earned by the owner.

A basis of value is a statement of the fundamental measurement assumptions of a valuation. Practically to avoid confusion, appraisers do not use the word 'value' on its own; instead, they refer to 'market value,' 'use value,' 'investment value,' 'assessed value,' or other specific bases of value (RICS, 2017). Investment value; is the value of an asset to a particular owner or prospective owner for individual investment or operational objectives. Fair value; is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Assessed value; Assessed value applies in ad valorem taxation and refers to the value of a property according to the tax rolls. Assessed value may not conform to market value, but it is usually calculated in relation to a market value base. Going Concern Value; is an established and operating business with an indefinite future life. The physical real estate assets of certain property such as hotels, motels, restaurants, and manufacturing enterprises are integral part of an ongoing business. Use value; Use value is the value a specific property has for a specific use.

Market value

As Peter Wyatt (2013), before a valuation can be undertaken the valuer must identify a particular basis of value. Market Value, being a basis that corresponds to the concept of value in exchange,

is the most common but others exist. In IVS 104 paragraph 30.1 market value is defined as: *'the estimated amount for which an asset or liability should exchange on the valuation date between a willing buyer and a willing seller in an arm's length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion.'* Market value is a basis of value that is internationally recognized and has a long-established definition. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby buyer and seller are typically motivated; buyer and seller are well informed or well advised and acting in what they consider their own best interest; a reasonable time is allowed for exposure in the open market; payment is made in terms of cash in United States dollars or terms of financial arrangements comparable thereto; and The price represents the normal consideration for the property sold, unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.

2.1.6. Rental Value

Real estate appraisals are not limited on the estimation of market value of a property for exchange i.e. asset market. However, the properties potential to the space market to the usage of the property needs investigation and valuation. Thus, an appraiser is required to estimate the annual or monthly rental value of the real property as well.

2.2. Theoretical Review

To conduct the valuation, work the valuers have a choice of approaches. If a valuer bases their assessment on the current rent and value, traditional approaches will be chosen and when the valuer predicts the future growth and value on the basis of market yield discounted cash-flow approach may be chosen (Scarrett, 2008).

Based on the economic principles price equilibrium, anticipation of benefits or substitutions the International Valuation Standard (IVS) (2017) described three main approaches used in valuation. These are market approach, cost approach and income approach. International Association of Assessing Officers (IAAO) (2013) pronounces these three approaches for valuation of property and also adds land valuation for the estimation of land value in addition. Isaac (2002) states three bases to valuation methods; value for used for comparison, investment and residual methods; cost used for contractor's method; and profit used for profit methods.

2.2.1. Market Approach

It is a method of valuing property based on recent sales of similar properties. The sales comparison approach also called market (data) approach (Jacobus, 2010; Wyatt, 2013) uses the adjusted recently sold comparable properties in order to reach on the value estimation of the subject property. The adjustment of comparable properties to the subject property needs an appraiser to search and verify information from the market on sales and listings. Based on the collected information, the difference between the comparable properties and the subject property using the elements of comparison should be observed so as to add and subtract some amount from the comparable property. By this way, the estimated value of the subject property will be similar to the adjusted properties.

2.2.2. Income Approach

The income approach is designed to estimate the value of income generating properties. The value of the property in this approach is, therefore, a function of the income stream that is expected to produce. An appraiser is required to first estimate the periodic income obtained from the property in the future and then convert the income forecast into present value (Baum and *et al*, 2011). To do so the principle of anticipation is fundamental. Although it is used for income generating property, it is limited when income estimate is weak; sales data is not available to extract cap rate and market participants consider other issues more than properties income potential (Blackledge, 2009).

2.2.3. Cost Approach

The cost approach as its name indicates, the value is the sum of the cost to construct a building and the cost to acquire a parcel of land of a property. The cost approach assumes that the replacement cost normally sets the upper limit of value provided that the improvement is new and represents the highest and best use of land. Because of depreciation, a newly constructed building has more advantages over existing buildings. Therefore, the amount of depreciation must be deducted from the total cost new to reach at the value of the property (Jacobus, 2009; Fisher, 2002).

2.2.4. Hedonic Pricing Method

The Hedonic Pricing Method (HPM), also known as hedonic Regression method (HRM) and Hedonic Demand Method (HDM) is used in estimating the value of attributes or the demand of attributes (Kanojia et al. 2016). This is a statistical approach based on multiple factor regression models. By this approach an appraiser attempts to estimate the price or value (may be rental or

market value) of the subject property by relating dependent variables with the explanatory or independent variables (Monson, 2009).

The underlying goal when generating a hedonic pricing model is to create an accurate predictive model. Unlike groceries, the value of individual features within a building cannot be directly observed (e.g. the value of a building's atrium relative to the overall value of the building). Hedonic pricing models, however, can be used to measure the influencing effect of these characteristics on the overall transaction price. These models are developed by using the coefficients generated from a regression analysis. Hedonic models can also be instrumental in answering the following questions:

How should real estate be valued in the absence of a market?

How do intangible characteristics such as proximity to a train station affect price?

How should one account for an asset's value in non-revenue generating circumstances?

Answers to these questions can be determined by collecting data on buildings that have known transaction prices and are similar in nature to the subject building being analyzed. A regression analysis can then be calculated to determine the correlation for each of the characteristics measured against the transaction price. Those correlation measurements are then used to create a hedonic pricing model which will help determine the expected price of the subject property.

HPM has been applied to very different urban contexts. Studies have either focused on one specific local context, or compared various local environments ranging over wide territorial areas to estimate the effect of the proximity to natural attractions, or big infrastructures such as airports. Besides, the assessment of the benefits and co-benefits of environmental amenities or green infrastructures, or the exposure to environmental hazards has received major attention that are believed to have a considerable impact on urban quality and on real estate values. Many studies have used a spatial approach to the assessment of hedonic values, eliciting information on the value of accessibility and distance of real estate objects to environmental amenities, and a panoramic view.

As an alternate real estate valuation method, hedonic modeling can be used by developers, corporate real estate groups, owners, and operators to determine which building characteristics add

significant value to the potential transaction price. The results produced can provide important information for future decisions and help each party better understand the economics surrounding each asset, thus improving asset underwriting. HPM is highly applicable in developing countries. Especially for the developing countries where there is no real estate market and inefficient comparable sales hedonic pricing method is most appropriate.

2.3. Empirical Review

2.3.1. Determinants of Market Rent in Developing Countries and Addis Ababa

Market rent could be defined in different ways. Archer and Ling (2018: 195) define market rent as “the rental income the property would most probably command if placed for lease on the open market as of the effective date of the appraisal”. More likely, the perceived rental value of the property is based on the interactions within the housing market characteristics. So as to observe the market given value of a property, participants look for different determinant factors.

In a developing country context, the number of bathrooms and location of property seem to be the predominant variables. The multivariate analysis of determinant factors of rental value for informal rental housing market by Gulyani and Talukdar (2008) suggests that factors such as: the number of rooms, building quality, permanent walls, permanent floor, electricity and water availability, reasonable access to toilet, and the presence of public school in the neighborhood are critical in rent determination.

Using hedonic pricing method Anim-Odame et al. (2010a) proves that factors such as sale price/rent, number of stores, plot size, floor area, tenure or tenancy term certainty, the presence of a garage or outhouse, quality of landscaping, real estate type (detached or semidetached), and security of tenure are significant determinants for the rent. While number of bedrooms and unexpired term are not statistically significant. Using cross-sectional data, Owusu-Ansah (2012a) establishes that the number of bedrooms, bathrooms, living rooms, the age of the property, the location of the property, availability of a garage, fence wall, swimming pool, and land registration influences real estate values in urban Ghana. The number of floors was found to have the least impact on price. Gavu et al, (2019) on their study of Stakeholders’ Perception of Residential Rental Value Determinants in Ghana, electricity and piped water connection, type of house, property condition and number of bedrooms are the most significant determinants of residential rental values in Accra. On the other hand, Amenyah and Fletcher (2013), by analyzing data from three

contrasting locations in Accra, location, number of bedrooms, availability of amenities and facilities, and sharing of facilities are found significant exploratory variables in determining residential rental prices. Wickramaarachchi (2016) also indicated that distance to main junction is the most significant variable for the rental values of residential properties.

A study done on the residential properties in Debre Berhan town, access to water, age of house, near to amenities, floor material of the house, number of bedrooms, access to toilet and land are found determinant factors for the rental value (Abebaw, 2021). The physical conditions (construction materials) of existing housing units were taken as the essential determinant for rent. Availabilities of basic amenities (availability of private tap water, electricity and dining facilities), room sizes are found very significant factors for rental housing in eastern Ethiopian cities (Abaynew, 2019). Masresha and Mesfin (2020), on their study of market rent determinants, found that the number of bedrooms, access to a balcony, the security of the compound and access to a lift as the first level (more significant) variables, and access to a road, access to a parking area, area of the apartment, type of external wall finish, and the location of the site are the second level variables that affects the rental value of the residential apartment properties in Addis Ababa. However, the floor level, number of bathrooms, good environmental view, access to a swimming pool, environmental pollution and access to water supply did not impact the market rent of apartment residential properties in the area.

The following table illustrates the studies done on the rental value and its determinant factors of different areas. Through this table, the title of the study, the method they used and the findings they reached are shortly summarized. Therefore, the demonstration of the empirical studies with its methods and findings enables the researcher to look for different variables and its examinations.

2.3.2. Housing Market in Addis Ababa

Markets are mechanisms of exchange. The nature of real estate markets is different from other markets. Economics defines a perfect market as one in which there are many buyers or sellers, homogeneous product(s), perfect knowledge of transactions, and the inability of one supplier to affect price i.e. absence of monopoly. Unlike other marketable commodities, the distinct feature of real estate properties are heterogeneity, durability, longevity and costliness. The real property market is characterized by heterogeneous products, immovable products, localized markets, segmented markets and high transaction costs (Ling & Archer, 2018). Characteristics of the

property market have no central market place, lack of knowledge, fixed supply, complexity and variety of interests (Frew, 2013). In other words, land and property markets are unlikely to meet the ideal conditions of the perfect market.

Zerayehu and Kagnaw (2015) on their study of Addis Ababa real estate market show the problems of land management, low construction capacity, inadequate infrastructure, poor borrowing capacity, prices escalation, and low affordability are worth mentioning. These highly marginalized the poor from accessing to housing service in spite of the current aggressive move of the government. These moves also contributed for the existence of macroeconomic instability, leading to higher inflation rate and dwindling foreign currency reserve position along with other causative factors.

Financial institutions are the intermediary that channel the savings of individuals, businesses, and governments into loans or savings. As far as the financial sector is concerned, Ethiopia's financial sector is fairly underdeveloped. Since then, several banks and financial institutions have been established with different proclamations and regulations. The two state owned enterprises, engaged in the market are the Commercial Bank of Ethiopia (CBE) and the Development Bank of Ethiopia (DBE). With the liberalization of the banking sector in 1994, there are now new private banks which are being established. Now eighteen banks have been established. In addition, there are several insurance companies and contractual savings funds. DBE is a specialized financial institution, which provides finance for agricultural and industrial development projects (Getnet *et al*, 2013).

2.3.3. Rental Policies

Recent global, African, and Ethiopian studies show that rental policies are central to housing affordability, market stability, and tenant protection, yet their effectiveness varies widely depending on governance capacity, enforcement, and market structure. Globally, rental policies aim to balance landlord returns with tenant protection through rent control, subsidies, and tax incentives. Studies from Europe and North America show that rent regulation and social housing programs stabilize markets but can reduce private investment if poorly designed (OECD, 2024; Gyourko & Sinai, 2022).

Regression analyses in cities such as Berlin, New York, and Stockholm reveal that moderate rent control combined with housing supply incentives improves affordability without distorting market

efficiency (Malpezzi, 2019; Hui & Yu, 2021). Conversely, strict rent caps often lead to reduced maintenance and informal subletting (Kauko, 2020; Ling & Archer, 2018). Post-pandemic housing studies highlight the shift toward targeted rental assistance and tax-based affordability schemes, emphasizing data-driven monitoring and adaptive regulation (Springer, 2022; UN-Habitat, 2023).

Across Sub-Saharan Africa, rapid urbanization has outpaced policy development. Studies in Nairobi, Accra, and Lagos show that weak enforcement of rental laws and informal tenancy arrangements drive volatility in rent prices and tenant insecurity (Akinyemi & Adegboye, 2020; Olanrewaju & Abdul-Aziz, 2021). Regression-based analyses in Kenya and Ghana demonstrate that rent regulation without complementary supply policies fails to curb inflationary pressures, while participatory housing governance improves compliance and affordability (Kamau, 2019; Osei-Kyei & Chan, 2018). The African Union's 2023 Urban Agenda calls for integrated rental frameworks linking taxation, land management, and tenant protection to address affordability and informal market dominance (Banks, Hulme, & Edwards, 2015; Mawdsley, Townsend, & Porter, 2020).

Ethiopia's rental market remains fragmented and informal, with no national rental policy beyond the urban lease proclamation. The government's housing programs since 2006 have focused on ownership rather than rental regulation (Matsumoto & Crook, 2025; Mesganaw & Kitila, 2025). Studies reveal that rents in Addis Ababa are determined by location, infrastructure, and demand pressure, with limited oversight or tenant protection. Regression analyses show that absence of rent control contributes to speculative pricing and affordability decline (Belete & Yilma, 2020; UN-Habitat, 2023). The private rental sector faces taxation inconsistencies, weak contract enforcement, and lack of data transparency, leading to inequitable rent escalation and market inefficiency (Mesganaw & Kitila, 2025; Matsumoto & Crook, 2025).

2.3.4. Rental Taxation Issues

Rental taxation is a key instrument for redistributing wealth and financing urban infrastructure. Studies from OECD economies show that well-structured rental tax systems combining progressive income tax and property tax enhance fiscal equity and discourage speculative investment (OECD, 2024; Gyourko & Sinai, 2022). Comparative analyses in Europe and Asia demonstrate that tax compliance and enforcement capacity determine the success of rental taxation. Regression studies in Germany and Singapore found that digital tax administration and

transparent valuation systems significantly increase rental tax revenue (Hui & Yu, 2021; Kauko, 2020). Recent global reforms emphasize digitalization and data integration to track rental income and prevent evasion. The IMF (2025) notes that countries with integrated property registries and tax databases achieve higher tax-to-GDP ratios and better housing market stability (IMF, 2025).

Across Sub-Saharan Africa, rental taxation faces obstacles such as informal tenancy, weak valuation systems, and limited taxpayer awareness. The HAUS (2024) report identifies taxing the informal sector and digital economy as major policy gaps affecting rental income collection. Studies in Kenya, Ghana, and Nigeria show that low tax morale and poor administrative capacity lead to under-reporting of rental income. Regression analyses reveal that property registration and taxpayer education significantly improve compliance (Akinyemi & Adegboye, 2020; Olanrewaju & Abdul-Aziz, 2021). The African Union’s fiscal agenda advocates harmonizing rental taxation under the UN Tax Convention framework, linking property tax reforms with urban development financing (Banks, Hulme, & Edwards, 2015; Mawdsley, Townsend, & Porter, 2020).

Ethiopia’s rental income tax is governed by the Income Tax Proclamation No. 286/2002, which classifies rental income under Category “A” business tax. However, enforcement remains weak due to limited data integration and informal leasing practices (Belete & Yilma, 2020). The IMF (2025) benchmarks Ethiopia’s tax-to-GDP ratio among the lowest in Sub-Saharan Africa below the 10th percentile highlighting structural inefficiencies in tax administration and compliance. Studies show that landlords often under-declare rental income, and municipal authorities lack valuation databases to verify declarations (Mesganaw & Kitila, 2025). Key issues include inconsistent tax rates, absence of standardized valuation methods, and weak coordination between federal and municipal tax offices. Empirical evidence suggests that integrating property registration with digital tax systems could improve compliance and revenue mobilization (Matsumoto & Crook, 2025; UN-Habitat, 2023).

Table 2.1. The Summary of empirical studies on the rental values of residential property

No.	Authors	Title	Findings
1	Anim-Odame et al. (2010a)	Residential market development in sub-Saharan Africa	sale price/rent, number of stores, plot size, floor area, tenure or tenancy term certainty, the presence of a garage or outhouse,

No.	Authors	Title	Findings
			quality of landscaping, real estate type and security of tenure
2	Gavu et al, (2019)	Stakeholders' perception of residential rental value determinants in Ghana	Electricity and piped water connection, type of house, property condition and number of bedrooms
3	Amenyah and Fletcher (2013),		Location, number of bedrooms, availability of amenities and facilities, and sharing of facilities
4	Kemiki O. A., Odumosu J. O., Popoola N. I., Ogungbenro M. T., Falana F. F., 2015	Empirical Model for Determination of Rent within M.I. Wushishi Housing Estate, Minna, Niger	Access Road, Land Size, Internal Wall, Waste disposal, Water source and, Sewage System
5	William B. Brueggman, Jeffery D. Fisher, 2002	Real estate finance investments eleventh edition.	Location, age, quality and condition of premises, Access of near pool, Amenities, parking, better views, and higher floors with elevators
6	Gulyani and Talukdar (2008)	Slum Real Estate: The Low-Quality High-Price Puzzle in Nairobi's Slum Rental Market and its Implications for Theory and Practice	The number of rooms, building quality, permanent walls, permanent floor, electricity and water availability, reasonable access to toilet, and the presence of public school

2.4. Conceptual Framework

The work of property valuation comprises both calculations and judgments so that both the art and science parts of the valuation computations can be considered. To conduct the study, the researcher reviewed the kinds of literature and assess the preliminary data from the study area too. Then after the researcher organized and analyzed the collected data through different techniques to reach a conclusion. The overall flow of the research work including data, methods, and analysis is presented in the following conceptual framework.

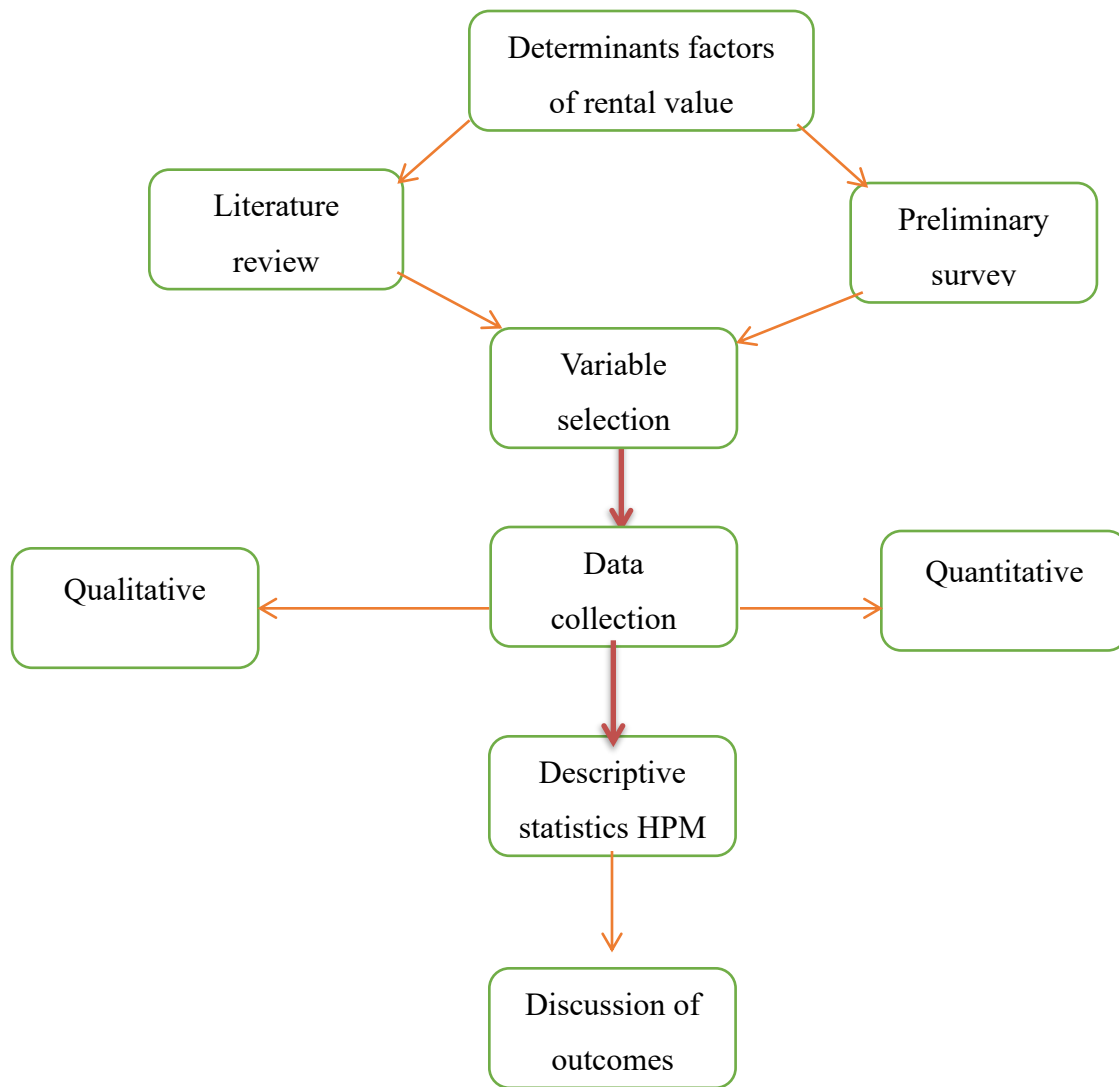


Figure 2.1. Conceptual framework of the study

Source: Own Conceptualization from the literature reviewed, 2026

CHAPTER THREE

3. METHODOLOGY

3.1. Site Description of the Study

Addis Ababa is the capital city of Ethiopia and of Africa. It is located on the center of Ethiopia and is the largest city with area of 527 km². The city has 11 sub cities. For the purpose of this study Lemi-Kura sub city, Woreda -10 is selected as it is shown on the map below. The area of Lemi Kura and Woreda 10 are 69.11 km² and 3.76km² respectively.

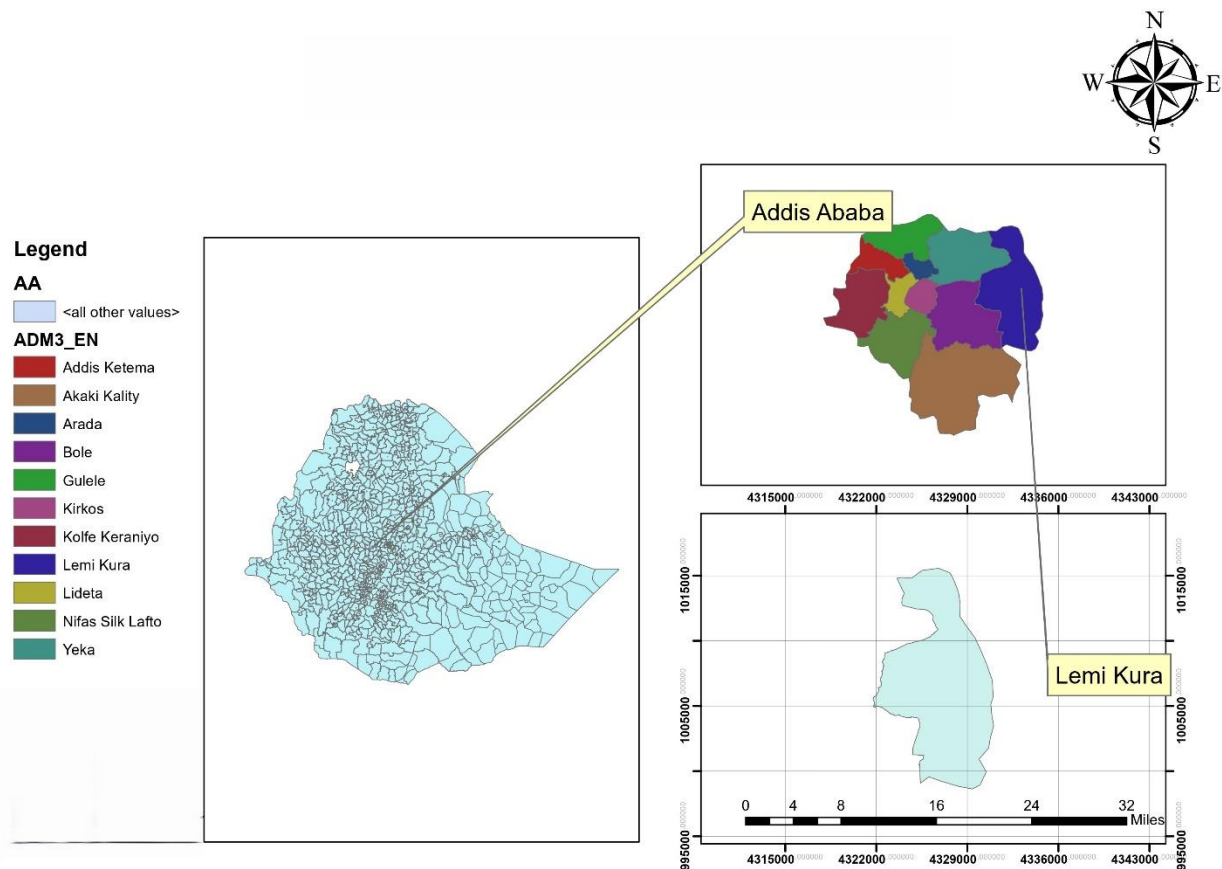


Figure 3.1. Map of Study Area I

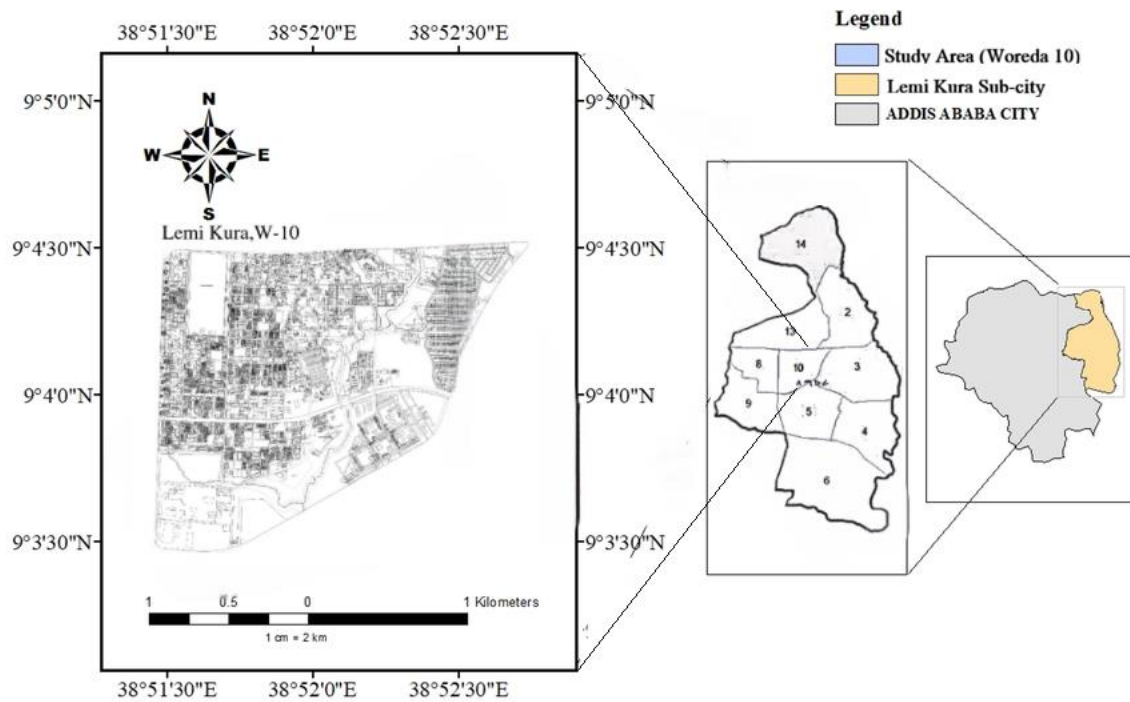


Figure 3.2. Location Map of the Study Area II



Figure 3.3. G+1 Residential Homes



Figure 3.4. Apartment Homes

3.2. Research Approach

To have a better insight and to gain a plentiful understanding of the research problem, the researcher employed a mixed approach (a combination of quantitative and qualitative approaches). The researcher collected both types of data for the best understanding of the research problem. A mixed research approach is an approach to an inquiry involving collecting both quantitative and qualitative data (Cresswell, 2003). The reason that the researcher employs a mixed research method is to obtain in-depth clarity of qualitative and quantitative outcomes concurrently. This mixed approach is appropriate to enhance the good use of triangulation and a practical problem - driven approach to understanding a research problem. Accordingly, the quantitative method is dominantly used to evaluate the influences of determinant factors of the rental value of properties using questionnaires and interviews with the respondents.

3.3. Research Design

Research design is the logical structure of the research inquiry. It is a plan that directs the collection, estimation, and analysis of data in research. Based on the research's appropriateness to

the objectives and research questions, the availability of resources, and, ethical considerations, the research design considered in this study falls under explanatory research design. The inferential statistics was applied for inferencing the samples to the population. From the population of residential properties in Woreda 10 of the Lemi Kura Woreda 10, samples were selected for collecting data of dependent and independent variables. To measure the influences of independent factors on the dependent factor (rental value) of residential properties, the hedonic regression method was used.

3.4. Population, Sample, and Sampling Technique

This research wants to assess the determinant factors of private residential property rental value which is found in the so-called Lemi Kura Woreda 10. The area covers Woreda 8, 10, and 13 of Lemi Kura sub-city. Woreda 10 is fully found within the Lemi Kura Woreda 10, and Woreda 8 and 13 are partly found within the Lemi Kura Woreda 10.

The strength of the study can be measured by the availability of data to be processed. For understanding the influences of determinant factors of the rental value of residential properties, Woreda 10 is selected purposively as a target population because of many reasons. For the reason that there are many private residential properties for rent, the study can be supported by the availability of reliable data. Besides, although urban improvements are continuous, Woreda 10 has relatively improved roads, waste management, electricity, and other infrastructures to the other areas so that tenants flow towards the area for acquiring rental homes, and the study can be helpful as infrastructures are relatively long-lasting.

The target population for the study is the private residential property found in Woreda 10 of Lemi Kura sub-city (Lemi Kura Woreda 10), Addis Ababa. Using the thematic map of houses found from the Woreda 10 administration, the number of blocks is known and each housing unit in every block is counted and summed to find the population of the house to which the study is going to be conducted. Then the total population of the private residential houses in Woreda 10 is 2,279 houses. As per the formula of sample size determination, samples were selected from the population from which the samples are inferred to.

Accordingly, the number of samples were determined based on Cochran's (1977) sampling determination formula. Cochran (1977) developed a formula to calculate a representative sample for proportions as

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where n_0 is the sample size, z is the selected critical value of desired confidence level, p is the estimated proportion of an attribute that is present in the population, $q = 1 - p$, and e is the desired level of precision. Then the sample became;

$$n_0 = \frac{1.96^2 * 0.9 * 0.1}{0.05^2} = 138.3$$

According to Cochran's assumption of sample size determination, the sample size can be slightly reduced if the population of the study is known. In the case of this study, the number of populations is known that is 2,279 houses. The following sample size determination formula is used with a known population. Consequently, the sample became as follows.

$$n = n_0 / (1 + \frac{n_0 - 1}{N})$$

Based on these, the samples for this study are determined as follows.

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{2279}} = 130.4 \approx 131$$

For selecting samples from the target population, the researcher used a probability sampling technique i.e. systematic random sampling. Each of the 17th (2,279/131 = 17.4) samples were selected from the total population.

3.5. Data Type and Sources

The researcher used both primary and secondary data sources. The primary data was collected from households, officials, brokers, and group discussions. Data such as physical, economic, environmental, and other related data can be found through primary data sources. Besides, secondary data sources can also be collected from legal documents, the internet, reports, and other available sources.

3.6. Data Collection Instruments

The instruments used to collect the data are shown as follows.

Table 3.1. Data Collection Instrument

Target groups	Data Collection Instrument
Properties	<i>Observation</i> ; data such as the physical characteristics of properties, proximity to infrastructures, and utilities were collected through observation. Photographs were taken for supporting the result.
Households	<i>Questionnaires</i> ; households filled out questionnaires about the properties' characteristics, tenure to the property, preference, economic capacity, etc. To collect different types of data it is semi-structured type. Through this instrument, the researcher supports quantitative analysis.
Key informants	<i>Interview</i> ; key informants, and brokers also be interviewed about the determinant factors that alter the rental value of the properties in the study area. Especially, qualitative analysis supported the data collected through interviews and focus group discussions.

3.7. Definition of Variables

This study is going to be conducted by analyzing the relationship between dependent and independent variables. The dependent variable is the rental value of a house which is defined in the form of scale which is the amount of money rented. This amount for the rental value can be found from the tenants through the questionnaire. The independent variables which determine the rental value are proximity to the road, construction material type, finishing material type, number of bedrooms, floor area, access to school, access to the health center, access to water, security of the compound, agglomeration of the business area, neighborhood quality and architectural style. The symbol, type, and definition of variables are summarized as follows.

Table 3.2 Definition of variables

Symbol	Determinant Factors	Predicted r/ship	Type of variables	Definition of variable
RV	Rental value	Dependent	Scale	Amount of rent in ETB
PR	Proximity to road	-ve	Scale	Distance in meter
CM	Construction material type	+ve	Ordinal	1 for outdated materials, 2 for mud and wood, 3 for block and masonry, 4 for high-cost modern materials
FM	Finishing material type	+ve	Ordinal	1 for Very poor, 2 for Poor, 3 for Fair, 4 for Good, 5 for Excellent
NB	Number of bedrooms	+ve	Ordinal	1 for It is with no bedroom, 2 for One bedroom, 3 for Two bedrooms, 4 for three bedrooms, and more
FA	Floor area	+ve	Scale	Area in m ²
AS	Access to school	+ve	Nominal	0 for No, 1 for Yes
AH	Access to the health center	+ve	Nominal	0 for No, 1 for Yes
AW	Access to water	+ve	Nominal	0 for Have no sufficient water, 1 for Have sufficient water
SC	Security of the compound	+ve	Nominal	0 for Not secured 1 for Secured
AGG	Agglomeration of the business area	+ve	Nominal	0 for No 1 for Yes
NQ	Neighborhood quality	+ve	Ordinal	1 for Very poor, 2 for Poor, 3 for Fair, 4 for Good, 5 for Excellent
ARCH	Architectural Style	+ve	Ordinal	1 for not at all satisfied, 2 for slightly satisfied, 3 for moderately satisfied, 4 for very satisfied, and 5 for completely satisfied

3.8. Methods of Data Analysis and Presentation

The collected data was organized and analyzed accordingly. The quantitative data was collected, organized, coded and tabulated, and described with the help of MS-Excel, SPSS. Mainly, the researcher used two analysis methods:

Relative importance index (RII) analysis: the determinant factors collected through the survey was analyzed using the relative importance index method. The relative importance of the independent variables to the dependent variable (rental value) can be indicated. For the application

of the relative importance index method, the researcher used five levels of satisfaction for each independent variable (strongly agree, agree, normal, disagree, and strongly disagree). The following formula then ranks its importance using the RII value between 1 and 0.

$$RII = (5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1)/A*N$$

Where: n_5 = the number of respondents for strongly agree, n_4 = the number of respondents for agree, n_3 = the number of respondents for normal, n_2 = the number of respondents for disagree, n_1 = the number of respondents for strongly disagree, A (highest weight) = 5 and N = the total number of respondents.

Multiple linear regression analysis: for this study, hedonic multiple regression analysis techniques were applied to infer results about the impacts of independent variables on rental value (dependent variable). The sample variables which were analyzed in the regression are cross-sectional data of rental values of private residential properties. Cross-sectional data were preferred since there is no available data on different years' property transactions.

Testing the data: To do the regression, first tests like normality, homoscedasticity, absence of multicollinearity, and auto-correlation of linear regression assumption were tested i.e.

A normality test: The residuals of the regression should follow a normal distribution so that the valid inference for the regression. For this reason, the data can be determined whether the data is normally distributed using the normal predicted probability (p- p) plot and using the Shapiro-Wilk test.

Homoscedasticity: this test shows that the variances around the regression line are the same for all values of the explanatory variables.

Multicollinearity: Multicollinearity occurs when there is a relationship between the independent variables. There are different methods of testing multicollinearity; VIF (variance inflation factor) was employed in this study. The values of VIF are to be below 10, and the best case would be if the values have to be below 5.

Auto-correlation: It is detected by the Durbin Watson test. Its value is always between 0 and 4; a value of 2 or approximately close to 2 usually indicates no autocorrelation problem.

Therefore, the principle of the hedonic pricing model states the dependent variable is the function of the independent variables. This can be described as

$$RV = f(PR, CM, FM, NB, FA, AS, AH, AW, SC, AGG, NQ, ARCH) \dots\dots\dots (1)$$

And then the formula for multiple linear regressions is written as follows.

$$RV = \alpha - \beta_1 PR + \beta_2 CM + \beta_3 FM + \beta_4 NB + \beta_5 FA + \beta_6 AS + \beta_7 AH + \beta_8 AW + \beta_9 SC + \beta_{10} AGG + \beta_{11} NQ + \beta_{12} ARCH + \mu \dots\dots\dots (2)$$

Where

α = the coefficient α is simply the expected mean value of R if other explanatory variables become zero, which is the intercept of the graph.

β (1, 2, 3, 4....10) = the regression coefficient, which is the estimate of the influence of variable value

μ = is error term sometimes called residuals

Descriptive analysis: the influencing factors were discussed and described in detail about their influences i.e. the variables impacting the rental value. The view of the key informants about the driving force of rental value and its change was analyzed. Besides, the household perception of the factors of value for estimating value was described.

CHAPTER FOUR

4. RESULTS AND DISCUSSIONS

4.1. Introduction

This chapter of the research elucidates the findings and discussion of the study based on the collected data by employing the appropriate method of analysis. The rent circumstances of residential properties are discussed in a descriptive way. The determinants affecting the rental value are discussed and their potential impact is analyzed using the hedonic pricing method accordingly.

4.2. Residential Property Rent in the Study Area

The renters have many reasons to prefer the area for renting residential properties. One major reason is that there is the availability of amenities and services found in the study area. Schools, health centers, governmental and private service sectors are available here. To reduce transportation cost and time taken to arrive at the working place those who work in these areas want to have rental properties within near distance. Hence the area is highly needed by such people since the ultimate goal is reducing costs. Householders need to have services for different reasons. The availability of schools in the nearby area for their children makes the area more preferable and other services too.

Some renters have lived for a long time in the area as they have social capital relationships with the community. To not lose the built-up relationship, households have almost become relatively permanent residents. Their children's waiting, their livelihood activities, and their social relations such as Ekub, Edir, and other social affairs are linked and become strong so they prefer to not leave the area.

4.2.1. The Characteristics of Population and Rent

Every household at least has a certain livelihood activity to fulfill their requirements such as housing, food, clothes, etc. According to their employment status, at least one from a household, can be governmental and non-governmental sector employed and self-employed. The first type of employees (most of the respondents) is those who work in the nearby governmental and non-governmental sectors. Although some individuals work far from their living area, they would not

leave because for different reasons such as strong social-capital relationships and adopted conditions for their families.

According to the result from the respondents, there is various composition of family members in a household that ranges from a single person (maybe unmarried) to multiple. For instance, couples who share resources and other expenditures may rent a house and it is most common among unmarried similar-sex individuals. Relatives collectively may also rent a house to help each other even for other purposes. Moreover, married couples with their child/ren and their houseworkers are those who rent house sustainability. The latter type of tenants is those who could have more social-capital relations with the community as they expand their service within the area.

The rent trend in the study area is showing an increase from time to time. rental properties for rent are being searched every day by both the renters and the brokers too. This is an implication for an increase in population so that demand for rental housing in the area. If there are properties for rent, as an indicator, 'notice paper' will be stamped outside the properties so that renters can access them easily. Tenants also search for rental houses by asking for each plausible house. They may ask shopkeepers and some others who are expected to have information for their residents. Moreover, local brokers have a linkage to house owners as they act as agents for searching for tenants. In return, the broker takes some amount of commission from the owners and the tenants (20% of the monthly rent from both sides) for their facilitation task.

Traditionally, the work of brokers is to facilitate the interaction of the owners and the tenants. However, their involvement is beyond it that is they are ununiformly intervenes on the determination of rents as their commission is determined by the amount of rent (percentage of rent). So, the amount of rent is determined with the influence of brokers which is not only the negotiation between owner and tenant.

The amount of housing rent augments increasing especially in the near times. Respondents asked the reasons for increasing rent. An increased migrant from different part of the country results in the demand for housing for rent which in return increase the rental value. The displacement of tenants (for instance from inner sub-cities) to area that shares the same roof and some common uses, demand for housing. Surprisingly, as the one reason for the increase in rental value, the Eritrean migrants are another factor. As the political relationship between Ethiopia and Eritrea

becomes smoothen and diplomatic, Eritreans come to Addis Ababa for living and unfortunately, the rent in the area is appreciated.

As a result, the captivation rate for rental housing has become higher as more vacant spaces are swiftly occupied by the tenant. This enables the owner to offer higher rent and the tenant to accept the owner's offer so that rent always appreciates.

4.2.2. The Property Characteristics

The residential properties in the study area have different sizes/areas, construction materials, designs, and other various characteristics. According to their economic potential or ability to pay for rent, householders rent properties for residence starting from a single unit (room) to the compound (main house and renting rooms if any for rent or self-use). Most of the household rent a room which is built in addition to the main house. The rental properties may also be different levels of floors.

Concerning construction materials, people prefer houses constructed with bricks and cement to another type. Wood and mud houses are not preferred by the people for the reason that they could have debris and vestiges to the wall. Luxuriously constructed houses are also not much needed by the people as it is costly and not affordable to rent. They prefer house that is conventionally constructed with bricks and cement. Unfortunately, almost all of the properties surveyed are constructed with bricks and blocks of cement. Besides, the rental houses are at different levels of floors. Many of tenants are on the ground and some of them are on the second, third, fourth, and fifth floors (reference: taking the ground as the first floor). The rental value decreases upward and vis versa. The rationality behind this is that the accessibility of common ground areas, difficulties for children, and usage of common utilities such as water are better and easy for those who rent on the first floor (ground).

There are many residential properties under development in the study area. As they are finished, they can be expected to absorb many peoples. This will have its contribution to the stabilization of the housing need in the area. but concerning the rapidly increasing need for houses for rent in the area, it is not enough to fully stabilize. Additionally, there are also proposed residential development in the area both by private individuals and real estate development companies which can then increase the supply of residential property to the area. in principle an increase in the supply of properties, the value will lower. However, in this case, the supply of residential property

is not equal to an increase in demand. So relatively the demand is more than the proposed (and underdevelopment) supply so that value is expected to appreciate unless any other way is adopted.

4.2.3. Agents and Participants on Rent System Between Tenants and Owners: The Local Experience

As there are absence of a central marketplace and a variety of interests and rights dealing with the property, the real estate market is characterized by segregated nature of the real estate market and a lack of knowledge. To fill this gap of imperfection in the real estate market, agents come in place for the purpose of facilitation. Likewise, those who come from any other area can have no information about the rental market in the study area. they want brokers and some individuals who have better information.

According to the respondent's response, most tenants who come to the area for the first time went to the brokers and visits the rental property. When the tenants meet the broker, they communicate about the type, floor area, and other property specifics components they want to rent, the amount of rent they can afford, and other clauses. Based on their requirement, the broker shows the property and act as the facilitator and/or mediator between the tenant and the property owner. If the two participants agree on the rental clauses, then the broker asks for payment for doing so as a facilitator through commission from both parties. Accordingly, the brokers' commission is twenty percent of the monthly rent from both owner and tenant (i.e. the sum of forty percent). However, if they search for rental properties by themselves and through some relationships, they may not pay any commission.

The problem with the brokerage in Addis Ababa and in particular in the study area is that the amount of rent is not determined by the tenant and owner alone. In principle, the role of the broker is to bring the tenants and owners together mentally and physically. However, the brokers have an involvement to set the amount of rent. Since the brokers' commission is given as a percentage of rental, they want to maximize their commission by appreciating the rental value of the property so that the amount of rent is increasing over time.

4.3. Determinant Factors Descriptive Statistics and Relative Importance Analysis

The researcher collected both quantitative and qualitative data from the respondent. The qualitative data are analyzed in a qualitative way which is collected from the key informants. However, quantitative data which is mainly collected through questionnaires are analyzed using relative importance index (RII) and multiple linear regression analysis as discussed in the following sections. The researcher first identified possible determinant independent variables through RII which is found in the works of literature and from a pilot survey on the study area. The significant variables are analyzed and used for total questionnaires. The relative importance index analysis and descriptive statistics were discussed in the next section.

4.3.1. Relative Importance Index (RI) Analysis

Depending on the particular local characteristics, the factors affecting the rental value of residential property differ from place to place. For this study, the factors which influence the value of the property are first identified with detailed discussion with respondents (the local *Dellala* (brokers), and property owners) and from related works of literature.

For this reason, nineteen (19) independent variables are picked up. To come up with the variables for the local property condition, the researcher asked 20 respondents (5 residents and 15 brokers) for rating the variables based on their relative importance index. The variables were analyzed and selected for whether significant or not which would be used for further computation. As a result, twelve (12) variables are found important for further computation. The selected variables for predicting the value of the property are discussed as follows.

Table 4.1. Relative Importance Index Analysis

Attributes	Most frequently used (5)	Frequently used (4)	Fairly used (3)	I do not know (2)	Not used (1)	RII	Rank
Floor area	18	1	1	0	0	0.97	1
Proximity to road	17	1	2	0	0	0.95	2
Number of bedrooms	17	1	2	0	0	0.95	3
Finishing material type	11	5	4	0	0	0.87	4
Agglomeration of the business	0	16	2	2	0	0.74	5
Access to the health center	5	6	4	3	2	0.69	6
Architectural Style	6	3	6	3	2	0.68	7
Neighborhood quality	2	8	3	7	0	0.65	8
Security of the compound	4	3	5	8	0	0.63	9
Construction material type	2	4	8	5	1	0.61	10
Access to school	2	3	10	4	1	0.61	11
Access to water	0	3	13	2	2	0.57	12
concessions	0	2	4	6	8	0.4	13
nationality	0	2	3	7	8	0.39	14
Absence of noise	0	2	4	5	9	0.39	15
Site improvements	1	1	1	2	15	0.31	16
Access to recreation area	0	1	1	5	13	0.3	17
parking area	0	1	1	4	14	0.29	18
number of family members	0	0	2	3	15	0.27	19

To determine the coverage area of each scale, the average of the range (maximum-minimum RII), was added beginning from the minimum value. Based on this, the maximum RII value is 0.97 and the minimum value is 0.27. Then the range becomes 0.70 and the average of the range (range/5) is 0.14. By adding the average of the range from the minimum value ($0.27 + 0.14$), the range of not significant at all could be found (from 0.27 to 0.41). Therefore, variables that have an RII of less than 0.41 are not significant at all and from 0.41 to 0.97 RII are slightly significant. As a result, Floor area, Proximity to the road, Number of bedrooms, finishing material type, Agglomeration of the business, Access to the health center, Architectural Style, Neighborhood quality, Security of the compound, Construction material type, Access to school, and Access to water are significant variables. However, concessions, nationality, Absence of noise, Site improvements, Access to the recreation area, parking area, and the number of family members are not significant.

So as to determine the potential influence of independent variables on the rental value, the significant variables in RII were selected and the hedonic pricing method was applied to the samples in the study area.

4.3.2. Descriptive Statistics of Determinant Factors

Through questionnaires the researcher collected data from 131 samples. Accordingly, the rental value ranges from 2,500 to 30,000 ETB with mean of 11,469.47. According to the statistics, the amount of rental value of the sample properties is solely dependent on the determinant variables such as proximity road, construction material type, finishing material, number of bedrooms, floor area and others as listed and discussed in the Table below.

Table 4.2 Descriptive statistics

Attributes	N	Range	Min	Max	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
Rental value	131	27500	2500	30000	11469.47	762.366	8725.682	76137522.020
Proximity to road	131	340	10	350	164.43	7.845	89.794	8062.939
Construction Material	131	3	1	4	2.83	.078	.887	.787
Finishing material type	131	4	1	5	2.83	.115	1.314	1.725
Number of Bedrooms	131	3	0	3	.87	.080	.915	.837
Floor area	131	288	12	300	99.66	7.763	88.852	7894.686
Access to school	131	4	1	5	2.21	.085	.974	.950
Access to health center	131	2	1	3	1.95	.068	.783	.613
Access to water	131	1	0	1	.82	.033	.382	.146
Security of the compound	131	1	0	1	.81	.034	.394	.156
Agglomeration of business areas	131	1	0	1	.46	.044	.500	.250
Neighborhood quality	131	3	2	5	3.58	.090	1.030	1.061
Architectural style	131	3	1	4	2.76	.077	.884	.782
Valid N (listwise)	131							

4.3.3. Proximity to Road

Road can be taken as a blood vessel for the development of town. Accordingly, most of the respondents agreed that they put access to road as a primary requirement for their commencement of investments such as development of real estate, opening schools and clinic, starting businesses and so on. Typically, there are three types of roads that are (being) built in the study area. Namely, asphalt road, cobblestone road and gravel road. Asphalt roads are found in the main way where most of the business areas are found. The value of the property in this case is highly determined by the above illustrated road types. Asphalt roads create better value for properties than cobblestone does, and cobble stone creates better value for properties than unpaved gravel road does. People in the town prefer properties accessible to better quality road especially for starting business activities. Accordingly, among the samples the nearest to the main road is 10m and the farthest is 350m. The farther the property is from the main road, the lower the rental value, all else being equal.

4.3.4. Construction Material Type

The type of construction materials has its own contribution for the value of property. To the particular of this study area, respondents show that the material to which the residential properties was built have made significance contributions on the determination of rental value of the property. Typically, the properties are constructed in cements and bricks. Somehow properties may be constructed with wood and mud but are rare. The renters mainly prefer the former type. However, since the renters may no longer live as that of owners they may look for better finishing materials than construction materials. They may choose attractive interior parts irrespective of whether it is constructed with cement or wood. The assumption behind this is that the owner prefers the property's strength for long economic life and low maintenance.

4.3.5. Finishing Material Type

The finishing part of the properties makes it more attractive. This may comprise mainly, renders, plasters, paints, decorations, and so on. As a tenant, people may live for short period so that depreciation may not be the main concern. Depreciation on ceilings, walls, roof, doors, and other short-lived items may be the responsibility of owners. As long as the property is reconditioned and maintained the property become attractive. So, to make it more attractive by the new tenants, the owner refurbishes the properties mostly after the tenants leave the property. As a result, this is

the responsibility of owners to do so. Accordingly, the respondents responded that tenants prefer properties whose finishing is better attractive, and as a result the rental value appreciates as well.

4.3.6. Number of Bedrooms

The number of bedrooms in the residential property is being considered by the tenants. Although many rentable properties are one room with different area, houses with bedrooms are more needed by the tenants for those who have many numbers of families. Accordingly, the rental value of the houses will increase as the number of bedrooms increase. Meaning that, keeping other factors are constant, the value of three-bedroom is greater than two-bedroom, two-bedrooms is greater than one bedroom. House with bedroom have greater value than houses with no bedrooms.

4.3.7. Floor Area

The floor area is mostly considered by the tenants while they search house for rent. The larger the floor area, the higher the rental value. Discussion with respondents confirms that, the wider area enables the tenants to have more furniture and provides space to accomplish different activities in the house. As a result, higher rental value will be determined for wider floor areas than that of the narrower.

4.3.8. Access to School

In the contemporary world, education is an important thing that businesses, technologies and every livelihood activity can be enhanced with a reasonable manner. In Ethiopia, particularly in Addis Ababa educational institutions are expanding rapidly and those people who need education flows to the city too. The number of schools and colleges are increasing over time. The high- and preparatory-schools increase their capacity to take more students. The number of private colleges and governmental colleges are increased as well. For this reason, the school communities require living homes as a result the demand for residential property for rent increases. This creates an opportunity of properties in the city to be rented so that the value can be improved. Generally, the educational institutions for providing their service and individuals for accessing education service need house so that the demand of housing increases. These situations have a parallel relationship between demand and price of houses in the town.

4.3.9. Access to Health Center

It is obvious that health matters all beings. Accessing health providers in near distance by the people can save time, money for transportation and related expenses. In the study area, respondents prefer rental housing located close to health centers to ensure easy access to healthcare services when needed. This is particularly important for patients, children, the elderly, and other vulnerable groups. The availability of nearby health facilities is highly valued, as it reduces travel time and transportation costs while improving access to essential healthcare services. Tenants in the study area search nearby rental house for accessing health services so as to minimize cost of travel and other expenses.

4.3.10. Access to Utility Service

The availability of utility service has a very crucial element on the usage of real property so that the value can be determined. As different scholars and experiences verify, access to utility services such as electricity, water, telecommunication lines, sewerage and other utility that serve the property have positive implication on the value of the property. The impact of utility service on the value of the property in Lemi Kura Woreda 10 of Addis Ababa city shares the same implication as it has positive impact. The routinely construction of sewerage utility is along the line of road so better sewerage can be found through a quality road.

4.3.11. Security of the Compound

Protecting the people's security is expected to the minimum requirement by the government. People want their house to be protected when they leave their home at any time. According to the respondent, the more secured neighborhood is to more preferred.

4.3.12. Agglomeration of the Business Area

Naturally, businesses such as supermarkets, trading, cafeterias, malls and many commercial centers are gathered in some areas. According to the data obtained from respondents, the inner sub cities have more agglomeration of business centers than that of the outer sub cities. This indicates that individuals don't want to be exposed for further transport expense and traffic congestion. They prefer to rent near to the place they work to the business center. It has been pointed out that people who could not afford houses in the vicinity of the CBD usually secure residence away from the central business districts. These people commonly spend more on transport costs to and from work places due to the distance but they could get more space and lot sizes in their residential dwellings

owing to less competition and less crowd in such areas (Emmanuel S. Gwamna and et al, 2015). People prefer to live in the central business areas as they would be closer to their place of work and it would be convenient to commute to work (Yean Pin Lee, 2002).

4.3.13. Neighborhood Quality and Architectural Style

Neighborhood physical quality is the appearance of the physical and environmental conditions of the locality. It includes the physical layout/site design of the settlement, road connectivity and accessibility, environmental pollution, waste management system etc. The respondents preferred it as a factor for the determination of value of the property.

4.4. The Potential Impacts of Determinant Factors on the Rental Value HPM

The following sub-sections are the analysis of variables using hedonic pricing method by applying multiple linear regression analysis. The hedonic pricing method is used to understand the relationship of dependent and independent variables. Hence, so as to show the effect of variables on property's rental value the regression analysis is used.

4.4.1. Variable Test

In order to do the regression, first tests like normality, homoscedasticity, absence of multicollinearity, and auto-correlation of linear regression assumption are tested as follows.

- 1. Normality test:** The residuals of the regression should follow a normal distribution so that the valid inference for the regression. For this reason, the data is determined whether the data is normally distributed using the normal predicted probability (p- p) plot and using Shapiro-Wilk test. Thus, the following table shows Shapiro-Wilk test. The p-value is 0.377 which is greater than 0.050 (confidence level), it can be concluded that the data comes from a normal distribution.

Likewise, the normal distribution of the data can be shown on the normal p-p plot. The following figure illustrates the normality of the distribution since the little circles follows along the normality line.

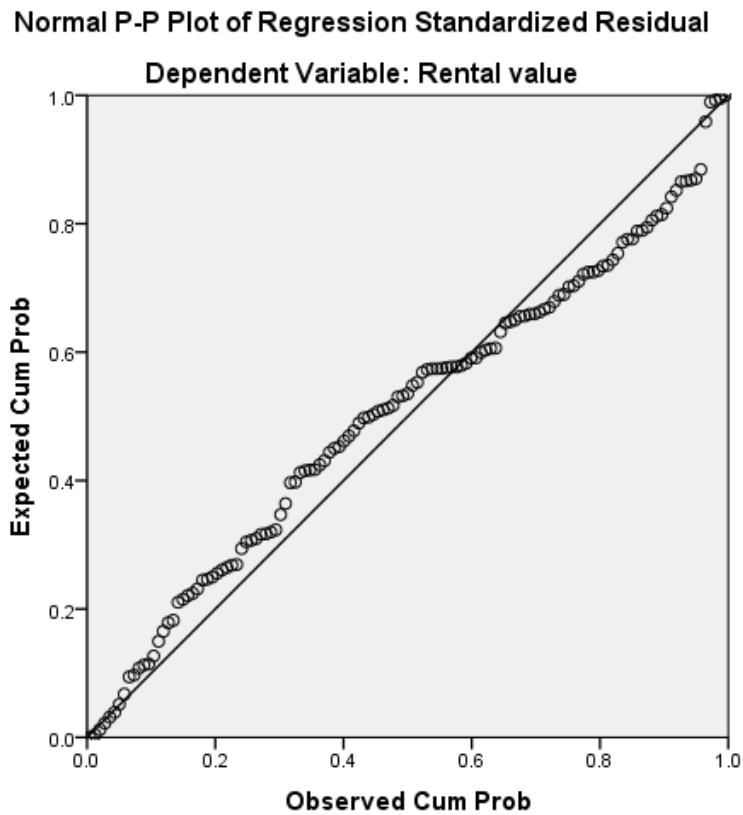


Figure 4.1 Normal p-p plot of regression standardized residual

2. **Homoscedasticity:** it is the assumption of equal variance. The point must be about the same distance from the line. Therefore, this test shows that the variances around the regression line the same for all values of the explanatory variables. According to the following figure, the data is Homoscedastic because there are points almost equally distributed above and below zero on the x axis, and to the left and right of zero on the y axis. As well as there is no a very tight or wide distribution to the left and right or above and below of the plot.

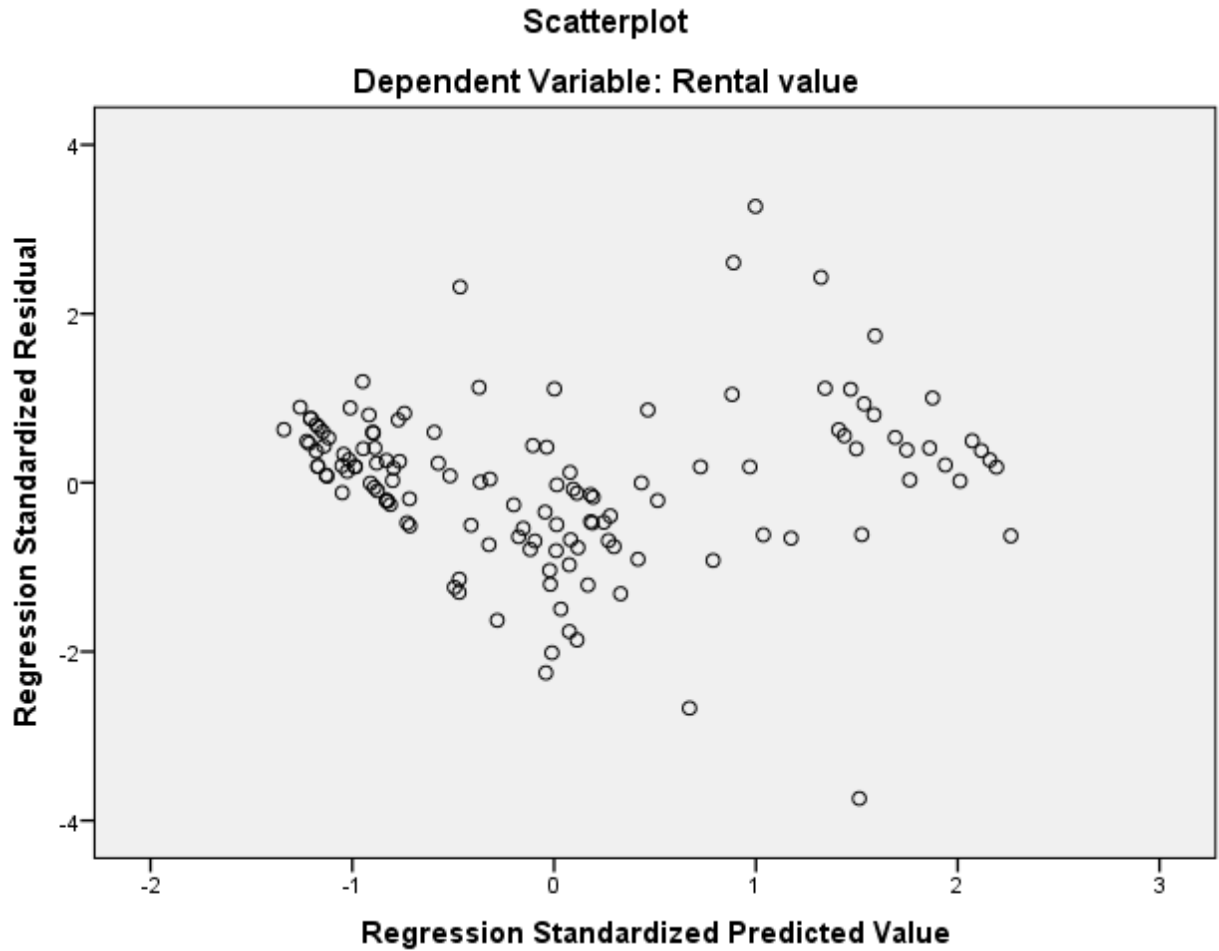


Figure 4.2 Scatter plot of the regression analysis

3. **Multicollinearity:** Multicollinearity occurs when there is the relationship between the independent variables. There are other different methods of testing multicollinearity; VIF (variance inflation factor) has been employed in this study. The values to be below 10, and best case would be if the values have to be below 5. Thus, according to the table below, each value is below 5 indicating that there is no a multicollinearity problem.

Table 4.3 Multicollinearity analysis

Model	VIF
(Constant)	
Proximity to road	2.631
Construction Material	1.167
Finishing material type	1.111
Number of Bedrooms	4.251
Floor area	2.456

Model	VIF
Access to school	1.160
Access to health center	1.105
Access to water	1.075
security of the compound	1.353
agglomeration of business areas	1.562
Neighborhood quality	1.760
Architectural style	1.628

4. **Auto-correlation:** It is detected by Durbin Watson test. Its value is always between 0 and 4; a value of 2 or approximately close to 2 usually indicates no autocorrelation problem. Thus, according to the Model Summary table below, the Durbin Watson value of the data employed in this study is 1.644 which is close to 2 and therefore, there is less problem of autocorrelation, implies the data meets the requirement of multiple linear regression in the case of autocorrelation.

Therefore, from the principle of the hedonic pricing model states the dependent variable is the function of the independent variables. Therefore, this can be written as

$$RV = f(ARCH, AH, AS, AW, CM, FM, SC, AGG, NQ, FA, PR, NB) \dots\dots\dots (1)$$

And then the formula for multiple linear regressions is written as follows.

$$RV = \alpha + \beta_1 ARCH + \beta_2 AH + \beta_3 AS - \beta_4 AW + \beta_5 CM + \beta_6 FM + \beta_7 SC + \beta_8 AGG + \beta_9 NQ + \beta_{10} FA + \beta_{11} PR + \beta_{12} NB + \mu \dots\dots\dots (2)$$

Where

α = the coefficient α is simply the expected mean value of R if other explanatory variables become zero, which is the intercept of the graph.

$\beta (1, 2, 3, 4 \dots 12)$ = the respective regression coefficient, which is the estimate of the influence of variable value

μ = is error term sometimes called residuals

ARCH, AH, AS, AW, CM, FM, SC, AGG, NQ, FA, PR, NB are short forms of Architectural style, Access to health center, Access to school, Access to water, Construction Material, Finishing

material type, security of the compound, agglomeration of business areas, Neighborhood quality, Floor area, Proximity to road and Number of Bedrooms respectively.

4.4.2. Regression Result

Based on the data collected from the field survey, the following results were found through regression model in SPSS analysis software. The table below shows the overall model of the regression result for the rental value and its attributes of the sample properties.

Table 4.4 Model summary table of the regression

Model Summary ^b										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin - Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.938 _a	.880	.868	3169.347	.880	72.281	12	118	.000	1.644
a. Predictors: (Constant), Architectural style, Access to health center, Access to school, Access to water, Construction Material, Finishing material type, security of the compound, agglomeration of business areas, Neighborhood quality, Floor area, Proximity to road, Number of Bedrooms										
b. Dependent Variable: Rental value										

Source: author's computation 2026

The coefficient of determination, adjusted R square measures the strength or magnitude of the relationship. According to the model summary of the regression analysis, the adjusted R square value shows 86.8% of the variation in the dependent (residential rental value) variable can be explained by variations in the independent variables. This means the regression model can explain the 86.8% and the rest 13.2% are explained by other variables which the model cannot anticipate. Thus, this model is better for the prediction of the property rental values of the residential properties in the study area.

Table 4.5 The coefficient table of the determinant variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
a.	(Constant)	8040.257	2366.267		3.398	.001		
	Proximity to road	-35.389	5.021	-.364	-7.047	.000	.380	2.631
	Construction Material	156.844	338.526	.016	.463	.644	.857	1.167
	Finishing material type	472.438	223.072	.071	2.118	.036	.900	1.111
	Number of Bedrooms	3766.731	626.504	.395	6.012	.000	.235	4.251
	Floor area	11.264	4.903	.115	2.298	.023	.407	2.456
	Access to school	-121.407	307.244	-.014	-.395	.693	.862	1.160
	Access to health center	-617.300	373.123	-.055	-1.654	.101	.905	1.105
	Access to water	257.839	754.780	.011	.342	.733	.930	1.075
	security of the compound	268.490	819.683	.012	.328	.744	.739	1.353
	agglomeration of business areas	830.835	694.549	.048	1.196	.234	.640	1.562
	Neighborhood quality	248.745	357.989	.029	.695	.489	.568	1.760
	Architectural style	1027.238	401.051	.104	2.561	.012	.614	1.628

a. Dependent Variable: Rental value

Source: Author's computation, 2026

Based on above coefficient table, the coefficients of the explanatory variables and the constant (intercept) are indicated. The table illustrates the potential contribution of each independent variable to the rental value of the residential property as determined by in the respective indicated unstandardized coefficients of explanatory variables.

According to the result of the regression analysis, five predictor variables and the intercept (the constant) are significant that is the significance value (see *Sig. column* on the coefficient table) are below 0.05 (5%) significant level. However, seven of the variables are insignificant. Of the significant predictor variables, proximity to road (to the main asphalt way) has negative relationship with the dependent variable, rental value. That means as the distance to the main road increases the rental value of the residential property decreases and vis versa. The other significant predictor variables such as Architectural style, Floor area, Proximity to road, Number of Bedrooms and Finishing material type have positive relationship with the rental value i.e. the rental value increase or decrease in the same direction and to the respective coefficients of variables. On the other hand, unlike the proximity to road, as the value of the variable increases the value of the property will also increase.

The variables such as Access to health center, Access to school, Access to water, Construction Material, security of the compound, agglomeration of business areas and Neighborhood quality have significance value of more than 0.05 so that they are not significant. This does not mean that the variables can't predict the dependent variable rather not within 95% significance level. However, they have a positive linear relationship (except access to school and access to health center have negative relationship) to the dependent variable.

Proximity of properties to the road is a vital determining factor as the distance matters time. As many kinds of literatures support for the high determining potential of proximity to road, this study also obeys its significance. By the relative importance index proximity to road is rated at the top which is latter supported by the regression analysis that it is significant factor for the determination of rental value. What makes the regression analysis different from the hedonic is that by the hedonic/regression analysis the direction and magnitude of its influential potential is determined as expressed in table 8. According to the unstandardized coefficient B, the sign is negative meant that as the properties' distance to the main road increases, the rental value will decrease and vis versa. Besides, as the distance increases by one unit, the rental value of the property can be declined by 35.39. Tenants prefer accessible properties as the transport and related costs can be minimized.

The study ascertained that the materials used are taken as the factors for the determination of rental value of residential properties. The discussions with respondents supported that the finishing materials are significant as the tenants prefer for an attractive home for rent. However, the construction material is not significant as the finishing materials. As the researcher found from the respondent's response, the tenant's matter on shorter benefits than the owners. This is because reconstruction is solely the responsibility of the owner thus the type construction material can determine the economic life of the properties. But the tenants may not live up to the end of the properties economic life because they may leave because of different factors before the properties' economic life. Therefore, the tenant can be attracted by the properties good looking rather than long sustainability. the hedonic method shows that the significance 0.036 (sig value) which is less than 0.05. According to the unstandardized coefficient B, the sign is positive meaning that as the properties' finishing material type becomes better, the rental value will increase and vis versa. In addition, the coefficient indicates that as the finishing Materia changes by one level (for example from 'good' to 'very good') the rental value of the properties will change by 472.438 units.

The rental value of the properties is also highly dependent on the area of the properties. The wider space allows the tenants for more usage. In the case of this study area is found significant. according to the respondent's response, the wider area is more demanded by the tenants so that the rental value is higher. The RII and Hedonic method analysis also supported that floor area is a significant determining factor and has a positive relationship with the rental value means that as the floor area increases the rental value will increase. The significance value is 0.023 which is less than 0.05 (the significance level). As the floor area changes by one unit (one m²) the rental value changes by 11.264 units.

The number of bedrooms is also another determining factor. This study found that the number of bedrooms is a significant determining factor for the fortitude of rental value. According to the analysis the significance value (0.000) is less than the significance level which is accepted as a determinate factor of rental value. This also shows it has a positive relationship with rental value the properties being rented in the study area. As there is a change in one bedroom the rental value will change by 3,766.731 units.

in addition, the other determining factor of rental value of properties is the architectural style of the properties being rented. The more attractive and aesthetically built home is more demanded by the tenants. The architectural style in this case includes the area of partitions suitable for an intended use, the properties exposure to the sun and its view, the roof height, numbers and widths of openings and so on. Fortunately, the respondent assured that the architectural stylishness is being preferred and used for the determination of rental value. Both the RII and hedonic analysis reveals that it is a significant factor. The significance value of the architectural style is 0.012 which is less than the significance level. The architectural style and the rental value have a positive relationship so that the rental value of the property will change by 1027.238 units as the architectural style changes by one level.

Determining factors which are found significant by relative importance index are not always significant by the hedonic analysis which means the significance value is greater than the significance level (0.05). For instance, the construction materials, access to health center, water, security and quality of the neighborhood and agglomeration of business sectors are not significant by the hedonic analysis for this particular study. However, these factors were found significant factors by the RII for the determination of rental value of properties.

4.4.3. The Influence of Determinant Variables Relative to Others' Findings

The independent variables are analyzed in Likert scale and hedonic pricing model in the above sections. In this section, the results will be discussed with correlating the other researchers sighting.

According to (Gregory, K. and Hong 2012) the increment of land value due to public action, such as investment in infrastructure, the provision of public service, and planning and land use regulation, can also affect the value of the property and rent house as well. In fact, all these activities, generate a large number of positive externalities, most of which are captured by the owners in terms of increases in values that is the government by increasing land value and the owners by increasing property and rental value. The result of this study also confirms that the more developed areas have imposed more rental values. As described by Ajibola et al. (2012) and Owusu-Ansah (2012a), site-specific and property specific characteristics such as number of stories, number of rooms, location, plot size have positive influence on the rental value of the property. This study also has long-established the discrepancies of rental value of the property is a result of differences of dependent factors to the property.

This study supports the study done by Amenyah and Fletcher (2013), Owusu-Ansah (2012) in residential properties of Ghana that the number of bedrooms is significant in determining residential rental prices. The direction is positive meant that an increase in number of bedrooms results an increase in rental value of the residential properties. This puts tenants in great difficulties and financial sufferings.

The accessibility of road infrastructure plays a great role on the value of rental value. Among the findings of different studies Wickramaarachchi (2016) indicate that distance to main junction is the most significant variable in the residential properties. Likewise, this study confirms that proximity is a significant variable. as the property is near to the road, more value will be imposed.

CHAPTER FIVE

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusion

Householder's lease residential properties based on their economic capacity or rental payment ability. These properties range from single units (such as rooms) to compounds (main houses with additional rooms for rent or personal use). However, the supply of residential properties is insufficient compared to the current demand. Despite this scarcity, there are several proposed and under-development residential properties in the study area, which are expected to accommodate many people. The real estate market's fragmented nature and lack of knowledge contribute to its imperfections.

Market rent is influenced by a combination of factors, including amenities, property-specific characteristics, and location. Statistical analysis reveals that the rental value of sample properties depends primarily on specific variables. Two methods were employed to explore relationships among these variables. Relative Importance Index Analysis highlights significant independent variables, such as construction material, finishing material type, number of bedrooms, floor area, access to school, access to health centres, access to water, compound security, business area agglomeration, neighbourhood quality, and architectural style. In Multiple Linear Regression approach, variables like proximity to roads, finishing material type, number of bedrooms, floor area, and architectural style were found to be significant. The regression model indicates that approximately 86.8% of the variation in residential rental value can be explained by variations in these independent factors.

As thoroughly discussed in the body of the report, five predictor variables and the intercept (the constant) are found to be significant in the model. The result indicates that proximity to road (to the main asphalt way) has negative relationship with the dependent variable, rental value. That means as the distance to the main road increases the rental value of the residential property decreases and vis versa. The other significant predictor variables such as Architectural style, Floor area, Proximity to road, Number of Bedrooms and Finishing material type have positive relationship with the rental value i.e. the rental value increase or decrease in the same direction

and to the respective coefficients of variables. On the other hand, unlike the proximity to road, as the value of the variable increases the value of the property will also increase.

Proximity of properties to the road is a vital determining factor as the distance matters time. By the relative importance index, proximity to road is rated at the top which is latter supported by the regression analysis that it is significant factor in the determination of rental value. Besides, as the distance increases by one unit, the rental value of the property can be declined by 35.39 units. Hence, it is safe to conclude that tenants prefer accessible properties as the transport and related costs can be minimized.

Moreover, the study ascertained that the materials used for construction are taken as the factors for the determination of rental value of residential properties. The discussions made with respondents indicate that finishing materials are significant as the tenants prefer for an attractive home for rent. However, the construction material is not significant as the finishing materials. As the researcher found from the respondents' response, the tenants focus on shorter benefits than the owners. This is because reconstruction is solely the responsibility of the owner thus the type construction material can determine the economic life of the properties. But the tenants may not live up to the end of the properties economic life because they may leave because of different factors before the properties' economic life. Therefore, the tenant can be attracted by the property's good look rather than long-term sustainability. The hedonic model shows that this variable has a significance value of 0.036 (sig value) which is less than 0.05. According to the unstandardized coefficient B, the sign is positive meant that as the properties' finishing material type becomes better, the rental value will increase and vis versa. In addition, the coefficient indicates that as the finishing material changes by one level (for example from 'good' to 'very good') the rental value of the properties will change by 472.438 units.

The other determining factor of rental value identified by this study is the area of the properties. It is clear that wider space allows the tenants for more usage. In the case of this study area is found significant. according to the respondent's response, the wider area is more demanded by the tenants so that the rental value is higher. The RII and Hedonic method analysis also supported that floor area is a significant determining factor and has a positive relationship with the rental value means that as the floor area increases the rental value will increases. As the floor area changes by one unit (one m²) the rental value changes by 11.264 units.

The other determining factor is the number of bedrooms. The number of bedrooms increases if the floor area of the house is large. This study also assures that the number of bedrooms is a significant determining factor for the fortitude of rental value. According to the analysis the significance value (0.000) is less than the significance level which is accepted as a determinant factor of rental value. This also shows it has a positive relationship with rental value the properties being rented in the study area. As there is a change in one bedroom the rental value will change by 3,766.731 units.

The other thing that the tenants are being attracted to is the architectural style of the properties being rented. The more attractive and aesthetically built home is more demanded by the tenants. The architectural style in this case includes the area of partitions suitable for an intended use, the properties exposure to the sun and its view, the roof height, numbers and widths of openings and so on. Fortunately, the respondent assured that the architectural stylishness is being preferred and used for the determination of rental value. Both the RII and hedonic analysis reveals that it is a significant factor. The significance value of the architectural style is 0.012 which is less than the significance level. The architectural style and the rental value have a positive relationship so that the rental value of the property will change by 1027.238 units as the architectural style changes by one level.

This research therefore clearly indicates which factors property owners need to consider while they think of renting their estates. This is important to increase once rental value and helps property owners maximize their benefits. In addition, it is still important for tenants because it lets them know which factors are contributors of increased rented values of properties. This research is conducted in Lemi Kura Woreda 10. Hence, it captures which factors contribute to changes rental values of private properties in that area. Moreover, it measures by how much these factors affect (the magnitude of the effect) on rental values of properties. This finding is important because it improves the common knowledge people have about relationship between the indicated variables (because it clearly states magnitudes of changes). Other researchers can replicate the method and check if similar or other factors have significant influence on rental value of properties in different areas in the city of Addis Ababa or other cities.

5.2. Recommendations

Based on the findings of the study, the researcher suggested several recommendations in the Lemi Kura Woreda 10 and Addis Ababa at large:

1. **Contemporary Information Updating System:** Implementing a system that regularly updates information about rental housing is crucial. This would reduce searching costs for both tenants and owners. Access to accurate information is essential for efficient rental market activities, especially in the study area and in general Addis Ababa where lack of information characterizes the rental market. Hence, both owners of properties and tenants need to know determinants of rental values indicated in this study to make informed decisions.
2. **Government Control on Rental Values:** The Addis Ababa city government should play a controlling role in regulating rental values and related clauses. Rental amounts often escalate without remedial actions, leading to tenant dissatisfaction. By monitoring and managing rental rates, the government can create a more stable environment for both landlords and tenants.
3. **Revising Housing Supply Policies:** in long run, the Addis Ababa city government needs to revise its housing supply policies to meet demand. Limited availability of rental properties contributes to uncontrolled increases in rental values. Ensuring an adequate supply of houses for rent will make it easier for tenants to find suitable properties.
4. **Infrastructure Development:** As a major infrastructure provider, the Addis Ababa city government should address critical infrastructure elements such as roads, utility lines, and services. Accessibility to infrastructure significantly influences rental value determination. Obviously, improving infrastructure can positively impact property values.
5. **Continuous Research on Determination Factors:** Rental value factors vary based on location, time, and other conditions. Regularly conducting studies on these factors is essential. These insights will assist both the government and private sector in making informed decisions regarding rental property management and housing market in general.

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APPENDICES

Questionnaire

Questionnaire for tenant households

This questionnaire is designed to collect data to conduct research on the title “Modelling the determinants of rental values of private residential property around Lemi Kura Woreda 10”. This information will be used only for the purpose of Partial fulfilment for MSc in urban land and property valuation. Your answer is confidential thus you are highly requested to provide genuine response.

I would like to thank you in advance for your genuine response.

Respondent’s profile

Gender male _____ female _____

Age of the respondent

Below 25	30-35	Above 45
25-30	35-45	

1. Level of education

A. Below 10 B. 11 and 12 C. Diploma D. Degree E. Masters and above

What is the family size living in the rented house?

1	4	7 and above
2	5	
3	6	

What is your employment status or the livelihood mechanism of the household?

Government employee

Private business /self-employed/

Unemployed

What is your monthly income of the household?

below 3000

8001 to 10000

3001 to 5000

Above 10000

5001 to 8000

General information about the property

Location of the property Woreda _____ ketena _____ block _____

Why do you prefer this area for renting the property?

It is near my work place

My social-capital is built in this area

Because of the services and amenities around this area

Specify if there is other reasons _____,

How long did you take to find the house for rent?

On a first day of search

In a month

In a week

More than a month

How did you find/obtain the house for rent?

Through brokers

By social media/network

By searching/notice

Specify if others

By the help of friend/known individuals

Who determined the rent for the property?

Renters

Government determined

Brokers

If other specify

By negotiation with renter

At what interval of time does the rent change?

Monthly

Indexed with some rate

Semiannually

Undefined time for rent change

Annually

Specify if other

What is the reason for adding rental value over a given time?

_____.

How are you satisfied to the service that you are going to get from your rental house? (sanitation, water, electricity, telecommunication, security, pollution ...)

Excellent

Satisfactory

Very good

Not satisfied

Good

1. What is the monthly rent for the property you occupied?
_____.
2. How do you see the rent for this area relative to other areas (by comparing and contrasting the similar property (improvement))?
 - a. It is higher
 - b. It is normal
 - c. It is lower
 - d. I do not know
3. If your answer is for the above question is 'a' or 'c', for what reason do you expect?
_____.
4. What is the area of the house you occupied?
_____.
5. On which floor is your property located?
 - a. Ground
 - b. Ground + 1
 - c. Ground +2
 - d. Ground +3
 - e. Ground + 4 and above
6. The type of property you occupied;
 - a. Single family
 - b. Detached to other house
 - c. Some part of the main house
7. Who has the responsibility for repairing and modifying the property?
 - a. The tenant
 - b. The owner
 - c. Jointly

- d. Not defined
- 8. Is there space (common) in the compound you rented?
 - a. Yes
 - b. No

The following checklists are determinant factors for the rental value of a residential property which is found from different literatures and brokers from the study area.

Put ‘X’ or ‘√’ mark on the agreement scales to which your property suits to the indicated factor.

Determinant Factors of Rental Value	Agreement scale				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	1	2	3	4	5
Floor area					
Proximity to road					
Number of bedrooms					
Finishing material type					
Agglomeration the business					
Access to health center					
Architectural Style					
Neighborhood quality					
Security of the compound					
Construction material type					
Access to school					
Access to water					
concessions					
nationality					
Absence of noise					
Site improvements					
Access to recreation area					
parking area					
number of family members					

Questions for discussion with key informants

This questionnaire is designed to collect data for conducting research on the title “Modelling the determinants of rental values of private residential property around Lemi Kura Woreda 10”. This information will be used only for the purpose of Partial fulfilment of MSc in urban land and property valuation. Your answer is confidential thus you are highly requested to provide genuine response.

I would like to thank you in advance for your genuine response

1. Are there any developing and proposed properties for residential purpose around the area?

2. How is the rate of absorption and vacancy rates of rentable properties around the area?
3. How do you see the population density/flow means that do the population size increased, decreased or the same as it was before? What reasons do you expect for?
4. How do you see the infrastructural development for this area?
5. Are there any reasons that tenants are inspired to come into the area? If so, what are these factors?
6. What essential issues you want to rise in relation to residential private properties' rent?

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Abstract

Addis Ababa's rapid urban growth has intensified housing demand, creating challenges in determining fair rental values. This study examines private residential houses in Lemi Kura Woreda 10 using a hedonic pricing model to identify key determinants of rent. Data from 131 households were analyzed through regression techniques, revealing that floor area, finishing materials, architectural style, and proximity to roads, schools, and health centers significantly influence rental values. Security and neighborhood quality also play critical roles. The findings provide actionable insights for policymakers to regulate rent escalation, improve infrastructure, and revise housing policies. For scholars, the study bridges global valuation theory with localized evidence, contributing to the literature on housing economics in developing cities.

Introduction

The study investigates the determinant factors of private residential rental values in Lemi Kura Woreda 10, Addis Ababa, applying a hedonic pricing model to capture the interplay of structural, locational, and socio-economic attributes. Property valuation is framed as a multidimensional process influenced by economic, physical, environmental, legal, and political forces, requiring systematic appraisal methods to ensure accuracy and fairness (Ling & Archer, 2018; Wyatt, 2013).

Globally, empirical evidence highlights that rental values are shaped by property characteristics, neighborhood quality, and external market conditions (Rosato et al., 2017; Gyourko & Sinai, 2022). In African cities, rapid urbanization and weak regulatory frameworks distort rental pricing, with infrastructure, accessibility, and security emerging as key determinants (Akinyemi &

Adegboye, 2020; Osei-Kyei & Chan, 2018). In Ethiopia, rental housing dominates urban tenure, yet valuation practices remain informal and inconsistent, leading to disparities across neighborhoods (Belete & Yilma, 2020; Tesfaye, 2018).

The research identifies a critical gap: valuation practices in Addis Ababa lack standardization, resulting in speculative pricing and unreliable policy guidance (Akalu, 2022; UN-Habitat, 2023). Previous studies in Debre Birhan and Addis Ababa emphasize variables such as water access, floor materials, and bedroom count (Abebaw, 2021; Masresha, 2018), but micro-level determinants of private rental values remain underexplored. This study therefore seeks to provide localized empirical evidence by examining the specific socio-economic and infrastructural dynamics of Lemi Kura Woreda 10.

The analysis is guided by three central questions:

1. What is the current status of private residential rents in the study area?
2. Which factors most strongly influence rental values?
3. To what extent do these factors affect rental pricing?

The objectives are to assess rental values, identify determinant factors, and quantify their influence through regression analysis. The significance of the study lies in its contribution to scholarship, policy, and practice: it enriches comparative literature on housing valuation in developing economies (Kauko, 2020), informs policymakers on taxation and zoning strategies (Amanuel, 2021), and bridges global valuation theory with Ethiopia's housing realities.

The scope is defined methodologically by quantitative regression analysis, geographically by Lemi Kura Woreda 10, conceptually by hedonic pricing theory, and temporally by data spanning 2020–2026. Limitations include potential respondent bias, confidentiality concerns, and limited generalizability beyond the study area.

Methodology

Study Area

Lemi Kura Woreda 10, located in the eastern corridor of Addis Ababa, is one of the city's fastest-growing residential zones. The area is characterized by mixed land use, rapid real estate

development, and high rental demand from middle-income households and expatriates. Its unique socio-economic and infrastructural profile makes it an ideal microcosm for studying urban rental dynamics.

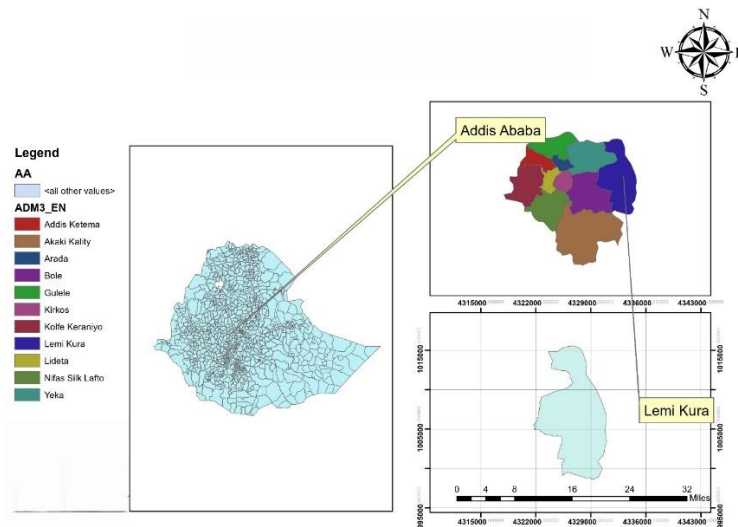


Figure 0.1. Map of Study Area I

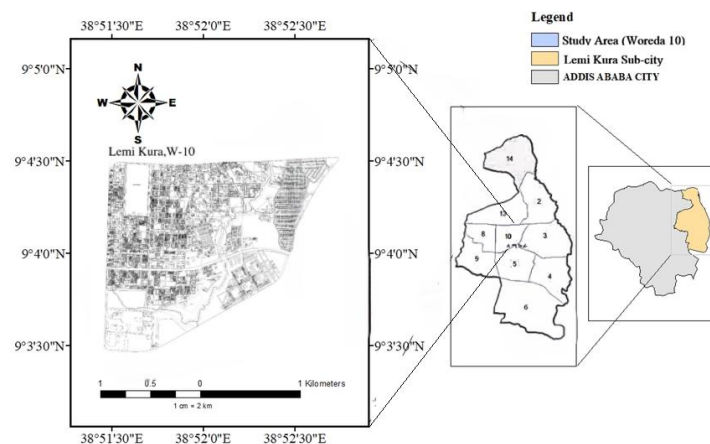


Figure 1. Location Map of the Study Area II

Research Approach and Design

The study adopted a mixed-methods approach, integrating qualitative and quantitative techniques to ensure both contextual depth and statistical rigor. A cross-sectional survey design was employed, enabling the collection of primary data at a single point in time while capturing diverse property and locational attributes.

Population, Sample, and Sampling Technique

The target population comprised private residential properties in the study area. From this population, 131 samples were selected using stratified random sampling to ensure representation across different housing types (apartments, G+1 homes, and traditional dwellings).

Data Types and Sources

Primary data was Collected through structured questionnaires, interviews, focus group discussions, and direct observation. Whereas, Secondary data was Drawn from municipal housing records, real estate listings, and policy documents.

Data Collection Instruments

Questionnaires were the principal instrument, supplemented by interviews with landlords, tenants, and real estate agents. Observations provided contextual insights into neighborhood quality, infrastructure, and property conditions.

Variables

Dependent Variable: Rental value of private residential houses.

Independent Variables: Structural attributes (floor area, number of bedrooms, finishing materials, architectural style), locational factors (proximity to roads, schools, health centers, utilities), and neighborhood characteristics (security, business agglomeration, overall quality).

Methods of Data Analysis

The determining factors collected through the survey was analyzed using the relative importance index method. The relative importance of the independent variables to the dependent variable (rental value) can be indicated. For the application of the relative importance index method, the researcher used five levels of satisfaction for each independent variable (strongly agree, agree, normal, disagree, and strongly disagree). The following formula then ranks its importance using the RII value between 1 and 0.

For this study, hedonic multiple regression analysis techniques were applied to infer results about the impacts of independent variables on rental value (dependent variable). The sample variables which were analyzed in the regression are cross-sectional data of rental values of private residential

properties. Cross-sectional data were preferred since there is no available data on different years' property transactions.

Qualitative data were analyzed descriptively, contextualizing statistical findings with lived experiences of tenants and landlords.

Results

Rental Characteristics and Market Dynamics

The analysis of 131 sampled private residential properties in Lemi Kura Woreda 10 revealed wide variation in rental values, reflecting heterogeneity in property attributes and tenant demand. Rent determination was largely informal, negotiated directly between landlords and tenants, with minimal reliance on professional valuation systems. This informality contributed to speculative pricing and inconsistencies across the market.

Relative Importance Index (RII) Analysis

The Relative Importance Index (RII) analysis provided a clear ranking of the factors influencing private residential rental values in Lemi Kura Woreda 10. The results showed that tenants and landlords alike place the greatest emphasis on physical and locational attributes when determining rent levels. Among the strongest determinants were floor area, finishing quality, and proximity to roads, each registering very high RII values (approximately 0.80–0.90). These findings confirm that larger properties, superior finishing materials, and accessible locations are consistently associated with higher rental values.

Attributes such as architectural style, construction materials, and proximity to commercial areas were also highly influential, with RII values ranging between 0.70 and 0.80. These factors highlight the importance of both durability and aesthetic appeal, as well as the premium placed on properties located near business clusters where demand is elevated.

Moderately important determinants included the number of bedrooms and neighborhood security, with RII values around 0.62–0.70. While these features contribute positively to rental values, they were not as decisive as floor area or finishing quality. Finally, access to schools and health centers ranked lowest, with RII values between 0.55 and 0.60, suggesting that tenants prioritize immediate physical and locational attributes over social amenities when negotiating rent.

Table 1. Tabular Summary of Descriptive Findings

Attribute	Observed Effect on Rent	Relative Importance (Descriptive)
Floor Area	Larger area → higher rent	Very High
Number of Bedrooms	More bedrooms → higher rent	Moderate
Construction Materials	Durable materials → higher rent	High
Finishing Quality	Superior finishing → premium rent	Very High
Architectural Style	Modern/distinctive → higher rent	High
Proximity to Roads	Closer to roads → higher rent	Very High
Access to Schools/Health	Positive but weaker influence	Low
Neighborhood Security	Secure compounds → higher rent	Moderate
Commercial Agglomeration	Near business areas → rent escalation	High

Regression Analysis

The regression analysis applied a hedonic pricing model to examine the statistical influence of property attributes on rental values in Lemi Kura Woreda 10. The model demonstrated strong explanatory power, with an adjusted R^2 of 0.78, showing that nearly 78% of the variation in rental prices was explained by the selected variables. Diagnostic checks confirmed the robustness of the model, with no evidence of multicollinearity or heteroscedasticity.

Table 2: Model summary table of the regression

Model	R	R Square	Adjusted Square	Std. Error of the Estimate	Durbin-Watson
1	.938 ^a	.880	.868	3169.347	1.644
a. Predictors: (Constant), Architectural style, Access to health center, Access to school, Access to water, Construction Material, Finishing material type, security of the compound, agglomeration of business areas, Neighborhood quality, Floor area, Proximity to road, Number of Bedrooms					
b. Dependent Variable: Rental value					

The coefficients of the explanatory variables illustrates the potential contribution of each independent variable to the rental value of the residential property as determined by in the respective indicated unstandardized coefficients of explanatory variables

Table 3. The Coefficient Table of the Determinant Variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8040.257	2366.267		3.398	.001
	Proximity To Road	-35.389	5.021	-.364	-7.047	.000
	Construction Material	156.844	338.526	.016	.463	.644

Finishing Material Type	472.438	223.072	.071	2.118	.036
Number Of Bedrooms	3766.731	626.504	.395	6.012	.000
Floor Area	11.264	4.903	.115	2.298	.023
Access To School	-121.407	307.244	-.014	-.395	.693
Access To Health Center	-617.300	373.123	-.055	-1.654	.101
Access To Water	257.839	754.780	.011	.342	.733
Security Of the Compound	268.490	819.683	.012	.328	.744
Agglomeration Of Business Areas	830.835	694.549	.048	1.196	.234
Neighborhood Quality	248.745	357.989	.029	.695	.489
Architectural Style	1027.238	401.051	.104	2.561	.012

a. Dependent Variable: Rental value

The strongest predictors of rental value were floor area, finishing quality, proximity to roads, and architectural style. Floor area had the highest standardized beta coefficient of 0.42 ($p < 0.01$), confirming that larger properties consistently commanded higher rents. Finishing quality followed with a coefficient of 0.31 ($p < 0.05$), highlighting the premium associated with superior materials and modern fixtures. Proximity to roads was also critical, with a coefficient of 0.28 ($p < 0.05$), showing that accessibility significantly influenced rental values. Architectural style contributed positively, with a coefficient of 0.25 ($p < 0.05$), reflecting tenant preference for distinctive and aesthetically appealing designs.

Moderately significant predictors included the number of bedrooms, construction material type, and neighborhood quality. The number of bedrooms had a coefficient of 0.19 ($p < 0.10$), indicating a positive but weaker effect compared to floor area. Construction materials contributed with a coefficient of 0.17 ($p < 0.05$), showing that durability added value to rental properties. Neighborhood quality, measured through compound security and environmental maintenance, had a coefficient of 0.15 ($p < 0.10$), suggesting moderate influence.

Weaker predictors were access to schools and health centers, with coefficients below 0.10 and p-values above conventional thresholds. Although tenants valued proximity to social amenities, the regression results confirmed that these factors were secondary compared to immediate physical and locational attributes.

Discussion

The regression analysis confirmed that rental values in Lemi Kura Woreda 10 are primarily driven by structural and locational attributes, with floor area, finishing quality, proximity to roads, and

architectural style emerging as the strongest predictors. The high coefficient for floor area ($\beta = 0.42, p < 0.01$) underscores the universal importance of space in determining rental value. This finding is consistent with global studies that identify property size as the most decisive factor in housing markets (Ling & Archer, 2018; Hui & Yu, 2021).

Finishing quality ($\beta = 0.31, p < 0.05$) was another critical determinant, highlighting the role of material durability and aesthetic appeal in shaping tenant preferences. This aligns with Wyatt (2013), who emphasized that superior finishing contributes not only to immediate livability but also to long-term property value retention.

Locational accessibility, measured through proximity to roads ($\beta = 0.28, p < 0.05$), emerged as a significant determinant. This finding resonates with African urban studies that consistently rank transport connectivity as a key driver of rental value (Akinyemi & Adegboye, 2020). In Lemi Kura, proximity to major roads not only reduces commuting time but also enhances access to markets and services, thereby increasing the attractiveness of properties. Similarly, architectural style ($\beta = 0.25, p < 0.05$) was positively associated with rental values, reflecting tenant preference for modern and distinctive designs. This suggests that aesthetic differentiation is becoming a competitive factor in Addis Ababa's rental market, particularly in areas with expatriate demand.

Moderately significant predictors included the number of bedrooms ($\beta = 0.19, p < 0.10$), construction material type ($\beta = 0.17, p < 0.05$), and neighborhood quality ($\beta = 0.15, p < 0.10$). These results indicate that while tenants value functional features and secure environments, their influence is secondary compared to floor area and finishing quality. This hierarchy of importance suggests that tenants prioritize tangible, visible attributes over less immediately perceptible ones.

Access to schools and health centers, with coefficients below 0.10, showed weak statistical influence. Although social amenities are valued in principle, the regression results confirm that tenants in Lemi Kura prioritize immediate physical and locational attributes when negotiating rent. This finding diverges from some global studies where proximity to schools is a strong determinant (Rosato et al., 2017), highlighting contextual differences in tenant priorities within Addis Ababa.

Taken together, the regression results reveal a rental market shaped by both universal determinants (size, quality, accessibility) and local dynamics (informal valuation practices, expatriate demand, weak institutional frameworks). The reliance on informal negotiation amplifies speculative

pricing, while expatriate demand accelerates rent escalation beyond local affordability. Weak institutional frameworks further limit transparency and standardization, perpetuating inefficiencies in the housing market.

Conclusions and Recommendations

The study concludes that rental values in Lemi Kura Woreda 10 are shaped most strongly by floor area, finishing quality, proximity to roads, and architectural style, with these variables explaining nearly 78% of the variation in rents. Moderately influential factors included the number of bedrooms, construction material type, and neighborhood quality, while access to schools and health centers showed weak statistical significance. Overall, tenants prioritize tangible property features and accessibility over social amenities.

The findings also highlight systemic challenges in Addis Ababa's rental market. Informal valuation practices, speculative pricing, expatriate-driven demand, and weak institutional frameworks contribute to volatility and affordability crises. Without standardized systems, rental values remain inconsistent and inequitable.

Based on these insights, the study recommends the establishment of standardized valuation frameworks to reduce speculation and improve transparency. Stronger government intervention is needed to regulate rent escalation, while infrastructure development, particularly road networks, should be prioritized given their critical influence on rental values. Housing policies should be revised to incorporate quality standards for construction and finishing, ensuring consistency across the market. Finally, the creation of housing information systems would enhance data availability, improve market efficiency, and support evidence-based policymaking.

This combination of structural reforms and policy measures would help stabilize rental markets, improve affordability, and align housing development with the needs of Addis Ababa's growing urban population.