EXAMINATION OF AFFORDABILITY AND ADEQUACY OF CONDOMINIUM HOUSING IN ETHIOPIA: THE CASE OF ADDIS ABABA CITY ADMINISTRATION

By: Simachew Mulugeta

A Dissertation Submitted in Partial Fulfillment for **Doctor of Philosophy in Public Management and Policy** to the Department of Public Administration and Development Management; College of Business and Economics; Addis Ababa University

Principal Advisor: **Dr. Abate Sebsebe**, Addis Ababa University, Ethiopia

December, 2019

Addis Ababa, Ethiopia

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DECLARATION

I declare that the dissertation, hereby submitted by me for the PhD degree in ***Public Management and Policy*** to the School of Graduate Studies of Addis Ababa University is my own work and has not been submitted by me or any other person. Materials obtained from other sources are duly acknowledged in the Dissertation.

Declared by: Simachew Mulugeta

Signature: ______________

Date: May 06/2020

Confirmed by: Dr. Abate Sebsibe (PhD)

Signature: ______________

Date: May-9-2020

Addis Ababa University

School of Graduate Studies

This is to certify that the dissertation prepared by Simachew Mulugeta, entitled: ***Examination of Affordability and Adequacy of Public Urban Housing (Condominium) in Ethiopia: The Case of Addis Ababa City Administration*** and submitted in fulfillment of the requirements for the Degree of Doctor of Philosophy (in public management and policy) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Approved by Board of Examiners:

Dr. Abate Sebsibe Signature________ Date May-9-2020

Advisor

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Internal Examiner

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Chair of Department or Graduate Programs Coordinator

ACKNOWLEDGEMENT

This dissertation would not have been possible without the guidance and the help of several individuals who in one way or another contributed and extended their valuable assistance in the preparation and completion of this study.

First and foremost; thanks to the almighty God who helped me to carry all the burdens throughout my study and reach completion of this dissertation as well as my success throughout my life.

I am very grateful to my advisor Abate Sebsebe (PhD) for guiding me throughout my study to finalize my PhD dissertation in department of public management and policy, Addis Ababa University. Especially I would like to thank him for the advice he gave me and the excellent and invaluable support he provided during the course of preparing this case study.

I also express my heartfelt gratitude to my distinguished friends Hailemariyam Hailemichael (PhD), kurabachew Member (PhD) and Yirgalem Tadele (PhD), for their kind behavior, valuable suggestions and technical guidance due to which this research work has found its way to successful completion.

It also gives me pleasure to extend my gratitude to different department heads and directorates in Housing Construction Corporation and also Condominium residents in the city administration of Addis Ababa for their kindness and willingness in providing me information that can be used as an input for the study. And I am indebted to the officials of housing development of Addis Ababa city Administration; who provided me with the relevant information to complete this dissertation.

At the end my most sincere thanks are addressed to my lovely wife Elsabet Wodaje for her understanding & endless love, through the duration of my studies, and also my daughters Betselot Simachew and Tsionawit Simachew for their love and entertainments. I would also like to thank both my father and mother for their unconditional love and support.

Bless you all!

Simachew Mulugeta

LIST OF ABBREVIATIONS

AAHPCO	Addis Ababa housing project office
AU	African Union
BoFED	Bureau of finance and economic development
CBE	commercial bank of Ethiopia
CSA	Central Statistical Agency of Ethiopia
EC	Ethiopian colander
FGD	Focus group discussion
GDP	Gross domestic product
HPM	Hedonic pricing model
HADQ	Housing adequacy
IHDP	Integrated Housing Development Programme
LTV	Loan to value ratio
MAS	Mean adequacy score
MUDHC	Ministry of urban development and housing construction
MWUD	Ministry of works and urban development
MSS	Mean satisfaction score
OLS	Ordinary least square
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
PIERT	Public Interest Economic Regulation Theory
POE	Post Occupancy Evaluation
QUAN	Quantitative
QUAL	Qualitative
RSAT	Residential satisfaction
NUP	National urban policy
SPSS	Statistical package for social science
UNECA	United Nations Economic Commission for Africa
UN	United Nation
UNECA	United Nations Economic Commissions for Africa
UNFPA	United nation population fund
UNDP	United Nations Development Program

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ABSTRACT

The purpose of this study was to examine the affordability and adequacy of condominium housing in Addis Ababa city administration and the basic challenges encountered by the city government of Addis Ababa to supply adequate and affordable housing; to identify the determinants of condominium price in Addis Ababa (using hedonic pricing model) and its association with affordability of housing, assessment of satisfaction of residents and also the adequacy of the condominium housing units as a specific objective. The study considered 430 sample residents using stratified sampling from condominium beneficiaries in 11 rounds. This research used mixed approach and convergent parallel design under the pragmatic paradigm. Qualitative and quantitative data collected from primary and secondary sources using various tools: questionnaires, key informant interviews and different documents. Reliability and validity of the data checked, respectively, using Cronbach's alpha and in order to check the validity of the data different comments provided by the immediate supervisor and also other faculty members were incorporated. Combination of qualitative (thematic narrative analysis) and quantitative models (multiple linear regressions) used for data analysis. Based on the data analysis respondents have no similar perception about housing quality and adequacy of condominium housing but they have both positive and negative perceptions by different residents depending on their own culture, age, health condition and also perception and aspiration of the housing beneficiaries. The resident felt that payments expected from the beneficiary is not fair compared with their income generating capacity; additionally it was noted that the beneficiaries have different view about condominium housing project. Residents who have a positive view about the adequacy and affordability of the house stated that physical characteristics of the house, sanitation, privacy, availability of water and electric power and relatively better house and service facilities as compared with the previous residential environment. On the other hand respondents who has negative view about the condominium adequacy indicated that financial restraint (difficult to afford) the house, considering previous location as a better place for the home based business, lack of living experience in multi-story buildings, better social interaction with neighbors in the previous residential areas, structural inconvenience for physically disabled persons, elders, pregnant and children and also the inadequacy of the housing estate for home based business. It is noted that there is a need for government officials, construction and property professionals, sociologists and any other behavioral science professionals to give adequate attention to physical conditions of interior spaces, security of residence, availability of services and social infrastructure and economic infrastructure; privacy and sizes of main activity areas of dwelling in the design, planning, construction and management of public housing projects in the city administration to solve the observed problems in the condominium housing projects. Additionally it was stated that the condominium housing was not affordable by the poor people. Therefore, it is recommended that the housing program must always start from the need assessment related to the preference of the residents on the residential environment, about dwelling unit features as well as the affordability nature of house.

Key words: condominium housing, affordability, adequacy, hedonic pricing model, residential satisfaction

CHAPTER ONE

1 INTRODUCTION

1.1 Background of the Study

It is obviously known that Urban Housing is a significant issue in determining a country's development both in developing and developed states in the world including in Ethiopia in general and Addis Ababa in particular. As it is indicated in different literature; Housing can be considered as both economic and social responsibilities to safeguard members of a society and also it is a home to live in. Housing is a major part of a nation's and individuals wealth, and plays a major role in economic development process (Aluko, 2004) and creating sustainable development in the state by contributing to the people's social and economic contribution both in the developing as well as developed nations. It is also similar in Ethiopia in general and Addis Ababa in particular. As it is briefly articulated by UN- Habitat (2011), housing is one of the basic social conditions that determine the quality of life and welfare of people in different urban as well as in different rural areas.

Housing shortage in developing countries including in Ethiopia has worsened to unexpected rates making the percentage of the people homeless to the worst and also huge portion of the people are slum dwellers to be located illegally in a place without approval and property rights are extremely high both in Ethiopia in general and Addis Ababa in particular. As it is clearly indicated in UNFPA (2007) there are a number of economic social and problems in urban areas and urbanization process in the world. It is also discussed that even if there is rapid urbanization in the world in general and in Africa in particular; it is also not special in Ethiopia in general and Addis Ababa in particular; housing problem is not yet addressed in different states in Ethiopia particularly it is a severe problem in the capital city (Addis Ababa).

In addition to supply and affordability of housing sector in the urban areas including in Ethiopia; adequacy of housing remains a major problem in the cities of developing countries including in Ethiopia and Addis Ababa in particular. In Africa, including in Ethiopia cities are growing at an alarming rate and there is increasing pressure on government to house the people especially the poor and provide infrastructure facilities around the residential areas, but it is observed that governments are unable to match the demand of housing with concurrent provision of adequate and affordable housing and infrastructure in different urban centers (Ajanlekoko, 2001).

Despite the fundamental importance of housing in the urban centers, adequacy of housing and supplying in the proper amount and way has remained a major problem in Addis Ababa including satisfaction of the residents. According to Ademiluyi (2010), in spite of the fundamental roles of housing in the life of every individual and nation, and the United Nation's realization of the need to globally attain adequate shelter for all, the housing problem remain among the global problems and a serious and rising challenges facing urban and some rural residents, particularly in most developing countries including in Ethiopia. This problem is also the challenge in the city government of Addis Ababa.

Mathewos (2011) stated that Ethiopia is among the world's fast urbanizing countries in the word in general and Africa in particular. Additionally, it is noted that in recent years urbanization increased from period to period with the development and expansion of Addis Ababa and other cities. To manage and administer urbanization in Ethiopia different programs and strategies are developed by the government of Ethiopia in different periods that are concentrating on the supply of public infrastructure including affordable and adequate housing that satisfy the residents in the urban areas. Among the different policies in Ethiopia the Urban Development Policy and the PASDEP (Plan for Accelerated and Sustainable Development to End Poverty) strategy, have the objectives of promoting the role of urban areas in the overall national development.

Additionally, Mathewos (2011) further articulated that the policy and the strategy that was identified in PASDEP are further manifest in the Integrated Housing Development Programme (IHDP), which has multi-dimensional goals in Ethiopia especially in different urban centers, that is provision of adequate, affordable and low-cost housing to the urban poor, empowering urban residents through property ownership, job creation for the youth and income generation, and improvement of quality of the urban infrastructure, environmental development, etc. at large satisfy the urban dwellers. It is also noted that the housing development program is part of the urban renewal programme in the city administration in general.

To overcome the housing problem that are existed in Ethiopia; the governments of Ethiopia in different periods including the current government (EPRDF) have offered various housing delivery policies and strategies for improving housing delivery and condition in Ethiopia in general and Addis Ababa in particular. Despite all the stated interventions and investments in the housing development, housing problem in Ethiopia especially in Addis Ababa still remain unanswered as majority of Ethiopian still lack access to adequate and affordable housing. It becomes vital therefore to check the various policies adopted by current government over the years and to identify why the policies have not been able to achieve its goal of housing provision i.e. supplying adequate and affordable housing in different urban areas particularly in the city administration of Addis Ababa. This will enable suggestion of corrective measures which are needed towards ensuring acceptable practical solutions to the housing problems. Among the different strategy used by current government of Ethiopia to supply affordable and adequate housing that satisfy the residents to the poor is construction of condominium housing is the principal one which is initiated by the current government of Ethiopia in 2005 (Tigist, 2015).

As it is clearly stated in Melese et al. (2015) the principal aim of the condominium housing project (variously called Integrated Housing Development Program) was the renewal of slum neighborhoods by renovation into modern and also has a plan to undertake suitable replacements in the arrangement (i.e. studio type, one, two or three-bed rooms) on completion. Even if the principal agenda of the housing program were to create conducive environment to live; still it is subject to evaluation for the future better improvements by the expectation of public interests. That is why assessment is needed whether government is achieving the underlined objective or not

The existence of sound housing policy has a potential to alleviate housing related problems including the expansion of informal settlements in the city administration. The issue explained above is among the different reasons and factors for the existence and the expansion of informal housing (squatter settlement) in the city as well as people are homeless and most of the people are located in the nearby towns. As it is indicated in Mathwos (2011) it is justifiable that it is due to lack of adequate and affordable housing in the city administration of Addis Ababa in particular and in Ethiopia in general. Therefore, this dissertation investigated the housing policy and practice of housing sector in Ethiopia by taking great emphasis on supply, adequacy and affordability of condominium housing and also tries to check the housing satisfaction of the residents in Addis Ababa city administration.

The aim of this paper is to elucidate the importance of urban housing sector as an economic entity that can play significant role in the economic development of Ethiopia in general and Addis Ababa in particular. In particular, it was emphasized on the fact that although current situations prove to show that rapid urbanization in developing countries including in Ethiopia have been closely linked to the growth of slums and increasing belief on the informal sector to provide less (poor standard) housing, this shouldn’t have to be the inevitable outcome of urbanization in Ethiopia and it is the hindrance for the development of Addis Ababa.

According to public interests economic regulation theory (PIERT); government intervention in the housing market is important when there is housing deficit in the market. That is why the government of Ethiopia initiated the integrated housing program in Ethiopia with an objective of addressing housing problem in Ethiopia. Additionally the distributive justice theory clearly stated that there must be fair and equitable distribution of public resources such as public housing.

In addition, the study will contribute to the literature in assessing the basic factors affecting supply of adequate and affordable housing. It also provides appropriate information about the adequacy and affordability of housing sector especially undertaken by government and also its prospect of rapid urbanization in Ethiopia that is at the moment lacking and highly underdeveloped literature wise in Ethiopia housing sector.

1.2 Statement of the Problem

The capital city of Ethiopia, Addis Ababa, has encountered a rapid population growth due to rural urban migration (immigration) from different parts of Ethiopia and natural growth in the city. This has increased the burden on different social and economic infrastructures like the demand of the residents' adequate and affordable housing. However, the housing development rapidity is not well-matched with the demand of housing in the city administration. Because of this, there is severe and critical housing shortage in the city of Addis Ababa. It is known that most of the residents of Addis Ababa are engaged in different informal activities with low and irregular income earners. So the available houses arranged by the government and the private real estate developers are not affordable to the low income group of the population in the city and this motivates the current government to design integrated housing development program to solve the housing problem of the people in the city administration. Wondwesen (2013) stated that because of the shortage of housing in Addis Ababa large number of households are forced to live in private rental and kebele houses which are with low quality and also poor adequacy. Likewise, significant portion of the residents also forces to squat informally mainly in the nearby towns.

To improve the living standard of the people and also to renew and upgrade the status of the old cities, the provision of adequate, Sustainable and affordable houses that are designed, built and managed as: durable, healthy, secure and safe; affordable for the whole range of incomes; connected to water, electricity, affordable and safe energy, strong to sustain potential natural disasters and climatic impacts sanitation and recycling facilities; not polluting the environment and protected from external pollutions; well connected to education, jobs, health-and child-care, shops, and other services; and enhancing, the social, economic and cultural material of the local neighborhood and the wider urban areas (UN HABITAT, 2011). UN Habitat (2012, 2010 and 2011) describes:

"Housing is one of those fundamental social conditions that determine not only the quality of life and welfare of the people but also that of places. It follows that where homes are located, how well designed and built, and how well they are consistent with the social, environmental, cultural and economic fabric of communities are factors that, to a large extent have overbearing effects on the daily lives of people, their health, security and wellbeing, and which, given the long life of dwellings as physical structures, affect both the present and future generations."

And also as it is evidently warranted by Yewoineshet (2007) housing in Ethiopia is not considered as only a shelter but also as an asset, means of social security and indicator of social status. Additionally, it is stated that there were no housing policies as such except simple laws and the existing condominium housing guidelines. In addition she justified that the current slums and housing problems are the results of accumulated deficits of urban development and also housing policies and practices for several years in the country in general and also in the city administration in particular.

In addition Housing is considered to be one of the basic necessities of life as it has a substantial impact on health, welfare and productivity of individuals (Agbola & Kassim, 2007; Akintunde, 2008). In recent years, housing is not only considered purely as shelter but as an existence which take part social, economic and educational needs (Ademiluyi, 2010). It must be able to meet the need and target of the residents as well as contribute to the physical, social, mental wellbeing of the people and provide maximum noiseless environment, living and outdoor spaces, cleanliness, privacy, safety and aesthetic satisfaction (Agbola & Kassim, 2007; Okechukwu, 2009; and Israel & Bashiru, 2008).

Housing related problem in different urban areas including in Addis Ababa is not the supply and quality of houses but also its adequacy and affordability. Housing affordability is the relationship between households paying capacity and housing. Stone (1993) stated that affordability expresses the challenge that each household looks in balancing the cost of its actual or potential housing and its non-housing expenditures, within the constraints of its income.

As it is briefly stated by Esayas (2005); Even though the growth of housing supply by government looks relatively fast, the distribution and its development was not accomplished appropriately. In addition he discussed that Addis Ababa has a significant share of the total urban population, On the other hand, this population growth was not maintained with appropriate economic and social environments which resulting complex urban problems. Of the different urban problems, housing sector is one of the prominent urban challenges, which has not been addressed yet.

The housing problem in Addis Ababa is immense - a huge accumulation, non-durable structure housing, congested occupation, absence of toilet facilities, old and poor shape houses, increasing low neighborhood sanitation– it is the inability of the poor to qualify to access finance which poses the bigger problem (Melese et al, 2015). That is why the poor people in Addis Ababa are facing critical housing problem and also lives in very poor standard houses that are affecting personal, social and economic activity of the people (Yewoynshet, 2007). This motivates the researcher to check the adequacy, affordability of housing and also the satisfaction of residents on housing given by the government.

The government of Ethiopia used Integrated Housing Development Program (IHDP), introduced by the Ministry of Works and Urban Development in 2005 to improve the housing problems of low income groups in different urban centers in Ethiopia. And the policy is important policy developed by the government of Ethiopia to mitigate the housing problem in urban areas of Ethiopia especially in Addis Ababa city administration (Meles, 2005).

Additionally, UN-Habitat (2011) clearly stated that the establishment of condominium housing program under the objectives of building affordable, adequate and quality houses to increase homeownership opportunities of low and middle income households of the city and bring high urban employment opportunities by participating medium and small scale enterprise. However, even if the contribution of condominium housing on employment creation and alleviation of housing problem; there is no detail study made about the income and the preferences of the residents made as well as the adequacy and affordability of the constructed condominium houses as well as the satisfaction of residents on condominium housing was also not examined in detail. The condominium housing program is designed to serve the middle and the low income groups who live in slum of inner city and also for those who are being challenged by housing shortage in the city administration. However, people contend that the program was designed for the low and middle income earners but mostly the middle and higher income people is beneficiary from the program; and this shows that even if the program has different advantages in alleviating the problem of housing in the city, there is a problem of distribution and management of the program to achieve the desired objective (Tigist, 2015).

In line with housing demand and supply; the researcher got information from Addis Ababa housing bureau and it is observed that the housing demand that was registered for 10:90, 20:80, and 40:60 were 946,570 (approximately one million). The stated number was those who have a potential to contribute certain percentage of housing costs and agreed to pay down payment and periodical installment mortgage payments. In accordance with the economic level of the people there may be large number of people who has a demand in housing but fail to contribute the financial and other requirements for registration was not registered and considered in the data given above. This indicates that the growth rate of housing demand is increased compared with the economic growth and housing development (Ministry of housing, 2014).

In addition Nigist G. (2015) stated that IHDP launched in 2005 has a target to build 50,000 condominium units per year in Addis Ababa. In addition, it is clearly stated that in 2013 more than 900,000 (approximately one million) Addis Ababa (A.A) residents registered for the program. But as clearly indicated in the table below the total number of housing unit constructed by government in the city administration of Addis Ababa and distributed to the users are 173,662 condominium units through 11 (eleven) rounds. If the construction were undertaken using their prospective plan the condominium units given to different users may be 500,000 condominium units. This shows the program was not implemented as per the plan of government. Why? And the delay of the construction will have its own impact on the supply of condominium housing for the poor people compared with the existing demand in the city administration. Additionally it also increases the price of rent existed in the city and aggravate the existed housing problem in the city administration.

Table 1-1: Number of Houses that were built, transferred and not transferred from 2005-2016

Round to distribute	Budget year	Total no. of houses under construction			Distributed houses to the beneficiary						Not yet distributed
		started	Finished	Not yet finished	10:90	Studio	1bed room	2 bed room	3 bed room	Total	
1st	2005	18988	18988	0		4,118	5,677	6,548	2,645	**18,988**	-
2nd	2006	15031	15031	0		2,592	5,070	6,263	1,108	**15,033**	(2)
3rd	2008	11005	11005	0		2,965	3,679	3,626	735	**11,005**	-
4th	2008	15034	15034	0		2,799	6,755	4,108	1,372	**15,034**	-
5th	2009	10769	10769	0		3,088	4,719	2,028	934	**10,769**	-
6th	2010	**10000**	**10000**	0		1,255	4,467	2,747	1,531	**10,000**	-
7th	2011	**7300**	**7300**	0		2,952	3,594	433	321	**7,300**	-
8th	2012	**10098**	**10098**	0		1,326	4,665	2,952	1,155	**10,098**	-
9th	2012	**10257**	**10257**	0		2,570	4,423	2,330	934	**10,257**	-
10th	2014	**35005**	**35005**	0	960	6,660	7,309	3,951	15,665	**34,545**	460
11·	2016	**39249**	**39249**	0	18938	2,103	5,392	2,723	1,477	**30,633**	8,616

Total	**182736**	**182736**	**0**	**19898**	**32428**	**55750**	**37709**	**27877**	**173662**	**9,074**

Source: Addis Ababa housing bureau, 2016

The above table justified that the housing unit that was distributed with 11 rounds were 173,662 and 9074 housing units were not distributed to different beneficiaries because of different reasons. The condominium beneficiaries will enter in to credit agreement (loan agreement) with Commercial Bank of Ethiopia. As it is stated in Melese et al (2015) the upright arrangement enables all beneficiaries of the housing arrangement to access mortgage funding from commercial bank of Ethiopia (CBE) and to make monthly installment repayments over an agreed number of years. But the matter is those individuals getting condominium house is responsible to pay down payment and installment payments on the agreed periods.

The price of the condominium houses are increasing over time from period to period. This rise in price of condominium housing will affect the affordability of the poor individuals towards condominium. The price of condominium housing rise from time to time and the rise in price shows that, there is a *principal* rise on round 11^{th} compared with the 1^{st} round. This radical rise of price on the condominium may be a challenge for the expected beneficiaries principally for the poor people who are the residents of Addis Ababa.

As clearly indicated in Meles et al. (2015) the prices of condominium have raised up steeply for each housing typology from period to period. Unfortunately, family incomes during the same period did not keep pace with the rising housing prices and, clearly, affordability has been harshly tested by the increasing of condominium prices compared with the increasing of household's income. But, the intention of the researcher is to find out the determinant factors affecting housing price (using Hedonic pricing model) and also researcher is motivated to identify the determinant factors affecting affordability of condominium housing by the residents.

Previous researchers undertaking a study on similar agenda were taking real estate housing market in to account. Additionally, those researchers considering condominium housing were bearing in mind one condominium site in to consideration. Among different researchers Kieti (2015) on his paper titled as urban housing affordability in Kenya identified the factors affecting affordability but his intention was not public housing.

Additionally, Tsion (2016) justified that due to an increase in price of condominium houses, the less purchasing power of the urban poor can't afford it. But Tsion didn't test and check the critical factors affecting affordability as well as the adequacy of the houses given to the beneficiary and the satisfaction of residents were not examined. In addition she brought one sub city (Lideta) as a case area and also there is no statistical model used to check the effect of each independent variable on dependent variable. Meles et al. (2005) also undertook the study by taking Gofa Mebrat condominium site in to account and considering only one condominium site and they identified that housing affordability is tested by housing price; but, they fail to identify the factors affecting housing price. Their principal intention was condominium housing as a strategy for housing slum dwellers but not affordability of housing. And they said that the price increase from period to period but fail to answer why? In this research this question was answered. Additionally, this research addresses the absence of knowledge on the factors affecting home affordability and adequacy of housing, as well as the resident's satisfaction on the public housing which will be beneficial to prospective homeowners, policy makers, academicians, house financiers, learning institution instructors and other stakeholders.

Therefore, the main target of this dissertation is to examine the adequacy, affordability and supply pattern of condominium housing in Addis Ababa and the central research question aims to answer whether the condominium houses are affordable, adequate and satisfying the middle and low income earner? And also it provides emphasis on the effectiveness of supplying the house and provision procedure followed by the city administration in achieving the stated target i.e. supplying adequate and affordable housing for low and middle income households. Investigation of factors affecting housing affordability as well as the factors affecting the price of condominium housing provided by government provides vital weight to form bases for urban development policy formulation. Additionally this research answered the determinant factors affecting price of condominium housing. To achieve the above stated problem the researcher raised the following research questions.

1.3 Research Questions

1. What are the challenges encountered by the city government of Addis Ababa to supply adequate and affordable houses for low and middle income group in the existing housing program: specifically in Addis Ababa?
2. What is the adequacy of condominium housing and the factors affecting the adequacy of condominium housing on the residential environments?
3. What are the level of satisfaction by the owner of condominium on the housing and the determinants factors affecting the satisfaction of the condominium residents on the residential environments
4. What are the determinant factors affecting public housing (condominium) price in Addis Ababa (using hedonic pricing model) and its association with affordability of housing?

5. What are the determinants factors affecting affordability of housing (condominium) in Addis Ababa?

1.4 Objective of the Study

In this dissertation the researcher raised two types of objective i. e general and specific objectives that were achieved throughout the dissertation through data collection and analysis.

1.4.1 General objective

The main objective of this doctoral dissertation is: To examine the affordability and adequacy of condominium housing in Ethiopia: case from Addis Ababa city administration

1.4.2 Specific objective

The researcher raised the following specific objectives that were achieved through data collection and analysis:

1. To examine the challenges encountered by the current government of Ethiopia particularly by the city government of Addis Ababa to supply adequate and affordable (condominium) houses for low and middle income group.
2. To examine the adequacy of condominium housing in the city administration
3. To examine the satisfaction of the condominium residents on the residential environments
4. To identify the determinant factors affecting public housing (condominium) price in Addis Ababa (using hedonic pricing model).
5. To identify the determinant factors affecting housing (condominium) affordability in Addis Ababa

1.5 Significance of the Study

The result of the study conducted by the researcher will have immense benefit for the stakeholders who are interested in condominium housing project in Addis Ababa city administration.

Gebeyehu et al (2001) justified that housing has become a significant public issue in almost all societies in the world including societies in Ethiopia. Housing condition of a nation reveals the country's social and economic development. It also stands upon the maintenance of privacy, health and the development of normal family living conditions. Likewise, the availability and quality of housing influences fertility by encouraging or discouraging family creation and affects mortality through health problems. First the researcher recognizes the significant role of housing and also believes that the problems related to housing (adequacy, supply, affordability and satisfaction of residents) must be addressed. Therefore, the objective of the study were achieved /addressed through data collection from the target respondent and analyzing it using the appropriate methods of data analysis and the result of the study will have immense benefits.

At its very basic level housing can be seen as a consumption item for satisfying basic human shelter needs. However, housing also fulfills other important roles, such as contributing to people's sense of stability and security and providing them with an operative base for engaging in family life and with the rest of society. Therefore, studying the adequacy and affordability of housing sector (public housing) is very crucial.

- This study concentrates on condominium housing characteristics, supply pattern in the city administration, challenges of implementing condominium housing, adequacy, affordability and the satisfaction of residents.
- This research was assessing the adequacy; supply and affordability of urban housing (condominium housing) sector; satisfaction of residents on condominium housing and also identified the determinant factors affecting condominium housing price and affordability. By investigating the contributing factors for supply and affordability, the result will contribute for the policy makers to see and if needed to revise the existing public urban housing policy.
- This study will provide more information to the city administrator that is responsible to facilitate the formulation of operational plans and strategies based on the existing realities in order to facilitate supplying of adequate and affordable housing to meet the needs of the majority low and middle income people. The study will also create awareness among housing supply agents especially for federal and local governments and public housing agencies about the adequacy and satisfaction of the residents on the residential environment.
- This study will add to the body of knowledge on the factors affecting housing affordability and adequacy of housing, which will be beneficial to prospective homeowners, policy makers, academicians, housing financiers, learning institution, instructors and other stakeholders. It also provides a basis for further research on housing adequacy and affordability in Addis Ababa and the larger of Ethiopia. Thus, contributes to the literature on determinants of housing affordability, adequacy and also satisfaction of residents.
- This research will add insight by outlining the government's critical role in developing policies that regulate and promote the appropriate distribution of condominium house and also provision of loans by financial institutions to finance condominium /public housing/ in the

urban areas. Such an assertion is founded on the fact that the government is the main supervisor of the housing sector to maintain stability and ultimately affordability of housing sector in the city administration.

- The result of the study can be used as a basis and a reference for other researchers who are undertaking a study on the housing sector. Additionally, this research will add on the existing body of knowledge on the value determination of public urban housing sector (using hedonic pricing model) and also affordability and adequacy as well as the satisfaction of residents of housing in the Ethiopia housing research.
- Lastly, compared with other countries in Africa, Ethiopia's housing sector is one that is quickly growing from period to period. The high property prices as a result of a rapid rate of urbanization have turned the housing sector into one of those with critical developmental issues facing the policy makers. Of immediate concern to the policy makers would be pricing the house, adequacy and affordability and also the source of funds needed to meet the increasing demand as well as satisfying the huge demand of housing in the city administration. Therefore, policies that support a housing sector capable of supplying adequate housing to the population especially for the poor are important to the government's development strategy at the national and regional level.

1.6 Scope of the Study

As it is strongly argued by Cresswell (2009) delimiting a research project using specific time frame, location, population or issue to be investigated and methodology to be used by the research address the research problem and maintain the center of the research in an efficient manner. Because of time and financial constraint; it is very difficult to conduct a study by taking the large geographical area and also by taking different issues in to account. Therefore, in a nut shell, this research study was delimited to the following areas:

Topic: Examination of affordability and adequacy of condominium housing in Addis Ababa city administration. Even if there are different areas of discussion in housing policy; this dissertation concentrates on the adequacy, supply, affordability and also the satisfaction of the residents on the housing environment.

Study area: The geographical scope of this study is delimited in to the boundary of Addis Ababa city administration, Ethiopia. The study area is selected because there is rapid population growth in Addis Ababa and also huge demand of housing in the city administration. The increase of the population is because of rural urban migration and also natural growth. This migration may increase the demand of the people towards social goods principally housing. In addition it is expected that there may be income in equality between the rich and the poor in the city and also majority of the residents are take part in the low income providing economic activity.

Time covered: The research was undertaken by considering the rounds of distribution in to consideration. This dissertation was considered first round to eleventh round.

1.7 Limitation of the study

The research has some limitations as indicated below:

- The finding of the study is not applicable to any other housing scheme such as housing produced by the real estate developers; individuals housing providers and also housing cooperatives.
- The second limitation of the study was its generalizability: The study was conducted by considering only the city administration of Addis Ababa. Therefore, the result of the study will not be applicable to any other condominium areas in any other cities. This is because of the difference of the socio-economic characteristics of the residents in different urban centers in Ethiopia.
- Even if both primary and secondary data are important to provide a sound conclusion for the given specific objectives; shortage of relevant and sufficient secondary data about public urban housing (condominium housing) in the city administration was a serious challenge that is why the researcher opted for extensive primary data to achieve the stated objectives.

1.8 The Study Location

The study entitled examination of the adequacy and affordability of condominium housing in Addis Ababa was conducted by taking Addis Ababa city administration as a target research area. The capital city of Ethiopia, Addis Ababa is, the seat of the African Union (AU) and the United Nations Economic Commissions for Africa (UNECA). Its area covers an area of 540 sq. km. It is located between 8055' and 9005' North Latitude and 380 40' and 380 50' East Longitude in the central highland of Ethiopia. The city Addis Ababa is founded by Ethiopian king Emperor Menelik II and his wife Empress Taitu in 1887 (Teshome, 2012). Besides, its political and administrative reasons, the city is made to be structured at three tiers: City Government at the top, 10 sub cities Administrations in the Middle, and one hundred sixteen Woreda administrations at the bottom.

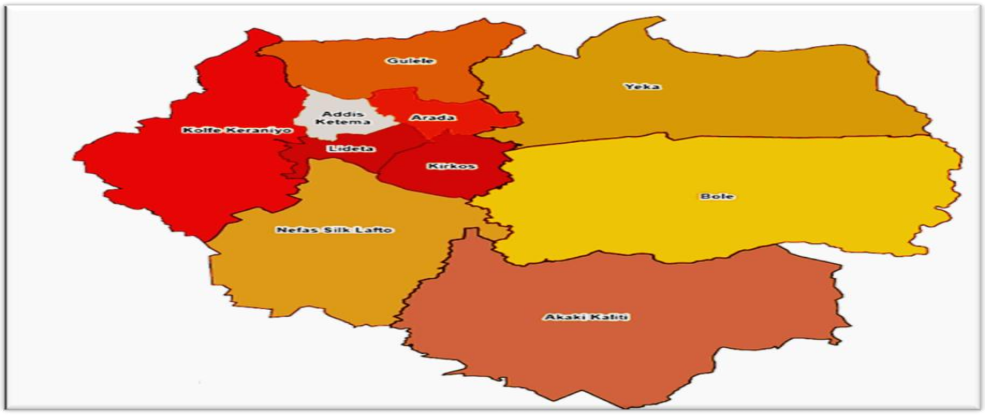


Figure 1-1: Administrative Map of Addis Ababa

Source: http://en.wikipedia.org/wiki/Addis_Ababa

Addis Ababa is the capital city of the Federal Democratic Republic of Ethiopia and it is a self-governing, chartered city with its own council, elected every five years and accountable both to the city electoral and the federal government. It has the status of a special self-directed region within the federal system of government. The city has three layers of government-the city itself, 10 sub cities and 116 weredas-the lowest level of city administration.

As it is indicated in BoFED (2015) Addis Ababa is the largest as well as the central political, economical, cultural and historical city of the country established in 1887 by Emperor Menilik II. It is the head quarter of African Union , the United Nations Economic Commission for Africa **(UNECA)** and other continental and international organizations. It is also a primate city in Ethiopia. Given that the city is opening up opportunities in terms of education, and employment the number of residents congested together is increasing on worrying rate.The stated reason is the base for selecting Addis Ababa as a study area and also the concern of the study is examination of adequacy and affordability and also satisfaction of the residents of urban housing in Ethiopia and Addis Ababa in particular.

1.9 Organization of the Study:

***The dissertation consists of the following chapters*:**

This dissertation ‘examination of adequacy and affordability of condominium housing in Ethiopia emphasis on Addis Ababa city administration’ constitutes eight chapters; the main agenda discussed in each chapter is presented as follows:

Chapter One: In this chapter the researcher provides a brief outline about the research and the dissertation; including the background of the topic; the specific research problem; associated research questions and objectives of the study; the significance and scope of the research and lastly limitation of the study.

Chapter Two: This chapter of the dissertation presents the relevant material from the wide-ranging bodies of literature on housing policy and affordable housing strategies to determine the significance of different housing schemes in successful implementation of housing programs related to adequacy and affordability. It reflects on the nature of housing policy; significance of the policy in alleviating housing problem and also it discussed about the prospects and challenges for supplying affordable housing for the low-income groups. In addition the literature part presented the major determinant factors affecting the supply and demand of affordable housing in Ethiopia including the adequacy of housing. In addition, this part of the study contains factors affecting urban housing price, affordability, price and satisfaction of residents. The literature part also includes empirical literature from each parts of the study and lastly the researcher indicates the literature gap. Additionally the a brief account of the governance structure of the Addis Ababa city along with housing administration in the city administration and the country was presented; It presents a brief account of the main housing actors, detailing their areas of responsibly and activities and the housing policy and development plans, focusing on housing for the low and middle income people. It describes the features of slums in the city and provides a detail investigation of the role of supplying affordable housing to reduce slums and also the researcher presented the regulatory frameworks followed by the government to supply condominium housing.

Chapter Three: In this chapter the researcher outlines the research philosophical paradigm i.e. the use of pragmatism and also the research methods for this study by combining both qualitative and quantitative techniques. It provides a brief description of selection of the philosophical paradigm followed by the researcher, the study areas, sampling methods and procedures, source of data and tools of data collection; and also method of data analysis. Additionally, the researcher indicates the variable description as well as the tests that were used by the researcher to undertake the study.

Chapter Four: This chapter outlined the nature/characteristics of condominium residents and also the nature of condominium residents and also the nature of condominium housing in the city administration. This part of the dissertation discussed both the demographic characteristics and also different issues to be considered in housing development. In this chapter the researcher was also presented the challenges observed/faced by the city administration to supply adequate and affordable condominium housing in the city administration

Chapter Five: this chapter presents the housing adequacy issue and also the main factors explaining the dimensions used to explain the determinants of housing adequacy from different dimensions and also the regression analysis used to identify the determinant factors affecting the adequacy of condominium housing was presented.

Chapter Six: In this chapter the researcher presents the residents satisfaction on the residential environment and also the main factors explaining the dimensions used to explain the residents satisfaction on condominium housing and also the regression analysis used to identify the determinant factors affecting the adequacy of condominium housing was presented.

Chapter Seven: This chapter presents the affordability of condominium housing in Ethiopia particularly in the city administration of Addis Ababa; additionally, the researcher presented the factors affecting the affordability of condominium housing in Addis Ababa using multiple regression analysis

Chapter Eight: This chapter presents the results of determinant factors affecting condominium housing price in Addis Ababa city administration. Additionally, this chapter presents the rise of condominium housing price from period to period.

Chapter Nine: This chapter will provide a comprehensive summary of the major findings of the study, including surveys, interviews and focused group discussion in response to the original research questions. Policy implications are explored and housing directions are recommended for future adoption and application. Lastly a policy framework is developed to advance participation in effective housing activities to supply adequate and affordable housing for the low and middle income earners. Lastly, the researcher presented future research directions to be considered in the coming research on similar issues.

CHAPTER TWO

2 REVIEW OF RELATED LITERATURE

In this chapter the researcher presents the theoretical and empirical literature review compiled for this study by considering the thematic areas in to consideration. The literature was arranged by considering the three important issues to be emphasized in the research. The first part focused on the basics of housing demand, the role of housing in the economy, housing affordability and adequacy as well as the residential satisfaction of the residents and also the determinant factors affecting housing price using hedonic pricing model (HDM). Additionally, the researcher presents the housing situation in Ethiopia including condominium housing as a remedy suggested by the government of Ethiopia to solve housing problem of the urban poor in Ethiopia in general and Addis Ababa in particular. The second part focused on the theories of providing adequate and affordable housing emphasis on public interest regulation theory and distribution justice theory and the third part of the literature shows the empirical literature.

2.1 Introduction

To begin with the basic definitions of housing; as it is defined in different literature the term “housing” is used at a number of levels and is a multi-dimensional concept. It refers to the activity, a process of residing, as well as to the objects of dwellings and their environment. The main attributes of housing as a dwelling are tenancy arrangements, its location (determining access to livelihood), cost and physical structure. It can be considered as an important asset that every person is interested to have it and also it is a physical structure as well as social structure, functioning at different spatial scales (neighborhoods, homes, cities and other settlements, regions and countries). It is also a sector of the economy and a significant category of land use in cities and in other settlements. Linkages with the national economy and with the overall urban system are an integral part of the understanding of the concept of housing (UNHABITAT, 2001; Renoud, 1987; Meles et al, 2005).

Even if there are different infrastructures demanded by the people both in rural and urban centers; housing is a basic need that safeguards us from the hazardous elements, keeps us safe, and gives us privacy and personal comfort. Housing affordability is not easy to define, determine and identify as well as to measure. A number of methodologies and approaches have been adopted by previous researchers in their efforts to determine housing affordability, (i.e. the financial capacity to pay off the costs involved in being able to occupy a housing unit).

The existed expansion rate of urbanization in most parts of Africa has offered the continent with a number of challenges and exposed its cities of their capability to provide for basic needs like infrastructure, shelter, education and health care in the urban centers. As cited by Dwit (2016), urbanization and demand for housing are positively interrelated and thus as the urban society of a city increases from period to period so does the needs for more housing. As it is clearly indicated in (Jaycox, 1977; Lim, 1987; Chirisa, 2008) the case of most developing countries, these needs have mainly has not been satisfied. Consequently, housing shortage in developing countries has worsened to unmatched rates making the huge percentage of slum dwellers that reside illegally in a place without authorization of concerned body and property rights extremely high (Lim, 1987; Renaud, 1987; UNFPA, 2007).

It is clearly articulated by Tipple (1994) the housing sector, while addressing the needs for affordable housing of low-income groups, can immensely contribute in the development of African economies However, in most developing countries including in Ethiopia, few segments of the economy, as contributors to growth, have been as understudied as housing (Renaud, 1987). As a result, the housing sector largely missing in the economic plans of most developing countries is that of housing and housing-related activities (Munday *et al.*, 2004). The observed problem and challenge is because most of developing countries gave different emphasis for different infrastructures other than housing. In the current situation different economy gave critical emphasis for the housing sector in developed and developing countries including in Ethiopia.

As it is clearly indicated in (UNHABITAT,2012)on the global strategy for housing document; "The anticipated outcomes of the UN-Habitat Global Housing Strategy through a paradigm shift in thinking and practice in housing policy will (re)position housing within the global contemporary dispute on economically feasible, environmentally and culturally sustainable and socially wide-ranging cities and towns. Furthermore, the Strategy will bring about numerous critical outcomes, such as: an assurance that housing is integrated with other urban uses; a contribution to the global discourse on and definition of the post-Millennium Development Goals agenda and the sustainable development goals; a redefined role for Governments beyond enablement to reassuming a leadership role in encouraging pro-poor performance of the markets, speed up and *supporting the demand capabilities of the economically weakest sectors of the society; the promotion of systemic reforms to enable wider access to adequate housing with a variety of housing solutions matching effective demands; strengthened linkages between housing and other parts of the economy and consequent economic development, employment generation and poverty reduction; decentralization of housing production and empowerment of different actors and modalities of housing development; increased use of sustainable building and neighborhood designs and technologies towards more cost-effective, flexible and energy-efficient solutions. Most importantly, the Strategy will have a significant and measurable impact in terms of improving housing and the living conditions of a large proportion of the population aiming at poverty reduction*."

To create developed economy there must be the provision of adequate and affordable housing in the urban centers because it is expected that different social as well as economic agenda of the people is associated with the issue of housing.

2.2 The concept of Urbanization and Housing

Even if the central point is very similar; urbanization is defined differently by different institutions and scholars; Such as UN defines urbanization as the progression of shift in population from a rural to a more urban civilization. Numerically stated, urbanization stands for the increases in the share of the population that resides in urban areas mainly because of net rural to urban migration (UNFPA, 2007). Thus, urbanization is recognized as the inflow of a population from the rural to the urban areas. But what is an urban area and what classifies a region as urban? As stated by World Bank (2011), a common definition does not exist as different countries have adjusted their own considerations of defining it.

Countries like Argentina, Angola, Cuba, Benin and Ethiopia use population size or density to mark an area as urban. In Benin for instance, regions with 10,000 or more residents are considered urban while 2,000 residents is the limit to denote a site as urban in Ethiopia. Some countries like Botswana use more complex measures as they use a combination of population size and economic or social structure to consider a site as urban. In view of that, a locality with 5000 or more occupants where 75% of the economic activities are non-agricultural is urban. For others, the availability of streetlights, sanitation, hospitals, piped water and schools is enough to consider a locality an urban area (United Nations, 2001). That is why urbanization is the important program in different developing countries including in Ethiopia. But there are different social and economic problems and challenges that the urban centers are facing. In the next section of the literature urbanization in developing countries and the associated housing problem was discussed. Because housing is the basic and central agenda of urbanization both in developed and developing countries including in Ethiopia in general and Addis Ababa in particular (Ethiopia, 2009).

2.3 The issue of Urbanization in Developing Countries

The term urban does not have a single definition but as it is defined by Tesfalem (2017) the changing aspects of urbanization as a progression that starts with the journey of a few villagers that go into town with the commitment of making money for a particular reason and with a plan to return as soon as that objective is achieved. Gradually however, as the consequent reasons that require money rise, the trips become more frequent and that nurtures a tendency in those same villagers to spend a certain number of months and then years in town.

However, as Byerlee (1974) points out, what once used to be a "circular stream of migration" in Africa, owing to the nature of the migrants to return to their villages within 2 to 5 years after working the plantations, mines and factories during the colonial times, has now been replaced by permanency. This is because the present system of closed international boundaries, lack of jobs in the urban areas and increasing number of high school dropouts has made it risky for migrants with a paid job to return to their villages knowing their chances of finding a job again are very low.

As it is stated by McCall (1955) rural residents recognize the prospects of starting a family in town as opposed to making back and forth trips, the town starts to grow with the increased number of villagers all coming with the equivalent intent their predecessors had and end up becoming part of and giving birth to urbanization in developed and developing countries.

In the expansion of urbanization which took place since the 1950s, developing countries have urbanized at a speedy pace compressing in less than three decades the level of urbanization North America and Europe took two centuries to realize in the first wave of urbanization (Malpezzi, et al, 1985; UNFPA, 2007). This has widely been the result of enhancement in know-how, technology, medicine and public health as well as any other public infrastructure (FIG, 2010).

There is different pressurizing as well as motivating factors for urbanizations in the world including in Ethiopia and also in the city administration of Addis Ababa. In Africa, rural urban migration and natural increase of the population through fertility which are the two dominant driving factors accelerating the rapid urbanization (Boadi et al,2005) are quickly changing the image of Africa as being one of the most populated continent in the world.

As it is clearly indicated in United Nations (2009) Population forecasts project that in the year 2050, the ten most populated countries in the world will include three least developed countries Bangladesh, the Democratic Republic of the Congo and Ethiopia. From the above discussion it is observed that the expansion of urbanization is associated with the movement of people (increases of people) in the area this may be because of different reasons i.e. natural growth as well as migration from one place to another. It may be through migration or natural growth and the increase of the people in the urban centers will increases the demand of the people towards social and economic infrastructure including housing. Of the important infrastructures demanded by the people housing is the principal one. Even if the demand of housing in different states both in developed as well as developing countries is very important and it is justified and convinced that, the supply of housing is very low compared with the demand in the economy.

The issue of urbanization was increased from period to period in Africa including in Ethiopia; as a result of population growth from period to period. The increases population in developing countries creates both fertility as well as mortality problem in developing countries. The next part of the discussion is about the shortage of housing in developing countries.

2.4 Housing shortage in Developing Countries

The problem of housing in developing countries is mostly quality and supply as well as affordability compared with the demand of the people and the existing urbanization in different developing countries including in Ethiopia in general and also Addis Ababa in particular. One thing that can be noted about housing and the informal sector that; although the informal sector mostly works in the absence of the required permits and often does not tolerate by the subdivision regulations (Kite, 2015), it accompaniments in the economy owing to lack and shortage of housing in developing countries in Africa.

As it is justified by Boadi et al (2005) fail to answer the demand of housing by the concerned body is the critical problem in different urban centers including in developing countries. The rapid rate of urbanization in Africa together with the poor economic conditions has made it almost impossible to provide for the housing demands of the rising urban population. This has resulted in a huge bulk of the population being forced to reside in crowded, poor standard, informal slums and squatter settlements lacking essential infrastructure and services.

The central point is the existence of developed national housing policy in the state that has capacity to address different social problem i.e. housing. But, the problem is most of the developing countries has no well-defined housing policy and also the existed policies are traditional, has no capacity to address the existed housing problem. According to Lim (1987), the traditional housing policies for housing problems so far comprise of Controlling land and Demolishing informal settlements (Jaycox, 1977; Lim, 1987; Okpala, 1992), housing prices to make them accessible to the poor, limiting large-scale development to control urban growth and also attempts to scatter the population so as to ease the pressure on metropolitan cities and related demand for housing (Lim, 1987); setting minimum building codes to prevent the poor from building low quality houses (Annez and Wheaton, 1984; Lim, 1987).

Additionally, as it is briefly discussed in UNFPA (2007) Policies that prohibit and discourage new migrants in the hope of reducing slums and squatter settlements have proved unproductive in many developing countries in the last quarter of the century. For instance, controlling housing prices has resulted in discouraging suppliers from becoming active participants of the market there by increasing the shortage of housing while setting minimum building codes and regulations creates additional expenses inflating the price of houses beyond the financial capabilities of the poor (Lim, 1987; Tipple, 1994).

These attempts have proved ineffective and in some cases aggravated the problem even further in different developing countries. Demolishing informal settlements in certain areas for example, has rather than addressing the issue of shortage, only had the effect of relocating the poor urbanities from one slum to another (Lim, 1987; Okpala, 1992) while creating greenbelt or limited large scale development has limited the supply of land in cities making the available houses worth more.

To address housing problem in the economy, it demands different strategy at the national, regional as well as city level. And also there are different prerequisite for sustainable urbanization and housing and housing governance and administration in urban centers. In order to solve the above stated problems as well as to provide adequate and affordable housing that is consistent with the interest of the residents the government must design appropriate housing policy considering the social and economic characteristics of the people in the urban centers because the social and economic characteristics of the residents vary from state to state. Therefore, it is recognized that the excess of the housing demand in the urban centers pushed the people to reside in informal slum areas with low quality that is not adequate. The next part of the literature discussed about causes of housing shortage in different developing countries (in Africa) including in Ethiopia.

2.5 Reasons of Shortage of Housing in Africa

As it is discussed on the previous section of the literature it was discussed that housing is an important asset that everyone must have it both in the urban as well as rural parts in the country. And also it was discussed that housing must be adequate, affordable and consistent with the interest of the people. In this part of the literature the researcher discussed on shortage of housing and its principal causes. In the following part; the critical reasons for the growth of slums and squatter settlements are too many in developing countries including in Ethiopia. Among the different reasons the first reason lies in an inability to formulate and develop sound housing policies (Jaycox, 1977). As clearly stated by Renaud (1987), a successful shelter project in the state depends not only on the planning and availability of finance but also on the existence of a successful social policy particularly housing policy in the country.

The second reason for the existence of slum in different developing countries are creating means of generating capital because the major reason as the population is now growing at a faster rate than the government's ability to collect sufficient financial capital for setting up the infrastructural needs of the rapid urbanization in most of these developing countries (Jaycox, 1977). This is extensively acknowledged by the governments in realizing that they cannot supply housing for every low and middle income family in the country (Renaud, 1987) and provide the new residents with fundamental public services and urbanized land that are keystones for housing development (Jaycox, 1977). The third serious factor for the stated problem is unreasonable and unrealistic standards, this reason most of the housing units in developing countries are out of the reach for low-income groups in different urban centers (Lim, 1987; Tipple, 1994). These high standards on building codes, zoning, design, space regulations, service delivery and the like lead to needless expense in trying to stand by the rules thus adding on to the value of the unit (Jaycox, 1977; Feldman, 2002). The fourth reason for the mentioned problem is incompatible standards of housing when considering the rising demand for low income housing and relatively higher supply of houses that are too expensive for low income households (Jaycox, 1977).

An empirical study by kieti (2015) shows that, in the construction of housing, access to credit highly increases housing consumption in African countries including in Kenya. Unfortunately, the poor are faced with administrative and conventional blocks from being able to secure credit and land tenure which results from their weakness to provide the necessary collateral and their expose of bad credits history as most of them are unemployed and don't seem as promising investments to the lending institutions (Jaycox, 1977).

Among the different important issues that are taken in to account regarding housing problem for low income group (the poor); One of the principal state of affairs that must be taken into consideration is that low-income groups fall into a common trick in trying to access legitimate rights to land as they require credit to do so and acquiring credit by itself needs backing collateral in the form of land (Jaycox, 1977). In an attempt to diminish the expansion of low infrastructure and overcrowded slums, some governments in developing countries take measures as demolishing illegitimate houses to which the low-income groups have been required to call home and offering relocation in supported public housing for a small percentage of these households in developing countries including in Africa.

Overall, such is the case of the ongoing rapid urbanization in most African countries including in Ethiopia in general and Addis Ababa in particular, its impact on overall economy, its effect on the informal sector and most importantly, its impact on housing. A brief analysis and examination of housing problems at hand in Africa in general and Ethiopia in particular regarding rapid urbanization and its effect on shortage of housing and towards providing an insight of the continent in which the dissertations focal interest lies in Addis Ababa.

Even informal settlement is one of the options to supply the housing considering significant numbers of people reside in this alternative, informal settlement (squatter settlement) is not the solution of housing problem as well it will worsen the urban development because of irregular design and also any other problems related to informal settlement. To minimize the housing problem in urban centers both in developed and developing countries, there is the housing strategy developed by the UNHABITAT that concentrates the provision of adequate and affordable housing that is discussed in the next part of the literature. Additionally, every government have critical strategy that has power to address the housing issue in developed as well as developing countries. But the strategy must be consistent with the global housing issue as well as the existing reality of the people and the society.

In the section below the researcher reviewed the housing strategies that are considered at global level as well as national level to provide adequate as well as affordable housing that satisfy the residents.

2.6 Global Housing Strategy

As it is indicated in UN-Habitat (2012) on the global housing strategy framework document housing and slum upgrading branch justified that the proposed paradigm shift changes the way housing has been addressed as an isolated product in the form of housing estates. This change will be achieved by utilizing national urban policies, urban planning and urban design as well as urban economy and legislation as the essential entry points. The aim is to integrate different economic groups, to take part housing in the urban fabric with other uses, at appropriate densities to achieve better mobility and to reduce the urban footprint to ensure environmental sustainability as well as taking social and cultural needs into account through participatory approaches. To achieve this, the guidelines are set out in five groups corresponding to the five levels of the housing process, respectively: sustainable urbanization prerequisites at the national level, sustainable urbanization prerequisites at the city level, housing development prerequisites, sustainable housing, and housing governance and management, including tenure and maintenance.

It is noted that the UN-Habitat Global Housing Strategy is a collaborative global movement towards adequate housing for all and improving housing for and the living conditions of slum dwellers. Its main objective is to assist member States in undertaking towards the comprehension of the right to adequate and affordable housing.

2.6.1 Sustainable Urbanization Prerequisites at the National Level

As it is indicated in UNHABITAT (2012) the first policy that will be designed is the **National urban policy (NUP)** because the central idea of the dissertation i.e. housing issue is directly related to the agenda of urbanization particularly the housing program of the state i.e. condominium. The objective of a national urban policy should be to provide the organizing and unifying frameworks for the overall national urban growth strategy. It needs to ensure effective harmonization of all levels of government actions towards sustainable urban development, including adequate and affordable housing for all and the improvement of the living conditions of slum dwellers in the state. It should include inter-sectorial harmonization of national government institutions, vertical coordination between various levels of government (among different regional states), and coordination with the private sector, research organizations civil society organizations, and academia. Slum upgrading and prevention need to be mainstreamed within the national urban policy. Additionally, it is stated that the housing strategy is one pillar of the national urban strategy (HABITAT III working paper, 2017).

Another policy that guides the housing issue in the state is **National economic policy** because the construction of housing by different sector is associated with the economic agenda of the state and also housing is the principal issue taken in to consideration to enhance the economic agenda of the state. The national economic policy, as it refers to urban development, should support and take full advantage of sustainable urbanization as a key motivating force of national economic development. It should also take full advantage of forwards and backwards linkages in the production, improvement and maintenance of housing and of the enormous employment potential of the construction industry for local economic development. It should enable, encourage and support local economic activities, especially within the lower-income areas of cities and towns, and should include slum advancement and prevention as priority areas for attention in the urban centers. Locally suitable approaches should be considered for possible use of housing subsidies for the poorest sectors of the population. (UN-HABITAT, 1996; HABITAT III working paper, 2017).

National legislation is also important to administer the implementation of the policy by the concerned body it may be either by the government or the private sectors as well as cooperatives. As it is clearly indicated in UNHABITAT (2012) legal framework is important for the delivery of adequate and affordable housing at national as well as city level. National legal frameworks should cover all areas determining the production and availability of affordable housing, including legislation and regulations addressing housing and affecting the availability of required housing inputs, especially land and finance, as well as legislation influencing the income-earning opportunities of the poorest sectors of the population, i.e. the demand side of the affordability equation. The legal and regulatory framework should safeguard that the housing process is equitable, transparent and regulated by the rule of law and should empower all the actors involved in housing sector in the country.

2.6.2 Sustainable Urbanization Prerequisites at the City Level

The critical requirement that must be taken in to account to have sustainable urbanization at the city level is **urban planning** because the housing issue is the basic**.** A continuous, participatory and inclusive urban planning process should be the starting point and framework for integrating housing within planned city extensions or urban in-fills, so that housing is no longer a stand-alone exercise. According to UNHABITAT (2011) "*We need: **(a)** Mixed urban land uses integrating housing with economic, social, recreational and other land uses and avoiding dormitory towns; **(b)** Appropriately high urban densities to improve urban efficiency, reduce the cost of network services and safeguard the environment by limiting the urban footprint through planning and locally based densification; **(c)** Social mix of the population, including people from different income groups, family compositions and ethnic origins, through a variety of tenure modalities, housing types and costs to render housing accessible and responsive to varying social and economic demands; **(d)** Comprehensive land management and thorough integration of land use and infrastructure planning to create highly efficient urban patterns and facilitate better mobility; **(e)** Climate change responsiveness and preparedness".*

The housing development must be guide by the **urban economic development.** Economic development at the local level needs to take full advantage of the potential leading role of housing through its broad backward and forward linkages and high employment generation capacity. Related income-generating activities and job creation for lower-income groups represent an important component of connecting the affordability gap to ensure improved access to adequate housing. Sustainable local economic development strategies are inseparable from housing strategies and from urban planning in general. Anticipatable availability of land and infrastructure is a qualification for economic growth at all scales. Mixed land-use zoning, combined with regulations supporting family-based and small and medium-sized enterprises, facilitate better income levels thus enhancing the ability to afford housing. Regulations supporting incremental expansion of single family homes by adding rental units also improve family and local economy, while improving rental housing opportunities, increasing urban densities and reducing urban sprawl (UN-HABITAT, 1996).

In order to achieve the goal stated in the policy document the existence of local regulation is very important. Because the existence of operationalize local policy and regulation has a capacity to address the stated objectives. That is why **Local legislation and regulations** is important**.** Legislation and regulations, and the procedure for their implementation and enforcement at the local level, need to encourage the efficient use of urban land and infrastructure in order to support investment, improvements and maintenance. Subdivision regulations need to encourage mixed land uses, social and income-level population mix, and incremental upgrading of infrastructure. Building codes need to allow for incremental improvement, expansion and densification. They should also encourage the use of indigenous construction materials and building technologies. Subdivision regulations and building codes need to be sufficiently flexible and appropriate to local conditions and should preferably be performance-based and not prescriptive.

2.6.3 Housing Development Prerequisites

The constructions of housing in the urban centers are associated with **Land and urban design.** The availability of land, along with a variety of tenure types and adequate tenure security, should be ensured in advance of construction within a planned urban development framework. Functioning land management information systems are required to supply sufficient information for large-scale urban operations, such as the supply of major infrastructure. Appropriate subdivision regulations, enabling community-oriented urban design, are required to ensure adequate provision of land for public spaces, streets, other infrastructure, services and other public uses (Tigist, 2015).

Another important factor that is affecting the achievement of the stated objective is the issue of **Finance.** A variety of housing finance options should be made available, including mortgage finance, non-collateral credit mechanisms for owner-builders, financing for social and rental housing, credit for developers and contractors, and producers of building materials and components. Cross-subsidy mechanisms, within urban projects, between commercial and housing land uses, and between high-cost and low-cost housing and plots are important to inspire socially mixed development (UN-HABITAT, 1996).

To provide housing **Basic urban services** is very important**.** Variety of options for infrastructure provision levels, including the option of incremental provision; needs to be availed while ensuring that the planning and layout framework allows for rational upgrading in the future in different areas.

2.6.4 Sustainable Housing

Among the different issues to be considered in designing housing program is the sustainability of the program because the issue of housing is not one time problem. The construction of housing is meaningless unless and otherwise the housing program is sustainable. And the first requirement to have a sustainable housing is its **Design.** Functional and cultural adequacy, flexibility for expansion and for upgrading of standards, climatic and environmental appropriateness, affordability, energy efficiency, and adaptability for future needs, should be maximized in housing design, both at the level of buildings and at the level of neighborhoods. Designs should also tolerate for possible economic activities in the dwelling unit to enhance income generating opportunities. Housing is to be mixed with other uses achieving appropriate densities to increase urban interaction, improve mobility and ensure the environmental sustainability of the urban fabric (UN-HABITAT, 1996).

Another issue to be noted to have sustainable housing is **Technologies.** In the case of design, the aims in terms of technologies should be energy efficiency, cost-minimizing, environmental friendliness, allowing incremental expansion and improvement of standards, and enabling, where appropriate, owner building and use of local labor and contractors. Traditional technologies should be considered for local use and their adaptation for better performance should be encouraged.

It is also noted that **Materials and components** are very important to be considered in the creation of sustainable housing because the dependency of the project on imported materials is very difficult. It is important to get the best out of the use of local materials and components in lower-income countries while striving for climatic appropriateness, energy-efficiency and environmental friendliness of the production processes of building materials, and for energy efficiency in their use. The use of imported materials should be systematically avoided through the development of local construction materials (UN-HABITAT, 1996; HABITAT III working paper, 2017).

2.6.5 Housing Governance and Management

Appropriate management and housing estate is very important to have adequate and affordable housing in the urban centers. The housing program must be awarded to the beneficiary by considering the social as well as economic issues in the state. And the first thing to be noted is **Tenure types.** A variety of tenure types should be available, including customary forms of tenure, all providing adequate security of tenure in order to guarantee the welfare of households and stimulate improvements and expansion. Special attention should be accorded to the equal rights of women, young people and the elderly as well as social and ethnic minorities. Land and dwelling tenure types other than freehold ownership should be encouraged, including leaseholds, condominiums, cooperatives, shared leaseholds and various forms of rental housing.

Another issue is to be considered in management of housing is the **Governance** of the residential environment. Fully inclusive community cooperation and neighborhood-level self-governance should be stimulated for the management and upgrading of housing areas, including through condominiums and cooperatives, homeowners' and tenants' associations and local area improvement committees.

In the residential environment there must be **Management and maintenance of the housing estate.** The contracting of maintenance work within the local community should be encouraged, especially in lower-income and mixed-income areas, to support the local economy and create income-generating opportunities, and to strengthen the local sense of ownership and identification with the living environment. Organizational and financial mechanisms should be put in place for the maintenance and replacement of housing and neighborhood components (UN-HABITAT, 1996).

When the state is designing housing policy government must follow and concentrate on different characteristics that are acceptable by the people. The housing strategy is very important to supply affordable and adequate housing in the urban centers because it is obviously known that housing is the facilitator of the economic development of the state. It was discussed in the next part of the literature to justify housing as the enabler of economic growth.

The existence of appropriate strategy at different level is very crucial in different states because the existence of housing strategy has power to address housing problem and it will have power to accelerate the economic growth and development. In the following section the researcher tries to review the role of housing to enable economic growth.

2.7 The Housing Sector as a Facilitator of Economic growth

As it is clearly justified by Tipple (1994) in most African countries including in Ethiopia rather than viewing housing as an economic entity that can play a vast role in economic development, it has more or less been regarded as a necessity or a social good and thus was allotted the lowest share of capital resource in comparison to other productive elements of the economy like agriculture, social, the industrial sector and trade. This wrong hypothesis has forced governments to pay little notice to housing and the needs of the population's growth and even less attention was given to provide shelter to the poor.

Housing provision was taking in to emphasis differently by different governments by considering the nature and the emphasis of the economy as well as the social issues in to consideration. In different countries housing was not considered as the critical sector compared to other sectors. The government considered that housing is for consumption not production then the government provides little emphasis and the capital investment for housing is too less compared to other sectors.

Unfortunately, most African countries including in Ethiopia yet recognize housing as a feasible sector of the economy enriching option and also it is demanded by the people as a principal asset. Renaud (1987) stated that 80% of housings in developing countries are financed without mortgage lending as few segments of the economy, as contributors to growth, have been as unexamined and uninvestigated as housing. Not unexpectedly, activities addressing the principal housing problem not been done to promote investment in this sector and this has manifested in the lack of strong financial institutions and instruments that could help finance housing and promote growth.

In its basic nature, Economic growth happens through time and in different phases and in the context of developing countries, it relies on a number of stimulating factors that are affected by the availability of affordable housing in one way or another. Economic growth also affected by any other; Some of those stimulants (factors) include the arrival of skilled labor that is highly determined by a countries capacity to provide a good living condition, business costs that are intertwined with housing prices, the growth of infrastructure that goes hand in hand with increasing housing supply and can in adverse condition lead to high economic costs (Glossop, 2008).

Additionally, Gate (2006) states that although not much evidence exists, there seems to be a relationship between housing prices in the economy and investment attraction and expansion in the economy, the most probable one being that if house prices are too high, it would increase the labour cost of companies reducing the capital available for investment. There are different experiences in the world that shows housing costs with the investment experiences. As proof of this statement, in a business survey conducted in South East England, it was established that 13% of companies that were facing high housing costs withdrew their investments unable to keep up with the rising costs.

Additionally the availability of adequate and affordable housing in the urban centers has a contribution to enhance investment by motivating skilled and unskilled man power in the environment. The unaffordability nature of the housing sector discourages people to search job in that locality. The ability of a country to attract skilled labor lies in its capacity to provide the essential requirements of the people rising housing prices owing to the imbalance in the demand and supply of housing discourages the inflow of skilled labor and thus reduces most opportunities of the country to improve on inward investment in different sector on the economy (Gibb and Keoghan, 1998). Allocation of investment to the housing sectors highly promotes economic growth as residential capital stock comprises the largest share of the total national capital stock in all economies including in Africa. This is due to the fact that housing is a long-lasting investment and the demand for it grows in times of fast urban developments of urbanization (Renaud, 1987).

In different states both in developed and developing countries; the housing sector is an important facilitator of economic growth as it contributes to increasing employment opportunities in the process of construction, maintenance and the like (Glossop, 2008). Those encouraging the importance of housing further confirm that provision of housing will lead to political stability and increase employment as the construction sector will be able to employ many of the new unskilled urbanities from rural areas putting large number of unskilled human resources to good use in these developing countries (Burns and Grebler, 1976).

In connection with this, Tipple (1994) states that the employment opportunities and thus the rise in income acquired from housing constructions are enlarged by backward and forward links in the financial system as several other economic sectors get involved in response to the demands of the construction sector. For this reasons, construction of housing is considered as a prime stimulator of recovery during periods of economic recession as well as in facilitating economic growth in the state (Field and Ofori, 1988). Therefore, it must be noted that by considering the role of housing sector for sustainable economic development the government must design a housing program that is consistent with their preference and also affordable capacity of the users.

2.8 Special Characteristics of Housing

Housing has some special characteristics that distinguish it from other products demanded by the people, and which tend to impair the efficiency of the price mechanism and prevent optimal resource allocation through the market system. These characteristics make the housing market inadequate and hinder its smooth operation and efficiency in delivery of adequate and affordable housing.

The imperfections contribute to the volatility of house prices sometimes pushing them beyond the reach of segments of population with modest means. The role of government is, therefore, to try to correct the imperfections so that housing as a product can be accessible and affordable by all individuals and groups in society. The characteristics of housing that are existed in the economy which requires the need for government (State) intervention are as follows:

The first characteristic of housing is **Heterogeneity or diversity:** Housing as a product is not standardized for all with different level of economy and with different culture, income and age. No two houses existed in the economy are exactly the same; they always defer in certain aspects, for example, design, size, repair conditions, amenities and tenure system. Even if two houses are the same in all aspects they will always differ in location. This heterogeneity or non-standardization of the housing product necessitates the development of a range of several and diverse housing sub-markets. Therefore, contrary to many consumption goods, there is no homogenous housing market and this makes the dissemination of market information to the market participants' very difficult leading to serious misrepresentations in house prices sometimes making them unaffordable by a majority of the participants in the market (UN-HABITAT, 1996).

The second special characteristic of housing is **Inelasticity of supply:** Another fundamental economic feature of housing is the difficulty of varying its supply. The physical overall supply of land is virtually fixed and the mix of various land uses is difficult to alter because of planning controls. Due to the time taken to obtain planning permission, organize development finance, construct buildings and arrange disposals, the housing industry is slow to respond to an increase in demand. Conversely, it is difficult for supply to react to a reduction in demand. It is not always practicable to demolish or change buildings to meet such a reduction in demand. This lacks of responsiveness (or inelasticity of supply) in the housing industry leaves it abnormally exposed to economic booms and collapses. When the market is already growing, it is too late for developers to return, by the time developers do so, the boom may be over. An oversupply at this stage will actually worsen a decline. In the period before developers effectively responds to demand, house prices are likely to be abnormally high.

Fixity of location is the third characteristic of housing**:** High transaction is also another characteristic for housing in the urban areas. The nature of housing is such that each house occupies a fixed location and is localized to a particular neighborhood. This can sometimes mean that the number of buyers or sellers is so restricted that monopolistic conditions prevail (Syagga and Aligula, 1999). Monopoly has the adverse effect of sometimes keeping prices of products very high. But even though the housing market may be local, as for instance, in high, middle or low income neighborhoods, its area may extend beyond wide limits. This in essence makes it difficult to approximation the number of potential buyers and sellers since those in higher income groups do trade in lower income markets. In such situations, full information necessary for a competitive market is often absent. It is also observed in the condominium housing market in Ethiopia. People perceive that a single individual are purchasing different house in different rounds. Because of the reasons stated above the homeless remains homeless in the city administration?

Another special characteristic of housing is **High transaction costs:** As it is indicated in different literature housing is an asset having huge portion of people's wealth. Consuming housing services involves relatively high transaction cost relative to other consumption goods. For instance, buying or selling housing often involves such costs as agent's commission, advertising costs, legal fees and taxes such as stamp duty. Reconstruction or modification of existing housing especially in urban areas attracts additional approval costs and fees. These incidental costs on housing transactions often discourage mobility and tends to slow down the response in market conditions (Syagga and Aligula, 1999).

We all know that housing covers the huge portion of people's wealth that is why **High purchase cost** is the character of housing: Housing, as a product, is very expensive often much more expensive than other consumer goods. In most cases, housing cannot be purchased outright from household income or savings given the often high cost involved. The cost of housing is the biggest item in most family's budgets (Smith et al, 1998 and Stone, 1993). Hence, financing for housing is often done through different arrangements from different sources such as outright purchase or mortgage with money borrowed from banks or other finance sources. Thus, the delivery of housing services is closely tied to the availability and supply of adequate finance in the finance market. As a result, changes in the finance market often have dramatic impact on the housing market.

Other distinctive features of housing make its acquisition a unique experience for any household in the world including in Ethiopia. Being larger, durable and tied to location, housing is often purchased as a complete dwelling unit not as a shopping basket of separately selected items (rooms, facilities, amenities, and location) in the way that food and clothing are purchased. Unlike food, it is not purchased a new on a regular and frequent basis. Once a household occupies a particular dwelling, it is hard to alter the amount and type of housing services consumed (Stone, 1993). Due to its bulkiness, its immobility and its attachment to land, when people obtain housing they are not just purchasing the services of the dwelling but the advantages and disadvantages of the location, physical characteristics, neighborhood, accessibility and services, among other attributes of housing.

Of the other characteristics' these characteristics of housing make it a unique complex product and process, inherently vulnerable to externalities and other aspects that lead to market inadequacies more than any consumption good. As a result, the housing sector, especially in developing countries including in Africa is marked by pronounced market failures, which justify government (state) intervention as argued by the economic regulation theory and distributive justice theory. As stated earlier, State intervention in the market is needed to offer market stability and upgrade the adverse impacts of inadequate and unaffordable housing on households and by extension the larger society.

The implementation of the strategy as well as considering the basic characteristics of housing in the implementation of housing program has contribution to have adequate and affordable housing in the city administrations. In the following section of the literature the researcher discussed and reviewed the basic aspects of housing adequacy. Therefore, it must be noted that the housing program developed by the government for the poor people must consider the above stated unique characteristics of housing.

2.9 Housing adequacy

2.9.1 The Nature of Housing Adequacy

Among the different issues to be considered and noted in the formulation and evaluation of the housing project is adequacy of housing in the urban areas. The aim of this part in the literature is to investigate different dimensions of housing adequacy evaluation by residents with a view to identify how government can deliver adequate housing facilities to the low and middle income earner. Because Public housing projects across the world are developed for the main purpose of improving the living conditions of citizens in different countries including in Ethiopia. The researcher discussed what housing adequacy is? What are the factors affecting housing adequacy? And lastly the researcher associated the adequacy of housing with housing satisfaction. Because the two important concepts used to evaluate Housing adequacy and residential satisfaction are the extent to which housing arrangements designed by government meet residents' needs and expectations of the beneficiaries (residents). The condominium housing indicated by the government in 2005 has an objective of providing adequate and affordable housing for the low income group of the society. The researcher also developed a research objective to examine adequacy and also satisfaction of residents.

The concept of adequate housing or housing adequacy has been defined and interpreted in different ways by scholars and authors. Form the dictionary definition, the word "adequacy" is generally understood to mean sufficiency in quantity or quality in meeting a need for something. This obviously suggest that adequate housing simply means the residential environment that is both quantitatively and qualitatively sufficient in meeting users' needs, expectations and aspirations.(***Eziyi and Alagbe, ND).*** The following are definitions given by different authors**.**

Table 2-1: Definition of Adequate Housing

Author	Definition of adequate Housing	Context
UN-HABITAT (1996)	Adequate shelter means more than a roof over one's head. It also means adequate privacy; adequate space; physical accessibility; adequate security; security of tenure; structural stability and durability; adequate lighting; heating and ventilation; adequate basic infrastructure, such as water supply, sanitation and waste management facilities; suitable environmental and health related factors; and adequate and accessible location with regard to work and basic facilities: all of which should be at an affordable cost.	The Istanbul Declaration and the Habitat Agenda, Second United Nations Conference on Human Settlements (Habitat II), Istanbul, 1996
American Public Housing Association (1946) quoted in Onibokun (1985)	Housing that is decent, safe, habitable and affordable in meeting the four fold functions of physiological and psychological needs, protection against contagions and accidents	The American Public Housing Association Committee report on the Hygiene of Housing as basic principle of healthful housing
Thiele (2002).	Housing that has the following attributes: legal security of tenure, affordability, habitability, accessibility, location and availability of services and cultural identity	A tool for promoting and protecting Individual and community health; A position paper on human right to adequate housing:
Zubairu (2002)	Housing that has the following attributes: security, decency, privacy, spacious, affordable, healthy, legally secured tenure, habitable, accessible, and appropriately located with services and infrastructure	A conceptual paper on housing concept and design in a developing economy

		based on the Nigerian housing problem
UN-HABITAT, (2006)	Housing with adequate privacy and space, physical accessibility, secured tenure, adequate security, structural stability and durability, adequate services and infrastructure, suitable environmental quality and health related factors.	UN-HABITAT global report on national experiences with shelter delivery for the poorest groups
Ibem and Amole (2011)	Housing that has all the characteristics features required to satisfy users' need; expectations and aspirations.	The qualitative adequacy of newly constructed public housing in Ogun State, Nigeria; A survey of 517 households on
Eggers and Moumen (2013)	Adequate housing describes absence of any form of physical, spatial, and service abnormalities within the residential environment; and thus it is a measure of quality of houses as physical structure and the associated infrastructure and services.	Department of Housing and Urban Development. American Housing Survey between 2005 and 2009 Report for. U.S.

Source: own compilation, 2019

The definitions given above are provided by different authors but the meaning that is given to the term adequacy by different scholars is almost similar. The UN-HABITAT (2006) however noted what constitutes adequate housing varies from one country to another and depends on specific cultural, social, environmental and economic context. This implies that adequate housing is a multi-dimensional concept defined by contextual factors that are the requirements of housing features. Hence, housing conditions considered to be adequate in one context may not necessarily be regarded as adequate housing in another context.

From the given definitions above it is summarized and given that "Adequate shelter" was defined in the Habitat Agenda document as follows***: "Adequate shelter means more than a roof over one's head. It also means adequate privacy; adequate space; physical accessibility; adequate security; security of tenure; structural stability and durability; adequate lighting, heating and ventilation; adequate basic infrastructure, such as water-supply, sanitation and waste-management facilities; suitable environmental quality and health-related factors; and adequate and accessible location with regard to work and basic facilities: all of which should be available at an affordable cost. Adequacy should be determined together with the people concerned, bearing in mind the prospect for gradual development. Adequacy often varies from country to country, since it depends on specific cultural, social, environmental and economic factors. Gender-specific and age-specific factors, such as the exposure of children and women to toxic substances, should be considered in this context."***

In current times, there has been increasing need for construction and property professionals to develop a better understanding of the performance of constructed facilities such as residential and office accommodations, healthcare, educational and other infrastructural facilities. Consequently, different kinds of post occupancy evaluations (POEs) have been conducted to provide insight into how end-users perceive and evaluate constructed facilities. Djebarni and Al-Abed (1998) specifically noted that POE of housing arrangements is essential in determining the effectiveness of such projects and providing feedback to project initiators and managers. In addition, Leung and Yu (2018) made it clear that the evaluation of residential facilities can help to improve the knowledge base of managers in identifying the key components of such facilities that influence user satisfaction.

In order to have adequate housing in the urban centers different government establish public housing program by considering social and economic aspects of the people in the urban centers. Public housing projects across the world are developed for the main drive of enlightening the living conditions of citizens in the different countries. In Ethiopia for instance, the goal of the current housing policy is to confirm that all Ethiopians own or have access to safe, decent and sanitary housing in a healthy environment with infrastructural services at affordable cost, and with secure ownership (National Housing Policy, 2012).

2.9.2 Basic elements adequate housing

The basic element to be considered in the examination of adequate housing is the attributes of adequate housing in the urban centers. Before researching into the concept of housing adequacy, it is important to establish from the existing literature what constitutes adequate housing. One of the wide-ranging descriptions of what constitutes adequate housing in the literature was provided at the Second United Nations Conference on Human Settlements (Habitat II), Istanbul, 1996 known as the Istanbul Declaration and the Habitat Agenda. This declaration noted that adequate shelter means more than a roof over one's head. It further explained that adequate housing means: "adequate privacy; adequate security; adequate space; physical accessibility; security of tenure; structural stability and durability; adequate lighting; heating and ventilation; adequate basic infrastructure, such as water supply, sanitation and waste management facilities; suitable environmental and health related factors; and adequate and accessible location with regards to work and basic facilities: all of which should be at an affordable cost" (UN-HABITAT, 1996).

In addition, the UN-HABITAT (2006) report on national experiences with shelter delivery for the poorest groups also explained that what constitutes adequate housing varies from one country to another; and is influenced by some specific cultural, social, environmental and economic factors. This implies that adequate housing is a multi-dimensional concept describing housing condition that meets occupants' physiological, psychological, security and economic needs. Following from the above, a number of conceptions of housing adequacy have been put forward by different authors. For instance, Onibokun (1985) conceived of housing adequacy as encompassing the measure of structural and internal adequacies of dwelling units, occupancy rate, and availability of amenities, neighborhood conditions, and habitability of housing. McCray and Weber (1991) also viewed housing adequacy as a multifaceted image of all the elements in one's housing condition necessary to support the least suitable standard of living. Substantiating the declaration by the UN-HABITAT (2006), McCray and Weber further elucidated that residents' perception of housing adequacy is influenced by housing norms; cultural background; values; and the prior experience with the different residential features and norms.

Additionally, Morton et al. (2004) were of the view that housing adequacy represents an important aspect of housing quality measurement that deals with the assessment of interior and exterior structural conditions; cooling; heating; and sanitation systems; and residence size relative to users' space needs. Further, in the American Housing Survey, Eggers and Moumen (2013), also described housing adequacy as a situation where there is absence of any form of spatial, physical, and service abnormalities within the dwelling unit and its immediate surroundings. It was on this premise that Le et al. (2014) briefly articulated that housing adequacy is an objective measurement of housing conditions in the residential area both urban and rural areas. From the foregoing, it is evident that the different conceptions of housing adequacy in the literature are closely related to the description of adequate housing as presented in the Istanbul Declaration and the Habitat Agenda 1996.

The existing literature related to the housing adequacy and residential satisfaction also shows that housing adequacy is a measure of the extent to which housing is quantitatively and qualitatively sufficient in meeting residents' housing needs, expectations and aspirations. This means that housing adequacy can be measured from two perspectives: the number of available housing units (housing stock) in the urban centers; and the quality of the existing housing stock (Aigbavboa, 2013). However, in the context of this study, the focus is on the latter, which deals with the level of sufficiency of housing attributes in relation to residents' needs. It is also explained by Ibem et al. (2015) that the objective assessment of housing adequacy involves examination of the presence or absence of social infrastructure; housing services and management practices; and the physical and spatial characteristics of housing units.

The implication of this is that qualitative housing adequacy can be objectively measured by assessing the following: (i) interior and exterior structural conditions (e.g. structural soundness of the houses, state of disrepair of building elements such as walls, windows, doors, roofs, floors and ceiling); (ii) spatial characteristics (e.g. sizes and layouts of interior spaces, the number of bedrooms, lighting and ventilation of interior spaces, security and privacy) of dwelling units; (iii) the availability of basic social amenities (e.g. good drinking water, power supply, sanitary services); and accessibility to neighborhood infrastructure (e.g. healthcare educational, recreational, , shopping and other basic facilities).

In the above discussion the researcher discussed the housing adequacy as well as the basic dimensions of the housing adequacy. In the evaluation of the public urban housing the issue of affordability must also be noted in detail. In formulation of housing policy the concern is not only adequacy; it is also affordability. If the housing unit is not affordable, it will have its own impact on the economy. The following section of literature discuss about the affordability of housing sector.

2.10 Housing Affordability

2.10.1 The Nature of Housing affordability

Another issue to be noted in designing housing policy is affordability of housing. Cities in developing countries including in Ethiopia are characterized by speedy population growth and land growth, thus hurting the capacity of shelter delivery systems in the urban centers. The gap between housing supply and demand is broadening in developing countries and during the early 1980s nine new households were formed for each permanent dwelling built in such countries or in other words, one housing unit against newly formed households (kieti, 2015). In most of the developing countries affordable housing is not a problem only for the poor but also for the middle- and low-income groups.

In most of the developing countries the middle- and lower-middle income groups are thrown out of the formal housing and land market due to high price of land and of rental or owner-occupied housing. This situation also observed in Ethiopia because the land value is increased and an affordable by the middle and poor people in Ethiopia especially in the city administration of Addis Ababa. The existed fast pace of urbanization in the developing world has accelerated the need for adequate and affordable housing. The rapid development pressure in relation to the pace of urbanization creates enormous needs for land and housing in the developing countries. Due to the high price of residential land and housing, the middle-income groups often have to depend on informal land markets to gain access to land and housing.

Generally, cities of the developing countries including cities in Ethiopia are characterized by poor land markets where the informal land market is much bigger than the formal market basically due to poor urban policies and inefficient regulations (Tigist, 2015). This phenomenon creates serious affordability problems for the middle- and lower-middle income-groups' housing. Therefore, the policy framework for housing in developing countries including in Ethiopia in general and Addis Ababa in particular need to be examined carefully in order to solve the problems of housing of middle- and lower-middle-income groups including in Ethiopia.

The term housing affordability is used commonly in evaluations of the impact of the cost of housing on consumers but with a number of different meanings and measures. The most general use of the term centers around consideration of the extent to which housing costs for a given standard of housing interrupt upon a household's 'income to live on' or their capacity to meet their total household needs (Hancock, 1993).

The Central point for the realization of adequate and affordable provision and distribution of housing is the issue of managing the relationship between the price of housing and the capacity of the household to pay for their housing (Malpass and Murie, 1994). It is hardly possible to justify the relevance of housing affordability without being tempted to discuss the importance of housing and its centrality in our day-today life. As it is concisely noted Stone (1993):

> *"Housing is not only a necessity of life; it has a universal impact on all aspects of our existence. Housing – if it is adequate - provides privacy and security against impositions, both physical and emotional. It is the principal locus of personal and family life. It defines the community and determines access to jobs, to services, to stores, and to significant other people in our lives. It contains not only our material possessions, but our dreams and despair."*

In the Affordable Housing National Research Consortium (2001) observed that; there is evidence that permanent, secure housing provides the necessary base for 'social capital' (i.e. the mutual trust and social behavior) that facilitates civic engagement in different sectors. Neighborhood stability, in the sense of low resident turnover, is associated with high levels of social capital and good, basic, housing standards. Conversely, where that social capital disintegrates, so does social interrelation. Where this occurs, segments of the community will experience social exclusion; in effect they will be prevented from full participation in the life of the community. When social interrelation declines, then so does the attractiveness of an environment as a place in which to live and do business. Adequate and affordable housing is a necessary constituent in the achievement and maintenance of an inclusionary, innovative and productive society (DTZ New Zealand, 2004).

Affordable public housing is generally defined as "adequate in quality and location and does not cost much the residents and also do not prohibits its inhabitants meeting other basic living costs

(non-housing expenditure) or impends their enjoyment of basic human rights" (Un-Habitat, 2011). In addition, According to Keieti (2015) there are external and internal factors that affect housing affordability. The external factors are related to the cost of the housing. That is households' ability to purchase a house is affected by the purchase cost (which is the sum cost of land, infrastructure, building materials and labor and profit and the ability to finance the purchase of the housing unit which is principally set by the finance down payment requirement and the balance of household savings).The internal factors that affect affordability have to do mainly with socio economic circumstances of the target group. The first set of this is the economic character of the community, such as employment opportunities, income, and expenditure patterns. As it is indicated in different literature the other factors have to do with the target group's social characters like household sizes, family structures, needs, customs, aspirations and priorities expected by the residents.

2.10.2 Factors Affecting Affordability of Housing

Home ownership is influenced by various determinants such as prices of homes, household or individual income, and disposable income. Others include building expenses, status of an individual, land ownership policies, building materials costs, water supply access, electricity connection access, water connection access, policy or regulatory frameworks, interest rates for shelter finance by financing institutions, access to housing finance and other infrastructural restraints (Nabutola, 2004; Arvanitis, 2013). Home ownership is thus dictated by the above-mentioned determinants amongst many others. Although it can be argued that housing affordability should be an easy endeavor in cities this is not the case as information by actual prospective homeowners reveals otherwise (Kieti, 2015).

As it is indicated in Ndung'u (2013) some of the empirical and extant ways of managing these determinants in Kenya and the larger Africa employ innovative housing finance mechanisms that target the middle and lower income class population. Currently, feasible sources of housing finance in Afirica include personal savings, personal loans, financial institution loans and housing mortgages especially for bank employees.

In addition Ndung'u (2013) also clearly stated that Current empirical innovations aimed at addressing the house owning determinants in developing countries especially in different African countries include the reduction of mortgage borrowing challenges, PPPs (public private partnership), using integrated systems such as adopting cheaper building technologies, addressing formal housing cost components, government subsides, tax initiatives in owning homes and formulating home friendly regulatory frameworks amongst others (kieti, 2015).

In the following section the researcher discussed the basic factors affecting affordability of housing.

The first issue to be considered is the Price of Homes in Relation to Housing Affordability. When the prices of homes grow faster than individual income less people will be able to afford homes due to the pricing limitation. Several factors determine the pricing of homes key among them being the cost of financing for developers and prospective homeowners (Ndung'u, 2013). Other factors affecting the pricing of homes include but are not limited to land costs, facilitation costs, transportation costs, inflation rates and building material costs. Overall an increase in the pricing of homes reduces home affordability and vice versa.

Another factor that affects housing affordability is the Disposable income in Relation to Housing Affordability. As it is argued by Ndung'u (2013) that Housing affordability is directly related to income levels for individuals and combined households who desire to own a home. Higher income levels mean that individuals or households can afford to purchase bigger and better quality houses compared to low income earners who have to struggle to obtain at least decent housing.

However, the household expenditure patterns and an individual's perspective to home ownership also determine whether an individual will own a house or not and how fast home ownership will take place. Disposable income is thus a key determinant on home affordability and determines the type and size of home that can be bought or built.

Additionally, Land Prices as a determinant of housing affordability is also another factor that determines the affordability of housing in the urban centers. Land represents a major problem in home ownership in urban areas. According to research, absence of fairly priced and well located serviced land with proper documentation is a major inhibitor to rapid growth in different African countries. There are a number of reasons that include the government as a major holder of vast pieces of land, control of large tracts of land by private entities, poor environmental conditions, and the absence of the essential infrastructure including water and sewer systems are a major challenge to the developers (Ngugi and Njori, 2013; Njathi, 2011).

Poor systems of land records, High land prices, and a slow registration process discourage potential homeowners from mortgage and financing due to lack of timely verification of the prospective developmental properties and in ability to service the huge amounts demanded. In addition bureaucratic process in the ministry of lands and other related government stakeholders are also a key hindrance among the Addis Ababa potential homeowners (Ngugi and Njori, 2013). But the issue of land price is not the concern of housing affordability because the land was given by government free of lease for the implementation of the program.

It is also noted in different literature that the loan volume, loan term as well as interest Rates as determinants of Housing Affordability**.** Amount of financing available both to potential middle income home owners and real estate developers and interest rates charged determines the equilibrium of demand and supply of housing in the economy. Higher interest rates means higher loan repayments and vice versa making interest rates as a determinant of home affordability. The higher the interest rate will discourage both real estate developers and any other housing developers and also households to take different amount of loan; this may affect both supply and demand side in the housing sectors. Because real estate developers need credit to finance their investment idea; this will affect the supply side and also households need credit to purchase home, but due to lack of access to financing individuals may face a problem of affordability (Kieti, 2015).

It is also noted that among the different factors affecting housing affordability loan Repayment Period is one and relevant. The duration of repayment, interest rates and flexibility of monthly repayments can also not be over emphasized as they determine whether the borrowers will have the capacity to repay the loan within the stipulated period (Ngugi and Njori (2013) as cited in Ndung'u, 2013).

But in different countries in the world there are different mode of loan disbursements and it will have either positive or negative impact on the affordability of housing. For example in Europe, increased competition among the financial institutions led to more diversified loan instruments with increased maturity period facilitating the profound growth of the housing industry (Norris and Winston, 2012). Short maturity periods, and inflexible monthly payments all discourage potential homeowners from seeking financing alternatives for their housing projects. But there is as such access to finance for housing purpose in Ethiopia in general and Addis Ababa in particular.

It is also discussed that **access** to finance is one of the determinant factors of housing affordability accessing house finance in most of the developing countries is a demanding task in different developing countries including in Ethiopia. In Ethiopia and particularly Addis Ababa city administration that is no exception about the access of the people especially the poor. Ndung'u (2013) clearly stated that Stringent requirements by financial institutions like constant flow of income, requirements for one to be salaried to minimize risk of default from their end and failure by the government to come up with ways of registering and assisting informal groups access affordable housing has made access to home financing a preserve of the rich. Access to finance enables people to access home financing thus increasing home affordability and vice versa.

The determinants of housing affordability is not limited to the loan characteristics; it also includes the housing related variables such as housing size, location, quality of building as well as neighborhood characteristics . the discussion above clearly shown that the Interest rates, access to finance, Land prices and loan repayment effects on affordability was measured and also the housing characteristics as a determinant of housing affordability.

Lastly it is noted that the housing affordability is affected by socio economic characteristics of the beneficiaries including number of family member, number of dependents, job position, marital status, income and any other factors

2.10.3 Measure of housing affordability

The very important in examination of housing affordability is the measurement of housing affordability. The measures of housing affordability were discussed in different literatures by considering the residual income approach and the ratio approach. The chartered institute of Housing (1992) as quoted in Onu and Onu (2012) identifies rent levels, household income and eligibility of households for housing benefits to determine whether accommodation is affordable or not. In the United States and Canada, a commonly accepted guideline for housing affordability is housing cost that does not exceed 30% of a household's gross income (Onu, 2012). When the monthly carrying costs of a home exceed 30.35% of household income, the housing is considered unaffordable for that household.

If the government is designing appropriate policy to the public that is adequate and affordable; the people will be satisfied with housing as well as residential environment. The following part of the literature discuss about the residential satisfaction.

2.11 Residential satisfaction

2.11.1 Introduction

The establishment of housing program by government must be related with the interest of the people at large and must be related to culture, age, health condition and any other economic and social aspects of the people. Whatever quality housing program designed is; it doesn't matter if the residents are not satisfied. Francescato et al (1979) defined *"residential satisfaction as the emotional response to a person's dwelling; the positive or negative feeling that the inhabitants have for where they reside"*. Residential satisfaction has been used as a measure to examine the success housing development projects. Resident satisfaction has been in use since the early 1960s as the basis for optimizing the architectural design of large housing developments, where feedback was collected from residents of housing projects with regard to resident's views on the physical features of proposed housing developments and then feeding those views back into the design process.

The method of choice for assessing residential satisfaction today uses structured surveys followed by statistical correlation of variables (Furbey & Goodchild, 1986). From the 1980s to present day, residential satisfaction has been a key tool to assess and improve the performance of housing developers, and key government policies related to housing. Studies of residential satisfaction are basically of two types; those that consider residential satisfaction as a predictor of behavior (intention to stay/move from existing housing), or residential satisfaction as a criterion of housing quality (Weidemann and Anderson 1985).

Studies based on residential satisfaction as a predictor of behavior assumes that satisfaction with existing housing determines behavior of the resident in terms of making changes to the housing unit or the decision to move to another housing unit. The basis of this assumption is that differences in the existing housing and the actual housing needs and preferences of the dwellers will result in either making changes to existing housing or move to a housing unit that meets their actual housing needs and preferences.

Studies that employ residential satisfaction as a measure of housing quality use housing unit features, services and facilities provided in housing area and the housing environment to determine the degree to which a person is satisfied with the existing housing unit (Amerigo & Aragones, 1990). Therefore, it is believed that if the housing is adequate and affordable, people will be satisfied with the residential environment. Lastly, it is recognized that the housing program must be consistent with the interest of the people considering social and economic elements of the beneficiaries. In order to check and examine its consistence with the interest of the people post occupancy evaluation related to adequacy and residential satisfaction of the residents must be undertaken.

2.11.2 Factors affecting housing satisfaction

As it is discussed by Mohammad Abdul Mohita and Mohamed Azimb (2012); residential satisfaction is evaluated using variety of dimensions in to account. The dimensions are related to the size of the house; services within the housing area; public facilities and social interaction. The first issue to be noted is satisfaction related to areas within housing unit and it includes Ventilation, Bedroom and dining room size & condition, Living area-size & condition, Dinning area size & condition, Kitchen area-size & condition and Toilets-size & condition.

The second important dimension of satisfaction is satisfaction with services within housing area that includes condition of staircase, location of staircase, Sanitation repair services, lighting in corridors, Plumbing, size of corridor, electrical repair services, maintenance of common areas, garbage collection, cleaning services for corridors & staircases.

The third important dimension to examine the satisfaction of the house is Satisfaction with public facilities within / close to housing area including Masjid, water supply, Electricity supply, children’s play areas, Pedestrian Walkways, Local shops & shopping area, Recreational areas, Kindergarten, Parking facilities, Distances to – bus stop, masjid, hospital, shopping areas, ferry terminal, schools, town Centre, police station, fire station and satisfactions on health.

The last issue to be noted is satisfaction with social environment within housing area and it includes Neighborhood relations, Community cohesion/ relations, level of crime, level of security.

The next part of the literature presents the determinant factors affecting the price of housing. Different literature indicates hedonic pricing model were used to determine the determinants of housing price in different areas related to both public and private housing.

2.12 Hedonic Pricing Model (HPM)

2.12.1 Introduction

It is the model to determine the value of the properties including housing. The assumption behind the HPM is the determination of security value based on the contributing characteristics of the property. The fundamental idea of the HPM is as follows: commodities are characterized by their constitute properties, hence the value of a commodity can be calculated by adding up the estimated values of its separate properties.

In addition Shanaka Herath and Gunther Maier (2010) clearly stated that the Hedonic Price Method (HPM), also known as hedonic regression, is used for approximating the value of a commodity or the demand for a commodity. The HPM has been extensively used in real estate and housing market research in the recent periods. Additionally they stated that the hedonic price method (hereafter, HPM) is also known as the hedonic demand theory or hedonic regression. This methodology estimates the value of the characteristics of a commodity that indirectly affects its market price. Alternatively it is used for estimating the demand for a commodity.

It described in different literature that the term hedonic was used to describe “the weighting of the relative importance of various components among others in constructing an index of usefulness and desirability” (Selim, 2009). Rosen (1974) defines hedonic prices as “the implicit prices of attributes and are revealed to economic agents from observed prices of differentiated products and the specific amounts of characteristics associated with them”. Other Hedonic model application in property research included the analysis of level of contribution of each property characteristics to property value (Selim, 2009)

2.12.2 HPM (Estimation approaches, functional form and the model specification)

The hedonic pricing model uses hedonic regression analysis to identify the determinant factors affecting housing price. Regression analysis related estimation is the most popular estimation approach among the scholars. Multiple regression analysis may either be an OLS regression or a maximum likelihood estimation of the log-likelihood function derived from the hedonic function. Both these estimation techniques try to find a vector of parameters that best matches the values of explanatory variables of observations with the respective observed price. They differ by the criterion they use for identifying the best match. The explanatory variables may be the characteristics values, or mathematical transformations thereof, dummy variables or panel variables making it possible to allow for non-linearity, variable interaction, or other complex valuation situations. This information can be used to construct a price index that can be used to compare the price of constant quality housing in different cities (spatial aspects) or in one city over time (temporal aspects) (Shanaka Herath and Gunther Maier, 2010).

In doing hedonic pricing model the use of regression analysis is very crucial. Regression analysis related estimation approaches are common in HPM models in real estate as well. The conventional hedonic price regression equation with regard to the housing market is either rent or house value against the characteristics of the unit that determine the respective rent or the value of the house. The fundamental assumption of regression applies that the relevant determinants of the dependent variable (rent, price, or value in this case) are known precisely and in advance. (Sibel, 2008)

Additionally, Shanaka Herath and Gunther Maier (2010) also stated that a classical hedonic equation considers housing price as a dependents variable and also any other explanatory variables given as follows: in the determination of the model there are different independent variables to be considered and the price of the house can be considered as the dependent variables. It is stated as where “p” is the price of the house; P is property related attributes; N is neighborhood characteristics; L is locational variables; t is an indicator of time.

In practice, various variables are applied based on the scholars’ preference or the availability of data. Malpezzi (2003) notes that experience from many studies suggests the following variables often appear in hedonic price analyses:

- Number of rooms and type of rooms (bedrooms, bathrooms, etc.)
- Floor area
- Category (Single family, multifamily, attached, detached, number of floors)
- Availability and type of heating and cooling systems
- Age
- Structural features (presence of basement, fireplaces, garages, etc.)
- Structural material used, and quality of finish as an explanatory variables

It is noted that Hedonic pricing model theory is based on the assumption that the price of a property such as (office, house, rent price) is a direct function of a fixed number of characteristics (say) measured by quantities (Limsombunchai et al., 2004 and Hamid, 2006). Hence the hedonic pricing model decomposes the transaction price into various components or characteristics. The Hedonic price function (HPF) is normally written as:

$$R = f\,(P, N, L, C, t)$$

Hedonic regression analysis is commonly used in real estate valuation as well as in different fixed asset valuations. Sales comparison approaches that are used in valuation of real estate are also variations of hedonic-type measurements. One special case of the sales comparison approach, the sales adjustment grids takes into account a small number of recently sold properties in the immediate vicinity of the subject property to value the attributes of that property. An adjustment to the comparable is typically done using trend analysis, matched-pairs analysis, or simple surveys of the market. Sales adjustment grids and multiple regression models are theoretically the same.

According to Oduwole, H. K.* and Eze, H. T. (2013) multiple regression analysis in hedonic pricing model considers a large number of more geographically dispersed property transactions to determine the significance and magnitude of the impact of different attributes on property value. The HPM was later extended to take into account spatial dimension in the presence of spatial dependence and spatial autocorrelation. One of the most popular and probably the simplest ways of considering spatial aspects in the hedonic model is to include distance from the central business district as an explanatory variable, although this becomes irrational when there are multiple centers in a city.

In this research the researcher was used hedonic regression analysis to identify the determinant factors affecting the pricing of condominium housing in the city administration of Addis Ababa. In the next part of the literature the researcher presents provision of adequate and affordable housing in Addis Ababa City Administration by providing critical emphasis on the provision of condominium housing to the poor people using condominium housing projects.

2.13 Provision of Adequate and Affordable Housing in Addis Ababa City Administration

Among the three basic needs demanded by the people one is adequate and affordable housing. The provision of adequate and affordable housing that satisfy the residents is very important. This chapter presents housing in the Ethiopian context particular reference in the city administration of Addis Ababa. The researcher presented basic urbanization issues in Ethiopia because adequate and affordable housing is the basic component of urbanization. And also it is discussed the associated problem of urbanization i.e. housing issues in Ethiopia; the basic parts included in this chapter are the nature of housing in Ethiopia as an introduction; causes of adequacy and affordability housing problem in the urban Ethiopia; the main actors participating in the provision of adequate and affordable housing sector in Ethiopia and then the mechanism developed by government to solve the critical problem of housing faced by urban poor; i.e. integrated housing development program that gave critical emphasis for the construction of condominium to address adequate and affordable housing in the urban centers of Ethiopia. In order to undertake this part of the dissertation the researcher used qualitative data with relevant qualitative methods of analysis (narrative analysis). The data collected from literature and others using open ended questionnaire and interview.

2.13.1 Introduction

Ethiopia, a country located in the horn of Africa, bordered by Eritrea to the north; Kenya to the south; Djibouti to the north east; Somalia to the south east and Sudan to the west is a multiethnic group, over eighty unique ethnic, cultural and indigenous linguistic groups and is the most populous country in the world. Addis Ababa, the capital city of Ethiopia, is the largest city where different national and international organizations are existed; in addition Addis Ababa is the center of different commercial areas. Due to this reason there is huge concentration of the people in the capital by the expectation of different economic, social and political advantages. This huge concentration of people increases the demand of the people towards public goods and different social and economic infrastructure including housing.

People are still coming into this city; children are being born in these cities, because people believe that better life lies in front of them at Addis Ababa. But many of these cases are being cheated and many continue to be cheated (Hall, 2000). Means there is a clear gap between the expectation and the actual living environment in Addis Ababa. Due to this reason in most developing countries including in Ethiopia in general and Addis Ababa in particular, poor economic performance caused by both internal and external factors has led to the growth of informal settlements parallel to the formal one. Informal settlements provide cheap accommodation and economic opportunities for a large part of the population that means these settlements respond both to housing needs and to the search of economic activities (Daniel, 2006).

Among the different reasons for the existence of informal settlement is government housing program. Some government started housing programs to replace the earlier programs of slum clearance. Mass housing on the other hand requires resources in terms of funds and skills. This is in short supply of housing in developing countries and most of them have no housing policies, which contain clear and effective measures to deal with major housing constraints (Payne, 1984). It is also noted that most governments cannot afford to house large number of the urban poor. Because of the existed economic situation in the state Present level of public investment in housing is inadequate in relation to demand and private housing agencies are building very slowly (Shah; 1984 and Acquaye and Asiama, 1986). In any case the programs by most governments target the public employees and not the informal employed persons who cannot afford housing expenditures.

As it is specified in Minuyelet (2005) Addis Ababa is currently expanding at an increasingly rapid rate of urbanization. Further, the city has been undergoing horizontal expansion as the major form of development throughout its history. The degree of the physical expansion of the built-up area of the city has outclassed the capacity of the city government's infrastructure and basic urban services. Responsibility for this physical expansion has been attributed to legal landowners, land developers, and squatter settlements. In Addis Ababa, squatter settlements are mainly located in the peripheral areas of the city. In the next part of this chapter the researcher presented urbanization and housing shortage in Ethiopia; participants in the provision of adequate and affordable housing; and also the program designed by the government of Ethiopia in 2005 i.e. condominium housing as principal solution to provide adequate and affordable housing in different urban centers.

2.13.2 Rapid Urbanization and Housing shortage in Ethiopia

The issue of housing is associated with the expansion of urbanization in different countries in the. Of other countries in Africa especially in sub Saharan Africa; Ethiopia is a country with favorable climate gifted with water and immense land resources combined with a high population growth meaning that the country also has a strong labor force. At the very beginning, these resources should be able to give the country what it needs to meet the maintenance needs of the people. Despite this however, Ethiopia is now acknowledged as one of poorest country in the world (UNDP, 2010; Oxford Poverty and Human Development Initiative, 2010) when evaluated in terms of the new international measure of poverty, Multidimensional Poverty Index (MPI) which employs the combination of the three dimensions health, education, and standard of living to assess the level of poverty in a country.

In similar fashion, Ethiopia like most African countries has joined the expansion of urbanization from period to period. Over the past two decades, Ethiopia being a predominantly rural country has shown a massive 164% increase in the rural population between 1984 and 2007 while the urban region has also shown a considerable rise (MWUD, 2006). Considering the state of poverty in the country, this high urban growth will clearly lead to a substantial rise in the urban poor and disturb the already lacking efforts of the government to accommodate the needs of the rising urbanities especially providing adequate and affordable housing that satisfied the residents.

As it is specified in UN-HABITAT (2008) a recent estimate shows that an alarming portion of the urban population lives in slum areas including in Ethiopia; even majority of the people in Addis Ababa live in old and very congested houses. As it is observed in the cities of most developing countries and cited by Alemayehu (2008), the slums in Addis Ababa are of three kinds: - Shelters built in unoccupied lands without tenure rights and infrastructure on the outskirts of the city "Informal peripheral squatter settlements"; Shelters assembled from plastics, cardboard boxes and rags in the inner parts of the city adjacent big buildings, main roads, and public parks "Inner-city squatters". And the third one is Shelters that meet all the criteria of slums even though their residents have legitimate tenancy rights, "Non-planned old inner-city settlements". These shelters are composed of *Kebele* (the smallest government administration units operating at the neighborhood level) houses and are in poor conditions mostly due to lack of renovation and maintenance. The above stated reasons make the housing situation very worst even at the center of Addis Ababa.

As it is indicated in the picture above the "un planned old inner-city settlements", which have now become the slums of Addis Ababa, represent the phenomenon of "Spiral of Decay" which denotes how neighborhoods that are composed of substandard houses (poor standard) that is not adequate and do satisfy the residents and occupied by legitimate low-income households are exposed to serious risks of converting into slums.

The worse of the housing problem pushes the people to own lands illegally by different people to address housing demand in the city administration. The existence of squatter settlement is addressing the housing problem of certain portion of the people in Ethiopia. But such type of settlement is a critical hindrance for urban development that is why there is a demand of the housing scheme that is legal as well as addressing different criteria's of urban housing. The nature of housing price in the city administration pushes the people to own land informally in the nearby towns. As it is clearly indicated in the picture below the housing structure in the squatter settlement fail to satisfy minimum requirements and it is not suitable to live. Lack of apparent solution for the people to satisfy the housing demand in the city administration of Addis Ababa; people are forced to reside in different illegal housing solutions such as squatter settlement. In the current situation huge number of people resides in a road side and is exposed for different social, legal, health and economic problems. It affects not only the current life of the people but also it affects the future life of the people at large. Housing affects both mortality and fertility and at large it affects the economic growth and development of the state.

In the figure below the researcher presented the existence of the informal settlement to solve huge housing problem in the city administration.

The picture above shows the problem of squatter settlement in the border of the city administration in different directions that is poorly designed congested poor quality with poor infrastructure and also against the required standard of urban housing.

From the above discussion it is understood that the existence of housing problem both related to supply and the poor standard of the housing sector in Ethiopia especially in the city administration of Addis Ababa are in the worst situation. Therefore, solving the housing problem must not be left for the government as well as to the private sector especially to the urban poor because there is the critical affordability problem. To provide sound solution to the observed problem the integration of different sector is important because each sector provides housing for the selected section of the society. In the section below the researcher discussed the relevancy of each player in the housing sector and emphasis given for government in providing condominium for the poor.

2.13.3 Main actors participating in Housing Sector in Ethiopia

In order to solve the urban housing problem and also to achieve the urban development strategy through providing low-cost and affordable houses to all members of the society, the government is facilitating and supporting private house constructors, real estate developers and house construction cooperatives (UNHHBITAT, 2010). But in reality the stated sector may not be suitable to address housing issue of the poor people. That is why the government is currently a key player in the urbanization process as well as housing development and supply (MUDHC, 2005 E.C). This issue further articulated by Mathewos (2011) that the city government has embarked upon a number of initiatives to act upon the deep-rooted housing problem and poor environmental quality of the city. In order to combat the housing problems and improve environmental quality, the Addis Ababa City Government launched studies, programmes and projects as part of the overall urban development and urban management initiatives. Besides the federal laws, the city has enacted its own regulations, directives and issued a manual on redevelopment management. With a view to utilizing urban land and services more efficiently and cost-effectively as well as minimizing the gap between supply and demand of the housing sector, the City Government issued the Condominium Regulation No. 12/2004.

Additionally, the city government administration controls majority of the rental accommodation and influences the supply of new housing through active involvement in material production and importation, land supply, and housing finance particularly for condominium houses. This justified that the main actor in the condominium housing construction is the government aimed at achieving the main goal of addressing low and middle income group of the society through the construction of subsidized affordable houses. The City Administration of Addis Ababa designed a framework for the registration of residents in Addis Ababa indicated in Housing Registration Directive No. 2 (2005 E.C.). In the city administration as well as in any other regional states the question of adequacy and affordability of housing is very critical. That is why government is initiating the IHDP in Ethiopia. Affordability, adequacy and satisfaction of the residential environment are supposed to be realized by constructing the low cost condominium houses.

The other players in solving the housing problem of the city administration are real estate developers. In this urbanization period the contribution of real estate developers are significant to address housing problem. Real estate developers mostly try to address the housing problem of the selected section of the society i.e. high income earners in Ethiopia. According to Tameru (2009), above 300 real estate developers were established in Addis Ababa over the last fifteen years. The level of development is varied according to the capacity of the developers. This kind of development is recent in Ethiopia and purchasers are required to make certain percentage of the price of the house as down payment. As it is justified by different literatures Real estate developers currently operate only with high-income groups as there is little incentive to construct low-income housing. Therefore, it is not the right and appropriate housing solution for urban poor because it highly tests the affordability of the poor.

Some section of the society tries to solve housing problem through the formation of housing cooperatives. The housing cooperatives also build houses collectively and contribute to address housing problem. Housing cooperatives have received varying levels of government support over the last 40 years, (MUDHC, 2005 E.C). The government was providing significant subsidy up to 60 percent on construction materials, land being allocated with no charge, and low mortgage interest rates. However, mainly due to their own internal problems and gradual reduction of the government's attention and subsidies their contribution towards housing development has become minimum (MUDHC, 2005 E.C; UNHABITAT, 2010). Housing cooperatives are responsible to meet the required standard set by the city administration on the typology of the house to be constructed. Similar to the issue of real estate this approach is difficult to address housing problem for the poor in the city administration of Addis Ababa because to be the member of the housing cooperatives (demands some percentage as down payment and it may not be affordable by the poor).

But all of the housing demand may not be addressed through formal sectors and participants. Rather there are huge portion of the housing demand satisfied through informal sectors. Informal unplanned housing provision in the urban centers, as reported by UN Habitat (2010), constitutes a considerable proportion of the total housing supply. Informal housing is especially widespread in Addis Ababa city expansion areas about sixty thousand informal settlers and the number is expected to reach around hundred thousand and it is the fastest growing supply method

(MUDHC, 2005 E.C). Similarly NGOs and governmental organizations are involved in the construction of housing for their employees as well to reduce housing problem in urban areas.

Involvement in the housing market by Non-Governmental Organizations (NGOs), both national and international, has been of small scale. While many NGOs operate in Ethiopia, few deal with housing and land issues (UNHABITAT, 2010). To sum up the participants of the actors in the housing sector each party must involve in the provision of housing by considering the affordability and adequacy of housing. Because the issue of adequacy and affordability vary from individual to individual depending on income, age, culture and other social and economic factors.

Even if the above stated actors were participating in the housing sector; it is very difficult to address the housing issue of the poor people. That is why the government is forced to provide massive housing for the urban poor in Ethiopia in general and Addis Ababa in particular. The massive participation of the government is very important to address housing problem of the urban poor; in providing the housing for the poor there are different factors to be considered such as paying capacity, culture, social and economic aspects of the people.

2.13.4 Housing Demand and Related Issues in Ethiopia

As described in the previous section, housing is the very important asset that are demanded by the people both in developed as well as developing countries by the rich as well as the poor people. And the provisions of adequate and affordable housing that satisfy the residents and also consistent with their economic, social, cultural and financial requirements is very important. It also discussed that the provision of housing must not be left for the government or any other separate sectors. That is why the focus of housing is not left for one specific player and it demands the involvement of different sectors. Even if there is participation by different actors to supply housing; but as it is clearly justified in UNHABITAT (2012) there is huge deficit in supply of houses in Addis Ababa. It is also justified by Mathewos (2011) that the existing housing situation is too poor in Ethiopia specifically in Addis Ababa. It is characterized as low rise, and mud and wooden structures are the city's dominant features. Some 30% of the households live in informal settlements, and 5% are homeless, sleeping on the streets. This section of the society leads very worst life in the road. For this people the question was not to live with quality standard housing, but their concern is much worse than living in a poorly standard housing. As indicated in the picture below the number of people who are sleeping on the street increased from period to period. This shows that the issue of housing is critical but it is not addressed by the people.

Majority of the housing structure found in Addis Ababa is also observed that deteriorate physical structures, high-levels of congestion, abundant solid waste and severe shortage of services and infrastructure facilities are the dominant characteristics of most neighborhoods. This problem may continue with an increase the predicted high population and urbanization growth in the city.

By recognizing Housing as one of the three essential human needs as one of universally accepted basic needs besides food and clothing. And regarding the housing problem in the city of Addis Ababa justified in UNHHBITAT (2010) 80 per cent of the Ethiopian population lives in sub-standard slum housing that needs either complete replacement or significant upgrading. This indicates presence of massive demand for adequate and affordable housing in the city administration. The demand for housing originates from both the accumulated housing deficit and poor quality and of existing poor Kebele housing stock that is beyond repair. These Conditions go from bad to worse due to existing Kebele regulations that prohibits maintenance of Kebele houses without the permission of government body (Ethiopia, 2011). That is why the housing situation and prevailing poverty and financial problems of the dwellers are still worst (UNHHBITAT 2010).

Regarding housing supply in the city administration data obtained from Addis Ababa City Administration housing development bureau there is imbalance between housing need and supply, get worse by very low incomes that lead to affordability problems, and thus, urban residents prefer informal settlements in the nearby towns. In fact, the existed demand is composed of "effective" demand based on those who have the required down-payment and ability to pay the monthly mortgage, and "aspiration" demand based on those who want to own a unit but do not have savings to meet the down-payment. But it is observed that affordability of the people on different program is challenging the residents of the city administration. In order to solve the critical problem of affordability it is very necessary to have a housing policy that has power to address the affordability and adequacy at a time.

By having the above identified issues in the literature the government of Ethiopia gave critical attention for the important sector in the economy that is providing adequate and affordable housing that satisfy the residents. The housing program designed in 2005 concentrated for middle and low income group of the society in different states in different urban centers. The IHDP has different objectives to address urban problems such as job creation, saving mobilization and also addressing housing problem. As per the above discussion the issue of housing is very important but most of the people are homeless to the worst as well as the people are living in informal settlements and poorly structured housing. The alternative housing typology is not as such adequate and affordable and also it is not satisfied the residents. That is why the government of Ethiopia was initiating IHDP to address housing problem in Ethiopia in general and Addis Ababa in particular. In the next part of the literature the researcher discussed about the integrated housing program.

2.13.5 Integrated Housing Development Program (IHDP)

As a principal means of addressing the housing problem of the urban poor in the city administration of Addis Ababa the program designed in 2005 is very critical. In this part of the literature the researcher tried to discuss about overview of the integrated housing development program, significance of the program, program design, and legal framework of the program, as well as program financing in Ethiopia in general and Addis Ababa in particular.

The housing policy has objective aims to extend market for low-income households that are not covered by the private housing market through increased supply of affordable low-cost housing. In many developing countries, the great majority of lower income households cannot afford the lowest priced houses in the formal housing market. This is particularly challenging in developing economies where urban growth is predominantly driven by in-migration by rural households that often lack the financial capacity to participate in formal housing markets. (UNHABITAT, 2010, 2012)

In the present Ethiopian context, at usual housing price and financing mechanism, only small portion of the people in Addis Ababa can afford to become home owners in the formal private housing market. The only choice open to most low income households in such economies is to rent under risky and uncertain tenure terms, double up with relatives, or build some form of shelter in unauthorized sectors that aggravate the creation of slum areas. Consequently, lower-income households not only live in sub-standard housing conditions, but also have limited access to basic public services as well as access to finances as they are often considered not creditworthy either due to their employment, which is often in the informal economy and or lack of collateral for mortgage lending when available.(UNHABITAT, 2011; Ethiopia,2011)

The housing policy aims to stabilize rental markets in urban Ethiopia through the increased construction of low-cost housing units that target lower income households as well as by increasing the general housing stock in the urban centers (Ethiopia, 2011). But it is estimated that Ethiopia's current housing deficit in urban areas is about a million units, and that only 30 percent of the current housing stock is in "fair" condition, with the remaining 70 percent in need of total replacement.

The housing deficit is even more severe in major urban areas like Addis Ababa, where the deficit is set to increase concurrently with rapid population growth. Consequently, this has placed significant upward pressure on the demand for rental housing in urban areas, which in turn is pushing rental prices and creating affordability challenges to working class households. Housing affordability challenges in the private market are occurring largely due to the limited rental housing options for renters. To ensure stable and affordable rental housing prices, the supply of new housing stock has to increase to match the rapidly growing urban housing need. That is why the government was to think and design a mass housing program to address the housing problem.

Since 2005 Ethiopia has been implementing an ambitious government-led low- and middle-income housing programme: The Integrated Housing Development Programme (IHDP). The initial goal of the programme was to construct 400,000 condominium units, create 200,000 jobs, promote the development of 10,000 micro - and small - enterprises, enhance the capacity of the construction sector, regenerate inner city slum areas, and promote homeownership for low income households.

In Ethiopia the concept of Condominium housing as a separate form of ownership was not familiar until 2003 (MUDHC, 2005 E.C.). In 2005, the government of Ethiopia considering provision of houses as one of the major developmental tasks to reduce poverty and improve the livelihoods of slum dwellers; and thereby bringing sustainable socio-economic development, established a National Integrated Housing Development Program under the then Ministry of Works and Urban Development (MWUD) later renamed as the Ministry of Urban Development, and Construction (UNHABITAT, 2010).

It is also noted that the common attribute of each housing project is the type and nature of housing developed. Accordingly, condominium housing initiated by government is multi-storied housing units for several households where communal areas are jointly owned and managed by the residents commonly (UNHABITAT, 2012).

When the government is designing IHDP; different objectives are settled especially objectives related with solving the above stated housing problem in Addis Ababa. The problems are the existence of illegal (squatter settlement) as well as the existence of very poor standard housing (Kebele housing) without renovation and repair and maintenance at the center of Addis Ababa. Therefore, the construction of condominium is the convenient solution designed to solve the bulk of housing problem in Ethiopia.

The purpose of constructing condominium housing in Ethiopia is to enable low-income urban dwellers to acquire homes of their own, alleviation of urban poverty through the participation of Micro and Small Enterprises (MSE) and creation of employment opportunities in the construction sector which can absorb more labor force, changing the image of the city so as to meet international standards, transfer of knowledge and skill to the construction industry, promoting cost efficient housing construction technology, empowering citizens of the city through ownership of houses and tenure security, (MUDHC, 2005 E.C). The IHDP initiated by government by considering the large scale; Pro-poor, Slum prevention and access to homeownership and also integrated approach to housing and economic development.as a principal significance. Even if the concern of government in constructing condominium is by considering different goals in to consideration the principal concern is provision of adequate and affordable housing for the urban poor in Addis Ababa.

2.13.6 Integrated Housing program (IHDP): Institutional Framework

To provide adequate and affordable housing for law and middle income residents of Addis Ababa the involvement of different institution is very important. The institutions are providing their own contribution for housing provision and also strive to achieve the stated objectives. The role and contribution of the actors in the program are given below. The discussion clearly justified by (UNHABITAT, 2011) as follows

Ministry of Works and Urban Development (MWUD): The Ministry of Works and Urban Development deals with the housing programme at large scale. The Ministry provides support and direction at national level whilst a bureau of works and urban development in each region has been set up to coordinate the specific needs of the area. Under the Housing Development Bureau in the MWUD there are four directors: one to manage housing finance; one for the implementation mechanisms; one for capacity building and one for research and design.

Addis Ababa City Administration is the managing agency for the IHDP in Addis Ababa. The office is responsible for the selection of new sites; the allocation of government resources; the extraction of funds from the city's budget to finance construction; the acquisition of bonds from the Commercial Bank of Ethiopia (CBE) to pay for all other factors including the infrastructure costs and design-team costs; and the compensation of all households displaced by inner-city renewal in the city administration. The City Administration created the Housing Development Project Office (HDPO) specifically to manage the implementation of the housing programme.

The Housing Development Project Office set up to ensure the successful delivery of the three main processes in the IHDP in Addis Ababa: the 'design', the 'construction', and the 'housing transfer and administration'. Ten sub-city branch offices of the HDPO were set up around the city to facilitate the construction of condominium units. In addition there are four Housing Transfer Offices based on clustering several sub-cities. In 2003, GTZ investigated the technology of prefabricated building materials needed to implement a low-cost housing programme, through their bilateral programme. Whilst the organization acting as an implementing body, they engaged a project manager to administer both the finance and construction aspects of the programme.

To finance the condominium housing program the government agreed with commercial bank. Commercial Bank of Ethiopia is a government owned bank, whose mandate is to provide finance for commercial purposes. In the year 2006, facilitated by the MWUD, the CBE agreed in memorandums of understanding with the five involved regional states and the city of Dire Dawa to purchase bonds in order to enable the regions to finance the implementation of the IHDP. The city of Addis Ababa, after exclusively using the cities own budget during the first years, also started selling bonds to the CBE to finance all factors of the programme, including construction costs. The Bank provides funding for the total cost of the programme's implementation in Addis Ababa and in the regions, and not on a site-by-site basis.

The Bank has also come to an agreement with the HDPO to provide a loan-service to all condominium beneficiaries, whereby the Bank pays 80 per cent of the unit price on behalf of the beneficiary at the handover of the property (the beneficiaries pay the 20 per cent down payment themselves) and the families enter into a loan-agreement with the CBE to pay back this amount subject to interest. The Bank benefits from the programme by receiving a significant entry of clients without the need for advertising and, as only a small percentage of condominium beneficiaries (approximately 5 to 10 per cent) are able to pay the full 100 per cent of their payment at handover, the remaining enter into loan agreements with the bank.

The IHDP in Ethiopia is entirely financed by public resources. The city administration of Addis Ababa purchases bonds from one of the publicly owned bank, the Commercial Bank of Ethiopia (CBE), secured under a Bond Agreement and paying them back over five years. The CBE is a government owned bank, whose mandate is to provide finance for commercial purposes allowing municipalities to purchase bonds in order to finance the implementation of the IHDP. The city of Addis Ababa, sells bonds to the CBE to finance construction costs. The Bank provides Funding for the total cost of the programme's implementation in Addis. The Bank also provides a loan-service to all condominium beneficiaries, whereby the Bank pays 60, 80 or 90 percent of the unit price on behalf of the beneficiary at the handover of the property, for which the beneficiaries enters into a loan-agreement with the CBE to pay back the remaining amount subject to interest. The beneficiaries, depending on the scheme they registered, pay the remaining as down payment themselves. Hence, while the IHDP is solely financed by loan from CBE through the purchase of bonds, the city administration allocates a proportion of its own budget. The city's budget is used to cover building construction costs, labour costs, and infrastructure costs.

As it is clearly indicated in the discussion above different institutions are involved in the provision of low cost housing in Ethiopia especially for the urban poor in the city administration. The involvement and the participation of concerned bodies has value to provide quality housing that is with appropriate quality, has appropriate design and also the principal financing problem addressed by the dominant public owned commercial bank (Commercial bank of Ethiopia). The integration of different institutions in the housing sector must be supported with the sound and operationalize legal frame work. It will be discussed in the next part of the dissertation.

2.13.7 Integrated Housing Program (IHDP): Legal frameworks

Another issues to be noted and needed to construct, provide and also to formulate adequate and affordable housing program in the state is the existence of legal framework because every activity must have its own legal foundation. While the following list is not exhaustive, the key laws relating to the IHDP are:

Regarding the lease of land in Ethiopia Proclamation No. 172/2002 pertains to the lease holding of urban land, with all land in public ownership. For the condominium housing the land must be free of lease and clearly justified in Proclamation No. 272/2003 stipulates that land is provided free of lease charge for low-cost housing developments. After getting land free of lease the government constructs condominium and the policy was depicted in Proclamation No. 370/2003, The Federal Condominium Proclamation pertains to condominium housing. It defines condominium as “a building for residential or other purpose with five or more separately owned units and common elements, in a high rise or in a row of houses, and includes the land holding of the building”.

The condominium must be distributed fairly to the beneficiaries and Proclamation No. 19/2005 deals with beneficiary eligibility criteria and selection and penalties for noncompliance. In the urban areas government use land owned by others and appropriate compensation must be made. Regarding this issue Proclamation No. 455/2005 confirmed the basis and amounts of compensation for displacement and land expropriation. 90 days' notice period must be given;

compensation is to be paid at market value; relocation costs incurred must be met; and rental and ownership options must be provided at fair prices, in the same or nearby location.

The office established in Ethiopia specifically in Addis Ababa to manage condominium housing is guided by Regulation No. 15/2004 outlines the establishment of the Addis Ababa City Government Housing Development Project office and outlines its duties and responsibilities. The construction of condominium was Regulation No. 12/2004 outlines the condominium regulations for Addis Ababa city, regulating further details to Proclamation No. 370/2003.

The above stated institutional as well as legal framework is very important to satisfy the required features of the program i.e. to provide adequate and affordable housing to the residents for the urban residents. In addition the designed program has its own objective to be achieved throughout the process of project implementation in the country as well as in the city administration of Addis Ababa. In the following section basic features of the integrated housing program designed by the government of Ethiopia was discussed.

2.13.8 Integrated Housing Program (IHDP): Basic Features of the program

As it is the special program initiated by the government to address housing problem of the poor in the city administration by providing adequate and affordable housing; the program has its own operational features to be fulfilled. The low cost housing program targets the provision of low-cost housing in order to ensure affordability by those households whose needs cannot be met through mainstream real-estate markets. Low-cost housing generally consists of simple minimum housing facilities and other basic community facilities and services. In order to keep cost down, low cost housing tends to consist of smaller dwelling units often located in neighborhoods with relatively low commercial values. These factors tend to be less attractive to higher income households but are acceptable to low income households, whose housing budget is limited and often competing with other basic expenditures for food, education and healthcare (Tsion, 2016; Meles et al, 2016)

In Ethiopia, since the introduction of condominium housing about a decade ago, the dominant housing topology has changed from single to multi-stories (up to G+7) and in a selected areas it is up to G+12 to maintain the population density of the core areas of major cities, particularly Addis Ababa where the site of multi-stories condominium buildings has become common. The design of each condominium block constitutes various typologies. The design characterizes vertical development and densification in order to accommodate more households per hectare in multi-stories buildings. The unit types are distributed evenly across each story, rather than each stories having only one type to encourage a mix of income groups. The design of the condominium units ensures both compound and neighborhood mixed income ratios. Government allocates land which includes land for the construction of the condominium units, common space within compound, and to provide space for community and social purposes. As it is clearly indicated in UNHABITAT (2012) even though there are some variations from site to site, the low cost housing program promotes low cost condominium housing units that have the following common features: *Standardized design, only basic amenities, Government contracted and highly subsidized and different Unit***.**

The low cost housing provided to the low income earner is not identical; rather there are different types of housing typology provided by the government to different category of families by considering their family size. This difference is also associated with the nature of resident's preference (income, social, political and any other factors).the types of low cost housing designed and constructed by the city government of Addis Ababa is presented below.

2.14 Types of Low Cost Housing Program

As it is indicated in the literature above about the basic characteristics of housing; housing is heterogeneous mean that people are demanding different types of housing based on their income, culture and also any other issues. The low cost housing program has three types of housing schemes, categorized based on the minimum requirement for down payment: 10/90, 20/80 and 40/60 schemes. The beneficiaries for the 10/90 housing schemes are required to pay 10% of the transfer price upon owning the house, and the rest 90% will be paid on installment in 25 years. Those eligible for 20/80 and 40/60 are expected to pay 20% and 40% as down payment, and the rest in 15 to 20 years. These schemes are expected to suit households of different income levels.

Except for 10/90, which has only a studio, the design of each condominium block constitutes various typologies that integrate in to studio, one bedroom, two bedroom and three bedrooms units with mixed function commercial units at ground floor. The features of the low cost housing are designed to contain private access to basic amenities such as water, sewerage, and electricity connections and also a bathroom, which includes a shower, flush-toilet, and hand basin, and a kitchen. But in order to supply condominium housing for the people there are different challenges faced by the city government of Addis Ababa. The challenges are given in the separate chapter in chapter four.

2.15 Summary of the Chapter

There is critical informal housing in the city administration categorized as informal peripheral squatter settlements and also inner city squatter and also non-planned old inner city settlements. By the expectation of solving the stated housing problem different actors are participating in the housing market such as real estate developers, housing cooperation's, and private housing developers. But it discussed that the options stated above not addressed the housing problem of the city administration. As it is clearly indicated in the literature discussed above; it is recognized that as housing is among the principal physiological needs that different people are demanding to have and also the principal portion of people's wealth in the state are under housing ownership. But the problem is significant and worst that affect highest portion of the people. The housing related problems especially the problems of being homeless as well as residing in different informal place are because of the existing housing problem in the state.

To address housing problem different parties are involved in the provision of housing for selected groups in the city administration. It is noted that the demand of the people regarding the housing varies based on their family size, culture, age, income….and others. Real estate developers are supplying house for high income earner of the society; government provides low quality kebele houses and significant portion of the society live in different squatter settlements. The stated participants in the housing market are not addressing the sensitive housing problem of the low income earner in the city administration. That is why IHDP is the important solution to address housing problem of the urban poor in the city administration. The IHDP has a plan to create job opportunity for MSEs, promote saving culture as well as contribution for city renewal. Therefore, it is sound that the appropriate implementation of the program has critical contribution in addressing housing and urban related problem.

IHDP initiated by the government of Ethiopia to provide adequate and affordable housing for the urban poor. The program composed of different structure and sizes; this is important to address the interest of different groups in the city administration. Because the residents having a demand of housing have different preferences depending on age, income, number of family sizes and any other factors. Even if the program was very important, there is different problem that are affecting its implementation. The challenges of implementing IHDP: particular reference in Addis Ababa city administration clearly discussed in the next chapter; chapter four. The crucial issue to be considered in undertaking a research is the theoretical framework consistent with the study. In the following section the researcher presents the theoretical framework followed by the researcher in undertaking this dissertation.

2.16 Theoretical Framework of the Dissertation

This part of the literature presents the theoretical and conceptual framework of the study. Theoretical framework is a collection of interconnected ideas based on theories. As it is clearly defined by Kombo and Tromp (2006) theoretical framework is a rational set of prepositions which are derived from and supported by data or evidence. Theories that are developed by the scholar plays an essential role in research as it guides the development of research questions, selection of methodologies, and interpretation of results that will be used by the researcher to undertake the dissertation. Most importantly, the exploitation of theory that is related to the dissertation is very necessary for the advancement of knowledge that is consistent with the core idea of the study and also the identified basic research questions and specific objectives (Steggell et al, 2003). Further, review of theories in research studies is important because they offer a theoretical basis to undertake the research study. Different theories in different discipline explains the phenomenon that is being studied and offers tentative theoretical answers to questions, issues and problems before a researcher practically confirms through research that the answer is correct.

In addition to the theoretical frameworks the conceptual frame work is very important. Conceptual framework is a systematic presentation which identifies the variables that when put together explain the phenomenon being investigated and also the relationships that are being tested. The conceptual framework is therefore the set of broad ideas used to explain the relationship between factors (the independent variables) and outcome (the dependent variable) that is both price (to check the determinants of urban housing price using Hedonic pricing model) and affordability. In this dissertation the researcher indicated the relationship between the dependent variable (affordability) and the identified independent variable. In this research the researcher used affordability, monthly mortgage payment, mean adequacy score and mean satisfaction score as a dependent variable based on the specific objectives in to consideration.

The first step in setting up a research strategy is to define its scope in a conceptual framework lens that is consistent with the subject matter to be investigated. Mertens (2010) noted that "researchers' original conceptual framework influences the way how to plan and conduct the study". It is also discussed that the research is emphasized on adequacy as well as satisfaction of residents on the residential environment. The theoretical literature identified by the researcher is related to the importance of government intervention during housing deficit and the role of government involvement when there is housing problem in the state. Additionally, the distributive justice theory that announces public resources must be distributed on a fairly basis is to support the distribution of the housing on a fair basis because public resources must be distributed on a fair basis. In the next part of the literature clear discussion and the association of the theories with the subject of the study that is adequacy and affordability of the house.

2.16.1 Theories Related to Housing Affordability and Adequacy and residential satisfaction

The existence of different theories that support the issues under investigation is important. There are several theories that have been advanced to explain a number of phenomena in housing. The theories have been applied to a extensive variety of topics in housing research including housing decisions, adequacy of housing, affordability of housing, housing satisfaction and preferences, residential mobility, and effects of home ownership, housing affordability and adequacy of housing (Steggel et al, 2003). The following theories indicated are applied in different discipline in social science and management but in this research dissertation the researcher narrate with the core research idea that is housing adequacy and affordability because housing is the important asset demanded by the people reside both in the rural and urban centers. The emphasis given was the adequacy and affordability of the housing sector in Ethiopia particularly condominium housing in the city administration because it is provided by the government for low and middle income earner in different urban centers in Ethiopia.

These are different theories developed in management and the researcher relates the stated theories with the agenda of the dissertation i.e. housing. The first theory is the Morris and winter ***theory of housing adjustment*** has been functional to explain how households make decisions in choosing their housing. This theory Developed from the sociological model of human behavior, Morris and winter theory discusses that, people are demanding respect from self and others in selecting their house. According to this theory, people are assuming housing is the base for respect and dis respect. The theory contends that if a household believes that its housing is below the norms of the society (i.e. below the standard and, therefore, a threat to respect), that household will feel dissatisfied and seek to change its situation, either by moving to a different house or altering its current house to improve its status. According to this theory housing can be considered as a basis of status.

The rational choice theory is the second theory considered by the researcher to explain what inspires young people to reside away from their parents' homes that is has been advanced first developed by Morgenstern and Von Neumann in 1947, the theory is premised on the idea that individuals consider each individual situation and determine the appropriate course of action to take by prioritizing the consequences of a particular action and decision against the consequences attributed with alternative courses of action. The individual then prefer the course of action with benefit with high weight and lower costs. And always the decision of young people to live out of family house is highly dependent on the associated benefits and costs.

The ***social economic model of residential segregation*** is the third theory considered by the researcher that has been used to explain the clustering of families with similar social-economic attributes in similar locations and neighborhoods. According to this theory, the income level of households capable of supporting rental payments is considered the main factor that determines the distribution and segregation of families.

Another theory related to housing is the ***theory of human motivation;*** that has been used in housing research to explain housing satisfaction of households about the demand of housing like any other social services. Because we know that housing is one of the basic needs including cloth and food. The theory developed and aggravated by Abraham Maslow and promotes that people are motivated by a desire to satisfy their own needs and that they will struggle to reach the highest levels of their capability. According to Maslow (1943), human needs are arranged in a hierarchy, ranging from the most basic physiological needs to the highest needs referred to as self-actualization. Therefore, basic needs must be fulfilled by the people to strive in attaining the remaining needs because needs are hierarchical.

Another issue to be noted is ownership of fixed assets like housing increases people's confidence because the highest share of wealth in different states including in Ethiopia in general and Addis Ababa is housing. The **ownership model** has been proposed and advanced in housing research to explain satisfaction of people derive from home ownership. The model suggests that home ownership generates feelings of overall well-being. Because most of the people recognize that housing is the foundation of stability in the urban centers. According to this theory, home ownership produces a sense of permanency, leading to psychological and economic investments in the neighborhood. The resulting increase in residential stability yields greater concern for the overall residential environment and increases investment in informal neighborhoods interaction networks (Steggell et al, 2003).

The theories developed by different scholars as stated above are useful in developing knowledge in housing research related to housing price, affordability, adequacy and also residential satisfaction; but the above stated theories do not explicitly explain the aspect of urban housing affordability and adequacy of supplying pattern as well as the distribution challenges which is the subject of this research and also the satisfaction of the residents on the residential environment.

It is noted that in the free market the housing price that is existed in the market will be the result of demand and supply. And the existence of housing deficit in the urban centers increases the price of housing in the economy. In this regard there will be a critical question of addressing the problem that includes the formulation of policy and implementation strategy. The best theories that explain affordability, supply; housing price and providing residential satisfaction of housing by the people are those drawn from the classical welfare economics. Public Interest Economic Regulation Theory (PIERT) and the Theory of Distributive Justice are the two important theories on affordability that have been acknowledged in the literature of housing and also constraints in the housing program initiated by government.

When pragmatic to housing affordability, the two theories claim that affordability problems are as a result of imperfections in the housing market (in balance between demand and supply of housing) in the urban areas including in Addis Ababa. The imperfections in the housing market contribute to the instability of house prices sometimes pushing them beyond the reach of segments of the population with uncertain incomes. The two theories calls for governments to intervene in the housing market to adjust the imperfections and make housing accessible and affordable to all social economic groups in society in urban centers. In the part below in this dissertation the researcher examines in detail the Public Interest Economic Regulation Theory (PIERT) and the theory of distributive justice that is associated with the principal agenda of the dissertation i.e. the attainment of public housing objectives as well as the adequacy and satisfaction of residents.

2.16.2 Public Interest Economic Regulation Theory (PIERT)

In this dissertation the first theory associated with supplying of affordable urban housing that is adequate and satisfying the residents is Public Interest Economic Regulation Theory that is associated with the intervention of government in supplying housing when there is deficit in the housing market. Public interest economic regulation theory (PIERT), design to as the normative theory of market- failure, is built around the classical welfare economics which is concerned with the promotion and protection of people's utility and welfare. The researcher is motivated to acknowledge this theory because the government intervention on housing supply is important to solve urban housing problem in Addis Ababa.

As clearly indicated in Okechuku (2009) the theory of Public Interest Economic Regulation Theory (PIERT) offers solution to affordability problems by advocating for appropriate government intervention in the housing market to ensure optimal and efficient allocation of the housing resource. The theory is based on the idea of an existence of common interest (public interest) of which governments is more appropriate to provide and protect through regulation. Even if there are different definitions of regulation; Regulation in this context refers to legislative and administrative controls and actions that governments employ to influence housing supply to the urban poor and to enhance equitable wealth distributions in urban centers.

Additionally, the public interest theory holds that government contributions in markets through regulation are a reaction to demands by the public for the government to correct inequitable or inefficient market practices (Guerin, 2003). Regulation is announced on the assumption that markets are inherently inefficient and that only the government is capable of setting the market failure so that the optimal efficient outcome is realized. Regulation further assumes that the benefits of government interventions in markets be more important than the costs created by the interventions. According to Guerin (2003), benefits from regulation may take many forms but these can be concentrated down to an improvement in the welfare of an individual or group in the city administration, and may occur through reduced costs of goods and services or increased income of the producers of goods and services. Rittenberg et al (2004) specifies that regulation is necessary to lower prices of goods and services, to increase output and to prevent unethical/unfair competition. Additionally, Regulation is also necessary to guarantee the accessibility and availability of important goods and services to the marginalized section of the society principally the poor in urban areas. As per the theory stated above government intervention is important when there is market failure; accordingly, the IHDP designed by the government is initiated in 2005 by the expectation of critical housing problem in the urban centers of Ethiopia principally in the city administration of Addis Ababa.

2.16.3 The Theory of Distributive Justice

The satisfaction of the residents is dependent on the just distribution of the housing to the users. A person has different preferences about the house such as stories building, size of the room, neighborhood characteristics, location and others. Here in this part of the dissertation the researcher examined the theory of distributive justice and associated theory with the core idea of the research that is supplying adequate and affordable housing that satisfy the residents; because condominium housing is supplied/ distributed by the government to the poor people in Addis Ababa as well as different urban dwellers in different towns.

Distributive justice generally refers to justice in passing on benefits (and burdens) among members of the society or to the beneficiaries. As indicated in Maiese (2003) distributive justice is concerned with the fair allocation of resources among various members of a community. This theory also defines distributive justice as the conducts in which the benefits and burdens of our lives are shared between members of a society. The theory of distributive justice is thus troubled with justice and fairness in the distribution of social goods and services within a community. According to this theory, common resources should be distributed in a practical manner which guarantees every individual will have a fair share of the distributed resource.

However, because of the scarcity of resources, the challenge has been on how to distribute scarce resources among different sectors, groups and individuals that make up any given society. What actually establish fair share has always been a very sensitive issue. As has been argued by Michael Stevens (in Okechukwu,2009), there are thoughtful conflicts surrounded in our way of thinking about distributive justice so that in certain kinds of cases, the policies are internally divided about the guiding principle of the policies should follow to decide who deserves what in resource distribution. As it is clearly indicated in the statement of the problem the housing demand is increased from time to time and the government designed integrated housing program in Ethiopia. The distributive justice theory is important in the condominium housing because as it is clearly indicated in the previous chapters the integrated housing program designed by the government to supply housing for two principal users one is for the poor people registered in the city administration and for the residents of Addis Ababa who are relocated for city renewal.

According to the analysis of the two theories analyzed above; it is associated with the principal agenda of the study i.e. providing adequate and affordable housing that satisfied the residents of the city administration. On the one side the intervention of government is important because there is housing deficit in the city administration that is why PIRT is important. And as indicated above the two principal beneficiaries are those residents who are registered in the city administration and relocated for city renewal; and it is indicated that the demand of the housing is too much incomparable with the supply and also the housing project not implemented as per the plan of government.

2.17 Empirical Literature

In this part of the dissertation the researcher summarized the findings of different researcher related to the subject matter i.e. housing adequacy and affordability as well as satisfaction of residents on the residential environment. The empirical literature summarized and arranged by considering the specific objectives as a thematic area. It was summarized as follows: the first part of the literature presents the provision of housing and housing supply problems, the second part related to affordability of housing; the third part discussed housing price determination using hedonic pricing model and the fourth part discussed about housing adequacy and residential satisfaction.

The issue of urbanization is not a problem only but also a resource of the state development both in developed as well as developing countries. But there are different requirements demanded by government to establish conducive urban center in the country. Of the critical requirements that is demanded by the people in different urban centers is to live and own. To justify the issue stated above the research conducted by Ethiopia (2011) on her master’s thesis titled as rapid urbanization and housing shortage in Africa: the opportunity within the problem for Ethiopia to find ways on how best to direct rapid urbanization in Ethiopia towards becoming a resource rather than a source of chaos. According to the study Ethiopia has one of the highest proportions of urban population living in slums and housing deficit is at an all-time high. The government has introduced a number of policies and is trying to provide housing for low-income people while the private sector in the real estate industry is mainly meeting the needs of high-income people. The study found that this division in task will eventually lead to the segregation of the city into rich and poor neighborhoods that will ultimately make matters worse. The study also showed that with the adaption of policies that allow for the integration and collaboration of the government, the private sector and the people; opportunities of creating a conducive living environment for all income groups.

Lack of relevant housing policy in the urban centers forces the people to reside in the slum areas at a poor standard housing in Ethiopia in general and Addis Ababa in particular. The issue is further justified by Nahiduzzaman Kh. (2012) conducted by the Royal Institute of Technology (KTH); department of urban planning and Environment division of urban and regional studies. According to the study perspectives on change are analyzed in order to comprehend the obstacles and challenges rooted within the housing organizations of Dhaka city. Within the local governance paradigm, the concepts of deliberative interchange and partnership are explored with the aim to reveal both the resources rooted in 'informal' low-income housing practices, and the resources at stake for the 'formal' housing gatekeepers. Different land tenure security options are explored in order to understand their compatibility with the informal nature of low-income housing.

The theory of social business is critically reviewed, and used to examine whether low-income affordable housing could be seen as a product resulting from partnerships between vested actors, for whom the low-income community could be considered to be both a beneficiary and a partner. The study suggests that outside the boundary of 'formal' housing, there is an unexplored and functional 'informal' housing market where de facto owners purchase 'business tenure security' from the slum lords, while de facto tenants buy 'house rental tenure security' in exchange for regular rental payments. Within this informality, an innovative financial organization (the Jhilpar Cooperative) has emerged as a creative platform for business investment.

This study reveals that Jhilpar's inhabitants pay more than 30 percent of their monthly income for housing. As an absolute value, this is more than what is being paid by middle-class – and even many high-income – people. The slum inhabitants also pay more for a limited supply of basic services, such as electricity.

The study concludes that the formal housing gatekeepers lack a complete knowledge of 'informality' – a notion reflected in, for example, the actual financial ability of the urban poor; the strength and potentials of systematic community-based cooperative business; and housing relocation decisions (employment-housing connection). This fundamental lack of knowledge prevents the housing gatekeepers from taking the right decisions to achieve affordable low-income housing. These deficiencies have led to low-income housing projects that have barely benefited the urban poor, benefiting other income groups instead. It is also clearly indicated that low-income housing projects utilizing land title provision, sites and services schemes, and relocation to other places (amongst other strategies) disregard the nature, strength, and potentials of housing 'informality' in the slums in the most noticeable manner. This identified knowledge gap also rules out private and public housing gatekeepers employing their resources as providers. This study promotes a 'social business model for low-income housing 'as the most effective option for the Jhilpar community, whereby partnerships would be built on an 'investment' mindset, through a shift away from conventional give away practice.

Additionally, the study undertaken by Paul Odundo and Dr. Charles M. (2013) effectiveness of housing policies and their implementation strategies in the provision of low-cost housing to the urban poor in Kisumu City, Kenya advocates that the Kenya Government housing policies and strategies for housing the urban poor in Kenya, and how the citizens have benefited from the scheme/plan. Objective of the article was to examine the effectiveness of Housing policies and their implementation strategies in the provision of low-cost housing to the urban poor in Kisumu City. The research question was how effective are the various Kenya Government Housing Policies and implementation strategies targeting the provisions of low-cost Housing to the urban poor in Kisumu City?

The study adopted quantitative survey research design and data collected using primary and secondary sources; Primary data collected through structured interviews/interview guide, self-administered questionnaires (Delivery and collection questionnaires), observation and check list.

Secondary data collected from Kenya government national housing policies, national development plans, research publications, internet among others. Quantitative data summarized categorized, interpreted and analyzed using tables and percentages. Simple random sampling used in this study. In order to make the analysis correlation analysis done on both dependent and independent variables with supply of electricity as the control group. Findings revealed that housing has never been a core area of government interest, the government does not drive and guide regional and local action on housing, lack of attempt by the government to widen focus on housing policy and integrate it with wider economic, social and environmental goals, lack of good policy/subsidy mix and balance, lack of effective implementation strategies, poor promotion of Security of tenure, inadequate housing finance system, inadequate supply of affordable land and infrastructure, poor utilization of local building materials and technologies, lack of support to small scale – construction activities/contractors, poor research and lack of public/private partnership on low-cost housing development and inappropriate standards and legislation and inadequate participation of communities in low-cost housing development. Additionally, Recommendations for policy action included review of the current national housing policy and implementation strategies and further research on urban planning, land tenure system, infrastructure and services, housing finance mechanism, small scale construction activities, community participation, municipal budgetary base and experimental pilot projects.

Eskedar Birhan (2012) also identified that Bahir Dar is one of the major cities of the region that has been facing a shortage of of severe housing. To address housing shortage since 2003 land was made available through leasehold system. Nevertheless, the policy failed to solve housing problem at large scale. Thus, since the year 2006 the compulsory the regional government- instead of directly availing serviced land to the poor- has opted out to undertake an ambitious regional wide Integrated Housing Development Program (IHDP) to address the shelter needs of the lower income households. In Bahir Dar city the five-year programme has already finished. Therefore, the study empirically examines the practice of addressing shelter need of urban poor and women through leasehold policy and IHDP. The study also based on desktop studies, literature reviews, land and housing policy review, interview and field observation. With all these, the study found that the Amhara regional urban land policy by default excludes right of access to land for development of housing because land is allocated through auction in which this group of the society cannot afford. The study also reveals that in implementing IHDP many urban poor and women households are excluded because they cannot afford the down payment or monthly mortgage and service repayments. The results show that leasehold policy and IHDP are basic, but require proper interpretation in terms of the context of urban poor and women needs. If the policy documents are not clear, it is very difficult for implementation and providing adequate housing that satisfy the residents.

It is strongly argued that the existence of appropriate and sound housing policy in the urban centers will create satisfaction of residents as the housing units are consistent with expectation and aspiration of the residents. According to the study conducted by Ibem E.O. et al (2015) Housing adequacy and residential satisfaction are two ideas used to evaluate residents' needs, expectations and aspirations are satisfied by the housing. The objective of this study was to the differences and similarities in occupants' perception of housing adequacy and residential satisfaction by concentrating on the dimensions of housing adequacy and residential satisfaction evaluation; and the factors that are affecting the adequacy of the house and residential satisfaction. The necessary data that were collected from a sample of 517 residents in public housing in Ogun State, Nigeria were considered; and the collected data were analyzed using descriptive statistical, factor analysis and categorical regression analyses as necessary. As per the analysis given by Ibem E.O. et al (2015) the three strongest predictors of housing adequacy given are residential satisfaction, income and tenure emerged while housing adequacy, employment status and sex of the respondents were the three strongest predictors of residential satisfaction. But, it is indicated that age of the respondents was the only predictor of both housing adequacy and residential satisfaction in the study area.

Accordingly, the key implication of the study is that, in housing research, each of these two concepts can serve as a surrogate for each other. It also implies that to improve the living conditions of residents of public housing in different urban centers, housing policy makers and developers should pay enough attention to the needs of all categories of residents by making sure that the housing preferences of different profession and age groups are properly incorporated into future housing projects designed by government. That is why the provision of housing varies from state to state in the world as the demand of housing varies from person to person depending on age and income level.

The issue of housing is not an easy task because housing has its own impact on social and economic aspects of the residents. The issue of affordability is sensitive because it will determine whether the individual will have home or not both in rural and urban centers. The research conducted by Regassa, B. and Regassa, N. (2015) on their paper titled as housing and poverty in southern Ethiopia: examining affordability of condominium houses in Hawassa City, their research aimed at examining the extent of affordability of condominium houses using shelter poverty approach in one of the fast growing cities of Ethiopia, Hawassa city administration. Shelter-poverty approach used to measure affordability of condominium houses, and the key predictors of affordability were identified using Ordinary Least Square regression model. The analysis revealed that 61.7 percent of the household in the study area were shelter poor (spent more than 30 percent of their monthly income on housing expenses) and the remaining 38.3 percent are non-shelter poor. The major housing problems that resulted in shelter-poverty were choosing condominium as rental houses, low household income, high housing and non-housing expenses, large household size, high rental/mortgage cost, changes of housing and non-housing costs, short duration for making down payments, and problems related to bank loans.

Finally, the study recommended that the concerned authorities introduce workable, consistent and solid affordability indices (combining the conventional and shelter-poverty approaches) that accommodate the different social and economic groups of the city, and create enabling environment for the beneficiaries to get access to credit and bank loans. The results of the OLS regression revealed that migration status & shelter-poverty status have strong and positive relationship. The positive and statistically significant coefficient of migration status indicates that household heads that migrated into the city, regardless of their years of stay in the city, are more prone to the challenges of shelter poverty. Additionally, Employment status was another important variable that determine housing affordability. As expected, the result of OLS regression analysis revealed a significant positive relationship between employment status and affordability of condominium houses. Probably, those in more rewarding full time employment may have better affordability status.

Housing that is constructed in different states has different characteristics considering income, culture, age of the residents and any other factors to be considered. But among different characteristics required from housing is adequacy, affordability and must satisfy the residents. Regarding the provision of adequate and affordable housing, the study conducted by Deepa, G.

Nair et al (2005) on their working paper about conceptual framework for sustainable – affordable housing for the rural poor in less developed economies clearly justified that Housing development; a basic unit of human settlement is also a crucial component of social development. It plays an important role in achieving sustainable development. The concept of shelter differs from individual to individual depending on culture, tradition, profession and way of living. Besides being a basic necessity, it is also a source of identity that has a significant effect on the overall psychological well-being of the inhabitants. According to the study Sustainable-affordable habitat could be described as a way of developing and maintaining the living environment supporting human health (both physical and psychological), satisfying shelter needs along with protecting and preserving nature for future generations.

The provision of affordable housing further articulated by Anirban Mostafa et al (ND) that the policy measures on promoting home ownership under then socialist economic system of Shanghai and the policy effect on the housing affordability of lower and middle income groups and emphasis is placed on how the policy accelerates low affordability of housing. The model proposed that state intervention should focus on housing need and home ownership should be the concern of the market. The model also proposed that subsidies should be demand based rather than supply based. In the case of Shanghai, a significant leap from welfare housing policy to more market oriented housing measures has created a gap in terms of housing consumption among the populace. This change seriously affected the affordability at the lower end of the market. The model proposed a mid-way solution (in between free market economy and planned market economy) for Shanghai like other corporatist countries, where market has been controlled in order to be submissive to social interests, but housing is seen as a productive element.

The problem of urban housing in different urban centers in different African countries including in Ethiopia is not only the problem of affordability but also there is critical supply problem. The study by Wossen (2002) was undertaken in Gonder and the principal objective were to assess the problems of gaining access to housing land in Gondar town with particular emphasis on the experience of government employees and factory workers. To achieve this objectives sample government employees and factory workers were selected using two-stage stratified sampling method. To collect data the researcher used questionnaire and relevant documents were used to gather information pertinent to the study. Percentages, ratios and coefficient of correlation were used in analyzing the collected data. Accordingly, the result shows that Gondar is faced with a substantial problem of housing shortage. On the average 6.0 percent of the total households in Gondar town have no access to either owned or rented private residential unit. In addition there is a significantly noticeable level of overcrowding. It is also stated that the problem of housing shortage in Gondar is aggravated by the difficulties of the residents in gaining access to housing land in the town. Marriage, household size and income were found to have influence on gaining access to housing land by the respondents. Lack of spatial integration of the new residential sites with other locations in the town, housing standards, the precondition set in the approval of the supply of land, delays in the provision of land and the nature of the town's relief were also found to have an effect on gaining access to housing land in Gondar. Based on the analysis given the study recommends the need for increasing, as much as possible, the supply of land for those who are in need of constructing their own shelter by allotting the existing vacant lands in the already built up areas with reasonable price, by providing the basic infrastructural services in the new residential sites, by revising the current housing standards and the preconditions set in the process of supplying land and by participating the public in matters of housing land and housing construction.

Even if the affordability issue is the critical agenda by the people at large; another issue to be addressed is mentioning the determinant factors affecting the affordability of urban housing because affordability is the principal issue to be considered in designing the housing policy. The research conducted by NDUNG'U (2014) stated that despite its obvious manage housing can be defined as a physiological need in almost the same class as the basic needs demanded by the people both in the urban as well as rural areas. In most urban areas let houses are characterized by high rent costs, rented house inconveniences and creation of debilitating comfort zones giving rise to elevated desires and wants to own a home.

However, these desires are often met by constraints such as high building expenses, high land costs, huge building materials costs, water supply access, electricity access, poor regulatory frameworks, conditionality, high interest rates for shelter finance, limited access to house finance among others. The study focuses on the determinants of affordable housing from the demand perspective i.e. the home owners. It seeks to understand the significance of selected determinants namely interest rates, loan repayment period, access to finance, and land prices on individual home affordability. The study adopts a mixed research approach where both quantitative and qualitative data gathered and analyzed. The study used interviewing through the use of questionnaires as the technique to gather data relevant for the study. The research utilized descriptive analysis in presenting the findings in the form of tables, graphs, charts and pie charts. Additionally, the analysis of the data findings was done through the use of a multiple regression model indicated above. Analysis of the results shows that a unit increase in access to finance and loan repayment period would increase housing affordability. Increase in interest rates and land prices would lead to decreases on housing affordability respectively. Despite their being other determinants the study found out that income, loan repayment period, interest rates and land prices have a significant effect on home affordability.

The problem of adequacy and affordability is minimized by having appropriate public urban housing policy in the state. The study conducted by Robert M. Buckley and Jerry Kalarickal (2005) on the housing policy in developing countries discussed on housing policy in developing economies. In particular, it reviews the empirical analysis of the effects of policy on housing supply, the richer understanding of the effects that land market regulations have on housing affordability and the functioning of urban areas, and the alleged mysterious effects that researchers claim effective property rights have on housing policy and on development more generally. It also examines the effects of the increased emphasis on community participation, showing how it helps to more fully reconcile the incentives faced by beneficiaries of housing policy and donors. Finally, it examines recent literature on the welfare effects of rent control. The article shows that some of the assumptions as to the likely benefits of more market-based policy have been disproved, but large welfare gains for poor people can still be realized by adapting this approach. Furthermore, this approach appears to be gaining ground as the consensus approach to effective housing policy.

The study conducted by Kieti (2015) additionally identified the basic affordability challenges and the determinants of public urban housing affordability in the urban Kenya and it is justified that Over 70 % of urban households in Kenya experience severe housing affordability challenges. Affordability problems are manifested in the high levels of homelessness, poor human settlement conditions, and high price of housing relative to the incomes of households, mortgage criminal behavior, defaults and foreclosures. This study investigated factors affecting housing affordability in Kenya. The result has been a lack of knowledge on which factors are critical in explaining the affordability problems of urban households in Kenya. The research focused on affordability in the home-ownership mortgage housing sector in Nairobi. The methodology was based on a questionnaire survey to households with mortgage loans from housing finance institutions and banks. Information relating to social-economic characteristics of the households, loan and property data as well as macroeconomic data analyzed in order to address the objectives of the study. The analyses were done using qualitative and quantitative approaches with the aid of the Statistical Package for Social Sciences (SPSS) software. Three statistical procedures, namely; descriptive statistics, correlation analysis and regression analysis were performed on the data with the aim of identifying factors which are significant predictors of housing affordability.

The research found that there is a significant linear relationship between housing affordability and the factors: Interest on loan, Number of dependents (outside the nuclear family), Number of family members with income, Construction cost, Size of the household, Loan-to-value (LTV) ratio, Land value, Real gross domestic product (GDP) per capita, Job position/status of the individual paying the mortgage, Type of mortgage instrument, Loan term, Loss of regular employment income and the rate of inflation. The results indicated that the interest charged on mortgage loan has the greatest influence on the affordability of the households. The interest on loan which reflects the mortgage interest rate charged by the banks influence affordability because it determines the borrower's monthly mortgage repayment amounts. The results showed that an increase in the amount of interest charged on the loan increases the monthly loan repayment placing a higher repayment burden on the households thus affecting their affordability.

From the literature review and the results of the analyses performed in this study, the study concluded that housing affordability is influenced by clusters of factors related to the households' social economic characteristics, loan characteristics, property attributes and macro-economic factors. The households social economic characteristics among others include; the Loss of regular employment income, Number of dependents, Number of family members with income and Size of the household. The loan factors include the Interest charged on loan, Loan-to-value (LTV) ratio, Loan term and the type of mortgage instrument. The property attributes are the Cost of construction, Land value, Developers profit and Property transfer costs. The macro economic factors include the Rate of inflation, Real gross domestic (GDP) per capita and Unemployment rate.

The results of the analyses showed that the social economic factors affect affordability because they influence households' income. The loan factors influence affordability because they affect the price of housing and the monthly mortgage repayments of the households. The property factors affect the price of housing and therefore the monthly loan repayments. The macro economic factors affect both the income of households and housing price as well as mortgage interest rates charged by the banks and financial institutions. Policy measures have been proposed to reduce or stabilize mortgage interest rates, reduce the price of housing, and improve household's income so as to enhance access to housing and improve affordability among urban households in Kenya.

To address the urban housing problem in Ethiopia the government launched the integrated housing program in 2005. Kidst Merkebu (2014) on her study assesses the performance of the Integrated Housing Development Program/Condominium Housing Construction Project in Addis Ababa City against its objectives. IHDP is complex and challenging program. It necessitates huge resources from the government; and also requires efficient resource management system. The houses being constructed are expected to be of low cost or affordable to the low income group and good quality. However, does the program achieve its objectives? The qualitative research methods specifically descriptive research method applied. Survey method used to collect data. The target populations were condominium houses completed and transferred to beneficiaries within Addis Ababa. To select sample respondents from the target population's simple random sampling techniques were used. Although the government set low cost houses to low and middle income people but the results of the survey shows low income people were not benefiting from this program, due to problems in both registration and distribution process, increase in the price of houses due to poor workmanship and using poor quality materials. Accordingly, the survey result also shows that the houses constructed are of poor quality and fixed with substandard or poor quality materials. The other factor that makes the houses unaffordable to low income people was price increase due to delay i.e.it took from one up to one and half years to construct and distribute condominium houses. The other issue in construction and distribution of condominium houses is corruption. The government of Ethiopia is planning to continue the condominium housing construction project by itself using a single bank CBE. The government is involved starting from design preparation, awarding to contractors and distribution of houses to people. It also fixes prices of both inputs and houses. In general the idea of condominium houses is noble but its implementation has many problems.

Among the critical issues raised in different developing countries about housing issue is the rise of price from period to period including in Ethiopia. The housing price is affected by different factors. The determinant factors affecting the housing price is determined and evaluated using hedonic pricing model (HPM). The study conducted by Herath, Shanaka and Maier, Gunther (2010) raised critical agenda on the hedonic price method in real estate and housing market research. The Hedonic Price Method (HPM), also known as hedonic regression, is used for estimating the value of a commodity or the demand for a commodity.

The HPM has been extensively used in real estate and housing market research in the recent and past. In this paper, the researchers discussed theoretical and methodological developments related to hedonic regression and undertake an examination of use of this methodology in the recent real estate and housing literature. In this research it is clearly stated that the idea behind the HPM is that the commodities are characterized by their constitute properties, hence the value of a commodity can be calculated by adding up the estimated values of its separate properties. In the second part of the paper, we emphasize that the heterogeneous nature of real estate property justifies the use of HPM for estimating their value or demand. We also take a stock of most cited empirical studies on real estate and housing using the HPM, and classify those into several categories.

The classification indicates that neighborhood characteristics of real estate are relatively over-researched as a determinant of price or rent. It also shows that implicit value of structural characteristics is under-researched. In general, implicit value of environmental amenities in the neighborhood and air pollution are relatively over researched. In this research it is justified that the effect of social factors, i.e. racial segregation and crimes on real estate value is under-researched.

Additionally it is justified by John R. Ottensman (2008) that Urban Location and Housing Prices within a Hedonic Model justified that a measure of location relative to employment is often included in hedonic housing price models. This is most often distance to the center, based on the mono-centric model, which does not consider the decentralization of employment in urban areas. This paper tests the performance of alternative measures of location, considering both distance and time to the center and to multiple employment centers and measures of accessibility to employment and change in accessibility. The measures using multiple employment centers and accessibility perform better than simple distance to the center, with the combination of accessibility to employment and change in accessibility doing best.

Kenneth (2009) also investigates the hedonic pricing model on his discussion on statistical analysis of residential housing prices in an up and down real estate market: a general framework and study of Cobb County, The recent economic recession has had a significant impact on residential real estate both nationally and regionally. Their research is focused specifically on Cobb County, Georgia and the impact that the declining economy has had on home buying and property values in this area. Specifically, this research aims to identify changes in the residential market in terms of significant characteristics of housing and their corresponding effect on home values. Every home buyer places a certain amount of significance on the many different aspects of a particular property that give that property its inherent value. For instance, some houses are worth more because of their proximity to a desirable area, the number of bedrooms or bathrooms, the square footage of the home, or even just the existence of a basement.

One of the questions this research seek to answer is how home buyers change in their preference for certain housing characteristics in a good economy versus a bad economy. There is little debate that property values have declined during the course of the most recent recession. Their research also attempt to understand if there are certain identifiable characteristics of housing that tend to make the greatest impact in terms of which houses depreciate in a declining market and which houses do not.

Sibel Selim (2008) also investigates the determinants of house prices in Turkey: a hedonic regression model justified that in real estate valuation and house market research, house prices and rental value are generally analyzed by hedonic model based on micro economic theory. Hedonic model examines the effect of characteristics of goods on their prices. Factors that determine the house prices in Turkey are analyzed in this paper using 2004 household budget survey data. The most important variables that affect house rents are type of house, type of building, number of rooms, size, and other structural characteristics such as water system, pool, natural gas.

The hedonic pricing model further utilized by Oduwole, H. K.* and Eze H. T, (2013) in their paper propose the hedonic price model to tracks the dynamics that influence rent apartment price in three satellite towns in FCT Abuja. The premise that rent apartment prices are influenced by a combination of attributes tested with a standard hedonic model using a sample of 289 rent apartment in three satellite town (Bwari, Karshi and Kuje). Out of the seventeen explanatory variables used in the analysis, about ten of them show positive signs of considerably impact on rent apartment price. Variables like lot size (LOTSZ), room size (ROOMSZ), number of rooms (NUMRMS), number of bathroom/toilet (NUMBRMS) major access road (MAROAD), presence of government establishment (GOVTEST) were statistically significant at 1% and 5% significance level. The findings in this work suggest that satellite towns can be classified into two groups; established and growing satellite towns. Established satellite town implies that very few of these hedonic variables actually influence rent price, except for variable like LOTSZ and ROOMSZ which are common to all satellite towns in the study area. Growing satellite towns are those that more hedonic variables influence rent apartment price. It is further suggested that hedonic research be employed to measure the growth rate of satellite towns in terms of locational and neighbourhood characteristics.

The housing price using hedonic pricing model also discussed by Richard J. Cebul (2009) and stated that the Hedonic Pricing Model applied to the Housing Market of the City of Savannah and Its Savannah Historic Landmark District. This study applies a hedonic pricing model to the housing market of the City of Savannah, Georgia. The Savannah Historic Landmark District is located both in and adjacent to downtown Savannah. Of the 2,888 single-family homes for the period 2000 - 2005 for which data are available, 591 are located in the Historic District. The model of the real sales price of a single-family house in the City of Savannah environment reveals it is positively affected by the number of bathrooms, fireplaces, bedrooms, stories in structure, garage car spaces, square feet of finished living space, the presence of a deck, a private courtyard, a pool and/or hot-tub, an exterior construction of brick or stucco, the presence of an underground sprinkler system, and whether the house was new.

Six spatial control variables are considered. In addition, this study also justified that proximity to an apartment complex is capitalized as a negative quantity, as do locations on a busy street. In addition, houses designated as a national historical monument tend to carry with them a modest price premium, as do properties that are simply located within the Savannah Historic Landmark District.

Literature gap

The discussion of the above empirical literature given above shows that; the housing research conducted using qualitative and quantitative research approaches using qualitative and quantitative data. Additionally in the literature discussed that the housing price is determined using hedonic pricing model. But, Previous studies on housing in Ethiopia have been descriptive in nature and little or no emphasis has been made on empirical studies on factors affecting affordability as well as price of housing in Ethiopia; Especially with regard to contributing factors affecting housing adequacy and affordability of condominium housing in Ethiopia. It is also observed that even if there is a research that shows the housing priceincreased from period to period; but fail to identify the factors affecting housing price and also there is no research applying hedonic pricing model to identify factors affecting condominium housing price in Ethiopia. This research also fills the gap of under researched housing area in Ethiopia by applying both quantitative and qualitative analysis. Additionally this research will add knowledge on the housing research such as housing affordability, adequacy, supply problem as well as the satisfaction of residents on the physical characteristics, social issues as well as management of the residential environment.

There was also no research conducted by taking the whole condominium projects in Addis Ababa. The study conducted before undertaken by taking one condominium site in to consideration. But residential environment vary from site to site because it is known that location has its own impact on different aspects of the residential environment. In this dissertation the researcher considered the condominium housing provided in eleven rounds. Because considering different sites is very critical to draw conclusion as well as to provide critical policy recommendations.

In the empirical literature discussed above regarding hedonic regression; different researchers considered one or two selected attributes of housing such as location, housing characteristics and/or neighborhood characteristics. But in this research the researcher considered the different contributing factors for price determination.

Lastly, the research will have a contribution to solve practical problems observed in the housing sector in Ethiopia because the result of this dissertation can be used as a policy input for government, contractors and any other participants in the housing sector. And it provides appropriate information for contractors, housing financers and any other related parties.

2.18 Conceptual Model of the Study

In undertaking research the development of conceptual model is very important because conceptual framework is very important to show the relationship among and between variables of the study. The conceptual framework of the study displayed in (Figure 1) proposes that whereas housing adequacy measures the sufficiency of housing attributes, residential satisfaction measures the extent to which residents are happy with their housing attributes and affordability measures the capacity of the residents to pay the monthly mortgage requirements by the residents of condominium in Addis Ababa. This implies that the concepts measure how the current housing situation (objective housing characteristics) of government (condominium housing) generally meets residents' needs and expectations as well as aspirations. Therefore, the findings of this dissertation on housing adequacy, affordability and residential satisfaction and also the capacity of residents to pay monthly mortgage provide feedback into housing policy formulation; the commencement; development; and management of housing projects, which are all important in determining the objective characteristics of public housing. The emphasis given in the development of conceptual framework is concentrated on the specific objectives of the research. The concern of this conceptual framework is to examine the IHDP that is concentrated on adequacy, affordability and also the determinants of condominium housing price (monthly mortgage payments) and the satisfaction of residents on the residential environment. It is known that the housing policy of the state must be examined its performance in achieving the stated objectives. The project/ program must be evaluated (post occupancy evaluation) to check the strength and the effectiveness of the policy. Accordingly, in the conceptual model of the study clearly shows the process of developing a housing policy.

The intention of conceptual frame work is to indicate the critical components considered to be a critical elements to be considered in a housing project such as: objective housing characteristics; residents socio-economic characteristics; assessment of housing characteristics; housing adequacy, affordability, residential satisfaction by considering the dimension of housing adequacy and residential satisfaction considering that the housing is meeting users' needs, expectation and aspirations. Additionally, the conceptual framework indicates there must be feedback by evaluating the performance of the housing policy in the state.

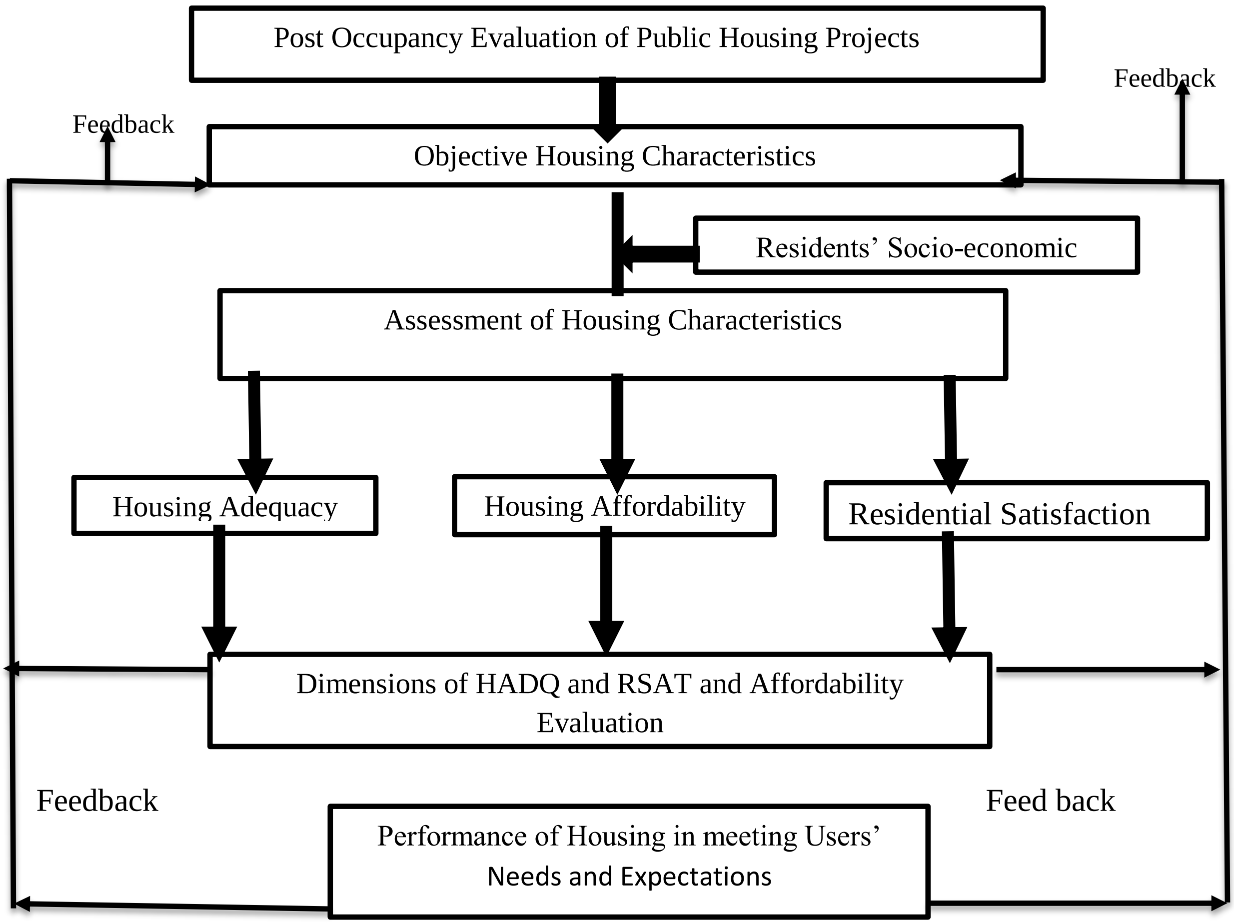


FIG 1: Conceptual Framework of the Study modified from E.O. Ibem et al (2015)

As it is indicated in the conceptual framework given above; meeting the needs and expectations of the users is the result and the outcome of the designed housing policy both in developing and developed countries. In order to examine the attainment of the user's needs and interest; examination of housing adequacy, affordability as well as residential satisfaction is important. But to examine the stated issues (adequacy, affordability and satisfaction of residents) better to examine objective of the housing policy designed by the government and socio-economic aspects of the residents. The evaluation of the housing policy (condominium project) must be examined with respect to the target of the policy and socio-economic aspects of the people. It must be noted that past occupancy evaluation of public housing is important to modify the design, material, price as well as any other elements of public housing. Because based on the feedback forwarded government must make different adjustments and modifications. From the conceptual framework given above it is noted that the Performance of Housing in meeting Users' Needs and Expectations as well as aspiration is the result of the consideration of housing adequacy and affordability. Additionally to achieve the requirements of affordability, adequacy as well as the satisfaction of the residents there must be critical examination on the socio economic characteristics of the residents must be assessed. Therefore, the housing program must be evaluated and also there must be periodical evaluation (post occupancy evaluation). The feedback given collected given must be incorporated in the future housing programs developed by government.

CHAPTER THREE

3 RESEARCH METHODOLOGY

3.1 Introduction

This part of the dissertation briefly discussed the research methodology and the research design that employed in the entire study. Thus, this section of the dissertation briefly specifies the approaches that employed to gather, analyze, interpret, and communicate data, information, and the findings appropriately. In addition this part includes the underlying research design, target population, target representative sample, types of data, data collection methods and the data analysis approaches employed by the researcher. Even if there are different methods and approaches of conducting the study, the researcher used the best methods that are relevant and appropriate for the issue raised i.e. examining affordability and adequacy of public housing (condominium) in Ethiopia: case from Addis Ababa city administration. To undertake this dissertation the researcher used pragmatism research philosophical paradigm. Both qualitative and quantitative methods of analysis were employed by collecting data from both primary and secondary sources. The researcher conducted survey to collect primary data from the target population. The proportionate stratified sampling techniques were followed to get the reliable and representative data from the sample survey. This contributed to achieve the stated objectives in most reliable and accurate way. It is noted that following a pre-defined research methodology helps to attain the stated objectives and research questions scientifically and objectively.

3.2 Overview of Research Philosophical Paradigms

In research undertakings there are different research paradigms that are pertinent to undertake the study. As it is described by different researcher; the research methodology is a philosophical attitude of worldview that informs and underlies the style of research. In other directions, Creswell (2009) considered research methodology as the complete approach that the researcher charted to undertake the study that is consistent with the research objective and the research questions to be answered. Research philosophy is concerned with the way in which things are observed in the world (Yin, 2006; Saunders et al., 2009). Philosophical foundations are the base for the fundamental belief that all research activities undertaken by different researchers have (Morgan, 2007; Creswell & Clark, 2011). It is also clearly articulated by (Crotty, 1998; Lincoln & Guba, 2000; Greene, 2006; Hunt & Hansen, 2008) that foundation helps the researcher to identify the basic ontological assumptions (to understand as to what entities exist), methodological assumptions (to identify the appropriate research designs for generating new knowledge) and epistemological assumptions (to identify the right criteria for evaluating knowledge-claims).

Researcher's philosophical point of reference has their own effect for each decision made in the inquiry process, including the identification of appropriate methods used by the researcher (Creswell, 2009; Mertens, 2010). It is known that identifying the philosophical assumptions is the initial step in planning a research and explicitly Mertens (2010) discussed thatphilosophical assumption serve as cornerstones in choosing appropriate research design, research approach, the strategy of inquiry, and the specific research methods that transform the approach into practice in line with the researcher's world view (Creswell, 2009).

As it is clearly justified by Creswell (1994) Philosophically, researchers make claims about what is knowledge (ontology), how the researcher know it (epistemology), what values go into it (axiology), how the researcher write about it (rhetoric), and the processes for studying it (methodology) there are different schools of thought about knowledge claims was discussed: interpretivism, positivism, realism, and pragmatism. Therefore, the three major aspects of thinking about research philosophy and the statements as suggested by Creswell (2009), Yin (2006), and Sanders et al. (2009) needed to be considered.

Creswell and Clark (2011), write that "frameworks help researchers to think about how philosophy fits to selected study design". In research, no technique or method of investigation is a self-validating instrument without comprehensive philosophical justifications (Corbetta, 2003). Currently, the role of philosophical assumptions and paradigms in conducting research has gotten an increasing interest among the academia (Swanson, 2005). Hence, a well explained philosophical foundation is vital to select the appropriate research method (Creswell, 2009) for the proposed dissertation. In this regard, the three competing worldviews in the contemporary social science inquiry such as positivism, constructivism and pragmatism are discussed with the underlining ontological, epistemological and methodological foundations.

This helps the researcher to select a research paradigm associated with the researcher's belief about the nature of reality. Most importantly, it offers the researcher the green light to identify the general orientation that hold about the world and the nature of research under investigation. In the following section the researcher presents the three basic philosophical paradigms.

3.2.1 Positivism Paradigm:

It is noted that the concept of Positivism is directly associated with the idea of objectivism. In this kind of philosophical approach, scientists give their viewpoint to evaluate social world with the help of objectivity in place of subjectivity. According to this paradigm, researchers are concerned to collect general information and data from a large social sample instead of focusing details of research. According to this position, researcher's personal beliefs have no value to influence the research study. The positivism philosophical approach is mainly related with the observations and experiments to collect numeric data (sanders et al, 2009).

Positivism research paradigm is based on the rationalistic and empiricist philosophy with the basic conviction that the social world can be studied in the same way as the natural world (Corbetta, 2003; Johnson & Onwuegbuzie, 2004; Mertens, 2010; Neuman, 2007). In the process of knowledge generation, positivism essentially follows deductive approach that relies on a series of steps to reach specific conclusions based on general premises (Corbetta, 2003). Positivist researchers believe that there is a method for studying the social world that is value-free, and that explanations of a causal nature can be provided (Swanson, 2005). In view of that, the use of the scientific method allowed experimentation and measurement of what could be observed, with the aim of discovering general laws to explain relationships between variables. Positivists made an assertion that "scientific knowledge is absolutely objective and that only scientific knowledge is valid, certain and accurate" (Crotty, 1998).

3.2.2 Constructivist Paradigm:

On the contrary, Constructivists encounter the existence of objective knowledge about the world (Johnson & Onwuegbuzie, 2004) as an alternative they believe that reality is socially constructed (Neuman, 2007; Mertens, 2010). The fundamental estimation guiding this paradigm is that knowledge is socially constructed by scholars who are active in the inquiry process, and that researchers should attempt to realize the complex world of lived experience from the point of view of those who live it (Mertens, 2010). Within the lens of this paradigm, research is a result of the values of researchers and cannot be independent of them. Compared to the positivist paradigm pronounced as an approach to quantitative inquiry, social constructivism is typically seen as an approach to qualitative research (Creswell, 2009).

Additionally it is noted that; it is also vital to understand how constructivist researchers respond to basic ontological, epistemological and methodological questions facing social research. Contrasting to the positivists paradigm that relates the ontological question with a trusting realism (Hagège, Dartnell, & Sallantin, 2007), constructivists believe in relativism with the assumption that reality is socially constructed (Mertens, 2010) which are multiple (Guba & Lincoln, 1994) that vary in form and content among individuals, groups, and cultures (Corbetta, 2003). Epistemologically, constructivism emphasizes on non-objectivity with the assumption that the researcher and object of study are not separate, but interdependent and an interpretive one in search of meaning (Corbetta, 2003). From methodological stand, constructivist researchers obtain knowledge by means of assumed interaction between the researcher and the object of study (Corbetta, 2003) using qualitative approaches (Guba & Lincoln, 1994). Constructivist researchers commonly apply qualitative methods of data collection: interviews, observations, and document reviews (Mertens, 2010) to obtain knowledge through the inductive process (Corbetta, 2003; Neuman, 2007).

Like the positivist world view, the constructivist paradigm has been criticized by scholars who represent a third paradigm of research (Mertens, 2010) named alternatively as the transformative paradigm (Mertens, 2010) and the advocacy and participatory paradigm called pragmatism (Creswell & Clark, 2011).

3.2.3 Pragmatism paradigm:

As the justification given on the positivism and constructivism has its own pros and cons; the utilization appropriate approach that harmonize the advantages of the two paradigms. This philosophy concerns thinking that choosing between one positions (epistemology, ontology, or axiology) is somewhat unrealistic in practice; and it is argued that the most important determinant of which position to adopt is the research questions (Creswell & Plano Clark, 2011; Saunders et al., 2009). This is particularly relevant where the research question does not suggest clearly that either a positivist or constructivism philosophy should be adopted in an inquiry. Therefore, in this philosophical dispute the uses of both qualitative and quantitative methods to resolve a real-life world challenge are recommended. As it is indicated in Creswell & Plano Clark (2011) the rationale behind the choice of the relevant research approach is the research questions raised by the researcher, where the use of either quantitative or qualitative approaches does not completely address the research problem; rather a combination of approaches has a contribution to achieve the stated objectives.

According to Saunders et al. (2009) the pragmatic approach emphasizes that multiple realities exist in any given condition, and that, the researcher's choice of paradigm is dependent on the research question the study is trying to achieve throughout the study. The pragmatic approach provides for the use of both qualitative and quantitative research methodologies to collect information and make inquiry into complex phenomenon of social and natural contexts (Morgan, 2007; Creswell, 2009). Therefore, the pragmatic research philosophy provides for the adoption of mixed methods as the data collection method which opens the opportunity to be objective and subjective in analyzing the points of view of the participants (Saunders et al., 2009).

From the axiological perspective, the questions of research ethics were very important to classical pragmatists. Even as for the modern pragmatists the ethical goal of research is to setback knowledge in the pursuit of preferred ends (Mertens, 2010). The pragmatists' ontological assumption on the nature of reality originates from the belief that there is a single "real world" and that all individuals have their own exceptional interpretations of that world (Mertens, 2010). Knowledge is viewed as being both constructed and based on the reality of the world the researcher experience and lives in (Johnson & Onwuegbuzie, 2004). From the epistemological stand, pragmatist researchers do not position themselves as distanced observers (Mertens, 2010; Cameron, 2011). Instead they are socially and historically contextualized researchers free to study what interests them and utilize the outcomes in ways that can bring about positive consequences within their value system (Mertens, 2010).

In addition Mertens (2010) justified that methodologically, both qualitative and quantitative approaches are compatible with the pragmatic paradigm (Pragmatists see mixed methods as it offers a practical solution to the tensions created in the research community concerning the use of either method (Armitage, 2007). Pragmatism allows researchers to choose methods, techniques, and procedures of research that work best to answer their research questions and best meet their needs and purposes (Johnson & Onwuegbuzie, 2004; Creswell, 2009; Mertens, 2010). In general, for the mixed methods researchers, pragmatism opens the door to multiple methods, different worldviews, diverse assumptions, and different forms of data collection and analysis techniques (Creswell, 2009). In addition Johnson & Onwuegbuzie (2004) clearly justified that besides these benefits and strengths, pragmatism has been criticized as it gives more attention to applied research than basic research and it promotes incremental change than fundamental change in society.

3.3 Philosophical Orientation selected for the Study:

After reviewing the three basic philosophical paradigms, the researcher selects the appropriate paradigm that is highly related with the nature of the problem as well as the research questions and specific objectives raised by the study. Accordingly, the researcher prefers the pragmatism paradigm as philosophical orientation. To examine the adequacy, affordability and satisfaction of the respondent's collection of both qualitative and quantitative data using different methods of data collection was found very necessary.

As stated in Saunders et al. (2009) it will be easy to fall into the trick of thinking that one research approach is 'better' than another. This would miss the point. They are 'better' at doing different things depending on the nature of the problem and also the research questions to be answered and also the research objectives to be achieved. As always, which is 'better' depends on the research question(s) you are raising to answer throughout the research process.

As a result, by considering the philosophical perspective a pragmatic approach is adopted by this research; which draws heavily on the inductive and deductive reasoning. Therefore, considering the unique features of this pragmatic perspective and critically deducing from the above discussion, ***this research adopted a pragmatic approach to undertake the study as per the required quality.*** This PhD dissertation demands both quantitative data and analysis using multiple regression to identify the determinants of housing affordability and also determinants of condominium housing price (using HPM) and qualitative data and analysis to address the challenges of condominium housing project implementation and also to support the data and analysis made using quantitative methods. That is why the selection of pragmatism is sound for this study.

The selection of research methodology depends on the paradigm that guides the research activity, more specifically, beliefs about the nature of reality and humanity (ontology), the theory of knowledge that informs the research (epistemology), and how that knowledge may be gained (methodology). A consideration of epistemology, ontology and methodology must be a central feature of any discussion about the nature of social science research as these elements give shape and definition to conduct the study (Creswell, 2009; mertens, 2010).

In addition Saunders et al. (2009) stated that in choosing your research methods you therefore either uses a single data collection technique and corresponding analysis procedures (mono method) or use more than one data collection technique and analysis procedures to answer your research question (multiple methods). If you choose to use a mono method better to combine either a single quantitative data collection technique, such as questionnaires, with quantitative data analysis procedures; or a single qualitative data collection technique, such as in-depth interviews, with qualitative data analysis procedures. It is often difficult to choose between quantitative and qualitative research design. At times, a researcher may choose a design because he or she is more familiar with one method or the other. However, the decision is based on well-considered, suitable design rather than simply choosing a design that is more familiar or comfortable to the researcher the research approach and design is highly dependent on the nature of the study. This research entitled examining the adequacy and affordability of urban housing emphasis on condominium housing in Addis Ababa city administration and the satisfaction of the residents on the public housing selected the appropriate research design that contribute for the attainment of the stated research question and to achieve the identified objectives.

Here under the researcher discussed the three research approaches and also selected the appropriate research approach that was relevant for the study (qualitative, quantitative and mixed) lastly, based on the discussion of the three research approaches and the nature of the specific objectives; the researcher justified the selection of mixed research approach for this dissertation. Because this dissertation entitled examining affordability and adequacy of public urban housing in Ethiopia; also emphasizing on the satisfaction of residents on their condominium housing: emphasis on Addis Ababa city administration demands different methods of data collection (both quantitative and qualitative) and also different forms of data analysis (both qualitative and quantitative methods of analysis). To address the problem of the study the researcher adopted mixed approach and also pragmatism is the philosophy that can be used by the researcher.

3.4 Research Approaches:

3.4.1 Introduction to research approach

As it is indicated by different researchers, research approach is defined differently by different scholars. Research approach defined by Creswell (2014) is "plans and procedures for research that integrates the decisions from broad assumptions to detailed methods of data collection, analysis and interpretation". Such decisions have a substantial say to determine the quality of the conclusions drawn from the research results (Bordens & Abbott, 2011). It is noted that different Scholars have come up with several wide-ranging classifications of research approaches (Heppner, Wampold, & Kivlighan, 2008). Since thre are different research approaches, contemporary scholars (Creswell, 2003, 2009, 2012, 2014; Williams, 2007; Creswell & Clark, 2011; Migiro & Magangi, 2011) argued that the approaches are categorized under three broad taxonomies as, quantitative, qualitative, and mixed methods approaches. In research there has been a serious debate among social science scholars on supporting or invalidating either the qualitative or the quantitative approaches is preferable for the study (Corbetta, 2003). Exertions were made to define and differentiate between the two approaches to research on the basis of philosophical paradigm/theoretical perspective, the data used, logic employed and method of data analysis used by the researcher (Creswell, 2012).

This research entitled examining the adequacy and affordability of condominium housing in Addis Ababa city administration selected the appropriate research approach that contributes for the attainment of the stated objective. But the researcher is interested to discuss the three principal research approaches (qualitative, quantitative and mixed research approach); and lastly appropriate research approach relevant for the study) selected and justified the reason for the selection of mixed research approach for this dissertation.

Here in this part of the study the researcher was briefly overviewed the distinction between qualitative and quantitative research approaches in line with the contending debates among the advocates of the two principal research approaches. Most importantly, the challenges and opportunities for applying either qualitative or quantitative research approach to understand social realities are also discussed in line with its ontological and epistemological stances.

As it is articulated by sanders et al (2009) quantitative and qualitative approaches can be thought of as distinct philosophies marked by different values, norms, and beliefs. There is different paradigm that is observed by different researchers about qualitative and quantitative approaches. The main sources of argument and discrepancy between the two approaches focuses on whether there is a necessary connection among research paradigms, research problem, research methods, purpose, and researchers' role that make these approaches "incompatible" (Fireston, 1987). It is also justified that "differences in assumptions about reality" as the main source of debate between qualitative and quantitative researchers. The three principal research approaches are discussed below and lastly the researcher justified the utilization of mixed approach in the dissertation.

3.4.2 Quantitative Research Approach

The quantitative research paradigm, also known as the "traditional", "positivist" research paradigm, is an request for information into a social or human problem based on testing a theory made up of variables, measured with numbers and analyzed using statistical procedures in order to determine whether the predictive generalizations of the theory holds true (Creswell 2003 and 1994). It is also stated that the quantitative method delivers numeric description of trends, attitudes or opinions of a population by studying a sample of that population. This type of research methodology has some typical characteristics as emphasized by Creswell (2003 and 1994) as follows; it views reality to exist in the world, which can be objectively and quantitatively measured; in terms of the relationship between the investigator and what is being investigated, the quantitative research paradigm holds that the researcher should remain distant and independent of that being researched to ensure an objective assessment of the situation; quantitative research is not value-laden as the researchers' values are held in reserve out of the study. In terms of philosophical orientation, the quantitative approach supports the positivist worldview (Johnson & Onwuegbuzie, 2004; Creswell, 2009; Martens, 2010) which holds that there is a single reality that can be measured and generalized at the end of the research that is examined (Fireston, 1987).

Other distinguishing characteristic of quantitative approach is that the entire process of the quantitative methodology uses the deductive form of reasoning or logic wherein theories and hypothesis are tested in cause-and-effect order. Concepts, variables and hypothesis are selected before the study begins and remain fixed throughout the study, additionally the concentration of the study is to develop generalizations that contribute to the theory and that enable one to better predict, explain and analyze some phenomenon.

3.4.3 Qualitative Research Approach

The qualitative approach is also another research approach in social science, in terms of philosophical orientation, the qualitative approach advocates the constructivist worldview (Corbetta, 2003; Johnson & Onwuegbuzie, 2004) that claims as reality is not absolute, but is socially constructed (Martens, 2010). This shows that in qualitative analysis the researcher has freedom to include any additional variables after starting the research.

It is also stated by (Bogdan and Biklen, 2007, Mertens, 2003, Creswell, 2003, Creswell (1994) and Lincoln and Guba, 2000) that the general features of the qualitative research includes the following: the researcher visits the site of the target participants to conduct the research which gives the researcher that opportunity to collect details about the individual and also be involved in the actual experiences of the participants; the methodology is value-laden as the personal-interest becomes attached with the researcher-interest, collection of text data, description and analysis of text or pictures/images, representation of information in figures and tables and personal analysis and interpretation of findings all inform qualitative procedures in undertaking a study. Also it is noted that the reasoning procedure approved in qualitative research is largely inductive in which various aspects or categories emerge from those under investigation rather than those identified before the research is originated. This approach provides information leading to patterns or theories that help to explain a phenomenon in appropriate ways. Theory and hypothesis are therefore not established prior to the research and the research questions may change and be refined as the researcher learns what question to ask and to whom i.e. after identifying the information and the informants.

3.4.4 Mixed Methods Approach

As it is indicated in the above discussion on qualitative and quantitative research approach is incorporating the qualitative and quantitative approaches independently. But as it is indicated in different literature even if there are two independent approaches of a research with different understanding and reasoning approaches; currently most of the business research is using mixed approach. To address the problem of the two approaches and to appreciate the quality of the approaches using mixed approach is preferable.

The mixed method in research also referred to as “multi-method” employs the quantitative and qualitative research methods in one research project (Tashakkori and Teddlie, 1998). The mixed approach involves the collection, analysis and interpretation of both forms of data in a single study. As it is stated in Johnson & Onwuegbuzie (2004); Creswell (2003); Mertens (2003) and Lincoln & Guba (1985) the methodology is normally appropriate in research programmes where due to the nature of the research being investigated, it is possible to collect both quantitative and qualitative data, the analysis of which will offer a better and deeper understanding of a phenomenon. Therefore, the data collection procedure in the mixed methods approach is a combination of the strategies in the quantitative and qualitative research paradigms.

Several sources identify the evolution and utilization of mixed methods because it is important in triangulating different quantitative and qualitative data sources and it is also known that the expanded reasons for mixing methods Creswell (2009) and Tashakkori & Teddlie (1998). Additionally, Creswell and Plano Clark (2007) also clearly stated that mixed method research is a research design with its own philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central foundation is that the use of quantitative and qualitative approaches in combination (in one research at a time) provides a better understanding of research problems than undertaking the research using one approach alone.

In addition as it is indicated in Kothari (2004) mixed method research – is research in which the researcher uses the qualitative research paradigm for one phase of a research study and the quantitative research paradigm for another phase of the study. For example, a researcher might conduct an experiment (quantitative) and after the experiment conduct an interview study with the participants (qualitative) to see how they viewed the experiment and to see if they agreed with the results. Mixed method research is like conducting two mini-studies within one overall research study. Combining qualitative and quantitative methods in a single study is widely practiced and accepted in many areas of social and business research. Despite the arguments presented for integrating the two methods, the researcher authenticated that each of these methods is based on a particular paradigm, a patterned set of assumptions concerning reality (ontology), knowledge of that reality (epistemology), and the particular ways of knowing that reality (methodology) (Guba and lincoln, 1990).

This dissertation entitled examination of adequacy and affordability of condominium housing in Addis Abba city administration demands different methods of data collection (both quantitative and qualitative) and also different forms of data analysis (both qualitative and quantitative). This indicates that the research used mixed approach and also pragmatism is the philosophy that can be used by the researcher.

3.5 Research Approach Adopted for this Study

In order to achieve the research objectives regarding the topic identified that is examining affordability and adequacy of public urban housing (condominium) in Ethiopia taking Addis Ababa city administration the researcher used mixed approach. As it is indicated in different literature a mixed method is the general term when both quantitative and qualitative data collection techniques and analysis procedures are used in a research design. It is subdivided into two types. Mixed method research uses quantitative and qualitative data collection techniques and analysis procedures either at the same time (parallel) or one after the other (sequential). In addition using mixed methods allows the researcher to undertake triangulation in an appropriate manner.

It is argued by Creswell (2003 and 1994) and Bogdan & Biklen (2007); the basis of selecting a research method for a research undertaking has to do with the identified objectives of the study; research question and the designed research hypothesis. The aim of the study stated in chapter One as – examining affordability and adequacy public urban housing (condominium housing) in Ethiopia by taking Addis Ababa city administration in to consideration. The quantitative, qualitative and mixed methods research inquiry approaches, as the three research paradigms, were examined as per their appropriateness. In effect, the mixed methods approach is finally accepted and the justification for the adoption is explained in the next paragraph.

Mixed method approach is considered as a research design and method of inquiry that commands the direction of the collection and data analysis whereby the collection and analysis of data has a mix of quantitative and qualitative research processes (Creswell and Plano Clark 2007).The mixed-method techniques are increasingly being used in order to expand the scope of and expand the researcher's insights from the study. It combines research strategies and allows researchers to broaden understanding and obtain a clearer picture of the study, though it may require multiple investigators. While qualitative research typically involves purposeful sampling to enhance understanding of the information-rich case and exploratory in nature. Quantitative research ideally involves probability sampling to permit statistical inferences to be made, notwithstanding the key differences; the two techniques can be combined usefully. As advocates of mixed method research, (Tashakkori, 1998 and Swanson, 1992) argued that the complexities of human phenomenon mandates have more complex research designs to capture them.

Therefore mixed methods are used when both quantitative and qualitative data collection techniques and analysis procedures are used in a research design. It is subdivided into two types. Mixed method research uses quantitative and qualitative data collection techniques and analysis procedures either at the same time (parallel) or one after the other (sequential) but does not combine them. This means that, although mixed method research uses both quantitative and qualitative world views at the research methods stage, quantitative data analyzed quantitatively and qualitative data analyzed qualitatively (Saunders and et al. , 2007). The specific objectives of the dissertation stated by the researcher demands both qualitative and quantitative methods of data collection and analysis in order to achieve the stated objectives; to answer research questions and the stated hypothesis. Therefore, in order to achieve the stated objectives utilization of mixed method is relevant because the study demands both open ended and closed ended questions; primary and secondary sources; and also both quantitative and qualitative methods of data analysis; as the study demands economic data, personal information, social and behavioral information about the residents.

3.6 Research Design

In this part of the research the research, the researcher decided the appropriate research design by considering the specific objectives in to consideration. As it is indicated in different literatures research designs are procedures for collecting, analyzing, interpreting and reporting data in research studies. Rigorous research designs are important in undertaking a study because they guide the methods and decisions that researchers must make during the study and set the logic by which interpretations are made at the end of the study (Creswell and Plano Clark, 2007). The basic reasoning behind the research design is the concept of "Analytical Generalization" (Yin ,1989). In analytical generalization, a study is conducted in a typical case study area, and the general conclusions reached are applied to other areas with similar situations.

The means for the success of any study is confined with its research design (Bordens & Abbott, 2011). For Kothari (2004), research design is "the conceptual structure within which the research is conducted". Most recently, as it is described by Cresswell (2014) a research design as " a type of examination within the selected research approach that delivers specific direction for the procedures in the research". Besides, research designs offer directions how to rigorously conduct studies to best meet the research objectives and questions as well as the hypothesis developed (Creswell et al., 2007). Additionally, as it is indicated in Kothari (2004) appropriate research design gives appropriate framework to accomplish the researcher smoothly the diverse research moves Thus, prior to the beginning of data collection or analysis, the researcher needs to decide on a specific research design that is consistent with the research problem and also the research questions to be answered and also the research objectives to achieved as well as the hypothesis to be tested (deVaus, 2001).

The research design is considered as a structure which is logical and mapping strategy that articulates the data which is required, the methods which are going to be used to collect and analyze this data, and how all these are coordinated to answer the research questions raised and the stated objectives that was stated by the study. In addition as it clearly noted in Kothari (2004) with a great deal of accelerating influence in the social sciences; mixed methods research designs are moving across the disciplines. This has given rise for the creation of range of design types that are used to describe mixed methods research. Additionally, it is also stated that the research problem, researcher's personal experiences, and the audience are also other relevant factors considered in the choice of the research design Creswell (2009, 2014). Based on the above-mentioned factors the research design selected that used by the researcher was the convergent parallel explanatory design, equal prioritization, QUAN+QUAL procedure with parallel timing, and the data was merged during interpretation. This design selected by considering the specific objectives stated and the nature of the data demanded by the research.

According to Creswell (2009, 2012) stated that convergent design to its ability to use "separate quantitative and qualitative methods as a means to offset the weaknesses intrinsic within one method with the strengths of the other". It was also noted that that the major strength of this design is its familiarity with researchers; a shorter data collection time than sequential designs and that results can be easily validated and substantiated Creswell et al., (2003).

3.7 Unit of Analysis

In undertaking a scientific research and before collecting data; knowing the unit of analysis is very important. That is why in different study it is stated that one of the preliminary steps and central concept in research undertaking is to decide on the unit of analysis of the study (Long, 2004; Blessing & Chakrabarti, 2009). Additionally as it is depicted in Blessing & Chakrabarti (2009) in empirical research, the unit of analysis is the social object "about which the researcher wants to obtain information, wishes to draw conclusions and make generalizations"). it is noted that Blessing & Chakrabarti (2009) and Creswell (2012) also reveals whether the analysis focuses on individuals, groups, organizations, products and others.

The unit of analysis identified by the researcher is dependent on the nature of the study to be examined i.e. housing supply, adequacy, satisfaction and affordability. The unit of analysis can be chosen by considering the nature of the study, the data-collection methods, external validity, and conclusions to be drawn. Characterization of the unit of analysis requires careful prior description of the subject to be analyzed. In social science research, the most typical units of analysis are individual people or household (Babbie, 2011). Based on the questions or hypotheses that a researcher seeks to answer or test, it is possible to gather data from multiple units of analysis (Blessing & Chakrabarti, 2009; Babbie, 2011; Creswell, 2012). Accordingly, examining public urban housing affordability, adequacy and satisfaction of residents taking Addis Ababa residents in to consideration require a multidimensional data collection method from diverse sources both from primary and secondary sources. Thus, units of analysis planned to be used in this research was various including: condominium residents (by considering different socio-economic issues in to considerations) and employees of the housing development bureau, commercial bank officials (at consumer loan section) and local government officials), and policy documents. The next section addresses how the specific samples are selected from each unit of analysis. In this study the residents in condominium considered as a target population. In addition officials at Addis

Ababa housing bureau and also commercial bank officers were included to collect data using interview. To support the primary data the researcher was concentrate on different secondary data documents found in housing agency and commercial bank related to mortgage.

3.8 Sampling Techniques

As it is indicated in different research books like (Kothari 2004; chandlers' et al, 2008; and Creswell, 2003) researchers usually cannot make direct observations of every individual in the population they are studying. Instead, they collect data from a subset of individuals – a sample – and use those observations to make inferences about the entire population (condominium residents in Addis Ababa).

Ideally, the sample relates to the larger population on the characteristic(s) of interest i.e. condominium residents in Addis Ababa city administration. In that case, the researcher's conclusions from the sample are probably applicable to the entire population and among the different purposes of selecting a sample the critical goal of sampling design is to select a set of elements from a population in such a way that descriptions of those elements accurately represent characteristics of the population (parameters) from which they were selected. Additionally different researchers and writers justified that the important goal of sample design is to yield maximum precision (i.e., minimum variance) per unit cost.

Selecting a sampling design involves making a series of decisions not only about how many individuals to include in a study and how to select these individuals, but also about conditions under which this selection took place. To determine the appropriate sample size for this dissertation; the researcher followed the following procedures. The procedure includes from identification of target population to determination of sample size. Thus, appropriate sampling strategies were used to select representative samples from the target population.

3.8.1 Sample size Determination.

In addition to deciding how to select the samples for the qualitative and quantitative components of a study, the mixed methods researchers also should determine appropriate sample sizes for each phase. The choice of sample size is as important as is the choice of sampling scheme because it also determines the extent to which the researcher can make statistical and/or analytic generalizations.

The most important question researchers want to address is "how large the total sample should be" (Corbetta, 2003). Notwithstanding with the importance of the inquiry, scholarly replies reveal as "there is no clear-cut answer to the question" (Cohen, Manion, & Morrison, 2005). Besides its importance, sample size determination is hardly an easy task that is affected by several factors. Sample size for instance, depends on the type of research design, the desired level of confidence, population characteristic, estimated precision, cost and time availability (Singh, 2007; Adams, et al., 2007). The size of the sample should be informed primarily by the research objective, research question(s), and, subsequently, the research design.

In general, larger samples are better, but they also require more time and effort to manage. To determine the representative sample for this study; the researcher used appropriate procedure. Once you know your population, sampling frame, sampling method, and sample size, you can use all that information to choose your sample.

In planning any investigation the researcher must decide how many people need to be studied in order to answer the study objectives. If the study is too small the researcher may fail to detect important effects, or may estimate effects too imprecisely. If the study is too large then the researcher will waste resources. In general, it is much better to increase the accuracy of data collection (by improving the training of data collectors and data collection tools) than to increase the sample size after a certain point.

In order to select the appropriate sample the researcher concentrates on Addis Ababa condominium users (residents). Addis Ababa is the capital city of the Federal Democratic Republic of Ethiopia and it is a self-governing, chartered city with its own council, elected every five years and accountable both to the city electoral and the federal government. It has the status of a special autonomous region within the federal system of government. The city has three layers of government—the city itself, 10 sub cities and 116 wordas - the lowest level of city administration. The sample selected from the households of Addis Ababa city administration by using stratified sampling. Condominium were given to the beneficiaries in 11 (eleven) rounds. The researcher used the rounds as the main base of stratifying the population to determine the appropriate sample size.

Accordingly, to minimize sampling problems and to keep the representativeness of target respondents selected from the population, the proposed study employed the appropriate formula. To determine the needed sample size the formula proposed by Krejcie and Morgan (1970) used. The formula can be stated as:

Formula $S = \frac{X^2NP(1-P)}{D^2(N-1)+X^2P(1-p)}$

Where: S = required sample size; X2= the table value of chi-square for 1 degree of freedom at 0.05 confidence level (3.841); N = the population size; P = the population proportion (assumed to be 0.50 as this would provide the maximum sample size); and d = the degree of accuracy expressed as a proportion (.05). By using the above stated formula the researcher select ***384 samples*** from the total 173,662 target population

To compensate the expected non response rate expected from the respondents; the researcher considers additional 12% i.e. (384*12%) = 46 additional respondents included in the sample and the total sample size considered by the research a total of 430.

After identifying the appropriate sample size by using the formula stated above; the researcher used stratified sampling. The base for stratification is the 11 (eleven) rounds. Therefore the researcher considered eleven strata. Additionally to select employees from Addis Ababa housing administration office; and officials from commercial bank of Ethiopia the researcher used purposive judgmental sampling. Those employees that have connection with housing supply and also employees from commercial bank were considered as a principal target. Because housing is implemented by using the two institutions i.e. housing agency and commercial bank of Ethiopia because the financial issues were given to commercial bank of Ethiopia.

Table 3-1: Sample Distribution among the Beneficiaries in Different stratum

Round to distribute	Budget year in (EC)	Distributed houses to the beneficiary						
		10:90	Studio	1bed room	2 bed room	3 bed room	Total	Sample size
1ኛ	1998		4,118	5,677	6,548	2,645	18,988	47
2ኛ	1999		2,592	5,070	6,263	1,108	15,033	37
3ኛ	2001		2,965	3,679	3,626	735	11,005	27
4ኛ	2001		2,799	6,755	4,108	1,372	15,034	37
5ኛ	2002		3,088	4,719	2,028	934	10,769	27
6ኛ	2003		1,255	4,467	2,747	1,531	10,000	25
7ኛ	2004		2,952	3,594	433	321	7,300	18
8ኛ	2005		1,326	4,665	2,952	1,155	10,098	25
9ኛ	2005		2,570	4,423	2,330	934	10,257	26
10ኛ	2007	960	6,660	7,309	3,951	15,665	34,545	86
11ኛ	2009	18938	2,103	5,392	2,723	1,477	30,633	77
Total		19898	32428	55750	37709	27877	173662	430

Source: own computation, 2017

As it is indicated in the table above the sample size that selected for the purpose of this study was 430. To select the appropriate sample the researcher used proportionate stratified sampling. To use proportionate stratified sampling; the researcher utilized the round of the distribution as a basis of stratification because the researcher has an interest to provide appropriate justification and examination by considering (time, location, property characteristics, neighborhood characteristics and any other variables). The stated variables were briefly examined if the researcher considered the 11 rounds because there is different variation on the characteristics of condominium houses in different rounds. Taking representative sample from each round is appropriate to study about condominium housing in Ethiopia that established and communicated in 2005. The government distributed the condominium houses to the beneficiaries in different periods at 11 rounds in Addis Ababa city administration. In order to select and arrive at the target respondents the researcher used snowball sampling because some of the beneficiaries are either renting or selling to another third party. This method of sampling used after determining the sample size. This sampling adopted *only* for those residents who rent and sold to any other beneficiary because the focus of the research is the initial beneficiary getting the house from government.

3.9 Types and Source of Data

In order to achieve the stated objectives; collecting different types of data from different sources is very important for triangulation because different techniques of data collection provides both qualitative and quantitative data. In principle, there are many research methods (instruments) for satisfying various research needs and undertakings. In good research, the choice should be appropriate, reasonable and explicit i.e. rigorous (Denscombe 2003). Therefore, in adopting a mixed method research approach for a study involves using different forms of instruments for data collection.

In Kothari (2004) the task of data collection begins after a research problem has been defined and research design/ plan approved by the researcher. This is to collect the appropriate data that is relevant to answer the research questions set and also to achieve the specific objective designed. While deciding about the method of data collection to be used for the study, the researcher should keep in mind two sources of data i.e. primary and secondary data sources. The primary data are those which are collected for the first time and thus happen to be original in character.

Kothari also stated that the secondary data are those which have already been collected by someone else and which have already been passed through the statistical process. The methods of collecting primary and secondary data differ since primary data are to be originally collected, while in case of secondary data the nature of data collection work is merely that of compilation. The researcher described the different methods of data collection, with the advantage and dis advantage of each method. There are two principal and different sources of data used by researchers to achieve the specific objective set.

So the researcher used primary and secondary as well as qualitative and quantitative data. Both primary and secondary sources of data were collected to achieve the objective set. Primary data sources collected by well-designed and administered structured questionnaire on individual households, interview with key informant groups and focus group discussions employed together with observation.

Secondary source collected from review documents and manuals, and records information on housing, annual reports and also government housing directives.

3.10 Tools of Data Collection

In order to achieve the objective of the study, both quantitative and qualitative data gathered from primary and secondary sources. Saunders et al (2009) stated that mixed method research combines quantitative and qualitative data collection techniques and analysis procedures as well as combining quantitative and qualitative approaches. Qualitative data collected by the researcher and analyzed based on their theme and analyzed qualitatively; quantitative data collected and converted in to numerical codes. And it analyzed statistically. For triangulation purpose, this research utilized a variety of data gathering tools like questionnaire and interview as a tool of primary data collection and different sources of secondary data. So therefore, the following specific techniques were employed to collect the relevant data and to achieve the objectives set and also to answer the research questions raised.

The methods of data collection were designed to collect in-depth responses sufficient in addressing the stated objectives. The primary data collected from respondents through formal and well-designed questionnaires and interview methods of data collection were used.

3.10.1 Questionnaire:

Among the different sources of data collection the principal tool used by the researcher questionnaire. This method of data collection is quite popular, particularly in case of big enquiries. It is being adopted by private individuals, research workers, private and public organizations and even by governments. Kothari (2004) stated that questionnaire is sent (usually by post) to the persons concerned with a request to answer the questions and return the questionnaire. A questionnaire consists of a number of questions printed or typed in a definite order on a form or set of forms.

In this study the researcher used questionnaire as principal sources of primary data collection. The questionnaire prepared by the researcher and administered to the target respondents used. The study was used both open and close-ended questions in the questionnaire. Well- structured questionnaire was developed and administered for collecting the primary data. A questionnaire was designed by the researcher and distributes to the sample individual households using enumerators.

The questionnaire contains both open ended and closed ended questions. And it was arranged thematically by considering the specific objectives in to considerations. To collect the relevant data to address adequacy and satisfaction; the respondents were specifically asked to rate the level of adequacy of each of the housing attributes using a five-point Likert scale ranging from 1 for “Very Inadequate’’, 3 for “Neither inadequate nor adequate” to 5 for ‘Very adequate’. Similarly housing attributes from the aforementioned key housing sub-components used to measure residential satisfaction. The respondents were asked to rate the level of satisfaction with their housing situations based on a five-point Likert scale ranging from 1 for “Very Unsatisfied’’, 3 for “Neutral” to 5 for ‘Very Satisfied’. In order to examine the affordability of the housing program the researcher considered data related to socio-economic characteristics of the respondents, loan factor, and physical characteristics of housing. Additionally, the researcher stated available variables to collect data for factors affecting condominium housing.

In administering the questionnaires the researcher employed enumerators on the commission basis. Enumerators were trained on how to collect data using questionnaire. The researcher gave them guidance on how to fill the questionnaire and also supervises during the process of data collection. The questionnaire expected to have these main bodies, namely (Demographic and socio-economic characteristics (respondent background; the determinants of housing affordability; the adequacy and satisfaction of the households on housing supplied by government; the determinant factors affecting housing price- to be used in hedonic regression analysis). In conducting the data the researcher motivated to give emphasis on affordability, satisfaction of the residents, adequacy and price of housing (condominium) as a main point of reference. Because the intention of the researcher was to assess and examine the affordability, adequacy and satisfaction of the residents in Ethiopia emphasis on supply, adequacy and affordability and satisfaction of residents on the residential environment (condominium house) in the city of Addis Ababa.

3.10.2 Interview:

The researcher used structured interview because as indicated in different research books including Saunders et al (2009) and also in Kothari (2004) structured interviews used questionnaires based on a predetermined and standardized or identical set of questions and the researcher refer to them as interviewer-administered questionnaires

The researcher selected the target respondents for interview and the point of discussion between interviewer and interviewee that are relevant to the study and concentrate on housing supply and adequacy, price and affordability discussed. The researcher used key informant interview aimed at obtaining special knowledge and key informants are respondents, who are assumed to have special knowledge on a given issue. The information usually generated from key informants is of harmonizing nature. In other words, they provide unique information that rarely attainable to generate from other respondents. Answers obtained from them as the interviews was greatly helpful to throw light on the answers to the questionnaire and give additional information that utilized in the research.

The main areas of discussion included in the interview were included for triangulations of the responses given in the questionnaire. The facilitations on key informant face to face interview were fully handled by the researcher. To make the informants feel more comfortable to share controversial policy related information, their confidentiality were assured and the reports on the interview results was then focused on the content of the information rather than the focus on personality. The content of the interview was documented.

3.10.3 Focus group discussion:

Focus group discussions have been proven instruments to illustrate and explore the inter subjective dynamics of thoughts, speech and understanding of the members of a group (Kothari, 2004). While selecting the participants of the focused group discussion, an effort made to ensure diversity and representation in terms of gender, age, income and duration and others. Information on such issues like context of condominium housing, different institutions and housing policies related problems, and numerous constraints challenging the condominium beneficiaries collected by engaging this specific tool. Additionally, in the focused group discussion different social and economic problems and challenges faced by the government as well as beneficiaries' side discussed.

3.10.4 Secondary data:

As clearly indicated in Saunders et al (2007) and Kothari (2004), data that are already available i.e. they refer to the data which have already been collected and analyzed by someone else are called secondary data. The researcher has to look into various sources from where he/she can obtain them when the researcher utilizes secondary data. In this case it is certainly not confronted with the problems that are usually associated with the collection of original data. Secondary data may either be published data or unpublished data.

Thus, such data gathered from government announcements, newspapers, journals, newsletters, non-published dissertations, published dissertations, and conference papers, institution of higher learning publications, and book reviews amongst others. For this study, data and methodological triangulation adopted to help in achieving reliability and subsequent validity of the results. The information collected from primary source triangulated using secondary data source. And qualitative data and its analysis were triangulated using the quantitative data and its analysis. The secondary data that used by the researcher was the annual report of the housing authority of the city administration and the policy plan of the government.

3.10.5 Reliability and Validity of the data

When the researchers were conducting a research using different methods of data collection techniques; the main issue that taken in to account is reliability and validity of the instruments. The reliability and validity of the instruments will have a direct relation for the achievement of the stated objectives by the objective of the study. Whatever research methodology is adopted for the research, reliability and validity issues have to be considered because it will have effect on the quality of the conclusion to be drawn by the researcher. As it is clearly stated by Creswell (2003), Creswell and Miller (2000), Creswell (1998), Lincoln and Guba (1985) the two principal issue i.e. reliability and validity in research are tests of the dependability of the measurement instruments used in research (Hulchanski 1979).

In undertaking scientific examination, validity and reliability are applied to ensure instruments provide dependable, credible and accurate information that are suitable to address the objective of the study and also to answer research questions developed by the study (Colton & Covert, 2007; Howitt & Cramer, 2011). Additionally, Ayodele (2012) notes that attention to validity and reliability in all research phases can reduce pressures to research and also the quality of the conclusion. As it is justified by different literature reliability of a measure refers to the extent to which a test or measuring procedure provides the same result when tried repeatedly. Colton and Covert (2007) also noted that assessing reliability in mixed methods research is an important part of instrument construction as it is all about the stability of the results obtained.

As it is indicated in Martens (2010) and Ayodele (2012) Cronbach's alpha is the most frequently used statistical method. It provides the researcher homogeneity or internal consistency among a set of items and the information. Colton & Covert (2007) also stated that it provides a more accurate measure of reliability In the absence of a commonly agreed upon cut-off point as a critical value for the acceptable magnitude of a coefficient alpha, often 0.70 or higher is desired in the social sciences (Heppner, Wampold & Kivlighan, 2008). Validity is the extent to which a measure is actually in line with what the researcher sets out to measure and the extent to which the results can be applied to new settings.

The researcher checked the reliability of the data set used to examine the satisfaction of the residents the item has high internal consistence. A reliability coefficient as indicated in the table below and shown that .930 is greater that the acceptable magnitude of coefficient alpha of .70 and the researcher approved that the data is reliable.

As it is indicated in the above discussion the researcher checked the reliability of the items used by the researcher to examine the adequacy of the condominium housing and the satisfaction of condominium residents in Addis Ababa city Administration.

Reliability Statistics	
Cronbach's Alpha	**N of Items**
.933	41

In addition, the researcher checked the reliability of the data set used by the researcher to examine the adequacy of condominium housing and it is shown that the A reliability coefficient as indicated in the table below and shown that .950 is greater that the acceptable magnitude of coefficient alpha of .70 and the researcher approved that the data is reliable.

Reliability Statistics	
Cronbach's Alpha	N of Items
.950	41

In mixed research, validity of a measure is normally established through consideration of face validity, content validity; construct validity and criterion validity (Ellinger, Watkins & Marsick, 2005; Bordens & Abbott, 2011; Ayodele, 2012). As it is clearly described by Ayodele (2012) face validity is "researchers’ subjective assessments of the presentation and relevance of the instrument as to whether the items in the instrument appear to be relevant, reasonable, and clear". Colton and Covert (2007) clearly describe face validity as "the degree to which an instrument appears to be an appropriate measure for obtaining the desired information, particularly from the perspective of a potential respondent".

Holton and Burnett (2005) explain content validity as the minimum requirement for acceptable research that requires a match between the content of a measure and the content of what is to be measured. It is concerned with the degree to which an instrument is broad enough and representative of the topic to capture the concept being measured (Colton & Covert, 2007). Construct validity on the other hand, refers to the extent to which the measure is on target to measure the construct being studied (Vanderstoep & Johnston, 2009). Criterion validity can be manifested in the form of concurrent and predictive validity (Ayodele, 2012). It refers the extent to which a measure is related to some other measure the investigator will be interested in predicting. More precisely, it refers whether the measure really predicts the dependent variable it is supposed to predict (Holton & Burnett, 2005).

To ensure the validity of the instruments the researcher incorporated the critical suggestion and comments given by different experts and department members as well as the comment that provided by the immediate supervisor of the dissertation. As Denzin (1970) suggested that the adoption of triangulation offers greater validity and reliability than a single methodological approach. To take the advantage of triangulation the researcher used both data and methodological triangulation.

3.11 Data Analysis

The data, after collection, has to be processed and analyzed in accordance with the outline and the research objectives designed at the time of developing the research plan. This is essential for a scientific study and for ensuring that the researcher has all relevant data for making considered comparisons and analysis. Technically speaking, processing implies editing, coding, classification and tabulation of collected data so that they are responsive to analysis (Kothari, 2004).

The data analyzed using the specific objective as a thematic area. Then the researcher used different methods of analysis to achieve the stated objectives or to answer the research questions raised. For every specific objective the researcher employed independent methods of analysis. But generally the researcher used both qualitative and quantitative analytical techniques for analyzing the collected data.

Saunders et al (2007) discussed that the nature of the qualitative data collected has implications for its analysis. The quantitative techniques employed both descriptive and econometric tools depending on the information obtained. SPSS software (Version 20) taken for processing and analysis of data. Data analysis in this study necessitated the use of mixed analysis methods due to the nature of the study.

However, for non-numerical data coding of the data done first Thereafter, the data arranged in homogenous categories (based on the thematic areas in to consideration) i.e. considering the basic items in the specific objectives in to account for ease of interpreting it. Nevertheless, before its analysis the data gathered checked for errors and genuineness (Creswell, 2012).

Data that lacked the required credibility and reliability discarded because it not be useful to this study. In order to make qualitative analysis narrative analysis favored because it helped in obtaining high quality information from the qualitative data gathered. On the other hand, tabulation and frequency graphs were preferred because it assisted in the easy presentation of data. Conversely, quantitative data analyzed using computerized aided techniques i.e. SPSS (version 20), which allowed for inferential statistics (Leedy and Ormrod, 2012; Czischke, 2009). The researcher used descriptive statistics, inferential statistics and econometric models to make appropriate analysis). The researcher made appropriate analysis by using the specific objective as a theme of analysis. More specifically, data gathered through key informant interview, personal observation and open-ended questions analyzed through narrative analysis based on content and theme. Here the researcher considered specific objectives as a thematic area.

3.11.1 Descriptive statistics:

Descriptive statistics employed to describe the collected data. The descriptive statistics used to show and describe basic variables such as socio demographic characteristics of the condominium residents. Furthermore, it also used to describe levels and perceptions of respondents on the affordability, satisfaction and adequacy of condominium housing. Additionally, it used to express in terms of percentages, ratios, average (Mean) as measures of central tendencies and standard deviation as dispersions and alsoused to make the result analysis in the form of tables (cross tabulation), figures and graphs. The descriptive statistics results were supported by inferential statistics like t-statistic value and $\aleph^2$ statistic value and others.

3.11.2 Multiple Regression Models:

Kothari (2004) stated about multiple regressions and discussed that; when there are two or more than two independent variables, the analysis concerning relationship is known as multiple correlations and the equation describing such relationship as the multiple regression equation. In multiple regressions there are different independent variables that have effect on dependent variable.

Ordinary least square (OLS) regression model employed to know the extent that the household socio-economic characteristics and other related variables that influences housing affordability of individual households. This method employed to identify the determinants of housing affordability with the addition of control variables. The use of OLS model is best in this particular case because it was not be expected to have zero values of housing price; as well as housing affordability ratio; for which households are already spent some portion of their income for housing purpose because as indicated in Christine et al (2008); a household can be considered able to afford market price where the housing payable is up to 30 per cent of their gross household income. The determinants of housing affordability can be examined by the OLS model as formulated by Gujarati, D. (2004). In addition to examine the adequacy and satisfaction of the researcher used mean satisfaction score (MAS) and mean satisfaction score (MSS) respectively.

In order to examine the determinant factors affecting the price of condominium housing monthly mortgage payment as a dependent variable.

Regression models are understandably the most valuable and widely used multivariate statistical techniques in most studies that involve ratio/interval variables (Mayfield et al., 2005; van Leeuwn, 2010). The model used two or more independent variables to predict the value of one dependent variable (Mayers, Gamst & Guarino, 2006). The model used with the implicit assumption that the dependent variable, Y is quantitative, whereas the explanatory variables are quantitative, qualitative (or dummy), or a mixture thereof (Mayers, Gamst & Guarino, 2006).

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots . + \beta_n X_n + \varepsilon_i$$

Where Y= dependent variable i.e. housing affordability

X1, X2, …Xn is independent variable (variables that will affect dependent variables).

In undertaking the necessary regression analysis the necessary test of normality, autocorrelation and any other tests were performed. In distinguishing the determinants of housing affordability in Addis Ababa the dependent variable (the ratio of monthly mortgage payment over monthly income) regressed on the households socio-economic characteristics and other variables influencing factors to know whether they have effects or not. The aim is to identify the key characteristics of housing and households associated with affordability**.** Likewise, the model used to identify factors that determine the housing affordability in Addis Ababa (**objective two**). In addition the researcher used another regression analysis to identify the determinant factors affecting housing price (using Hedonic regression model); in this regression the monthly housing mortgage regressed on the households socio-economic characteristics and other variables Estimation via Ordinary Least Square (OLS) is an extensively used method in regression analysis since it is automatically appealing and mathematically simple (Gujarati, 2004). Therefore, OLS estimation employed to identify key factors that affect housing affordability in Addis. And also to determine the determinant factors affecting housing price (using hedonic pricing model).

In addition the researcher also used hedonic pricing model to address the **third objective set** i.e. to identify the determinant factors affecting home price in Addis Ababa. The model estimates the relationship between the price of an asset (the dependent variable) and all of its various characteristics (independent variables).

Hedonic pricing model theory is based on the assumption that the price of a property such as (office, house, rent price) is a direct function of a fixed number of characteristics (say) measured by quantities (Limsombunchai et al., 2004 and Hamid, 2006). It noted that, Hence the hedonic pricing model decomposes the transaction price into various components or characteristics. This study employed hedonic regression analysis to examine the impact of structural, neighborhood and employment characteristics on condominium housing price in the Addis Ababa. To achieve the stated objective the researcher used OLS regression.

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon_i$$

Where Y= dependent variable i.e. housing price (monthly mortgage payment)

X1, X2, …Xn are independent variable (variables that will affect dependent variables).

The data that is relevant to assess the factors affecting condominium housing price in Addis Ababa (using hedonic pricing model) collected using structured questionnaire. This method preferred due to apparent lack of reliable secondary data on property and public Housing market in Addis Ababa.

It is also clearly justified by Herath et al (2010) that Regression analysis related estimation approaches are common in hedonic pricing model (HPM) in real estate as well. The conventional hedonic price regression equation with regard to the housing market is either mortgage, rent or house value against the characteristics of the unit that determine the respective value of the house. The fundamental assumption of regression applies that the relevant determinants of the dependent variable (rent, price, or value in this case) are known precisely and in advance.

In practice, various variables are applied based on the scholars' preference or the availability of data. As Malpezzi (2003) noted that experience from many studies suggests the following variables often appear in hedonic price analyses: Number of rooms and type of rooms (bedrooms, bathrooms, etc.); Floor area; Category (Single family, multifamily, attached, detached, number of floors); Structural features (such as garages, etc.); Structural material used, and quality of finish. The variables that were employed in this research are adopted from Oduwole, H. K. and Eze, H. T **(2013)** from their analysis on a Hedonic Pricing Model on Factors that influence Residential Apartment in Abuja Satellite Towns. The researcher considered that the variable the variables were suitable for this study; there is apparent lack of reliable secondary data on property specifically in the housing market. Similarly there is no organized secondary data related to housing in Ethiopia in general and Addis Ababa in particular. That is why the data considered from primary sources using questionnaire.

As it discussed above the researcher used different methods of analysis to achieve the stated objectives. To achieve the two objectives i.e. the adequacy of the house and the satisfaction of the residents on condominium housing; the researcher employed three main types of analyses. The first methods of analysis descriptive statistics (percentages and mean values) which produced proportions and percentages of the demographics of the respondents, mean adequacy scores (MAS) for the identified housing attributes used in measuring housing adequacy and mean satisfaction scores (MSS) for the given housing attributes used in measuring residential satisfaction. In the context of this study, MAS represents the average adequacy score on each of the given housing attributes used in assessing housing adequacy by the respondents.

In the same manner, MSS is the average satisfaction score on each of the given housing attributes used in assessing residential satisfaction the respondents. In interpreting the MAS and MSS, values between 1.0 and 2.9 were considered to be within the region of inadequacy and dissatisfaction, respectively, while values between 3.01 and 5.0 were in the region of adequacy and satisfaction. Value 3.0 is the neutral point describing neither inadequate/dissatisfaction nor adequate/satisfaction conditions. Similar interpretations that were adopted in previous studies are (e.g. Salleh, 2008; Ibem and Aduwo, 2013; Ibem et al, 2013; Ibem et al, 2015). The second type of analysis conducted by the researcher was Dimension reduction to identify the explanatory variables for each dimension given in measuring the satisfaction of the respondents on the condominium housing as well as the perception of residents on the adequacy of condominium housing principal axis factoring method.

Responses given by the selected respondents on the identified housing attributes used in measuring housing adequacy and residential satisfaction, respectively, subjected dimension reduction using principal axis factoring method. And it used to identify housing attributes used in measuring different dimensions of housing adequacy and residential satisfaction, respectively.

The third type of analysis conducted multivariate statistical analysis (multiple regression analysis) and identified the predictors of both housing adequacy and residential satisfaction in the survey. In carrying out this particular analysis, mean adequacy score (MAS) described earlier was the dependent variable, and the identified attribute as the independent variables including Sex of the

Respondent's, Age of Respondents; Marital status; Average Monthly income; Highest Educational Qualification; Household Size; Employment status; Mean Adequacy Scores considering that the Dependent Variable is Mean adequacy Score.

Also in determining the predictors of residential satisfaction (MSS) used as the dependent variable, and the researcher selected the attribute of satisfaction and adequacy used as the independent variables. including Sex of the Respondent's; Age of Respondents ; Marital Average Monthly income; Highest Educational Qualification ; Household Size ; Employment status; Mean Adequacy Scores considering that the Dependent Variable is Mean satisfaction Score.

Additionally, the researcherconducted dimension reduction to confirm the variables used by the researcher to examine each dimensions of housing adequacy and satisfaction of residents. Factor analysis is a multivariate statistical analysis procedure used to reduce the number of the explanatory variables in the predictive regression model (Sakar et al., 2011). The researcher undertakes principal axis factoring method to identify the principal factors determining the dimensions used by the researcher to identify the principal dimensions that determine adequacy and satisfaction of residents on the residential environment. As in the regression model, factor is a linear combination of group variables (items) combined to represent scale measurements of the concept. In factor analysis the variables indicates of some common underlying dimension or concepts. In this study principal axis factoring carried out for those variables that have been defined by the numbers of underlying variables.

3.11.3 Model Diagnostics Test

When choosing a predictor variable you should select one that might be correlated with the criterion variable, but that is not strongly correlated with the other predictor variables. The term multicollinearity is used to describe the situation when a high correlation is detected between two or more predictor variables. The predictor variables model has experienced the problem of multicollinearity when the correlation matrix of any independent variables that correlates above some level with one another. Some scholars say, correlation coefficient ($r > \pm 0.75$) and some other says ($r \geq \pm 0.90$) may induce problematic collinearity. This implied, if one or more correlation coefficients are close to 1 or -1, the variables are highly correlated and a severe multicollinearity problem may exist; remove one of the correlated independent variables in the model. Such high correlations cause problems when trying to draw inferences about the relative contribution of each predictor variable to the success of the model.

The presence of collinearity in the sets of predictor variables leads potential adverse effect on the regression estimates. For instance, R-square estimated to be high, but none of the individual beta weight was statistically significant and coefficient estimates might be in the wrong direction.

According to Wooldridge (2002), collinearity for a given dataset is measured using tolerance value and variance inflation factor (VIF). As a rule of thumb, tolerance values of 0.10 or less are cited as problematic. This implied that, the independent variables are highly correlated with other variables in the model. In this case, remove one or more highly inter-correlating variables from the model.

VIF-indicates the degree to which the standard errors are inflated due the levels of collinearity. Thus, VIF of 10 or greater are often cited as inductive problematic collinearity. If the above two ways of detecting multicollinearty assumptions are violated, there is the problem of collinearity in the predictor variables. In this case, the researcher is advised to remove the independent variables which have a highest correlation coefficient in the model. In case when two or more independent variables have a high correlation coefficient, remove the variables which have higher P-value in the estimated model.

Another important tool used to diagnose OLS estimation model fit the data well is the absence of autocorrelation in the datasets. Autocorrelation occurs when the residuals are not independent from each other. Autocorrelation in multiple linear regression models tested using Durbin-Watson test. Durbin-Watson's tests the null hypothesis that the residuals are not linearly auto-correlated. While can assume values between 0 and 4. As a rule of thumb values of $1.5 < d < 2.5$ show that there is no auto-correlation in the multiple linear regression data. Autocorrelation occurs when the residuals are not independent from each other and seriously affects the result of estimation. In dataset whether autocorrelation present or not tested using Durbin-Watson test.

Model adequacy is a situation of checking by how much the model fitted describes the collected data. In the OLS estimation method, R-square (R2) and Adjusted R-square ($\bar{R}2$) are commonly used techniques to check the fitness of the model (Wooldridge, 2002).

R-square is the measure of the 'Goodness-of-fit' of the fitted regression model and is calculated by the ratio of the explained to the total variation. It describes how much of the variation in the dependent variable is explained by the included factors or explanatory variables in the model. In social science low R-square in regression is common, especially for cross-sectional analysis (Wooldridge, 2002).

The ANOVA is used to test whether or not the proposed model significantly predicts the dependent variable. In this case, F- statistics in ANVOA table shows that $P<0.01$. This means that the independent variables are significantly predicts the dependent variables in the estimated model.

The last assumption in the linear regression analysis is homoscedasticity test (error terms along the regression analysis are equal). As the Goldfeld-Quandt (GQ) test is not supported in SPSS, homoscedasticity and normality of the residual tested using histogram, normal P-P plot and scatter plot of regression standardized residuals.

In factor analysis there are several assumptions that must be met before analysis has been carried out. The first procedure in factor analysis is a test of normality (linearity) of the data. Parametric tests, say regression analysis assumes a Gaussian (normality) distribution of the continuous data. However, likert scale items may violate this assumption. Thus, in this study items or data constructed using likert scale and used in the analysis tested for normality by using a very conservative test approach called Kolmogorow-Smirnov normality test using SPSS to assess whether the items constructed using likert-scales are normally distributed. If test statistics are statistically significant ($p<0.05$), the probability that the data follows normality distribution is very low. Thus, for a normally distributed variable the result is non-significant ($p>0.05$).

Test of Sphericity: Bartlett's Test of Sphericity is another test employed for validity of factor analysis to data sets at desire significant level. Thus, if the Bartlett's test of spericity is not significant, the use of factor analysis to analysis the data is not appropriate and allowed because the variables are not loaded together properly. Thus, if Bartlett's test of spericity is significant; it assumed the data met the assumption and factor analysis appropriate method for data analysis (Yong and Pearce, 2013).

In addition, it is important to check if the data are considered to be appropriate for factor analysis using Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. Small value for KMO indicates a problem with sampling. A KMO value of 0.90 is best, below 0.50 is unacceptable. In this study, cutoff above .50 is used as good measure of sampling adequacy. If this requirement is not met, distinct and reliable factors cannot be produced.

Moreover, Cronbach's alpha of internal consistency test of the item was used for reliability. Thus, a minimum of Cronbach's alpha value of 0.7 is used to accept the internal consistent of the factors as in (Garoma, 2012). Following, all the above predetermined procedures, the factor scores resulted from factor analysis further used in regression analysis.

3.12 Variable Identification, Description and Measurement

In conducting research; identification, description and measurement of relevant variables is crucial and very important. The variables that were used by the researcher are both dependent and independent variables. A variable is any characteristic that can vary across people or situations and is of different levels or types (Creswell, 2003). There are two basic kinds of variables: dependent variable and independent variables. The independent variable is one in which the experiment influences and as such is the variable whose effect interests the researcher. Independent variables are also called "explanatory" variables because they explain or predict the amount of variation that occurs in another variable. On the other hand, a dependent variable, sometimes also called the "response" variable, attempts to indicate the total influence arising from the effects of the independent variables. Dependent variable, therefore, varies as a function of the independent variables.

Variables identified by the researcher are related to affordability, demand and supply of housing, character of the home owner and also the character of the property and different socio economic situations/factors of the respondents as well as the adequacy and satisfaction of residents. The next part of this dissertation presented the essential variables to be used in the dissertation.

3.12.1 The Dependent Variables

The dependent variable in this study is identified as 'housing affordability' denoted by (AFFORDABILITY), housing price (PRICE), mean adequacy and mean satisfaction scores

(MAS and MSS). Affordability as defined in different literature is the ability of a person in providing something, which is usually referred to his/her ability in financial terms (Bujang et al, 2010). Housing affordability has been referred to by a number of researchers in many different ways. They also articulated that housing affordability is a circumstance when people have the potential to save certain portion of their income to pay for a house, as well as to pay for non-housing expenses. As it is indicated in Bujang et al (2010) Housing affordability is expressed as the relationship between household income and housing expenditure and is measured as the proportion of family income that goes into the payment for a house. In addition, Affordability in the home- ownership mortgage housing sector is thus defined as the proportion of the household's monthly income that goes into repayment of the mortgage loan. In this dissertation, therefore, the affordability of each sampled household measured using the simple housing cost- to- income ratio as follows:

Housing affordability of household = (household's monthly mortgage repayment/ household's monthly income) x 100%. As it is clearly indicated in ketit (2015) when all the other factors are believed constant, a household that requires a higher proportion of its income on housing is likely to experience challenges in meeting its other basic needs. Housing affordability problems thus arises, when after paying for housing; a household is left with insufficient income to meet its other needs. Therefore, if all other factors are assumed to be constant, a high affordability ratio or proportion of family income being spent on housing will indicate diminished or reduced affordability of the household, while a low affordability ratio denotes better or improved affordability of the household. Thus, in a study of factors affecting housing affordability in Ethiopia particularly in Addis Ababa, the factors that increase the affordability ratio are considered to weaken the affordability of households, while those that decrease the affordability ratio are deemed to increase affordability level of households.

3.12.2 Independent variables

No.	Variables	Variable category
1	Age	{ Social- economic factors}
2	Gender	
3	Marital status	
4	Number of family members with income	
5	Level of education	
6	Household size	
7	Number of dependents (outside the nuclear family)	
8	Job status	
10	Loan amount	{ Loan factors}
11	Loan term	
13	Interest on loan	
14	Down payment	
15	Mode of loan re- payment	
18	Mortgage insurance premiums	
19	Location of property	{Property factors}
22	Size of house	
23	House design	
24	Floor number	
27.	Finishing costs	

Source: researcher compilation, 2019

The independent variables are categorized as socio economic factors including age, marital status, Job status, Number of dependents (outside the nuclear family), Household size, Level of education and Number of family members with income. Loan factor including Mortgage insurance premiums; Mode of loan re- payment; Down payment; Interest on loan; Loan term; Loan amount and also property factor including Finishing costs; Floor number, House design, Location of property and Size of house.

The table stipulated below best describes the identified variables that are relevant for the dissertation that are collected from different literature. And the variables that were discussed above defined based on the definitions in the literature and also based on the character of the study area and also categorized as qualitative and quantitative; and the measurements thatused by the researcher is also identified correctly. Here the researcher expressed Variable Code, Variable Name, and Value of the variable either qualitative or quantitative, Variable Definition or Measurement with its expected value.

Table 3-2: Variable code, name definition and measurement

Variable Code	Variable Name	Variable Definition and Measurement	Value	Expected sign
AFFRD	Housing affordability	Monthly housing repayment/monthly household income * 100%	Quantitative (Ratio)	
AGE	Age of the beneficiary /loanee	Years from date of birth to date	Quantitative	Negative
GENDER	Gender of beneficiary /loanee	Value of 1 if male gender, 2 if female gender	Qualitative	Negative
MART.ST	Marital status of Beneficiary	Value of 1 if single, 2 if married, 3 if divorced divorced/separated/other	Qualitative	Negative
LEV.EDU	Level of education of beneficiary	Value of 1 for Doctorate, 2 for Masters/ first degree and 3 for diploma …. diploma/certificate	Qualitative	Negative
SIZE.OF HH	Size of household	Number of family members within the nuclear family	Quantitative	Negative
NUF WHI	Number of family members with income	Number of family members with income	Quantitative	Negative
NUM.DEP	Number of Dependents	Number of dependents (outside nuclear family)	Quantitative	Negative
JOB.STATUS	Job status/position of beneficiary	Value of 1 for professional/management jobs,2 for technical/clerical jobs	Qualitative	Positive
MO INS	Mortgage insurance Premiums	Amount paid in Ethiopian birr	Quantitative	Negative
LOC.	Location of Property	Value of 1 if in superior location, 2 if in a modestlocation,3 if in inferior location	Qualitative	Negative
HOU SIZ	Size of a house	Square meters	Quantitative	Negative
BUILD PRI	Building PRICE	Ethiopian birr	Quantitative	Negative

HOU DES.	Quality of house Design	Value of 1 if superior design, 2 if modest design, 3 if inferior design	Qualitative	Negative
FINI.CO	Finishing cost	Finishing cost in Ethiopian birr	Quantitative	Negative
DOWN PA	Down payment	Amount of down payment in Ethiopian birr	Quantitative	Negative
DIS CEN	Distance from the center	Distance from the center in Kilo Meter in KM from center	Quantitative	Negative
LOAN AMT	Loan amount	Total loan amount from commercial bank of Ethiopia in Ethiopian birr in Ethiopian birr	Quantitative	Negative
TERM OF P	Loan repayment Period	Loan repayment period in years	Quantitative	Positive
INTEREST	Interest on loan	Monthly interest on loan in Ethiopian birr	Quantitative	Negative
MOD.OF LOAN REP	Mode of loan re-Payment	Value of 1 if Payment at a lumbsum , 2 if installments	Qualitative	Positive

Source: own compilation, 2019

In addition to affordability, the researcher is motivated to check the determinant factors affecting housing (condominium) price in Addis Ababa because it is observed that the price of condominium housing increased from time to time. As it is clearly stated in Case et al (2004) for many people, owner-occupied houses do not only offer an alternative for a place to live in rather housing mostly represent the most important portion of assets in these household's portfolio. In most industrialized countries real estate (housing) is the greatest component of private households' wealth. Similarly in Ethiopia in general and Addis Ababa in particular hosing contains huge portion of affordability. As a consequence, the value of their house has a major impact on households' consumption and savings opportunities in different urban centers. It is also justified that Housing prices are therefore of great interest to real estate developers, banks, policy makers or, in short, the general public as well as to actual and potential home owners (Schulz and Werwatz, 2004).

As it is indicated in Sibel Selim (2008) housing services in urban centers are one of the most expensive household expenditures in the urban centers in different states and it is not especial in Ethiopia in general and Addis Ababa in particular. Changing housing prices have been of concern to both individuals and governments in that they influence socio-economic conditions and have a further impact on national economic conditions. Likewise the price charged to condominium must consider different factors because the housing scheme is developed to minimize the housing problem in the urban areas including in Addis Ababa and also to provide a house for those individuals displaced for the city renewal purpose. In order to make appropriate analysis on the price of housing; the initial variables that entered into the multiple regression procedure include price of houses which is the dependent variable and the identified independent variables.

The researcher identified the factors affecting the price of condominium housing. This study employed hedonic regression analysis (HRM) to examine the impact of structural, neighborhood and locational characteristics on the price of the condominium housing in selected study areas in Addis Ababa. In the table given below the researcher presented the dependent and independent variables with its description and also its measurement.

Table 3-3: Variable code, description and measurement used in hedonic regression

Code	**Variable**	**Variable description and measurement**	**Value**	**Sign**
PRI	price of houses (Birr)	The monetary amount in Ethiopian birr	Quantitative	Dependent variable
HOUSIZ	size of a house	The size of the whole residential apartment measured in m2	Quantitative	Negative
NUMRM	Number of Rooms	Total number of rooms excluding bathrooms and kitchen	Quantitative	Negative
PARKSP	Parking space	Availability of parking space for vehicles (1=available, 2= moderately available, 3=not available)	Qualitative	Negative
STORBLDG	Position of apartment	Residential apartment in stories buildings.	Qualitative	Negative
GOVTE	Government Establishment	The presence of government establishment	Qualitative	Negative
PRIVES	Private Establishment	The presence of private establishment. (1=available, 2= moderately available, 3=not available)	Qualitative	Negative
PSCHOOLS	Schools	The presence of schools (primary, secondary & Tertiary) in the neighborhood. (1=available, 2= moderately available, 3=not available)	Qualitative	Negative
RECREAT	Recreational Site	The presence of recreational sites (parks, zoos, beaches etc.). (1=available, 2= moderately available, 3=not available)	Qualitative	Negative

DISCBD	Central Business District (CBD)	Proximity to the (businesses, markets etc. (Available within 15 minutes' walk(1=available, 2= moderately available, 3=not available)	Qualitative	Negative
ACCROD	access road	The availability of major access road in the neighborhood. (1=available, 2= moderately available, 3=not available)	Qualitative	Negative
ELECTR	Electricity	The presence of electricity installation in the neighborhood. (1=available, 2= moderately available, 3=not available)	Qualitative	Negative
PIBORN	Pipe borne Water	The presence of pipe borne water (or borehole) installation in the neighborhood(1=available, 2= moderately available, 3=not available)	Qualitative	Negative
CRIMER	Crime Rate	Frequent cases of crime reported (1=available, 2= moderately available, 3=not available)	Qualitative	Negative

Source: own compilation, 2019

In order to undertake the dissertation in a required quality and to check the housing (condominium) price, the researcher considered more of primary sources of data that collected from the respondents (condominium residents); because there is no organized secondary housing data in Ethiopia in general and Addis Ababa city administration in particular.

To examine the adequacy and satisfaction of the respondents on the residential environment the researcher used mean adequacy score (MAS) and mean satisfaction score (MSS) respectively by collecting data related to 37 attributes of housing adequacy. The researcher employed three basic techniques of analysis to exam the adequacy and satisfaction of respondents. These techniques are descriptive statistics, factor analysis (Dimension reduction) using principal axis factoring method and regression analysis).

3.12.3 Ethical Consideration

In undertaking this research the researcher must respect the ethical standards required from the research and the researcher. Ethical concerns in social science research are both important and ambiguous (Babbie, 2011) that emerge at all stages of undertaking a research (Creswel, 2009). As it is justifiably noted by Hese-Biber (2010), conducting ethical research should be a main concern of all mixed methods researchers. To have the output of this type of research acceptable in both academia and industry, it is necessary to maintain different ethical standards expected from the researcher. While undertaking a research, an investigator has an obligation to respect the rights, needs, value and desires of the respondents and participating organizations.

Therefore, in examining the adequacy and affordability of condominium housing the researcher was followed appropriate steps that taken in to considerations by the researcher to follow ethical guidelines in order to maintain participants' privacy, confidentiality, dignity, rights, and secrecy are addressed below:

- The right of each and every member of the target population to participate willingly, to withdraw from answering any question they do not intend to answer, to withdraw at any time so that they were not being forced into participating (in providing responses).
- When requesting to provide responses for the purpose of the study, the researcher assuring them that the result of this dissertation will be purely for academic purpose and that their responses was not used for any other issue(s) to their disadvantage of the respondents; Likewise, as it is clearly mentioned by Mertens (2010) confidentiality as "a means to maintain the privacy of research participants by not reporting and handling the data they provide with their personal details".
- In undertaking this research the researcher was respect the confidentiality of the respondents (the participants of the study) by using the information and the result of the study only for academic purpose.
- Additionally, as it is indicated in Mertens (2010) every researcher must need to show honesty and integrity in their own behavior and attempt to ensure the same in the whole research process. Hence, the investigator of this dissertation definitely believes that following ethical guidelines served as standards about the honesty and dependability and also credibility of the data collected and undertaking data analysis in the dissertation. and
- Also, the researcher was protecting the identity and dignity of respondents; names of respondents were not totally connected with the responses. And the researcher confirms that the secrecy of the response is totally protected from any other purposes.

CHAPTER FOUR

4 CHARACTERISTICS OF CONDOMINIUM HOUSING AND CHALLENGES OF IMPLEMENTING THE PROGRAMME IN ADDIS ABABA CITY ADMINISTRATION

4.1 Introduction

In this part of the dissertation the researcher presents the detail analysis related to the characteristics of condominium housing in Addis Ababa city administration using descriptive statistics to analyze quantitative data and the qualitative information (data) analyzed using narrative analysis. Additionally, the researcher presented the major challenges faced by the city administration in supplying adequate and affordable housing. The researcher discussed on the critical agenda of the study by considering the specific objective as a thematic area. The first part of the analysis in the dissertation contains the descriptive analysis by using percentage, frequency and the mean score of the attributes; the second type of analysis followed by the researcher dimension reduction using principal axis factoring method and the third methods of analysis using the narrative analysis to analyze the challenges faced by the city administration. The data presented using table, graph and charts. The researcher used descriptive statistics to analyze the collected data. The researcher discussed and clearly presented about the nature of condominium housing in the city administration of Addis Ababa. It is known that the idea of condominium is very important to provide adequate and affordable housing for the urban poor in Ethiopia in general and Addis Ababa in particular. In this part of the dissertation the researcher assessed challenges of implementing condominium development program in Ethiopia particular reference in Addis Ababa city administration. In order to address the desired goal the researcher used qualitative data that collected using secondary data, interview and open ended question as well as document analysis. The collected data analyzed using qualitative methods of data analysis specifically narrative data analysis. The main focus of this chapter is answering the basic characteristics of condominium housing and also the basic challenges that the city administration is encountering to implement the project on time and also attaining the principal objectives stated in the policy document. Because this study in the previous chapters and different researchers justified that the program was not achieving the predetermined target stated in the policy document. Therefore, the intention of this research is to identify and discuss about the basic challenges of implementing condominium project in the city administration of Addis Ababa.

4.2 Questionnaire Distributed and Collected

Firstly it is important to discuss about the questionnaires that was distributed and collected by the researcher and used for analysis. As Table 4.1 shows, the questionnaires were distributed to 434 housing beneficiaries in different 11(eleven rounds). Among these 422 (97.2%) were kind enough to fill the questionnaires properly and return on time. The rest 12 (2.8%) were failed to complete and return the questionnaires and also some are incomplete to consider in the analysis because it is found incomplete. All the returned questionnaires that were returned and found completed were considered for the analysis.

Table 4-1: Total Number of questionnaires distributed, returned and unreturned

Questionnaires	Number	Percentage
Returned	422	97.2
Unreturned	12	2.8
Total distributed	434	100

Source: survey result, 2019

The table given above justified that majority of the respondents were returning the complete questionnaires and the researcher used to make the detail analysis in order to achieve the stated objective. But only 2.8% of the distributed questionnaire found that incomplete and not relevant for analysis.

4.3 Demographic characteristics of the respondents

In the table given below the researcher presents the demographic characteristics of the respondents like house hold head, educational level, and status of living and marital status.

Table 4-2: Demographic characteristics of the respondents

		Frequency	Percentage
Household head	Male	281	66.6
	Female	141	33.4
	Total	422	100
Educational level	Illiterate	43	10.2
	write and read	130	30.8
	primary and secondary	156	35.6
	TVET/diploma	46	10.9
	Degree	47	12.5
	Total	422	100.0
status of living	Rented	65	15.4
	Purchased	84	19.9
	Owned	273	64.7
	Total	422	100.0
Marital status	Married	338	80.1
	Single	57	13.5
	Windowed	27	6.4
	Total	422	100.0

Source: survey result, 2019

The table given above reveals that the demographic information of the respondents considered in the study. When we see the first demographic variable that is gender division of the respondents, majority of the respondents were males, i.e. 66.6% representing a bigger part of the sample group. However, 33.6% percent of the respondents were females.

When we see the distribution of the second demographic variable which is the level of education most of the respondents have an educational level above primary and secondary education. When we see the specific qualification level 12.5% of the respondents have a qualification of BA degree and above, 10.9% have a TVET/diploma qualification, 35.6% of the respondents have educational qualification of primary and secondary education; 30.8% of the respondents have skill to write and read, and the rest of the respondents 10.2% are illiterate.

Other characteristics of the respondents that was presented above is the marital status of the respondents and it shows us 338 (80.1%) married, 57 (13.5%) single and the remaining 6.4% are divorced. This shows majority of the respondents are married.

4.4 Perception residents on the condominium housing environment

The perception of residents about the living environment is one of the important dimensions to be considered in the analysis of a certain settlement, as it reflects the inhabitants' reactions to the living space and any other dimension of the condominium housing is important to check the suitability of the living environment. Although the perception is subjective and may not necessarily reflect the objective reality of the residents as housing is dependent on age, marital status, culture and other factors, it is considered to be essential to understand the respondents' feeling about their residential environment. Accordingly they were asked to response whether or not the housing is related to their preference or not. And they replied as follows as it is indicated below in the table and the description.

Table 4-3: Quality of housing related to your preference

Quality of housing good related to your preference					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	142	33.6	33.6	33.6
	No	280	66.4	66.4	100.0
	Total	422	100.0	100.0	

Source: survey result, 2019

As it is clearly indicated in the table above majority of the respondents 280 (66.4%) replied that the house is not related to their preference and the remaining 142(3.6%) agreed that the house is related to their preference. Respondents agreed that the housing is against their preference because it is distant from their working area, distant from central market, distant from children school and also distant from religious institutions especially the availability of (masjids) ; additionally, most of the respondents also agreed that the housing is poorly constructed with a very poor design. They also replied that the existed social interaction around the neighborhood area is too poor and fail to address social and economic problems encountered by the poor people together compared with the previous residential environment.

However, according to the data gathered from interview the condominium houses is not fair for low income earners due to high down payment, shortage of the installment period, high cost of maintenance, high interest rate as well as un expectedly huge amount of finishing costs and the grace period given (in which period interest rate also calculated)-this found to be unfair as per the perception of the residents.

But, respondents who replied the house is related to their preference mentioned different reasons such as the quality of the house compared with the previous residential areas and they stated that condominium housing is with its own toilet, kitchen and it is also not congested. Additionally they stated that in the previous residential environment most of the houses were made of mud, old and also with poor quality.

4.5 The process of getting the house from government

The process of getting the house from government is the very important factor in supplying public urban housing in the city administration of Addis Ababa and also in different urban centers. The city administration has arranging the office to distribute the house and also to maintain just distribution of condominium housing. The respondents asked to provide the level of difficulty in transferring the house to the beneficiary in Addis Ababa city administration.

Table 4-4: Evaluation of the process of getting the house from Government

Evaluation of the process of getting the house from Government					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	very difficult	86	20.4	20.4	20.4
	Difficult	155	36.7	36.7	57.1
	Medium	126	29.9	29.9	87.0
	Easy	27	6.4	6.4	93.4
	very easy	28	6.6	6.6	100.0
	Total	422	100.0	100.0	

Source: survey result, 2019

Regarding the difficulty and transfer of housing majority of the respondents 57% replied that the system of transferring the house to the beneficiary is difficult and only 13% of the respondents agreed that the process of transferring is easy and the remaining 30% said that the housing transfer is relatively medium. The difficult and autocratic procedures followed by the office to transfers housing to the beneficiary increase the cost of housing and also it tests affordability adversely.

4.6 The practice of paying housing expenditure on time

It is obviously known that the beneficiaries are entering in to a loan agreement to pay the housing payment after paying the down payment at the time of getting home and also regular (installment) mortgage payments on a monthly basis with commercial bank of Ethiopia. And it is mandatory to pay the monthly mortgage to commercial bank of Ethiopia on a monthly basis. The monthly installments expected from the residents of condominium in the city administration differing with regard to their size and number of rooms. From the data, it is indicated that when the size and number of room increase the price of the house also increase. Apparently the monthly installments also increase. Respondents were asked whether they are paying their housing expenditure on time or not and also about the reason of not paying their obligation on time? Their response is given below in the table as follows.

Table 4-5: The practice of paying housing expenditure on time

The practice of paying housing expenditure on time					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	328	77.7	77.7	77.7
	No	94	22.3	22.3	100.0
	Total	422	100.0	100.0	

Source: survey result, 2019

The table indicated above shows that more than 328 (77.7%) of the respondents are paying their obligation to commercial bank on time. But the remaining 94 (23.3%) of the respondents fail to fulfill their obligation on a regular basis. Those beneficiaries fulfilling their requirement replied and believe that it is the obligation of the respondents and also agreed that there is no room of tolerance by the commercial bank of Ethiopia about the periodic payments (monthly mortgage payments). Additionally, they critically argued that there is a warning letter that was posted by commercial bank of Ethiopia to remind about their default of the residents to fulfill monthly obligation and this will affect the moral value of the residents. That is why they are paying their obligation on time. They stated that even if they are paying the monthly mortgage payments on time; they specified that it has burden on other non-housing expenditure of the residents in the city administration.

Respondent fail to fulfill their obligations on time contended that they fail to pay on time because of their financing problem. The financing problem is due to unexpected increase in none-housing expenditure; huge increment of living costs such as food items. Some of the respondents replied that the monthly obligation is satisfied by collecting money from other family members and it is mandatory to wait until the money is collected. They confirmed that if they fail to get money from expected family members and relatives; they fail to pay because of the beneficiary's lack of regular income. Compared to our monthly income and other non-housing expenses like food, clothes and social activities, it is difficult to pay the monthly installment regularly. *They also stated that the existing inflation in the economy affects their regular housing payment capacity of the residents.*

4.7 Fairness of Interest Payment

The beneficiaries are obliged to pay periodical interest rate for the amount of loan granted from commercial bank of Ethiopia. It is known that when the interest rate is rising, the cost of borrowing is also rising and the potential buyers are getting discouraged. In the table given below the researcher raised a question about fairness of periodic interest payments expected from the residents.

Table 4-6: Fairness of Interest Payment

Fairness of Interest Payment				
	Frequency	Percent	Valid percent	Cumulative percent
Yes	120	28.4	28.4	28.4
No	302	71.6	71.6	100

Source: survey result, 2019

Regarding the interest rate of monthly mortgage payment it is clearly indicated in the table above majority of the respondents 302(71.6%) replied that the interest rate is not fair compared to their paying capacity and the remaining 120(28.4%) noted that the interest rate is fair. According to the interview and also data collected from open ended questions, they stated that not only the interest rate even the total prices of the condominium houses were not affordable compared with the income generating capacity of the lower income earners. The poor's do not have the financial capacity to pay the required down-payment as well as the down payments. The down payment cost increase year to year. They stated that even if they get money from family and relatives to pay the down payment, but it is difficult to pay the monthly installment (mortgage payments) regularly. Most of the time, low income earners can't live in their houses by paying regularly installments. They are forced to leave their house either by selling or renting for others. These and other factors forced lower income dwellers to be unable to afford the expected payments.

However, paying the down payment for low and middle income household is difficult because these people are low income earners and they fail to pay the whole down payment as well as the installment on time. Central to the achievement of adequate provision and distribution of housing is the issue of managing the relationship between the price of housing and the capacity of the household to pay for their housing (Mal pass and Murie, 1994). The policy implications are needed to arrange different methods of payment modality such as make reasonable down payment and periodic installments that is affordable by the residents to cover the total housing costs expected from the beneficiaries.

4.8 Fairness of down payment

It is noted that the beneficiary are expected to pay certain percentage of the mortgage as a down payment and the remaining amount of payments expected from them are paid in installment basis. Respondents asked whether down payment required from the residents are fair or not? And the responses are given below in the table.

Table 4-7: Fairness of down payment

Fairness of down payment					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	141	33.4	33.4	33.4
	No	281	66.6	66.6	100.0
	Total	422	100.0	100.0	

Source: survey result, 2019

The data presented above clearly shows that majority of the respondents 281(66.6%) said that the down payment is not fair compared with the paying capacity of the respondents and the remaining 141(33.4%) of them said that the down payment is fair. The respondents also critically argued that the periodic payment of the housing expenditure affects the routine life of the residents. The costs that are associated with condominium housing are related to their ownership status. Ownership of a condominium consists of two parts: owning one's own unit and owning a percentage share of the common areas (communal) that can be used by the residents in common for different social events. It is specified that the costs expected from the residents are not only for the down payment and also monthly mortgage payments. Rather the cost of living in a condominium has different components: the individual cost of purchasing or paying for a mortgage loan for the unit and also finishing costs because all of the housing estate distributed to the beneficiary is not finished completely. That costs expected from the condominium beneficiaries in the city administration cover the costs of maintaining common areas; insurance for the building as a whole; and a recommended replacement reserve to build up funds to pay for future replacement of major items (roof, windows, etc.). Condominiums do not offer an inherent cost saving feature, but rather provide a means for a group of owners to share common costs that are expected from the residents to develop and improve the residential environment. It is critical that residents of a condominium understand that they are obligated to pay their share of the common expenses on an ongoing basis for commercial bank of Ethiopia and also for the condominium cooperatives. But, the amount of the expected ongoing payment vary from period to period depending on the existence of different developmental issues such as fence, salary for guards, maintenance costs and other monthly expected expenditures.

4.9 Fairness of penalty charged

If the respondents fail to pay the required monthly installment payment on time, there is interest penalty charged by the bank for the default made by the respondents. In the table given below the respondents are asked the fairness of the penalty charged.

Table 4-8: Fairness of penalty charged

Fairness of penalty charged					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	131	31.0	31.0	31.0
	No	291	69.0	69.0	100.0
	Total	422	100.0	100.0	

Source: survey result, 2019

As it is clearly depicted in the tables above majority of the respondents believe that the penalty charged by commercial bank of Ethiopia in case of default by the borrower is not fair compared with the paying capacity of the residents. It shows that majority of the respondents 69% of them believe that the penalty charged is not fair and the remaining 31% agreed that the penalty charged is fair. Respondents also agreed that the expected cost from the housing bureau is not comparable with the respondents earning power and it affects the paying capacity of the residents and the routine life of the residents on another side by increasing non-housing expenditure. That is why residents are paying penalty even if they agreed that payment of interest is a cost and it adversely affects housing affordability.

4.10 Perception on the fairness of housing distribution

The process of owing condominium houses was difficult from registration up to transferring to the beneficiary; there was a lot of waiting line in the registration and after declaration of winning. Government must ensure that they must distribute the house in appropriate manner. The respondents were asked the fairness of the condominium housing distribution to the beneficiary in the residents in the city administration (both for those registered in the city administration and also relocated for city renewal).

Table 4-9: Fairness of housing distribution

Fairness of housing distribution					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	191	45.3	45.3	45.3
	No	231	54.7	54.7	100.0
	Total	422	100.0	100.0	

Source: survey result, 2019

As it is clearly indicated in the table given above majority of the respondents 54% of them expected and agreed that the distribution of the house to the beneficiary is not fair. And the remaining 191 (45.3%) of the respondents agreed that the distribution of housing to the beneficiary is fair. Most of the respondents agreed that the housing distribution is unfair and residents perceive that the distribution of condominium is unfair. Data from open ended questions and interview indicated that there is critically biasedness on the distribution and also there was large number of brokers who are providing unfair information that leads the people to make irrational decisions such as transferring this chance to another person at a lower price.

4.11 Reasonableness of the Grace Period

The bank is arranging a grace period to the beneficiary to minimize the burden on the beneficiary after payment of the down payment to start periodical mortgage payments on a regular basis. Because they are paying down payment and it is known that they are starting the installment payments immediately; it affects the resident’s life that is why a grace period of one year is given to the beneficiary to start monthly installments periodically.

Table 4-10: Reasonableness of the Grace Period

Reasonableness of the Grace Period					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	168	39.8	39.8	39.8
	NO	254	60.2	60.2	100.0
	Total	422	100.0	100.0	

Source: survey result, 2019

As shown in the table above regarding the grace period given to start the installment payments majority of the respondents around 254 (60%) expect that the grace period is not enough and also it is not as such reasonable. respondents raised two principal reasons about the grace period: the first one is because of lack of time to cover the amount of money that the beneficiaries are taking to pay down payment. This is because majority of the owners are paying their down payments by borrowing from different sources such as borrowing from families and relatives. And the second one is even if the grace period is appropriate to have a repayment capacity; the interest rate is computed within the grace period. This makes most of the beneficiaries dissatisfied. Because the interest rate that are considered at the time of grace period increase total housing costs and affects affordability adversely.

The beneficiaries of condominium housing make a decision to sell and/or rent the house because of lack of down payment and also monthly mortgage paying capacity (poor affordable capacity). The researcher checked the status of living in the condominium to check whether they are renting, purchased or owned. The critical reason of raising this issue is to examine and check the residents decision either they are living on their house as per the agreement; renting it or transferring through selling to another users.

4.12 Status of Living in the Residential Environment

The cost of housing affects the ownership status of the residents. The table given below shows the status of living in the condominium sites distributed in eleven rounds. In this part the researcher was interested to check the decision of the resident's whether they make a decision to sell, rent or live by them.

Table 4-11: *Status of Living in the Residential Environment*

Status of Living in the Residential Environment					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rented	65	15.4	15.4	15.4
	Purchased	84	19.9	19.9	35.3
	owned	273	64.5	64.7	100.0
	Total	422	99.8	100.0	

Source: survey result, 2019

As it is indicated in the table given above even if majority of the respondents 273 (64.5%) of the respondents are living in their own houses; the remaining 84(19.9%) and 65(15.4%) of the respondents make a decision to rent and sold to another third party and purchased by the users (third party) of condominium. Respondents who sold and rent the housing to the third party raised different reasons for their decision; among the principal reasons raised by the respondents the following are the major reasons stated in the interview and open ended questions. Among the different reasons long distance of the house from the center, poor standard construction, inadequate housing space, unexpected huge finishing cost, unreasonable time for down payment , poor access for housing finance to pay down payments as well as monthly mortgage payments; high interest rate, high level of intervention of broker in housing market, Structural inconvenience for low income group to do home-based business, absence of elevators for children, disabled, elderly and pregnant for those located in the upper floor such as 4^{th} and 7^{th} floor.

And also respondents make a decision to rent and sell to any other third party are because of the following reasons: Lack of habit and trends of the residents on living in condominium housing, noise in and around the staircase and also on the floor, noise in bar and entertaining shop (grocery and game zone) in the ground floor, feeling of insecurity and fear of crime because of bars and drug house, leakage from sanitary appliance and roof, inaccessibility of urban periphery site, poor water pressure in upper floor and poor sanitation as well as electric power interruption in the residential estate, absence of children playground for the children, Absence of recreation center, and poor social interaction. Additionally, most of the respondents replied that they are forced to rent because of lack of affordability to pay down payment and monthly mortgage payments from the side of the owners – they agreed that the expected monthly requirement is by far larger than that of their income. That is why they make a decision to rent and sell their house; and the owner makes a decision to rent another cheap (low cost housing) at the peripheral areas.

The above discussion shows that even if the housing program arranged to solve the critical urban problem in the city administration of Addis Ababa i.e. housing; but people forced to rent and sell because of internal and external factors. As per the data from interview the people make a decision to sell using informal agreements and this agreement approved by the government body. The basis of this informal agreement was loan which is not performed at the time but the buyer act as a lender and the seller act as a borrower and the house can be used as a collateral (informally). Additionally the participant justified that this agreement is the basis of social conflict in Addis Ababa city administration because the seller make a default at the time of transferring the house to the buyer after five year.

For example *if the two parties agreed that the price of the house at the time of sale is 200,000; the seller receives the stated amount and the loan agreement was performed with the amount greater than the actual loan. It may be 800,000 or above it depends on the involved parties and the informal brokers who engage in this process. Some years letter the price increased compared to the actual price given to the seller and the seller ignores the previous agreement and said that you can take your money and leave my house.(By ignoring the loan agreement). The existence of this informal practice is the cause for social conflict. Respondents suggest that government must take critical measure to control this practice or the existed practice must be formal (the system must allow to sell the house prior to fifth year*

4.12.1 Challenges related to condominium housing program

4.12.2 Introduction

As it is clearly discussed in different literature housing is so important asset that is demanded by the people both in rural and urban centers that impacts on the social, physical and mental wellbeing of individuals irrespective of socio-economic status, color both in developed and developing countries including in Ethiopia. It represents the most basic human needs and has no doubt impacted on the health, welfare and productivity of the people. In spite of the importance of housing to mankind both in rural and urban centers, there is however a universal shortage of needed dwelling units especially in developing countries including in Ethiopia, where population and urbanization are rapidly increasing and the gap between housing supply and housing demand is very wide. As it was clearly discussed in the previous chapter there are different parties/ actors participating in the provision of housing for different section of the society. The concern of this part in this chapter is identifying and discussing on challenges of managing the condominium development programme in Ethiopia: particular reference in Addis Ababa

In the developed and developing countries including in Ethiopia urban centers in general and Addis Ababa in particular; there are different social and economic infrastructure demanded by the people. Among different challenges a common challenge faced by countries in the developing world is the provision of public goods such as housing and safe water and sanitation to rapidly expanding and poor populations. In urban centers, this is a particularly serious problem when the process of prevailing is affected by unplanned population growth, rural to urban migration and the displacement of the urban poor for different reasons while pursuing market-oriented development strategies without proper safety nets for the poor for different reasons such as city renewal. Rapid urban growth in this context generally brings with it a number of problems such as unemployment, inadequate health care, deteriorating and poor infrastructure in the housing sector, environmental degradation, and an inability of urban governments responsible for providing such public goods in a predictable, efficient and effective manner (UNHABITAT, 2010).

The government of Ethiopia arranged the integrated housing program to solve urban challenges especially housing in different urban centers including in Addis Ababa city administration. The program implemented by using the construction of massive condominium housing in the city administration. As it is clearly indicated in the UNHABITAT (2010) the first two concern of the integrated housing development program beneficiary and programme finance: the affordability of units for low-income households and the unsustainable financing of the programme as a whole. The other three challenges are beneficiary consultation management and project specific issues (location, built environment design, and construction quality), and the lack of post occupancy management, monitoring and evaluation. It is clearly discussed in UNHABITAT (2010) if it is left unaddressed; these unexpected challenges threatens the long-term success of the programme and its ability to achieve its aims of slum reduction and prevention, economic growth, and improvement in the living conditions of the low-income population in the city administration of Addis Ababa.

Nigist (2015) also justified that the IHDP launched in 2005 has a target to build 50,000 condominium units per year in Addis Ababa. In addition it is clearly stated that in 2013 more than 900,000 (approximately one million) Addis Ababa (A.A) residents registered for the program. But as clearly indicated in the table 1.1 the total number of housing unit constructed by government in the city administration of Addis Ababa and distributed to the users are 173,662 condominium units through 11(eleven) rounds. If the construction were undertaken using their prospective plan the condominium units given to different users may be 500,000 condominium units. This shows that the program was not implemented as per the plan of government and also it is important to assess the challenges of implementing condominium housing in the city administration. Identifying the basic challenges of the program is very important for public housing projects because it will be taken in to consideration in designing any housing projects. The delay of the housing project in the city administration increases the price of rent existed in the city and aggravates the existed housing problem in the city.

The appropriate and the planned implementation of the program have a critical contribution in addressing the housing problem in the city administration. It is clearly indicated that the housing unit that distributed with 11 rounds was 173, 662 and 9074 housing units were not distributed to different beneficiaries because of different reasons. The issue stated above clearly justified that the program were not implemented as per the schedule and the predetermined plan of government compared with the plan stated by Nigist (2015), it is not implemented according to the plan of government.

The letdown of the program is because of different reasons that are related with the nature of the project itself, project implementation problem, project financing program, and increase of construction cost, institutional challenges and also legal and regulatory problems. Additionally it is known that the appropriate follow up and implementation process has its own contribution for the successful implementation of the housing program.

The delay in construction also causes delay in transferring of houses to the beneficiaries and the extension of the housing problem. From the data collected using qualitative approaches using open ended questions, interview and document analysis challenges encountering the successful implementation of the program are categorized in to different categories i.e. related to financing, project delay, construction material, corruption, and also any other program related to management and governance of the program in the city administration of Addis Ababa. In the following section the researcher discussed the principal challenges related to the condominium housing program in Addis Ababa city administration.

4.12.2.1 Problems Related to Financing of condominium housing

Among the different and significant challenges that the program was facing are the financing related challenges. As the principal beneficiary of the program was the poor people of the city administration; the financing problem was not merely related to the government only but also related to the beneficiaries. According to Yeweynshet (2007), the condominium housing program has arranged different affordable payment modalities and tried to enable inhabitants to become home owners. Affordability is the critical issue affecting the urban poor in Ethiopia particularly in Addis Ababa city administration. Targeted subsidy that consists of infrastructure and administration covering costs, lowering the interest ratio to the poorest, long term payment period and smaller first installments are among the modalities placed to make sure that all groups of the society are considered in the program (ibid). However, due to high construction costs and living expenses, housing finance is difficult not only for the poor, but also for middle and high-income groups in the city administration.

When we are considering the financing issue from the government side, it is observed that lack of institution providing financing to the housing program is very limited in Ethiopia. The possibility of commercial banks to provide mortgage loan is very low in Ethiopia especially for the poor people. The condominium program was financed by using commercial bank of Ethiopia. The financing challenges are related to the implementation process of the condominium housing program. In order to continue the programme and meet the ambitious completion targets, secure housing finance is necessary in Ethiopia in general and Addis Ababa in particular. Commencing projects requires considerable funding and capital outlay from city government finances, which are apparently already anxious. As it is clearly justified in UNHABITAT (2012) that Programme financing further tested in the coming years if residents cannot continue to meet mortgage repayments and/or the commercial units are unsuccessful in the city administration. Tsion (2016) also clearly justified that the total prices of the condominium houses were not comparable to the income capacity of the lower income earners. The poor's do not have the financial capacity to pay the required down-payment as well as they are too much challenged by the monthly mortgage payments. The down payment cost increase year after year from round to round. Most of the poor beneficiaries of condominium housing were found different financing from families and relatives. If they fail to get money from family and relatives to pay the down payment, it is very difficult for the poor residents to get the house.

According to the officer of Commercial Bank of Ethiopia even if the bank is arranging loan to the beneficiary, there are critical problem that are observed in loan collection process of the bank because most of the home owners fail to repay the loan obligation at the stipulated time. It is justified by the officer that the problem was associated with the objective and the implementation of the housing program. There was inconsistence between the program objective and the level of income of the beneficiary.

The housing development program target area was to address the lower income groups of the residents in Addis Ababa city administration. But on the ground, the implementation of the program was not similar to the expected one. For instance, the prices of the houses are very high compared to the urban poor purchasing power. At this time there are many people who are in problem to pay the monthly installment of their housing cost. That is why the beneficiaries were forced to sell and/or rent to another third party and living in poor standard houses

Because of the arranged and determined financing program especially expected payments from the residents such as down payment and monthly mortgage payments most of the time, low income earners can't live in their houses with regularly paying the installments because it highly affects the living condition of the residents by hindering non-housing expenditure. That is why the poor residents are forced to leave their house by renting and/or selling for others. These and other factors forced lower income dwellers to be powerless to afford the payment as well as to make them beneficiary from the programs. According to the discussion made with the individuals who sell and rent for others their houses to the other third party: even if there are different contributing factors pushing them to sell and to rent for others they justified that problem of repayment is the principal one.

The repayment capacities of the residents are very critical problem as it is justified by the residents because there is rapid increase in price of different non-housing expenditure in the city administration. This price increase affects any other aspects of their life because huge portion of their income are paid for housing. The monthly installments of the houses are highly dependent on size and number of rooms. When the size and number of room increase, the price of condominium is also increase. The down payment and monthly installments also increase. Due to this it compares to our monthly income and the existed increased non-housing price in the market like food, clothes and social activities, it is difficult to pay the monthly installment regularly. For families with large size even if they got two or three bedrooms; they are forced to sell because the installment payment is directly related to the size of the condominium housing. That is why they are forced to sell and change houses with small size i.e. one bed room or studio and prefer to live *without their preference. Means that the alternative housing may not be adequate for them as well as addressing their requirements.*

As per the discussion given above; the program faced financing problem from different dimensions one from the side of government to implement housing program and the other one is from the side of the beneficiary to fulfill different expected payments such as down payment, interest rate and mortgage installments.

4.12.2.2 Problems Related to Construction materials

Another challenge that hinders the successful implementation of the program is the increase of construction cost from period to period. The letdown of the program to implement on time increases construction cost of the program.

The other problem/challenge in IHDP is delay in both construction process and transferring of houses to the beneficiaries. One of the requirements in constructing low cost houses is building them in short time to minimize construction costs and also wastage of construction material. As time passes inflation affects cost of materials and labor related to implementation of the housing project. Construction delays are a major issue facing the integrated housing program because of poor supply of construction. UN Habitat (2010) stated that the productivity of the construction phase has not been as efficient as planned during the program's implementation thus far due to lack of financing as stated above, gross material shortages, lack of adequate infrastructure, and poor construction management are the reasons for the delay of construction of condominium housing.

If the construction materials are not purchased on time, there is critical change between the proposed price as well as the actual one. Among different reasons for the periodical rise of housing price one is the delay of the project that is directly associated with the change in price of construction materials. Since the government started transferring condominium housing units, for studio, one bed room, two bed room and three bed room types of houses, the price is going up. The increase of price may because of different factors. These factors were identified using hedonic pricing regression model in the separate section. It is indicated that construction materials were among the different principal challenges of implementing the housing projects. It is related to quality of construction material, inappropriate utilization of construction material (wastage) and also price increase of construction materials (inflation).

The critical problem related to construction material is the quality as well as poor management of construction materials and also the associated costs of construction material. Because there were a bulk purchase made by the city administration housing bureau. It is observed that there is huge wastage of construction materials in the condominium sites because of poor management of construction materials. The reason for the existence of extravagant resource utilization is the problem stated above i.e. delay in construction of the condominium project as well as corrupted practice observed in the housing project. The problems stated above creates affordability problem because of the delay and the increases of material costs; and also there is critical adequacy problem because of the utilization of poorly standard construction materials. Ultimately there is critical dissatisfaction of the residents on the residential environment.

4.12.2.3 Problems Related to Poor workmanship, and experience

Another critical problem observed in the implementation of the condominium housing program was poor workmanship and experience of contractors and sub-contractors. The observed problem is the critical hindrance to deliver the housing on time and timing issue is the causes for other housing related problems principally increase of price. As it is clearly stated in wosen (2008) in general, most contractors working in the construction of condominium houses are beginners with low levels of construction skills and capacity to discharge their duties. Most small contractors join the condominium houses to get work experiences and use the project as a stepping stone for other public and private bigger works. Similarly, with the objective of creating job opportunities to the urban poor, SMEs are assigned without proper qualification assessments and proper on-the-job training. The cumulative effects of these are manifested by poor workmanship on the buildings. The problem of substandard construction of condominium housing emanates from the urgency of the government to satisfy the pressing citizen's demand for houses in the city administration.

By the expectation of unethical benefits and returns and also exploiting the stated opportunities, irresponsible and unprofessional contractors and consultants continue producing poor quality houses. Therefore, poor workmanship is a problem in all the condominium houses, which causes wastage of both material and financial resources. The contractors must be selected by considering different factors such as experience and cost factors. As per the interview with the housing project contract administrator and control directorate; it is observed that the appointment of personnel in different department is not based on the merit based and also stated that there is political appointment observed at a specific professional positions.

The problem of implementing the program on the predetermined scheduled time is critical challenge in the housing project in Addis Ababa city administration. If the program is not given to the right person by considering the cost and time factor; it may create not only delay in the housing sector but it also affects price of the houses of the urban poor due to increased time/inflation/and material usage and costs. Therefore, appropriate selection of contractors must be performed by the concerned body to provide the house on the budgeted date (schedule). If it is not implemented within the stated quality and time; there is a possibility of increasing construction cost and it is critically associated with the increase of housing price ultimately it affects affordability of the residents. Not only affordability poor workmanship of the contractors and also construction professionals with poor experience affects the adequacy as well as the satisfaction of the residents.

4.12.2.4 Problems Related to Corruption

One of the challenges in the implementation process of condominium housing in the city administration is corruption in administering the condominium housing projects. The corruption in the housing program has remained as a out of sight, but challenging component of the condominium housing system ever since the inception of the program to the distribution of the house to the beneficiary especially for the poor residents of Addis Ababa city administration. Employees of Addis Ababa housing construction project office (AAHCPO) who responded in the interview mentioned that corruption is wide spread in the Program due limitations or absence of proper control or organized financial management system and monitoring mechanism.

Condominium housing program requires a huge finance and involvement of many organizations and individuals (stake holders as well as the focus is addressing very sensitive social problem i.e. housing. Hence, managing such huge investment by itself is a challenge for the government. Corruption exhibits itself in different forms.

It is well-known that appropriate management of money in the public sector project is very important for the effective implementation of public projects. The stated poor management of public money assigned for the implementation of housing the poor is not appropriate and also hinders the proper and objective implementation of the program. It might be due to poor monitoring and supervision undertaken by the concerned bodies. Therefore, for the better achievement of the target the government must be taking the initiative to control unethical practices observed in the construction of condominium housing.

4.12.2.5 Problems related to project implementation

Among the critical challenges of IHDP is the problem related to project implementation. This problem is related to contractors, sub-contractors as well as the management problems of the housing agency. Regarding to the implementation; there are many problems concerning to the government such as problems in selection of competent consultants and reliable contractors, absence of good methods and systems in purchasing and finance and supply management, slow speed in decision making, poor in planning and leading and controlling the project activities, lack of leadership skills of project manager, poor coordination and communication with contractors and consultants and suppliers

It is also noted that consultants of the project was another participant of **IHDP**. With respect to the consultant the major problems indicated that there is lack of knowledge and experience in the organization's consultant, poor management and difficulty in controlling contractors, poor coordination and communication by the consultant engineer with the project stakeholders, slow response regarding to testing and inspection and progress payment to contractors as per the agreed time stated on the contract, lack of commitment to ensure construction work according to specification and design, there is benefit relationship with contractors by affecting the project performance and quality, underestimation of deadlines, complexities of the project works as it is new by its nature in Ethiopia.

Information collected from interview justified that another problem encountered by the city administration in supplying condominium housing problem is related to contractors. The contractors key constraints described are lack of experience and technical profession in the contractor's organization, poor planning and scheduling and handling of the project, financial difficulties and delays in payments, insufficient coordination and communication with project stakeholders, lack of leadership quality, low commitment by team leaders and experts to achieve the proposed cost and time and quality of projects, wastage of resources around the project sites, construction mistakes and defective works during the project process, and the worst thing that complained by the respondents are “some contractors do not have commitment and love to their country, only their mind set is to get money from the government”.

In any of the situation proposed projects must be implemented as per the designed quality as well as the determined time period (schedule). If so the housing project expected to be adequate, affordable as well as it satisfies the residents. Problems related to implementation of housing project are because of different factors that are related to monitoring and supervision in the process of implementing the project compared to the sensitivity of the project. If the project is not implemented as per the schedules designed, there is a different housing related problem that are affecting housing adequacy, affordability as well as satisfaction of residents on the residential environment adversely.

4.13 Summary of the Chapter

In this chapter the researcher presented the basic characteristics of condominium housing in the city administration and also the basic challenges faced by the city administration in implementing condominium housing project in the city administration. Accordingly it is stated that majority of the respondents 66.4% felt that the housing is not related to their preference; even if 29.9% of the respondents believe that the process of getting the house is medium but, majority of the respondents 57.1% felt that the process is difficult. Regarding payment of housing expenditure on time majority of the responds replied that they are paying the expenditure by considering the restrictions and penalty expected from government majority of the respondents believe that the down payment, interest rate, penalty as well as the grace period is not fair.

Considering the social welfare requirement expected by the poor people in different urban centers in Ethiopia, the government initiated the low-income (condominium housing) housing provision scheme in 2005 by putting different objectives that will be achieved. In this program the number of beneficiaries in the city administration is 137,600 in eleven rounds. In order to effectively meet the aims defined in the scheme, some difficulties needs to be addressed: Accordingly, the summery of the first objective i.e. the characteristics of condominium housing and observed challenges in the IHDP given below.

- Most of the questionnaire distributed by the researcher is returned and used for analysis by considering the specific objective as a thematic area. The respondents' evaluation and assessment on the condominium housing project observed that the resident have no positive look at grace period given to start installment payments; the interest rate charged by commercial banks compared with their income and existing increase of non-housing expenditures (inflation); the down payment required is also not considering the paying capacity of the condominium beneficiaries; most of the respondents felt that the process of getting the house is not easy; and most of the respondents felt that the housing quality is not to the preference of the residents as it is against the social and economic requirements of the beneficiaries because of the beneficiaries are with poor economic status; the residents felt that the distribution of housing to the beneficiary is not fair and as per the discussion given most of the respondents are living in their own housing and others are renting and by purchasing from others because most of the beneficiaries are selling and /or renting the house either because of financing problem or the inadequacy nature of condominium housing.
- The stated assessment shows that the residents are not comfortable with the practice of condominium provision, required payments as well as the time given for grace period. Such issues must be revised as per the interest of the respondents for the better achievement of the program because the program initiated by government by focusing on solving housing problem as a central point and other goals of the program such as solving the problem of unemployment through MSEs as priority is given to MSEs to create employment opportunities.
- The discussion of the study shows that people are forced to rent and sell their house because of the social, and economic problem observed in and around condominium housing and also they stated that the condominium housing are not suitable for disables, elders and pregnant.
- The respondents stated that the modes of payment as well as the amount of payment expected from the residents are not comfortable for the residents and also they perceive that the expected payments are not fair.
- Lack of motivation and follow up of city governments has slowed down the implementation of low-income housing supports, and these cities have not established the low-incoming

housing system for their residents. The motivation of the city administration (government) decreased from period to period. This problem might be associated with different factors such as availability of raw materials, increasing of cost of materials, lack of organized institutional framework, corrupted culture of the participants, lack of financing the housing program, poor affordability of the people and any other factors…..

- Lack of stable financial funding from the budget of central and local government, as it is clearly discussed in different parts of this dissertation the financing issue is addressed using commercial bank of Ethiopia (one of the largest public owned commercial bank); but the problem is the ambitious nature of housing program is not easily financed by commercial bank. This is due to poor paying capacity of the beneficiaries, and also the increase of cost of construction.
- Another difficulty of the condominium housing scheme is its ambitious nature at its initial point. When the program is initiated in 2005 the plan of government to construct condominium units on annual basis was overambitious. The number of families which could benefit from the condominium housing scheme is still rather small, thus the impact to the society is not as such significant regarding solving bot supplying a bulk of housing for the targeted section of the society (the condominium applicants who are registered in the city administration as well as those who are relocated for city renewal) and also the affordability issue of urban housing.
- Lack of periodical examination and supervision of the concerned government body on the implementation process of the program is too poor compared with the sensitivity of the problem. That is why different unlikely problem found in the IHDP. Among other problems observed the inconsistence of the constructed houses with the plan and design of the building as well as each housing unit in the city administration.

CHAPTER FIVE

5 ADEQUACY OF CONDOMINIUM HOUSING IN ADDIS ABABA CITY ADMINISTRATION

5.1 Introduction

In housing projects it is noted that it is not about the issue of constructing a mass housing by the expectation of the problem only but also much better to evaluate whether the housing unit constructed in the city administration is adequate as well as consistent with the needs and expectations as well as aspiration of the residents (UNHABITAT, 2011). Therefore, to check the quality of housing project adequacy must be checked and also examining the issues are important to examine the housing policy in different states including in Ethiopia. Condominium is the mass housing constructed by government to solve the housing problem of the state in Ethiopia in general and Addis Ababa city administration in particular. It is also known that public housing is constructed to supply housing for huge portion of the society as the housing deficit in the city is large. The condominium housing program initiated to supply adequate and affordability housing for the poor section of the society in Ethiopia. So therefore, checking and examining the adequacy of the housing program is important.

In order to examine the adequacy of the housing estate the researcher considered the physical characteristics of the housing estate; infrastructures of the housing estate; government establishments in the neighbor; social and economic infrastructures and the management related issues in the residential environment. The aim of this study was to investigate the resident's evaluation about the dimensions of housing adequacy in public housing with a view of identifying how government and construction professionals can deliver adequate housing facilities.

The provision of social housing must fulfill different aspects related to housing characteristics, neighborhood characteristics, social and economic aspects as well as management of the estate. To have developed residential environment the housing estate must fulfill the basic elements expected from the program especially the housing must be adequate. As it is indicated in the tables given below there are different dimensions of evaluating the housing characteristics and the researcher analyzed the data using frequency, percentage and the mean score of the dimensions.

Additionally in order to confirm the variables in explaining the dimensions used by the study, the researcher used dimension reductions methods. To undertake dimension reduction methods the researcher used principal axis factoring method and also the regression analysis used by the researcher to identify the determinant factors affecting condominium housing adequacy in the city administration.

In the section below the researcher examined the adequacy of the housing estate by considering physical characteristics of housing, infrastructure of the housing, management practice of the estate, public infrastructure and also different social aspects of the residents.

In order to undertake the study the researcher used data from household surveys involving 422 respondents selected from eleven condominium housing estates in Addis Ababa. The data were collected using structured questionnaire administered to residents by the researchers through personal visits to the housing estates. A total of 37 objective housing attributes comprising of housing units attributes (sizes, lighting of interior spaces; security, privacy) availability of good drinking water; electricity; sanitation; and access to neighborhood facilities and good management practice in the housing estates were used to collect data on housing adequacy; and also social issues in the residential environment. The respondents were specifically asked to rate the level of adequacy of each of the 37 housing attributes using a five-point likert scale ranging from 1 for “Very Inadequate’’, 3 for “Neither Inadequate nor Adequate” to 5 for ‘Very Adequate’.

In undertaking this analysis (comparing with the mean) values between 1.0 and 2.9 were considered to be within the region of in adequacy ‘’ while values between 3.01 and 5.0 were in the region of adequacy. Value 3.0 is the neutral point describing neither inadequate nor adequate conditions. This kind of interpretation adopted from previous similar studies (e.g. Salleh, 2008; Ibem and Aduwo, 2013; Ibem et al, 2015).

In addition to the mean score; the researcher used frequency and percentage to analyze the adequacy of the housing estate. And also the researcher employed principal axis factoring dimension reduction method to confirm the variables in each dimension. Lastly the researcher used multiple regression to examine the determinant factors affecting the adequacy of condominium housing in the city administration. Among others the researcher considered the mean satisfaction score as one of the explanatory (independent) variable while undertaking multiple regressions in identifying the determinant factors affecting the adequacy of condominium housing in Addis Ababa city administration.

5.2 Adequacy of housing related to physical characteristics of housing

It is known that the adequacy of housing measured from different dimensions as it is stated in the section given above. In the table given below the researcher presents the respondents opinion on the adequacy of the housing estate related to physical characteristics. The physical characteristics of the condominium housing examined by considering Sizes of bedrooms in the house; Size of dining and living space; Number of bedrooms in the residence; Sizes of cooking and storage spaces; dining area - size & condition; location of residence in the estate; aesthetic appearance of residence and natural lighting and air circulation in living and bed rooms. In the table given below from table 5.1 to table 5.4 the researcher presents the frequency distribution and the mean score of the housing adequacy evaluation given by the respondents about size of dining and living space and also size of bed room in the house.

Table 5-1: Adequacy of housing on size of dining and living and size of bed room

Adequacy of residents on size of dining and living and size of bed room					
		F	%	Mean	Std. Deviation
Size of dining and living space	Very inadequate	79	18.7%	2.7156	1.20753
	Inadequate	108	25.8%		
	Neither adequate nor inadequate	128	30.3%		
	Adequate	68	16.1%		
	Very adequate	39	9.2%		
Sizes of bedrooms in the house	Very inadequate	36	8.5%	3.1161	1.17102
	Inadequate	100	23.6%		
	Neither adequate nor inadequate	124	29.3%		
	Adequate	103	24.3%		
	Very adequate	59	13.9%		

Source: survey result, 2019

To examine the physical characteristics of the housing unit the researcher examined the Size of dining and living space; Sizes of cooking and storage spaces; Dining Area - size & condition. As it is indicated in the table given above 45% of the respondents agreed that the housing is not adequate related to size of dining and living areas and 30% of the respondents sensed that it is neither adequate nor inadequate. But only 25% of the respondents felt that the housing unit is adequate. Similarly, it is shown that the size of bed room is adequate with the response rate of 38%; and 28% of the respondents sensed that the housing unit is neither inadequate nor adequate and the remaining 34% of the respondents sensed that tae housing unit is inadequate.

The mean score of the stated issue indicate that the mean score of the physical characteristics is close to three with the specific features of sizes of living and dining spaces with a mean score of 2.7156 indicates the housing unit is inadequate; Sizes of bedrooms in the house with a mean score of 3.116 indicates it is adequate; Additionally data from interview reveals that the size of bed room as well as size of dining area is not a problem but they stated that the number of bed room is not adequate compared with the number of family member.

Additionally, examining the adequacy of the residential environment related to the number of bed room and also size of cooking and storage space is very important to check the suitability of the house. The researcher presented about the adequacy of the housing estate related to number of bed room and size of cooking and storage space as indicated below in the table.

Table 5-2: Adequacy of housing related to number of bed room and size of cooking and storage space

Adequacy of housing related to number of bed room and size of cooking and storage space					
	Response	F	%	Mean	Std. Deviation
Number of bedrooms in the residence	Very inadequate	49	11.6%	3.0853	1.19672
	Inadequate	76	18.0%		
	Neither adequate nor inadequate	149	35.2%		
	Adequate	86	20.3%		
	Very adequate	62	14.7%		
Sizes of cooking and storage spaces	Very inadequate	56	13.2%	3.1161	1.58325
	Inadequate	91	21.5%		
	Neither adequate nor inadequate	117	27.7%		
	Adequate	81	19.1%		
	Very adequate	76	18.0%		

Source: survey result, 2019

As it is indicated in the table given above majority of the respondents sensed that the housing estate is adequate. It is indicated with 35.4%; the remaining 35% of the respondents sensed neither adequate nor inadequate and the rest of the respondents i.e. 29% sensed that the housing unit is adequate. But, the interview result revealed that the number of bed room is not sufficient compared with the number of family members. It is noted that the number of the room has its impact in increasing of the cost of housing.

Related to size of cooking and storage space it is stated that majority of the respondents i.e. 37% of them felt that the housing unit is adequate; and a significant number of respondents 27% felt that the housing unit is neither inadequate nor adequate related to the issue stated above nor 26% of the respondents replied that it is inadequate.

Not only the adequacy of the housing estate regarding the size of the room but also examination of the location of the housing estate also very important because neighborhood location characteristics have its own contribution for the satisfaction of the residents.

Table 5-3: Adequacy of housing related to location

Adequacy of housing related to location					
		F	%	Mean	Std. Deviation
Location of residence in the estate	Very inadequate	58	13.7%	3.0616	1.26941
	Inadequate	79	18.7%		
	Neither adequate nor inadequate	138	32.6%		
	Adequate	73	17.3%		
	Very adequate	74	17.5%		

Source: survey result, 2019

Another issue that was examined by the researcher is the adequacy of the residential environment related to location of residence in the estate and it shows that only 34% of the respondents sensed that they are living in adequate location and the rest of 66% of the respondents felt that the location of housing units is inadequate and neither inadequate nor adequate and as per the definition of its mean value it is with a mean score of 3.0616 and considered as adequate. But, interview result reveals that most of the condominium sites are too distant from the center especially compared with the previous residential environment the current location is not as such accessible for different services.

It is not only a house to live but it must fulfill different criteria that are consistent with the preference of the residents regarding its design and also aesthetic appearance of the housing as well as the design of the residence in relation to occupants' natural way of life. In the table given below the researcher presented evaluation of residents on the aesthetic value of residence and natural lighting of the condominium housing in Addis Ababa city administration as indicated below.

In the table given below the researcher presented residents evaluation about adequacy of aesthetic appearance of the condominium housing in the city administration because the house must have appropriate aesthetic appearance related to the interest of the residents.

Table 5-4: Adequacy of housing on aesthetic appearance of residence and natural lighting

Adequacy of housing on aesthetic of residence and natural lighting					
		F	%	Mean	Std. Deviation
Aesthetic appearance of residence	Very inadequate	76	18.0%	2.9028	1.30322
	Inadequate	86	20.3%		
	Neither adequate nor inadequate	129	30.5%		
	Adequate	65	15.4%		
	Very adequate	66	15.6%		
Natural lighting and air circulation in living and bed rooms	Very inadequate	58	13.7%	3.0616	1.24485
	Inadequate	82	19.4%		
	Neither adequate nor inadequate	116	27.4%		
	Adequate	108	25.5%		
	Very adequate	58	13.7%		
Design of residence in relation to occupants' natural way of life	Very inadequate	54	12.8%	2.9028	1.23201
	Inadequate	125	29.6%		
	Neither adequate nor inadequate	106	25.1%		
	Adequate	82	19.4%		
	Very adequate	55	13.0%		

Source: survey result, 2019

Related to aesthetic appearance of housing program; majority of the respondents replied that the adequacy of the residential environment related to the aesthetic appearance of residence shows that majority of the respondents 38% replied that the housing is inadequate and 30% of the respondents sensed that it is neither adequate nor in adequate. It is observed that the remaining 22% of the respondents sensed that it is adequate. The mean value 2.9028 shows that the housing program is inadequate.

Natural lighting and air circulation in living and bedrooms is also another issue to be considered in determining the adequacy of housing related to physical structures. It is observed that majority of the respondents 39% of the respondents felt that the housing environment is adequate and 27% of the respondents sensed that the housing program is inadequate. The remaining 34% of the respondents replied that it is inadequate. The mean value 3.0616 shows that the housing program related to Natural lighting and air circulation in living and bedrooms is adequate.

Design of residence in relation to occupants' natural way of life must also be evaluated by the researcher as it is very important for housing developments. It is observed that almost 42% of the respondents felt that the housing program is not adequate related to the issue mentioned above. The mean value 2.9455 indicates it is inadequate. From the above interpretation the size of living and dining spaces; aesthetic appearance of residence and design of residence in relation to occupants' natural way of life has a mean adequacy score of less than three and as per the definition given at the beginning of the analysis; mean score less than three shows the housing is not adequate. Therefore, it is related to the housing features stated above understood that housing characteristics fail in meeting users' needs; expectations and aspirations.

Additionally, the researcher was identified relevant variables that explain the physical characteristics of the housing estate. The researcher used dimension reduction method to identify the dimensions of the housing adequacy related to housing physical characteristics. In this section the researcher extracted (confirmed) the main factors explaining the adequacy of the condominium housing related to physical characteristics of the residential estate using principal axis factoring methods. To undertake the dimension reduction the researcher checked the data set about the sample adequacy using KMO and Bartlett's Test of Sphericity. In this study, cutoff above .50 is used as good measure of sampling adequacy. It is indicated in the table given above that the KMO value is .855 and it show the sampling is adequate.

Table 5-5: Dimensions used to examine adequacy of housing related to physical characteristics of condominium housing

Factor Matrix[a]	
Dimensions used to examine adequacy of housing related to physical characteristics of condominium housing	Factor loading
Location of residence in the estate	.810
Natural lighting and air circulation in living and bedrooms	.755
Aesthetic appearance of residence	.727
Design of residence in relation to occupants' natural way of life	.714
Sizes of bedrooms in the house	.685
Number of bedrooms in the residence	.679
Sizes of cooking and storage spaces	.523
Sizes of living and dining spaces	.493
Dining Area - size & condition	.387
Extraction Method: Principal Axis Factoring.	
Percentage of factors explained	50.882 %

Source: survey result, 2019

The researcher used Principal Axis Factoring Extraction Method to identify the most relevant variables that explain the satisfaction of residents on physical characteristics of the estate. The researcher stated that, the stated variables are explaining the adequacy of housing related to its physical characteristics. Because the stated variables that explain the physical characteristics of the housing estate has extraction value (factor loading) of greater than 0.34. Accordingly, all nine variables assumed to have impact on the housing issue stated above i.e. dimensions used to examine adequacy of housing related to physical characteristics of condominium housing. location of residence in the estate with the factor loading of .810; natural lighting and air circulation in living and bedrooms with .755; aesthetic appearance of residence with .727; design of residence in relation to occupants' natural way of life with .714; sizes of bedrooms in the house with .685; and number of bedrooms in the residence with .679 are the most important factors to determine the adequacy of housing related to the physical characteristics of the estate and with greater factor loading than others.

Related to the physical characteristics of the housing Morton *et al.* (2004) stated that housing adequacy represents an important aspect of housing quality measurement that deals with the assessment of interior and exterior structural conditions of the housing estate; cooling; and sanitation systems; and residence size (size of bed room, cooking and storage area, dining and living space) relative to users' space needs. Further, the physical characteristics of the housing estate is described in in the American Housing Survey, Eggers and Moumen (2013) also described housing adequacy as a situation where there is absence of any form of physical, spatial, and service abnormalities within the dwelling unit and its immediate surroundings.

5.3 Adequacy of Housing Related to Infrastructure (water, electricity and road)

The housing adequacy must also be evaluated using the availability of different infrastructure demanded by the residents such as water, electricity, road and sanitation. The effectiveness of housing program examined through the existence of infrastructures such as water, electricity, road and appropriate sanitation system. The researcher assessed the perception of the residents regarding infrastructures demanded as follows. The table given below shows the perception of the residents on the infrastructures demanded and their view on adequacy.

The issue of housing infrastructure also indicated in Chowdhury (2013) that; from the perspective of the housing sector, urban infrastructure is comprised of basic physical networks in the residential area, i.e. roads and walkways; water, sewerage and drainage; power and telecommunication. Other than the above physical networks the solid-waste disposal facilities, public-transport system, parks, school, and playgrounds are other elements of infrastructure regime that may affect adequacy and affordability of housing. For a qualifying housing policy environment an equitable and efficient provision of residential infrastructure such as water, electricity and road is essential. It is also known that the housing sector cannot function at an adequate level unless it is supported by an adequate supply of infrastructure services.

The existence of adequate infrastructure (road, water supply, and electricity) is important in designing the housing policy in different urban centers. In the table given below the researcher presented the adequacy of the housing estate related to electrical services; expansion of road and also clean water supply and sanitary services.

Table 5-6: Adequacy of the housing on electrical, expansion of road and water supply

Descriptive Statistics of physical infrastructures in the residential environment					
		Freq.	Per.	Mean	Std. Deviation
Electrical services	Very inadequate	71	16.8%	2.8270	1.27125
	Inadequate	118	27.9%		
	Neither adequate nor in adequate	98	23.2%		
	Adequate	83	19.6%		
	Very adequate	52	12.3%		
Expansion of road	Very inadequate	60	14.2%	2.8886	1.14896
	Inadequate	63	14.9%		
	Neither adequate nor in adequate	121	28.6%		
	Adequate	113	26.7%		
	Very adequate	65	15.4%		
Water supply and sanitary services	Very inadequate	70	16.5%	3.1422	1.25914
	Inadequate	73	17.3%		
	Neither adequate nor in adequate	134	31.7%		
	Adequate	124	29.3%		
	Very adequate	21	5.0%		

Source: survey result, 2019

As it is clearly depicted in the table given above the researcher examined the adequacy of the respondents related to physical infrastructure. It shows that more than 43% of the respondents sensed that the housing is in adequate related to electric power supply in the residential environment. 23% of the respondent felt that it is neither inadequate nor adequate. But the remaining 24% of them felt that that there is adequate electric supply in the residential environment.

The second issue that considered is expansion of road. Majority of the respondents i.e. 42% of the respondents felt that the housing is adequate; 28.6% of the respondents replied that the road expansion is neither adequate nor inadequate. And the remaining 30% of the respondents sensed that the residential environment is inadequate related to expansion of road.

The researcher examined the adequacy of the residential environment related to Water supply and sanitary services. The frequency distribution given in the table above shows that; the frequency of adequacy, inadequacy and neither inadequate nor adequate is almost equal close to 32%. From the above discussion the respondents felt and perceive that Water supply and sanitary services and Electrical services are not adequate with the mean value of 2.827 and 2.8886 respectively. But the mean value of road expansion is 3.1422 and as per the definition to say adequate and in adequate it considered that the expansion of road is adequate. But as it is indicated in the open ended question and interview conducted with the residents the road is not suitable as such and it has network and topological error and intersection. Additionally, the road is not adequately furnished and most of the road in the site is made of cobblestone and has no adequate lighting. It is known that the people who are living in condominium are poor and they are doing their own personal business to generate income. But if they felt that water and electricity is inadequate; it is very difficult to undertake their personal business and it affects the earning power of the people and ultimately it affects the living standard of the residents.

Additionally, the researcher identified relevant variables that explain the physical characteristics of the housing estate. As per the Principal Axis Factoring Extraction Method the researcher identified the most relevant variables that explain the physical characteristics of the estate. Similarly the researchers undertake Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity to undertake dimension reduction. It is indicated in the table given above that the KMO value is .714 and it shows the sampling is adequate.

Table 5-7: Dimensions used to measure adequacy of housing related to physical infrastructure

Factor Matrix[a]	
Dimensions to measure adequacy of housing related to physical infrastructure	Factor loading
Electrical services	.885
Expansion of road	.759
Water supply and sanitary services	.758
Extraction Method: Principal Axis Factoring.	
Percentage of factors explained	82.07%

Source: survey result, 2019

As it is presented in the table given above the factor loading of the variables used to determine the adequacy of the housing with the physical infrastructure in and around the residential environment is found that the three variables are the main factors explaining the adequacy of the house related to physical characteristics of the residential estate. It is indicated that the factor loading of electrical services with factor loading of .885; expansion of road with .759 and water supply and sanitary services with .758.

As it is indicated in Ibem et al (2012) occupants must have unrestrained access to safe water supply, sanitary disposal of solid wastes, drainage of surface water, safe food storage facilities, and protection against disease transmission. The existence of poor water and electricity in the condominium site in Addis Ababa makes the life of the residents very difficult.

5.4 Adequacy of housing on government establishments in and around the residential environment

The existence of different government establishment is very important to address different social and economic interest because most of the residents who reside in the condominium are poor people. Therefore, the existence of adequate government establishment is important to minimize the cost of living because if there is inadequate government establishment in the residential environment, there will be an increase on cost of living; as the people are spending huge money to access the different government establishments.

As it is presented in the table given below the researcher examine the adequacy of the housing estate related to distance to Fire station; Parking areas; Proximity of home to the nearest market; distance to police station; distance to Masjid/church; Distance to Bus station; Children's school; Medical/healthcare facilities; Proximity of home to place of work; Public infrastructure and urban services; Shopping facilities; Recreation/sporting facilities; Prices of goods and services in the housing estate; and it was indicated that almost all of the stated factors have a mean score of less than 3 (three). According to the definition given the mean score of less than three shows the housing is inadequate. The adequacy of housing related to government establishment is very important for the residents because lack of access of the stated institutions in the residential environment increase the cost of living of the people.

Table 5-8: Adequacy of housing related to recreation and public infrastructure

Descriptive statistics for Recreation/sporting facilities Public infrastructure and urban services physical characteristics of housing					
	Responses	F	%	Mean	Std. Deviation
Recreation/sporting Facilities	Very inadequate	71	16.8%	2.7227	1.32450
	Inadequate	118	27.9%		
	Neither adequate nor inadequate	98	23.2%		
	Adequate	83	19.6%		
	Very adequate	52	12.3%		
Public infrastructure and urban services	Very inadequate	117	27.75%	2.4645	1.22810
	Inadequate	110	26.0%		
	Neither adequate nor inadequate	107	25.3%		
	Adequate	58	13.7%		
	Very adequate	30	7.1%		

Source: survey result, 2019

As it is clearly depicted in the table given above it is observed that the adequacy of the residential environment related to government establishment is with the mean value of less than three and it shows that the condominium is not adequate related to government establishments.

The first part indicated above is Recreation/sporting facilities around the residential environment. It is observed that more than 44% of the respondents felt that the housing environment is inadequate and 32% of the respondents considered that the housing is adequate and the remaining 24% of the respondents felt that it is neither adequate nor in adequate.

Another issue examined by the researcher was proximity of the residential environment from Public infrastructure and urban services. It is observed in the table given above that more than 53% of the respondents felt that the residential environment is inadequate and only 20% of them replied that it is adequate and the remaining 27% felt that the residential environment is neither inadequate nor adequate. The mean score 2.46 indicates it is inadequate. Additionally, interview result also reveals that there are no urban services such as recreational centers and also different public infrastructures and urban services centers in the condominium centers.

In the table given below the researcher presented evaluation of the residents about adequacy of housing related shopping center and proximity of home to place of work

Table 5-9: Adequacy of housing related shopping center and proximity of home to place of work

Descriptive statistics for Adequacy of housing related shopping center and proximity of home to place of work					
	Responses	F	%	Mean	Std. Deviation
Shopping facilities	Very inadequate	86	20.3%	2.7393	1.32519
	Inadequate	118	27.9%		
	Neither adequate nor inadequate	101	23.9%		
	Adequate	54	12.8%		
	Very adequate	63	14.9%		
Availability of job opportunity	Very inadequate	97	22.9%	2.6659	1.29304
	Inadequate	104	24.6%		
	Neither adequate nor inadequate	115	27.2%		
	Adequate	55	13.0%		
	Very adequate	51	12.1%		

Source: survey result, 2019

The important thing considered in examining the adequacy of the residential environment related to government establishment considering the expected urban public establishments such as shopping facilities and Proximity of home to the nearest market. It is clearly depicted in the table above and it shows that more than 46% of the respondents felt that the housing is inadequate and around 20% of the respondents felt that it is neither adequate nor inadequate. And the remaining 24% of the respondents replied that the housing is adequate on the proximity of the residential environment from shopping center. The mean score 2.739 shows that the housing is not adequate to shopping facilities.

Another issue to be considered in determining the adequacy of the public housing as well as any housing policy formulation is availability of job opportunity because the proximity of the house to the place of work decreases the transportation cost incurred by the people as well as it will increases the cost of living of the residents. The table given above shows that only 25% of the respondents felt that the house is proximate to the place of work 47% of the respondents felt and sensed that their home is distant from place of work and the remaining 28% of the respondents replied that it is neither adequate nor in adequate. The mean score 2.66 shows that the housing is inadequate related to availability of job opportunity. In the table given below the researcher presented the adequacy of housing related to availability of health care services and also children's school. The existence of the house in and around the residential environment is very important. The evaluation of the residents about the adequacy of the housing adequacy related to availability of health care services and also children's school is given below.

Table 5-10: Adequacy of housing Medical/healthcare facilities and Children's school

Medical/healthcare facilities and Children's school					
	Responses	F	%	Mean	Std. Deviation
Medical/health care facilities	Very inadequate	63	14.9%	2.9313	1.56035
	Inadequate	112	26.5%		
	Neither adequate nor inadequate	112	26.5%		
	Adequate	78	18.4%		
	Very adequate	56	13.2%		
Children's school	Very inadequate	77	18.2%	2.7844	1.15885
	Inadequate	82	19.4%		
	Neither adequate nor inadequate	143	33.8%		
	Adequate	95	22.5%		
	Very adequate	25	5.9%		

Source: survey result, 2019

In order to make the residential environment more adequate to the residents; the existence of quality and affordable Medical/healthcare facilities is important and also children's school is very crucial; but as it is indicated in the table given above even if 31% of the respondents replied that there is adequate private and public health care centers; 42% of the respondents sensed that the housing is inadequate related to medical /health care facilities in and around the residential environment. And the remaining 26.5% of the respondents sensed that it is neither adequate nor in adequate. As it is indicated in the table given above the mean score of 2.93 shows those medical / health care facilities is not adequate.

Related to Children's school more than 70% of the respondents are not comfortable because as it is observed in the table above 18.2% very inadequate, inadequate 19.4% and the remaining 33.8% of them felt that it is neither adequate nor inadequate. And the remaining 30% of the respondents replied that the housing environment is adequate. The mean score 2.7544 shows that there is no adequate children's school in the residential environment. In the table given below the researcher presented the adequacy of the residential environment related to distance to bus station and also distance to masjid and church.

Interview result about the adequacy of the housing unit related to Medical/health care facilities and also Children's school reveals that there are schools as well as medical facilities around the condominium sites but, the residents are not comfortable with the quality as well as affordability. In most of the bordering sites the residents, there are no publicly owned schools and the families are forced to register their children in different private schools and incurring huge costs. It has adverse impact on the affordability of housing by the residents. Additionally, children are forced to travel long distance to access public schools. Related to the medical/ health care residents in most of the condominium sites stated that there are no referral hospitals; there are publicly owned as well as privately owned health care facilities but the services given by the centers are not with appropriate quality.

Table 5-11: Adequacy of the housing related to distance to bus station and from masjid and church

Adequacy of the housing related to distance to bus station and from masjid and church					
	Response	F	%	Mean	Std. Deviation
Availability of Bus station	Very inadequate	67	15.8%	2.7464	1.20556
	Inadequate	133	31.45%		
	Neither adequate nor inadequate	101	23.95%		
	Adequate	82	19.45%		
	Very adequate	39	9.2%		
Masjid/church	Very inadequate	113	26.7%	2.6161	1.31302
	Inadequate	92	21.7%		
	Neither adequate nor inadequate	105	24.8%		
	Adequate	68	16.1%		
	Very adequate	44	10.4%		

Source: survey result, 2019

In the table given above the researcher presented the adequacy of the housing related to distance to bus station and distance to Masjid/church. The existence of religious institution (Masjid/church) is very crucial for the people. As it is indicated in the table given above almost 71% of the respondents sensed that the housing program is not adequate related to availability of bus station. But the remaining 29% sensed that there is adequate bus station around the residential environment. As per the data from open ended question the people argued that it is very difficult to accept and sent families because of the long distance of the residential environment from transportation centers (bus station).

It is known that the existence of religious institution increase the satisfaction of the residents. It is indicated in the table given above that majority of the respondents (74%) sensed that there is no adequate religious institution like church and masjid. But the remaining 26% of the respondents replied that there is adequate religious institution in and around the residential environment. the mean score 2.74 and 2.61 for distance to bus station and also distance to masjid/church respectively indicated that the housing are not adequate on the features stated above.

Table 5-12: Adequacy of the housing program related to nearest market and distance from the police station

Adequacy of the housing program related to nearest market and distance from the police station					
	Response	F	%	Mean	Std. Deviation
Availability of nearest market	Very inadequate	83	19.6%%	2.8483	1.35090
	Inadequate	109	25.85%		
	Neither adequate nor inadequate	82	19.4%		
	Adequate	85	20.1%		
	Very adequate	63	14.95%		
availability to police station	Very inadequate	86	20.35%	2.6706	1.12118
	Inadequate	118	27.9%		
	Neither adequate nor inadequate	101	23.9%		
	Adequate	54	12.8%		
	Very adequate	63	14.9%		

Source: survey result, 2019

In order to maintain the security of the people the existence of police station is very important in the residential environment in general and condominium sites in particular. The residential environment's Distance to police station and availability of the nearest market is also another issue to be considered to check the adequacy of the residential environment. The table given above shown that 48%, 23.9% and the remaining 27% of the respondents felt that the residential environment is inadequate, neither adequate nor inadequate and adequate respectively related to distance from police station. The mean score 2.6706 shows that there is no adequate police station in and around the residential environment. Additionally, from the interview result the researcher revealed that the participation of the residents and the practice of community policing in condominium sites is not as such appreciable.

The availability of the market in the nearest area is very important for the residents because it decrease the cost of living by reducing the cost of consumer able products as well as the poor people may be a direct participant in the market by undertaking different business in the nearby market. But as it is indicated in the table given above majority of the respondents (64%) sensed that there is no adequate market area in the nearby areas but the remaining 36% of the respondents replied that there is adequate market area. Data from open ended question shows that even if the market area around the residential environment; but the quality and the standard of the market is not as per the required quality. Because of the stated reason the residents are forced to travel long distance to access the required market. This increases the cost of living of the poor people as well as affecting housing affordability adversely.

Table 5-13: adequacy of residential environment related to distance from fire station and Prices of goods and services in the housing estate

Adequacy of residential environment related to distance from fire station and Prices of goods and services in the housing estate					
	Response	F	%	Mean	Std. Deviation
Distance to Fire station	Very inadequate	99	23.4%	2.4621	1.19867
	Inadequate	141	33.3%		
	Neither adequate nor inadequate	108	25.5%		
	Adequate	34	8.0%		
	Very adequate	39	9.25%		
Availability of alternative market places	Very inadequate	100	23.6%	2.6588	1.29025
	Inadequate	100	23.6%		
	Neither adequate nor inadequate	111	26.2%		
	Adequate	60	14.2%		
	Very adequate	47	11.1%		

Source: survey result, 2019

The distance of fire station from the residential environment is also important issue to be considered in determining housing policy in the urban centers. As it is indicated in the table above only 17% of the respondents felt that there is adequate fire station in and around the residential environment. But the remaining, majority of the respondents (83%), sensed and felt that there is no adequate fire station.

As indicated in the table above only 25% of the respondents sensed that the price of goods and services are reasonable compared with the main market but majority of the respondents i.e. 75% of them are not comfortable with the price of goods and services. Discussion with the respondents also shows that there is critical price difference from the price expected in the main market and the interest of the people to access the main market increases the cost of the products. Additionally it will have its own negative impact on the living cost of the residents especially the poor. The mean score 2.46 and 2.65 for distance from fire station and the price of goods and services in the estate respectively shows that the housing unit is not adequate on the dimensions stated above.

Table 5-14: Adequacy of housing related to availability of parking area

Adequacy of housing related to availability of parking area					
	Responses	F	%	Mean	Std. Deviation
Parking areas	Very inadequate	135	31.9%	2.3697	1.24478
	Inadequate	110	26.0%		
	Neither adequate nor inadequate	91	21.5%		
	Adequate	58	13.7%		
	Very adequate	28	6.6%		

Source: survey result, 2019

As it is indicated in the table given above majority of the respondents (79%) of the respondents felt and sensed that the parking area is not as such adequate but the remaining 21% of the respondents replied that there is adequate parking area in the residential environment. But, as it is indicated in the interview and data from open ended question even if there is parking in the residential environment; but, the quality of the parking area is not as such as per the required quality as well as there is no periodical maintenance of the parking areas. Additionally, some of the residents in the condominium stated that the parking area were not fenced and secured.

In this section the researcher extracted the main factors explaining the physical characteristics of the residential estate. The researcher used principal axis factoring method to reduce the dimension used to describe the adequacy of housing on government establishments. To undertake dimension reduction the researcher checked Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity. Additionally Test of sampling adequacy indicated in the table given above that the KMO value is .857 and it show the sampling is adequate.

Table 5-15: Dimensions used in adequacy of housing on government establishments

Factor Matrix[a]	
Dimensions used in Adequacy of housing on government establishments	Factor loading
Shopping facilities	.768
Proximity of home to place of work	.718
Children's school	.692
Distance to Bus station	.682
Public infrastructure and urban services	.677
Distance to police	.651
Distance to Masjid/church	.649
Proximity of home to the nearest market	.618
Recreation/sporting facilities	.600
Medical/healthcare facilities	.552
Distance to Fire station	.538
Parking areas	.509
Prices of goods and services in the housing estate	.456
Extraction Method: Principal Axis Factoring.	
Percentage of factors explained	52.822%

Source: survey result, 2019

The researcher used Principal Axis Factoring Extraction Method to identify the most relevant variables that explain the Adequacy of housing on government establishments. Because the stated issues that explain the physical characteristics of the housing estate has extraction value (factor loading) is greater than 0.34. But shopping facilities with the factor loading of .768; Proximity of home to place of work with .714; Children's school with .692; Distance to Bus station with .682 and Public infrastructures and urban services with .677; are the main variables determining the adequacy of condominium housing related to availability of government establishment compared with other variables used by the researcher to determine the adequacy of government establishments in the residential environment. In the section below the researcher examined the adequacy of residents on the management of the housing estate by focusing on different dimensions related to management practice in the residential environment.

5.5 Adequacy of housing related to management of the housing estate

In order to have suitable environment to live; the residential environment must have a suitable management of the residential environment. In order to examine the adequacy of the residential environment related to the management of the housing estate the researcher raised the following issues related to : Rules and regulations within the housing estate; Management and maintenance of facilities; Rules and regulations within the housing estate; Security of life and property in the housing estate; The selected committee members and its selection process and support; Street quality and lighting; Garbage collection & disposal; Cleanliness of the housing estate; and Street quality and lighting. In the table given below the researcher presented management and maintenance of facilities and also the existence of rules and regulations in the residential environment. It is noted that the existence of adequate/standard management and also the modernized and participatory (public focused) rules and regulation in the residential environment are demanded by the residents. According to Puķīte et al (2016) building management refers to a set of activities required to keep the building in proper condition as well as to maintain the land in order to use the building in compliance with the main goal of the property. By contrast, building maintenance is a technical multifaceted of measures, which help implement decisions made during the building management process for housing and land maintenance and preservation. In the table given below the researcher presented management and maintenance of facilities and also rules and regulations within the housing environment.

Table 5-16: Adequacy of housing Management and Maintenance of facilities

Adequacy of housing Management and maintenance of facilities					
	Response	F	%	Mean	Std. Deviation
Management and maintenance of facilities	Very inadequate	113	26.7%	2.5877	1.27488
	Inadequate	87	20.6%		
	Neither adequate nor inadequate	122	28.8%		
	Adequate	61	14.4%		
	Very adequate	39	9.25%		
Rules and code of conduct set by the committee member	Very inadequate	108	25.55%	2.6706	1.33758
	Inadequate	90	21.3%		
	Neither adequate nor inadequate	112	26.5%		
	Adequate	57	13.5%		
	Very adequate	55	13.0%		

Source: survey result, 2019

As it is indicated in the table given above the adequacy of the housing estate Management and maintenance of facilities almost 50% of the respondents replied that it is inadequate and 29% of the respondents replied that it is neither adequate nor in adequate but Only 20% of the respondents felt that it is adequate and the mean score 2.5877 shows that the housing unit is not adequate on the dimensions stated above. As per the definition of the mean value, the mean values of less than three are inadequate. Interview result also reveals that the management in the residential environment is not as such attractive. According to Puķīte etal (2016) during the management process, owners of building have to resolve several issues, such as how to organize building management effectively and in compliance with the existing regulations designed by the government and indicated in IHDP. It is noted that most of the residents in different urban centers they have to choose the most appropriate and economically justified management form to make the residential environment conducive for the residents.

Related to the Rules and code of conduct set by the committee within the housing estate 50% of the respondents felt that it is inadequate and around 26% of the respondents felt that the rules and regulation that govern the residential environment is adequate and the remaining 24% of them felt that it is neither adequate nor in adequate. Related to the mean score of the stated issue its mean score is 2.67 and as per the definition it shows that there are no adequate rules and regulations in the residential environment.

It is recognized by Tahir and Hussien (ND) that the Safe township concept in crime prevention programmes places much emphasis on the security and safety aspects of daily life of the residents. Urban safety issues involve stakeholders such as police, local authorities, residents and local NGOs. Not only are the crime rate statistics the main indicator for measuring the safety level of a town, but they can also serve to reduce anxiety or fear of crime among the residents

Table 5-17: adequacy of housing on Security of life and property in the housing estate the selected committee member's selection and support

Adequacy of housing on Security of life and property in the housing estate the selected committee member's selection and support					
	Response	F	%	Mean	Std. Deviation
Security of life and property in the housing estate	Very inadequate	103	24.3%	2.6161	1.27632
	Inadequate	109	25.8%		
	Neither adequate nor in adequate	94	22.2%		
	Adequate	79	18.7%		
	Very adequate	37	8.7%		
The selected committee members selection and support	Very inadequate	100	23.6%	2.6540	1.23247
	Inadequate	100	23.6%		
	Neither adequate nor inadequate	111	26.2%		
	Adequate	60	14.2%		
	Very adequate	47	11.1%		

Source: survey result, 2019

Regarding the Security of life and property in the housing estate almost 60% of the respondents expected that is in adequate and 26% of the respondents felt that it is adequate and the rest of the respondents felt that it is neither adequate nor in adequate. The mean score of 2.61 indicate that the practice of securing the life as well as the property of the residents is inadequate. As per the discussion with the residents it is stated that there must be cooperation between the residents and police through community policing. According to Tahir and Hussien (ND) under the procedures of community policing, a police officer would be responsible for a specific sector. Meetings must be held periodically between residents and the police to discuss problems, make suggestions and listen to the opinions of the residents by the expecting safety of the residents. This is essential to find vital information from the public, especially in esteem to ongoing investigations of the police. With each district Police Office forming its own Community Policing unit, it is hoped that the experience and perception of society towards crime in the areas will be changed. But the police round on the residential environment on irregular basis.

Another issue that examined by the researcher was the selected committee member's selection process and their support in management of condominium housing. And it shows that 25% of the respondents agreed that the management issue is adequate and 26% replied as neither adequate nor in adequate but the rest of 50% felt that it is inadequate. The mean score of 2.6540 indicate that it is inadequate. It is also supported by the information given by interview results; they stated that the committee members are not as such strong and also selected in a participatory ways. Additionally, the committee members are making their own decision on different affairs such as monetary contributions made by the residents and also the renewal and modernization process of the residential environment.

Another issue to be noted in the residential environment is the cleanliness of the residential environment. It presented in the table given below that majority of the residents felt and sensed that it was not adequate.

Table 5-18: Adequacy of housing Cleanliness of the housing estate and also Cleaning – corridor & staircase

Adequacy of housing Cleanliness of the housing estate and also Cleaning – corridor & staircase					
	Response	F	%	Mean	Std. Deviation
Cleanliness of the housing estate	Very inadequate	93	22.0%	2.6469	1.16805
	Inadequate	89	21.0%		
	Neither adequate nor inadequate	134	31.7%		
	Adequate	86	20.3%		
	Very adequate	20	4.7%		
Cleaning – corridor & staircase	Very inadequate	87	20.6%	2.6706	1.15046
	Inadequate	93	22.0%		
	Neither adequate nor inadequate	131	31.0%		
	Adequate	94	22.2%		
	Very adequate	17	4.0%		

Source: survey result, 2019

As indicated in the table given above cleanliness of the housing estate and cleaning – corridor & staircase are issues that were examined by the researcher in order to check the adequacy of the management in the housing estate. As it is indicated in the table above more than 60% of the respondents replied that the management is inadequate related to cleanliness of the residential environment. The mean score shows 2.6469 and 2.6706 for cleanliness of the housing estate and Cleaning – corridor & staircase respectively shows the dimensions mentioned above are in adequate. In line with this interview result reveals that there is carelessness that is observed from the residents in keeping and maintaining the residential environment clean including corridors and staircase. In addition to corridor and staircase the quality of street and garbage collection is expected in the residential environment. The evaluations of the respondents are given below.

Table 5-19: Adequacy of housing related to Street quality and lighting and Garbage collection & disposal

Adequacy of housing related to Street quality and lighting and Garbage collection & disposal					
	Response	F	%	Mean	Std. Deviation
Street quality and lighting	Very inadequate	69	16.3%	2.8578	1.19527
	Inadequate	93	22.0%		
	Neither adequate nor inadequate	124	29.3%		
	Adequate	101	23.9%		
	Very adequate	35	8.3%		
Garbage collection & disposal	Very inadequate	79	18.7%	2.6967	1.16478
	Inadequate	102	24.1%		
	Neither adequate nor inadequate	139	32.9%		
	Adequate	72	17.0%		
	Very adequate	30	7.1%		

Source: survey result, 2019

Street quality and lighting and Garbage collection & disposal is very crucial to have adequate housing environment but it observed in the table given above that almost more than 50% of the respondents replied that the housing environment is inadequate. The mean value shows that 2.8578 and 2.6967; this shows the housing estate is inadequate. Interview result also revealed that there is no adequate garbage collection by the residents and also there is suffocation in the residential environments. They also stated that the solid waste is not collected on a regular basis from the dust been and this creates a bad smell in the residential environment.

The researcher also used Principal Axis Factoring Extraction method to reduce the dimension of the variables sated by the researcher to determine the Adequacy of housing related to management of the housing estate. Additionally checking Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity is quite important. The table given below shows the result of the necessary tests that must be undertaken as a requirement to undertake factor analysis i.e. sampling adequacy and tests of sphercity. The test of Kaiser-Meyer-Olkin Measure of Sampling Adequacy indicated in the table given above that the KMO value is .831 and it show the sampling is adequate.

Table 5-20: Adequacy of housing related to management of the housing estate

Factor Matrix[a]	
Adequacy of housing related to management of the housing estate	Factor loading
Cleanliness of the housing estate	.827
Security of life and property in the housing estate	.806
Street quality and lighting	.802
Cleaning – corridor & staircase	.788
Garbage collection & disposal	.743
Management and maintenance of facilities	.683
Rules and regulations within the housing estate	.633
The selected committee members selection and support	.597
Extraction Method: Principal Axis Factoring.	
Percentage of factors explained	54.42%

Source: survey result, 2019

As per the Principal Axis Factoring Extraction Method the researcher identified the most relevant variables that explain the management of the estate and the extraction value (factor loading) is greater than 0.34. Accordingly all variables assumed to have impact on the adequacy management of the residential environment. When we compare the variables with their factor loading Cleanliness of the housing estate with the factor loading of .827; Security of life and property in the housing estate with .806; Street quality and lighting with .802; and also Cleaning – corridor & staircase with .788 are the four main important variables explaining the adequacy of management of the housing estate.

5.6 Adequacy of housing about the social issues in the residential environment

The social and economic aspects of the people is the very important issue to be noted in designing housing program the researcher examined the adequacy of housing by focusing on Social interaction compared with the previous residential area; Noise in the housing estate; Privacy in the residence; Communal activities in the housing estates; Relationship with neighbors; Crime and anti-social activities in the housing estate; The type of home related to age and health; and also Business and job opportunities within and around the estate. In the table given below the researcher presented the adequacy of the residential environment related to the type of home related to age and health and also Business and job opportunities within and around the housing estate.

As it is clearly indicated in UN-HABITAT (2006) report on national experiences with shelter delivery for the poorest groups explained that the constitutes adequate housing varies from country to country; and is influenced by some specific cultural, social, environmental and economic factors as well as any other personal factors. This implies that adequate housing is a multi-dimensional concept describing housing condition that meets residents' physiological, psychological, security and economic needs, expectations and aspirations of the residents in the city administration. In the table given below the researcher presented the residents evaluation on the type of home related to age and health and also business and job opportunities within and around the estate.

Table 5-21: Adequacy of housing the type of home related to age and health and also Business and job opportunities within and around the estate

Adequacy of housing the type of home related to age and health and also Business and job opportunities within and around the estate					
	Response	F	%	Mean	Std. Deviation
Business and job opportunities within and around the estate	Very inadequate	74	17.5%	2.7464	1.14907
	Inadequate	97	22.9%		
	Neither adequate nor inadequate	139	32.9%		
	Adequate	86	20.3%		
	Very adequate	26	6.1%		
Suitability of home related to age and health	Very inadequate	76	18.0%	2.7654	1.14275
	Inadequate	89	21.0%		
	Neither adequate nor inadequate	134	31.7%		
	Adequate	104	24.6%		
	Very adequate	19	4.5%		

Source: survey result, 2019

The social dimension of the residents is the important issues that are taken in to consideration in designing housing program. The first thing to be noted is the Business and job opportunities within and around the estate 26% of the respondents felt that the housing environment is adequate and 30% of the respondents felt that it is neither inadequate nor adequate but majority of the respondents replied that it is inadequate. The mean score 2.7 also indicates that the housing is inadequate related to business and job opportunity.

Another important issue to be considered is the satisfaction of the residents related to the suitability of home related to age and health. The data presentation given in the above table shows that 39% of the respondents and 31% of the respondents felt that it is inadequate and neither in adequate nor adequate. As it is shown in the presentation only 24% replied that the housing is adequate related to suitability of the housing with their age and health condition. The mean score 2.7654 shows that the housing unit is not adequate. In the table given below the researcher presented crime and anti-social activities in the housing estate and relationship with neighbors are also the principal issue to be noted in the residential environment.

Table 5-22: Adequacy of housing Relationship with neighbors and Crime and anti-social activities in the housing estate

Adequacy of housing Relationship with neighbors and Crime and anti-social activities in the housing estate					
		F	%	Mean	Std. Deviation
Crime protection and anti-social activities management in the housing estate	Very inadequate	65	15.4%	2.6588	1.08637
	Inadequate	124	29.3%		
	Neither adequate nor inadequate	149	35.2%		
	Adequate	58	13.7%		
	Very adequate	26	6.1%		
Relationship with neighbors	Very inadequate	3	.7%	2.6351	1.15106
	Inadequate	77	18.2%		
	Neither adequate nor inadequate	118	27.9%		
	Adequate	114	27.0%		
	Very adequate	93	22.0%		

Source: survey result, 2019

The researcher examined the adequacy of the residential environment related to Crime and anti-social activities in the housing estate and Privacy in the residence in the residential environment. It is observed that more than 40% of the residents replied that the housing is inadequate related to crime protection and privacy in the residential environment. But, as it is indicated in the table given above only 19.8% and 24.3% of the respondents felt that the housing estate is adequate related to crime protection and privacy respectively.

In order to make the residential environment very suitable for the residents the relationship of the residents with their neighbor is very important. Especially interview result shows that there was strong relation among neighbors in their previous residential areas compared with the life system in condominium residential environment. As it is indicated in the table above majority of the respondents (51%) of the respondents sensed that there is no strong relationship among residents. But a significant portion of the respondents felt that there is relation among dwellers in the residential environment. Interview result also revealed that there is critical problem and anti-social activities in the housing estate and also the relationship with neighbors. They justified that there is bar houses in the residential environment that creates louder noise in the environment and also there are unknown persons who found in and around the residential areas to get the service in the residential environment.

Table 5-23: Adequacy of housing Privacy in the residence and Communal activities in the housing estates

Adequacy of housing Privacy in the residence and Communal activities in the housing estates					
	Response	F	%	Mean	Std. Deviation
Communal (a place used by the members commonly)	Very inadequate	68	16.1%	2.7370	1.14900
	Inadequate	111	26.2%		
	Neither adequate nor inadequate	140	33.1%		
	Adequate	70	16.5%		
	Very adequate	33	7.8%		
Privacy in the residence	Very inadequate	59	13.9%	2.7536	1.11390
	Inadequate	121	28.6%		
	Neither nor	135	31.9%		
	Adequate	79	18.7%		
	Very adequate	28	6.6%		

Source: survey result, 2019

In condominium sites the residents are using communal together for different social activities in one part and also renting for different shopping purposes. The researcher examined the adequacy of the residential environment related to communal activities and as it is shown in the table given above only 24% of the respondents felt that the housing environment is adequate related to communal activities. But more than 42% of the respondents replied that it is inadequate and the remaining 33% of them felt that the housing is neither inadequate nor adequate related to the communal activities.

It is known that the housing project initiated by the government of Ethiopia (condominium housing) was mass housing project. In these types of housing program the privacy of the residents must be checked because there are different facilities that are used residents in common. It is also indicated in the table given above only 25% of the respondents sensed that there is privacy of residents in the condominium housing. But majority of the respondents (75%) of the residents sensed that there is no privacy in the residential environment in the condominium areas.

Additionally, it must be noted that there is no noise in the residential environment. The evaluations of the residents are given below.

Table 5-24: of housing on Social interaction compared with the previous residential area

Adequacy of housing on Social interaction compared with the previous residential area					
	Response	F	%	Mean	Std. Deviation
Noise in the housing estate	Very inadequate	63	14.9%	2.7299	1.17091
	Inadequate	136	32.2%		
	Neither adequate nor inadequate	111	26.2%		
	Adequate	76	18.0%		
	Very adequate	36	8.5%		
	Neither or	136	32.2%		
	Adequate	68	16.1%		
	Very adequate	28	6.6%		

Source: survey result, 2019

In addition the social agendas stated above the researcher examines the adequacy of housing related to social issues by focusing on noise in the housing estate and it is observed that more than 55% of the respondents felt that it is inadequate. The mean score less than three shows that the residential environment is inadequate related to the dimensions given above. As it is clearly indicated in the interview, there is huge noise at the mid night because there are no strict laws in the residential environment to control bar houses and game zones as well as Pool houses.

Additionally, the researcher identified the relevant variables used to explain adequacy of social interaction in the residential environment. In this section the researcher extracted the main factors explaining the management of the housing estate using principal axis factoring method. Similar to dimension reductions given above; the researcher also checked Kaiser-Meyer-Olkin Measure of sampling adequacy and Bartlett's test of Sphericity prior to undertaking the dimension reduction. It is important to check if the data are considered to be appropriate for factor analysis using Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. Accordingly, it is indicated in the table given above that the KMO value is .764 and it show the sampling is adequate and the data set is suitable for factor analysis

Table 5-25: Dimensions to measure Adequacy of housing related to social interaction

Factor Matrix[a]	
Dimensions to measure adequacy of housing related to social interaction	Factor loading
Communal activities in the housing estates	.757
Noise management in the housing estate	.741
Crime protection and anti-social activities in the housing estate	.729
Relationship with neighbors	.700
Privacy in the residence	.674
The type of home related to age and health	.619
Business and job opportunities within and around the estate	.566
Social interaction compared with the previous residential area	.548
Extraction Method: Principal Axis Factoring.	
Percentage of factors explained	52.446%

Source: survey result, 2019

As per the Principal Axis Factoring Extraction Method the researcher identified the most relevant variables that explain the adequacy of social interaction in the estate and the extraction value (factor loading) is greater than 0.34. Accordingly all variables assumed to have impact on the adequacy related to management of the residential environment. When we compare the variables with their factor loading Communal activities in the housing estates with the factor loading of .757; noise in the housing estate with .700; crime and anti-social activities in the housing estate with .729; relationship with neighbors with .744 and Privacy in the residence with .674 are the first main variables determining the adequacy of the social interaction of the estate compared with other variables.

5.7 Multiple Regressions

The last method of data analysis employed by the researcher in this chapter is identifying determinant factors affecting mean adequacy of the condominium by considering the mean adequacy score as a dependent variable. In carrying out this particular analysis, mean adequacy score (MAS) described earlier was the dependent variable, and the identified attribute as the independent variables including sex of the Respondent's; age of Respondents; marital status of respondents; average Monthly income; highest educational qualification; household size; Employment status; Mean satisfaction Scores considering that the dependent variable is Mean adequacy Score. Prior to undertaking the regression analysis the researcher checked the assumption tests demanded to undertake regression analysis.

Table 5-26: Model Summary

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.843[a]	.711	.705	.40731	2.055

Source: Survey result, 2019

From the given model summary the researcher checked the model adequacy and autocorrelation

Autocorrelation: it is important tool used to diagnose OLS estimation model fitness of the data is the absence of autocorrelation in the datasets. Autocorrelation occurs when the residuals are not independent from each other. Autocorrelation in multiple linear regression models was tested using Durbin-Watson test. Durbin-Watson's tests the null hypothesis that the residuals are not linearly auto-correlated. It assumes values between 0 and 4. As a rule of thumb values of $1.5 < d < 2.5$ show that there is no auto-correlation in the multiple linear regression data. Autocorrelation occurs when the residuals are not independent from each other and seriously affects the result of estimation. In dataset whether autocorrelation present or not was tested using Durbin-Watson test. Durbin-Watson test 2.055 lies between 1.5 and 2.5 and it indicates there was no auto correlation problem in the data.

Model Adequacy: Model adequacy is situation of checking by how much the model fitted describes the collected data. In the OLS estimation method, R-square (R^2) and Adjusted R-square ($\bar{R}^2$) are commonly used techniques to check the fitness of the model (Wooldridge, 2002). Adjusted R^2 as indicated in the model 70.5% shows that the dependent variable explained by the independent variable by 70.5%. From the regression results in table, the model's R2 is 0.705 and tells how much of the variance in the dependent variable (housing affordability) is explained by the model. Expressed in percentage, it means that the model comprising of the nine (9) variables explain 70.5% of the variance in housing affordability.

R-square is the measure of the 'Goodness-of-fit' of the fitted regression model and is calculated by the ratio of the explained to the total variation. It describes how much of the variation in the dependent variable is explained by the included factors or explanatory variables in the model. In social science low R-square in regression is common, especially for cross-sectional analysis (Wooldridge, 2002).

The ANOVA is used to test whether or not the proposed model significantly predicts the dependent variable. In this case, F- statistics in ANVOA table shows that $P<0.01$. This means that the independent variables are significantly predicts the dependent variables in the estimated model.

Table 5-27: *ANOVA test*

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	168.369	9	18.708	112.762	.000b
	Residual	68.352	412	.166		
	Total	236.721	421			

Source: Survey result, 2019

It is indicated in the table given above F- statistics in ANVOA table shows that $P<0.01$ i.e. 0.000. This means that the independent variables are significantly predicts the dependent variables in the estimated model.

Test of normality: Parametric tests, say regression analysis assumes a Gaussian (normality) distribution of the continuous data. However, likert scale items may violate this assumption. Thus, in this study items or data constructed using likert scale and used in factor analysis tested for normality by using a very conservative test approach called Kolmogorow-Smirnov normality test using SPSS to assess whether the items constructed using likert-scales are normally distributed.

Table 5-28: Tests of Normality

Tests of Normality						
	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Mean adequacy score	.054	422	.005	.986	422	.001
a. Lilliefors Significance Correction						

Source: Survey result, 2019

If test statistics are statistically significant ($p<0.05$), the probability that the data follows normality distribution is very low. Thus, for a normally distributed variable the result is non-significant ($p>0.05$). According to Wooldridge (2002), collinearity for a given dataset is measured using tolerance value and variance inflation factor (VIF). As a rule of thumb, tolerance values of 0.10 or less are cited as problematic. This implied that, the independent variables are highly correlated with other variables in the model. In this case, remove one or more highly inter-correlating variables from the model.

VIF-indicates the degree to which the standard errors are inflated due the levels of collinearity. Thus, VIF of 10 or greater are often cited as inductive problematic collinearity. If the above two ways of detecting multicollinearty assumptions are violated, there is the problem of collinearity in the predictor variables. In this case, the researcher is advised to remove the independent variables which have a highest correlation coefficient in the model. In case when two or more independent variables have a high correlation coefficient, remove the variables which have higher P-value in the estimated model. The VIF shown in the regression is less than 10 that is close to 2 and it indicates that there is no Multicollinearity.

Table 5-29: Regression result for determinants of housing Adequacy

Coefficients[a]							
	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
(Constant)	.795	.164		4.852	.000		
mean satisfaction score	.865***	.029	.841	30.118	.000	.899	1.113
age of the house hold	-.005**	.002	-.083	-2.894	.004	.860	1.163
Marital Status	-.038	.037	-.029	-1.033	.302	.893	1.120
sex of the respondents	-.039	.046	-.026	-.853	.394	.759	1.318
Household head	-.100**	.050	-.063	-2.002	.046	.704	1.421
Educational level	.059***	.015	.113	3.825	.000	.806	1.241
total family size	-.006	.014	-.013	-.467	.640	.889	1.125
employment status	-.013	.019	-.018	-.676	.499	.947	1.056
Total monthly income (in birr)	-1.303E-5**	.000	-.064	-2.241	.026	.846	1.181

a. Dependent Variable: mean adequacy score

Source: Survey result, 2019

The regression result revealed that total monthly income (in birr); mean satisfaction score; educational level; house hold head and age of the house hold have a statistically significant association with the mean adequacy score.

Mean satisfaction score and education level positively affects housing adequacy whereas age and monthly income have a negative effect on housing adequacy. This might be because of the fact that through ages, family size will increase and hence becomes inadequate and people with more income prefer to live in any other places than at condominiums.

The perception of the residents on adequacy of the residents are affected by the age of the residents and it is indicated that as the age of the respondents increase by one more year mean adequacy score decreased by 0.5% this is because of the perception of residents on the previous residential environment. It is noted in different literature that age of the perception of the previous residential environment has its own influence on current residential environment.

Educational level has an association with the mean adequacy score. As the educational level increased by one level; the mean adequacy score increased by 5.2% at 1% level of significance. It is indicated by Eziyi Offia Ibem*, Egidario B. Aduwo (2013) variables that appeared as significant predictors of residential satisfaction included adequacy of social infrastructural facilities, mode of acquisition of housing and housing delivery strategies. Among the respondents' socio-economic and demographic characteristics, education, employment sector and household sizes emerged as significant predictors of residential satisfaction.

Total monthly income (in birr) has an association with mean adequacy score. As the level of income increased by one level; the mean adequacy score decreased by 0.013 % at 5% level of significance. As the level of income increased the demand of the people towards different products also increased. In this case as the income level of the residents increased the residents may have intention to reside in a better quality houses such as real estate. It is also stated by Eziyi Offia Ibem*, Egidario B. Aduwo (2013) that the income level is the determinant for residential satisfaction. And also they stated that people of lower income groups are more satisfied if they gain ownership of government constructed houses on mortgage than outright purchase arrangements.

It is noted that the mean satisfaction score also has an association with mean adequacy score. As the level of mean satisfaction score increased by one level; the mean adequacy score will increase by 86.5 % at 1% level of significance.

As compared to male headed households, female headed households have less mean adequacy score. The mean adequacy score of female headed households is on average less than by 10% than that of male headed households. This might be because of females live in extended family than in a nuclear family on average and extended families most likely face the inadequacy problem. Of course, having a significant constant also implies that there are also other structural variables that will contribute positively to the adequacy mean score of condominium houses. These might include the design and size of the house which has been set by the government itself.

5.8 Summary of the Chapter

In this chapter the researcher was discussed the adequacy of condominium housing by considering five basic dimensions. The researcher used descriptive statistics, dimension reduction to confirm the variables indicated in different dimensions of housing adequacy. This study investigated and analyzed the dimensions of housing adequacy evaluation by 422 respondents in nine public housing estates in urban areas of Addis Ababa, Ethiopia. Findings show that the respondents rated their current housing situation in the housing estates sampled as inadequate in meeting their needs, expectations and aspirations.

Accordingly, it is indicated that the adequacy of the housing is not maintained by government because it is against the definition of housing adequacy such as adequate shelter means more than a roof over one's head. It further explained that adequate housing means: *"adequate privacy; adequate space; physical accessibility; adequate security; structural stability and durability; adequate lighting; heating and ventilation; adequate basic infrastructure, such as water supply, sanitation and waste management facilities; suitable environmental and health related factors; and adequate and accessible location with regards to work and basic facilities: all of which should be at an affordable cost"* (UN-HABITAT, 1996).

Based on the analysis the researcher were evaluated housing adequacy based on different dimensions such as physical characteristics of the house; infrastructure (water supply, electricity and road; neighborhood characteristics (government establishments); social issue related to the residents and also Management of the residential environment.

Based on this result, the following conclusions were drawn by the researcher. Consequently, the most important physical characteristics of the housing characteristics with significant influence on residents' perception of housing adequacy in public housing (condominium housing) are sizes of cooking and storage spaces; number of bedrooms in the residence; size of dining and living space; sizes of bedrooms in the house; design of residence in relation to occupants' natural way of life; natural lighting and air circulation in living and bed rooms; aesthetic appearance of residence; dining area - size & condition and also location of residence in the estate. As per the analysis it was observed that most of the respondents felt and sensed that the housing unit is not adequate compared with their expectation and aspiration.

It is also discussed and indicated in the analysis that the residents sensed and felt that the housing unit are not adequate related to supply of electric power, expansion of road but they felt that there is no critical problem of water supply and sanitation services. But they stated that the distribution of water is not similar in different floors. According to UN Habitat (2009) the existence of infrastructure has its advantage such as improving water accesses implies less cost burden, reducing water related disease and improving quality of life. Electricity stoppage also pushed dwellers to used charcoal to cook food and also to get different energy, which is very expensive than electric bill, which affect the environment and their health. This suggests that connecting utility without adequate service level could not improve housing satisfaction.

Adequacy of housing related to government establishments in and around the residential environment shows that there was uneven and unfair service provision between sites. Additionally, the government establishments are not with appropriate service quality and also it is difficult to afford. Some of the establishments such as police station is not functioning appropriately especially the function of community policing is poor and there is irregular patrol made by the police. It is stated that the establishments are easily available and accessible in the inner city sites but fail to find easily in the peripheral condominium sites. As it was indicated in the discussion part given above, the housing environment is not as such adequate related to the government establishments Even the market place with reasonable price is not exist in the remote sites.

It also discussed that the housing unit are not adequate in management of the housing estate. Respondents stated that the committee member make a decision on different aspects of the residential environment and facilities without active participation of the residents and the rules and regulations are not as such consistent with the needs and aspiration of the residents. It is also observed that residents are not participatory in different aspects of the residential environment. Such as cleaning the residential environment including the corridor and stair case and also monetary contributions expected from the residents to fulfill infrastructures in common.

Based on the principal axis factoring methods of dimension reduction location of residence; in the estate; natural lighting and air circulation in the living and bed room; aesthetic appearance of residence; design of residence in relation to occupants natural way of life are among the main factors affecting adequacy of housing physical characteristics. Existence of water supply, electricity and availability of road are the very important variables in determining the physical infrastructure of the housing environment. The adequacy of government establishments determined using availability of shopping facilities; children's school; distance from bus station; public infrastructure and urban services. Additionally, adequacy of housing related the management of the estate is described using cleanliness of the housing estate security of life and property; street quality and lighting; cleaning corridor and stair case. It is also stated that communal activities in the housing estate; absence of noise; crime and anti-social activities are the main variables to explain the social issues in the residential environment.

Based on the regression analysis it is found that total monthly income (in birr); mean satisfaction score; Educational level; house hold head and age of the house hold has an association with the mean satisfaction score.

CHAPTER SIX

6 RESIDENTIAL SATISFACTION AMONG CONDOMINIUM RESIDENTS IN ADDIS ABABA CITY ADMINISTRATION

6.1 Introduction

Residential satisfaction is a very important concept used to evaluate the extent to which housing schemes meet residents' needs, expectations and aspirations. This study therefore views to assess the satisfaction of condominium residents by focusing on different dimensions such as satisfaction on physical characteristics of condominium housing; availability of physical infrastructure (water and sanitation, electricity and availability of standard road); availability of public infrastructure; social issues in the condominium and also the management practices of condominium areas. Additionally, the researcher was motivated to identify the dimensions of housing adequacy and residential satisfaction; and the factors that influence household's satisfaction on the condominium housing units. The data were collected and organized from a questionnaire survey of 422 residents in condominium housing in Addis Ababa city administration using open ended and closed ended questions and also using interview and focused group discussion; additionally the researcher reviewed secondary sources of data; and analyzed using descriptive statistics, factor analysis (principal axis factoring method) for dimension reduction and categorical regression analysis.

In the formulation of housing projects different social, economic and cultural aspects of the people must be taken in to considerations. Public housing projects across the world are developed for the main purpose of improving the living conditions of citizens in different countries including in Ethiopia in general and Addis Ababa in particular. In Ethiopia for instance, the goal of the current housing policy is to ensure that all Ethiopians own or have access to decent, safe and sanitary housing in a healthy environment with infrastructural services at affordable cost, and with secure tenure (UNHABITAT, 2012). In parallel to this goal, governments at the federal and state levels in Ethiopia have developed large-scale (mass) public housing for the citizens called integrated housing development program (IHDP) initiated in 2005. In view of the fact that public housing systems in Ethiopia and other countries are implemented within the framework of the existing housing policies, there is a need to examine how such housing schemes have achieved the goal of meeting housing needs of the target population.

The very important issue to be noted is the adequacy and affordability of public urban housing in developed as well as developing countries including in Ethiopia. It is also the critical and concerning issue in Ethiopia too and it is a must to consider and evaluate the housing projects adequacy and affordability to determine the satisfaction of the residents.

In an attempt to investigate and understand how public housing schemes meet the expectations and aspiration of end users; different types of evaluation and examination of such projects have been carried out by researchers and construction as well as different social science professionals in different countries. The review of literature shows that one of the most common approaches used by researchers to investigate and understand the performance of public housing schemes is the Post Occupancy Evaluation (POE) also known as building evaluation or building-in use mostly used by Ibem et al, 2015.

That is why this study emphasized on examination of housing affordability, adequacy as well as on residential satisfaction. Because these issues are important dimensions that needs critical and objective investigation and examination to check and evaluate the relevance of the policy in addressing the issue of adequate and affordable housing for the poor in Ethiopia in general and Addis Ababa in particular. Because it is known that; if the housing program is adequate and affordable, it satisfies the residents.

It is obviously known that Housing satisfaction and perception has become a subject of interest in many quality of life studies in social science because of its effect on every aspects of life. It was discussed that housing affects both fertility on one hand and mortality on another hand because these two life occasion is related to housing if people are living in quality house it encourage fertility and poor quality housing increases mortality because people may be exposed for different disease; that is why checking the satisfaction of residents on their housing is the important subject of this research. That is why the need to assess the satisfaction of the residents on the residential environment is very important. The researcher asked to check the satisfaction level of the respondents on the residential environment.

In order to undertake the study a total of 37 objective housing attributes comprising housing units attributes (sizes, ventilation and lighting of interior spaces; security, privacy) availability of good drinking water; electricity; sanitation; and access to neighborhood facilities and good management practice in the housing estates were used to collect data on housing adequacy. The respondents were specifically asked to rate the level of satisfaction of each of the 37 housing attributes using a five-point Likert scale ranging from 1 for "Very dissatisfied", 3 for "neutral" to 5 for 'Very satisfied'.

In undertaking this analysis (comparing with the mean) values between 1.0 and 2.9 were considered to be within the region of dissatisfaction while values between 3.01 and 5.0 were in the region of satisfaction. Value 3.0 is the neutral point describing neither dissatisfaction nor satisfaction conditions. Similar to evaluation of adequacy Comparable interpretation was adopted in previous studies (e.g. Salleh, 2008; Ibem and Aduwo, 2013).

In providing public housing for the poor, it is recommended to fulfill different components demanded by the people. The IHDP is organized to establish appropriate housing for the poor as well as by focusing on different goals such as enhancing saving habit of the poor as well as creating employment opportunity through micro and small scale enterprises (MSEs). This component of the framework addresses the output of housing delivery strategies in public housing programmes in Ethiopia in general and the city administration of Addis Ababa in particular.

The characteristics of housing units; housing services and infrastructure, neighborhood facilities, management of the residential environment and socio-economic environment are the key components of that was examined/ used by the researcher to examine the satisfaction of residents. Basically, the assessment of residents' perception on the adequacy level of housing provided is important. Specific attention may be on parameters for measuring accessible, decent, safe, healthy and affordable housing. This is important in examining the extent to which housing programmes can provide access to adequate housing both in quantity and quality. Particularly, emphasis is on the extent to which housing provided have met the needs of the residents in terms of the adequacy of spaces, comfort, security, hygiene, and aesthetics, and provided opportunities for social and economic benefits, access to basic amenities and proximity to public services and infrastructure as well as management of the residential environment.

According to Okechukwu (2009) *"Housing policy formulation and implementation in the country must take awareness of the socio economic circumstances and condition of the people and reflect it in the policy. The present move on relying wholly on market forces of demand and supply and leaving housing to private initiatives not to solve the problems of housing shortages and quality in the country"*

The housing program is adequate when the residents are satisfied with the general housing characteristics and the residential environment. The satisfaction of the residents on residential environment can be seen from different aspects demanded by the people or residents to lead their day to day life because housing adequacy is not defined only from a specific aspects rather it is mandatory to see the physical characteristics, infrastructures, government establishment in and around the housing estate, management of the estate and socio-economic aspects of the estate.

In the following section the researcher examines the satisfaction of the respondents on different aspects related to housing characteristics' and the preference of the people on the residential environment. As construction of condominium houses in Ethiopia in general and Addis Ababa in particular is new, the residents have different feelings towards it and their feeling is affected by the cost, size, quality, location, floor, infrastructure and the distance from the center of the city. Some of them feel that it is effective in addressing the housing problem of low and middle income individuals. But, the other believes that it is both poor in quality and costly as well as there is a complex and beaurocratic process of getting and transferring the housing to the beneficiary. Francescato et al (1979) defined residential satisfaction as the emotional response to a person's dwelling; the positive or negative feeling that the inhabitants have for where they reside. Residential satisfaction has been used as a measure to examine the success of housing development projects.

In the following section the researcher presented the satisfaction of residents in different dimensions as given below from 6.2 to 6.6.

6.2 Satisfaction of residents on physical characteristics of housing

The first issue that must be considered in examination of the resident's satisfaction is the physical characteristics of the respondents. The integrated housing program has a goal of providing adequate and affordable housing for the urban poor in Ethiopia in general and Addis Ababa in particular. The problem of housing in Addis Ababa was poor physical characteristics, congested with common toilet and other poor standard indicators. In this section the researcher examined satisfaction of respondents on the physical characteristics of the estate using frequency and percentage and also the attributes mean satisfaction score. Housing with appropriate physical structure has different advantages such as it address the cultural aspects of the people, suitable for those who have an interest to undertake homemade business and also must be suitable for the disables.

As it is indicated in the table below the researcher evaluated the physical characteristics of condominium housing by considering size of the living and dining room, size of cooking rooms, design in relation to their natural way of life and also location of the residents and natural lighting and air circulations. The researcher examined the satisfaction by considering the mean satisfaction score and using the frequency and percentage of the alternatives.

Table 6-1: Satisfaction of residents on size of dining, living and bed rooms

Satisfaction of residents on size of dining, living and bed rooms					
	Responses	F	%	Mean	Std. Deviation
Size of dining and living space	Very dissatisfied	57	13.5%	2.7156	1.20753
	Dissatisfied	125	29.6%		
	Neutral	115	27.2%		
	Satisfied	61	14.4%		
	Very satisfied	64	15.1%		
Sizes of bedrooms in the house	Very dissatisfied	51	12.1%	3.0829	1.15549
	Dissatisfied	68	16.1%		
	Neutral	142	33.6%		
	Satisfied	117	27.7%		
	Very satisfied	44	10.4%		

Source: survey result, 2019

To evaluate the satisfaction of respondents the researcher considers the physical characteristics of the housing unit by focusing on the Size of dining and living space; Sizes of cooking and storage spaces; dining area - size & condition. As it is indicated in the tables given above 43% of the respondents are not satisfied related to size of dining and living areas and 28% of the respondents are Neutral. But only 29% of the respondents are satisfied with the size of dining and living space. Similarly it is shown that even if 33% of the respondents neutral but 37% of the respondents are satisfied and the remaining 30% of the respondents are not satisfied with the size of the bed room. This shows that majority of respondents are not satisfied. Data from interview and focused group discussion also supported that the size and number of the bed room is not as such satisfactory compared with the number of family member. They mentioned that the size of the family is large compared with the size and number of bed rooms. And they are forced to use dining area to sleep.

Regarding the issues stated above the mean score of size of dining and living area is 2.71 shows that respondents are not satisfied and the mean score of size of the bed room is 3.08 and as per the definition given it is close to three and it shows that they are satisfied.

Size of cooking area is important for the residents to undertake essential activities to be undertaken in a cooking area and also it satisfy the residents. In the table given below the researcher presented the satisfaction of respondents on the number of bed rooms in the residency and also size of cooking and storage space.

Table 6-2: Satisfaction of respondents on number of bed room and size of cooking areas

Satisfaction of respondents on number of bed room and size of cooking areas					
	Responses	F	%	Mean	Std. Deviation
Number of bedrooms in the residence	Very dissatisfied	54	12.8%	2.9550	1.17389
	Dissatisfied	89	21.0%		
	Neutral	150	35.5%		
	Satisfied	80	18.9%		
	Very satisfied	49	11.6%		
Sizes of cooking and storage spaces	Very dissatisfied	60	14.2%	2.9384	1.25056
	Dissatisfied	106	25.1%		
	Neutral	113	26.7%		
	Satisfied	86	20.3%		
	Very satisfied	57	13.5%		

Source: survey result, 2019

As it is indicated in the table given above the respondents also asked about the number of bed rooms in addition to size of bed rooms. The condominium designed with studio, one bed room, two bed room and also three bed room depending on the interest of the respondents. Majority of the respondents 35% are Neutral and the remaining 33% are dissatisfied and the 29% of the respondents are satisfied. Data from interview and open ended questions also reveals that the preference of the people regarding the number of bed room is not consistent with the financial capacity of the residents. Because it is known that the down payment as well as the periodical mortgage payment is increased when the number of room increased.

Related to size of cooking and storage space it is shown that majority of the respondents i.e. 39% of them are dissatisfied; and a significant number of respondents 29% is neither satisfied nor dissatisfied and it is indicated that 32 % of the respondents replied that it is satisfactory. The mean score 2.95 and 2.93 shows for a number of bed room in the residency and also size of the cooking and storage space in the building respectively shows that the house is not adequate regarding the issue stated above is not adequate. The mean score below three shows that residents are not satisfied on the stated issues given above.

It is also noted that size of cooking and storage space is very important to undertake comfortable life in the residential environment. But, as it is indicated on the interview the cooking and storage area is not as such comfortable. Especially when the family size increased the material used by the house hold will also be too much and also cooking for different ceremony is difficult because of the size of the cooking areas. And the residents are forced to use communal to facilitate the ceremony. In the table given below the researcher presented satisfaction of the respondents on location of residence in the estate and also size and condition of dining areas.

Table 6-3: Satisfaction of respondents on location, dining area size and condition

Satisfaction of respondents on location, dining area size and condition					
	Responses	F	%	Mean	Std. Deviation
Location of residence in the estate	Very dissatisfied	38	9.0%	3.1303	1.26888
	Dissatisfied	118	27.9%		
	Neither sat. nor dissatisfied	100	23.6%		
	Satisfied	83	19.6%		
	Very satisfied	83	19.6%		
Dining Area - size & condition	Very dissatisfied	50	11.8%	3.0829	1.25406
	Dissatisfied	93	22.0%		
	Neither sat. nor dissatisfied	123	29.1%		
	Satisfied	84	19.9%		
	Very satisfied	72	17.0%		

Source: survey result, 2019

Another issue examined by the researcher is the satisfaction of the residents on the residential environment related to Location of residence in the estate and it shows that 43% of the respondents are satisfied with the residential environment and 27% of the respondents replied that they are neither satisfied nor dissatisfied with the housing location and the remaining only 30% of the respondents replied that they are dissatisfied with the location of the residential environment. Its mean value is 3.1303 and it is considered that the residents are satisfied on the location of the estate in the residential environment.

Data from interview and open ended questions justified that the neighborhood characteristics of the condominium sites are not against the interest and preference of the residents. Different infrastructures demanded by the people and relevant for the people to lead their life must be available in and around the residential environment. Because they mentioned that most of the condominium sites are located in the peripheral areas, and it is very difficult to access relevant public and private services. Such as situation makes a dissatisfaction on the residents and also it affects housing affordability adversely.

Dining Area - size & condition is also another issue to be considered in evaluating the satisfaction of the respondents about the physical characteristics of the respondents. As it is indicated in the table given above only 36% of the respondents are satisfied with the size and condition of the dining areas. But the remaining i.e. majority of the respondents are not satisfied with the size and condition of the respondents. The mean score of 3.08 i.e. close to three also indicated that the size of the dining room and its condition satisfied the residents. In addition to location; size and condition of dining area; examination of resident's satisfaction on natural lighting air condition, aesthetic appearance and design of residence is important. It is indicated in the table given below.

Table 6-4: Satisfaction of respondent's Natural lighting and air circulation; Aesthetic appearance and Design of residence

Satisfaction of respondent's Natural lighting and air circulation; Aesthetic appearance and Design of residence					
	Responses	F	%	Mean	Std. Deviation
Aesthetic appearance of residence	Very dissatisfied	78	18.4%	2.9313	1.37591
	Dissatisfied	105	24.8%		
	Neither sat. nor dissatisfied	82	19.4%		
	Satisfied	82	19.4%		
	Very satisfied	75	17.7%		
Natural lighting and air circulation in living and bed rooms	Very dissatisfied	67	15.8%	2.9692	1.28448
	Dissatisfied	91	21.5%		
	Neither sat. nor dissatisfied	114	27.0%		
	Satisfied	88	20.8%		
	Very satisfied	62	14.7%		
Design of residence in relation to occupants' natural way of life	Very dissatisfied	72	17.0	2.8673	1.25262
	Dissatisfied	93	22.0		
	Neither sat. nor dissatisfied	129	30.5		
	Satisfied	75	17.7		
	Very satisfied	53	12.5		

Source: survey result, 2019

Related to the satisfaction of the respondents on aesthetic value of the housing majority of the respondents replied that the satisfaction of residents on the residential environment related to the aesthetic appearance of residence 39% of the respondents replied that they are satisfied on the location of the environment and 27% of the respondents sensed that it is neither satisfied nor dissatisfied. It is observed that the remaining 34% of the respondents are dissatisfied. The mean value 3.13 shows that the housing program satisfied the residents on the aesthetic appearance of the residential environment. Data from interview revealed that the aesthetic value is by far comfortable and sound than the previous residential areas because the former residential area were totally made of mud and also residents were used common toilet.

Natural lighting and air circulation in living and bedrooms is also another issue to be considered in determining the satisfaction of respondents related to physical structures. It is observed that majority of the respondents 37 % are not satisfied on the natural lighting and air circulation and the remaining 27% of the respondents sensed that the housing unit is neither satisfied nor dissatisfied. The remaining 35% of the respondents replied that they are satisfying on the natural lighting. The mean value 3.0616 shows that the housing program related to natural lighting and air circulation in living and bedrooms and it assumed that the residents are satisfying residents. It is also supported by the interview that the design of the building is suitable to have a natural lighting and air circulation in the residential environment. The former residential area was too much congested and with suffocations.

Design of residence in relation to occupants' natural way of life must also be evaluated to assess the satisfaction of respondents on residential environment. It is observed that almost 39% of the respondents replied that the housing program is satisfying them and it is also consistent with the resident's natural way of life. Result of the analysis of the respondents' perception of housing adequacy shows that overall mean adequacy score (MAS) of 2.80; suggesting that the respondents felt that their current housing situation was not sufficient in meeting their needs, expectations and aspirations. Data from interview also supported the housing is not suitable.

From the above discussion and the presentation indicated the researcher described the physical characteristics of condominium housing units using the mean adequacy score of the items that collected using likert scale. The researcher considered design of residence in relation to occupants' natural way of life; natural lighting and air circulation in living and bedrooms; dining area - size & condition; aesthetic appearance of residence; location of residence in the estate; sizes of cooking and storage spaces; number of bedrooms in the residence; sizes of living and dining spaces and sizes of bedrooms in the house to examining the physical characteristics of condominium units.

In addition to frequency and percentage the researcher used mean score to identify the satisfaction of the respondents. Accordingly the mean value of aesthetic appearance of residence(2.9313); sizes of cooking and storage spaces (2.9383); number of bedrooms in the residence(2.95550); natural lighting and air circulation in living and bedrooms (2.9692); and the design of residence in relation to occupants' natural way of life (2.9858) has the mean value of less than three. The poor quality of the housing estate make difficult for the disables as well as for those who has interest to establish their own business. Additionally respondents replied on the interview that in their former housing they were renting part of their houses to get some additional income because the monthly income is not enough to lead the routine lives. But condominium is difficult to rent part of the dwelling because of the design of the house; As indicated in the table given above the individuals perception on the size of the room is not as such satisfactory.

In addition data from interview and open ended question indicate that the respondents' were dissatisfied with corridor space narrowness, high finishing cost, high rental cost, water supply shortage, electricity interruption, poor indoor electric line installation, communal service building, poor sanitation utilization and installation, poor green area management, underservice (poor standard) parking area, absence of children's playground and absence recreation center.

Moreover, they also stated that the location, size and floor of condominium houses were not provided based on the need of the residents. In addition, the size and the floor given to the beneficiary remain randomly assigned. According to the discussion with the officials this is because it is impossible to match the demand and supply in all aspects of the housing program.

Apart from the issues stated above; respondents stated in the open ended questions with respect to staircase, elevators and emergency exit were found to be very much important for top floor occupants particularly for children, elder, pregnant and disabled and also for the people with health problem. As of the expectation, respondents of top floors were not comfortable to access their housing units on daily basis. And they stated the reasons of dissatisfaction; their reasons of dissatisfaction were not only absence of elevators, and emergency exit but also staircase quality and space. Another issue to be considered is the quality of the staircase in the building that is related to construction material quality and space sufficiency to move. It is observed that the stair case is not as such with standard quality and aesthetic value is not with appropriate quality—it is not attractive.

Additionally, the researcher examined relevant variables that explain the physical characteristics of the housing estate. In this section the researcher extracted the main factors explaining the satisfaction of residents on the physical characteristics of the residential estate. To undertake the dimension reduction the researcher used principal axis factoring method. And it is observed that Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's Test of Sphericity checked to undertake the dimension reduction.

Bartlett’s Test of Sphericity is a test employed for validity of factor analysis to data sets at desire significant level. And it is indicated in the table given above Bartlett’s test of Sphericity is significant; it assumed the data met the assumption and factor analysis appropriate method for data analysis (Yong and Pearce, 2013). In addition, it is important to check if the data are considered to be appropriate for factor analysis using Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. Small value for KMO indicates a problem with sampling. A KMO value of 0.90 is best, below 0.50 is unacceptable. In this study, cutoff above .50 is used as good measure of sampling adequacy. It is indicated in the table given above that the KMO value is .870 and it show the sampling is adequate.

Table 6-5: Dimensions to measure the satisfaction of residents on the physical characteristics of the condominium housing

Factor Matrix[a]	
Dimensions to measure the satisfaction of residents on the physical characteristics of the condominium housing	Factor loading
Dining Area - size & condition	.783
Sizes of cooking and storage spaces	.763
Location of residence in the estate	.738
Sizes of bedrooms in the house	.735
Number of bedrooms in the residence	.727
Design of residence in relation to occupants' natural way of life	.709
Sizes of living and dining spaces	.670
Natural lighting and air circulation in living and bedrooms	.642
Aesthetic appearance of residence	.638
Extraction Method: Principal Axis Factoring.	
Percentage of factors explained	56.86%

Source: survey result, 2019

The researcher used Principal Axis Factoring Extraction Method to identify the most relevant variables that explain the satisfaction of residents on physical characteristics of the estate. The researcher found that the stated variables are related to the physical characteristics of the housing satisfaction of respondents. Because the stated variable that explain the physical characteristics of the housing estate has extraction value (factor loading) is greater than 0.34. Accordingly all nine variables assumed to have impact on the housing issue stated above. The most relevant factors that affect the physical characteristics of the estate are dining Area - size & condition with a factor loading of .783; Sizes of cooking and storage spaces with .763; Location of residence in the estate with .738; Sizes of bedrooms in the house .735; Number of bedrooms in the residence with .727 and Design of residence in relation to occupants' natural way of life with .709 are the most important dimensions to explain the physical characteristics of the condominium house.

6.3 Satisfaction of residents on availability of Infrastructures in the residential environment

Another issue to be noted in the formulation of the housing program in the urban centers is infrastructures. But Infrastructure provision is very challenging in different state in Africa in general and Ethiopia in particular. Facilities like road, electricity, water supply and good drainage systems become a major hindrance for both private and public sectors to provide after house have been put up.

It is known that infrastructure development lies behind Housing Development in different urban centers including in Ethiopia in general and Addis Ababa in particular. Infrastructure such as drainage, roads, sewage or means of sewage disposal and road is a necessary pre-requisite for good Housing development. The availability of basic social amenities (e.g. good drinking water, power supply, availability of roads, sanitary services) in the housing estate is very important to have adequate housing in the urban centers. In providing adequate housing the fulfillment of different infrastructures is very important in different urban centers. The infrastructures include electricity, water supply, sanitary service and expansion of road in and around the residential environment. Because it is demanded by the people in their day to day lives as well as to undertake different business because there are different business units in the housing estate such as barber, café and restaurant, bar houses, bakery, beauty salon and any other types of business activity including different homemade business.

Increase of the population in the residential environment has led to an increased demand on the services and available infrastructure within the urban areas. The supply of such services and infrastructure is not able to meet the demand. The law of economics states that when demand exceeds supply, there is increased competition of the available resources making them rather expensive (Gibb, 2009). The perceptions of the respondents towards the infrastructure are given below on the table regarding electricity, road, water supply and sanitary services.

In the table given below the researcher examined the satisfaction of the residents on the electric service, examination of road and also water supply and sanitary services in the residential environment. The residential environment must be accessible for different infrastructure demanded by the people especially by the poor people. The table given below indicates the perception of the respondents about their satisfaction on electrical, road expansion and water supply.

Table 6-6: satisfaction of respondents on electrical, road expansion and water supply

Satisfaction of respondents on electrical, road expansion and water supply					
	Response	Freq.	Per.	Mean	Std. Deviation
Electrical services	Very dissatisfied	71	16.8%	2.8483	1.12655
	Dissatisfied	118	27.9%		
	Neither satisfied nor dissatisfied	98	23.2%		
	Satisfied	83	19.6%		
	Very satisfied	52	12.3%		
Expansion of road	Very dissatisfied	60	14.2%	2.9716	1.24223
	Dissatisfied	63	14.9%		
	Neutral	121	28.6%		
	Satisfied	113	26.7%		
	Very satisfied	65	15.4%		
Water supply and sanitary services	Very dissatisfied	70	16.5%	2.7844	1.21684
	Dissatisfied	73	17.3%		
	Neutral	134	31.7%		
	Satisfied	124	29.3%		
	Very Satisfied	21	5.0%		

Source: survey result, 2019

As per the data collected from the residents regarding the housing infrastructure indicated above the first part to be noted is the electric power on the residential environment and it is observed that 44% of the respondents are not satisfied. Around 32% of the respondents are satisfied and the remaining 24% of the respondents are Neutral with electric power supply.

The satisfaction of respondents examined related to water supply; it is observed that almost 34% of the respondents said that the water supply in the residential environment is satisfying them and equally 34% of them are dissatisfied but around 32% of the respondents are Neutral.

Regarding expansion of road 43% of the respondents are satisfied; around 29% of the respondents are dissatisfied and the remaining 28% of the respondents are neither dissatisfied nor satisfied with the expansion of road. It is noted that the expansion of road has its own significance to social and economic significance.

The researcher also examined the satisfaction of the residents on the infrastructure related to water supply, electricity and expansion of road using the mean score of the responses. Based on the mean score of infrastructure, the mean score of the stated infrastructures is below three. And it shows that mean of 2.97 for expansion of road, 2.8483 for electric service and 2.7844 for water supply and sanitary service. As per the data presentations given above respondents perceive and felt that the infrastructure is against their preference. Interview results also reveal that there is critical power interruption. There was also water supply problem and also the upper floor is not accessible for water because of poor water pressure. Regarding the road expansion in the residential environment, the residents stated that the roads are not as such satisfying and most of the roads are made of cobblestone and there is no suitable wake-ways and also there is design problem of the road; this makes the residents dissatisfied.

In addition to the analysis given above; the researcher used Principal Axis Factoring Extraction Method Relevant variables that explain the physical infrastructure in the residential environment. The researcher checked Sampling adequacy using KMO and Bartlett's test of Sphericity were undertaken to verify whether the data set is suitable for factor analysis or not. A KMO value of 0.90 is best, below 0.50 is unacceptable. It is indicated in the table given above that the KMO value is .675 and it show the sampling is adequate.

Table 6-7: Dimensions for the satisfaction of residents on Physical infrastructure in the residential environment

Dimensions for the satisfaction of residents on Physical infrastructure in the residential environment	Factor loading
Electrical services	.950
Expansion of road	.891
Water supply and sanitary services	.874
Percentage of factors explained	64.49%

Source: survey result, 2019

As per the Principal Axis Factoring Extraction Method three of the stated variables were most relevant variables that explain the physical infrastructure in the residential environment. Because the stated issues that explain the physical characteristics of the housing estate has extraction value (factor loading) is greater than 0.34. And it is stated that electrical service is the most relevant variable that explain the physical infrastructure in the residential environment with the factor loading of .950.

From the above discussion about the physical infrastructure such as water, electricity and availability of standardized road in the residential area; the availability of basic infrastructure around the housing estate has a critical impact on the social and economic aspects of the residents. In the condominium site there are houses that were prepared for business purposes which are located on the ground of the building and there are different business centers in the condominium sites. But in order to undertake their own business the existence of water and electricity is important. Not only for the business even for the residents the existence of water and electricity important because one of the goal of the project was to create modern life style in the urban centers. Inaccessibility of mode of transport increase travel cost in particular and housing costs in general (e.g. walking distance to access the mode of transport, transport waiting time, transportation cost) and service cost of individuals to access the service. These cost has direct implication on site and house unaffordability, i.e. it increase direct housing cost plus high transportation cost due to detached housing location. Residents' housing dissatisfaction may aggravate if a site may have low or no employment access for low income or informal worker. It is also claimed that the housing structure is not as such suitable to undertake homemade business in the condominium houses especially in the floor area. This implies that inaccessible site location has increase the budgetary constraint and decreasing wealth accumulation and saving capacity of the residents by increasing expenses of housing as well as non-housing expenditures.

6.4 Satisfaction of residents on Government establishments in the residential environment

In the development of urban housing the consideration of different government establishments such as recreation centers, shopping facilities, school, hospitals, police station, churches and masjid is very crucial to facilitate the social as well as the economic activities of the residents. Different social and economic aspects of the residents are addressed through the existence of the stated facilities in and around the housing estates. Among the different requirements that can be demanded by the people in and around the residential environment is government establishments. It is also noted that the existence of government establishment has its own advantage for the people in a multi-dimensional ways. It increases the cost of living in one side and getting required service on another side. Generally, it increases the living costs and ultimately it has a positive link with affordability (another critical component to be noted in the formulation of housing programs). In the table below the researcher presented the descriptive statistics of government establishments and present as follows. The existence of recreational centers and different public infrastructure in the residential environment has its own significant role to satisfy the residents. Additionally the residential environment must be accessible for different public infrastructure demanded by the people. The evaluation of residents on the satisfaction of residents on the recreation/ sporting facilities and also the existence of public infrastructure as follows:

Table 6-8: Satisfaction of residents on recreation and public infrastructure

Satisfaction of residents on recreation and public infrastructure					
	Responses	F	%	Mean	Std. Deviation
Recreation/sporting facilities	Very dissatisfied	111	26.2%	2.8152	1.42224
	Dissatisfied	66	15.6%		
	Neutral	108	25.5%		
	Satisfied	64	15.1%		
	Very satisfied	73	17.3%		
Public infrastructure and urban services	Very dissatisfied	93	22.0%	2.5142	1.15273
	Dissatisfied	129	30.5%		
	Neutral	114	27.0%		
	Satisfied	62	14.7%		
	Very satisfied	24	5.7%		

Source: survey result, 2019

As it is indicated in the table given above, the researcher raised question to check the satisfaction of respondents on availability of recreational/sporting facilities in the residential areas. Majority of the respondents 41.8% are dissatisfied 25.5% of them are Neutral and the remaining 32.4% are dissatisfied. The mean score of 2.81 i.e. below three also indicated that residents are dissatisfied on recreational and sporting centers. Interview result also reveals that there is no eye-catching recreational and also sporting facility in the residential environments.

Related to public infrastructure and availability of urban services majority of the respondents 52.5 % of the respondents is dissatisfied and 27% of the respondents are Neutral; only 20.4% of the respondents are satisfied. Mean score**/value/** 2.5142 shows that the respondents are dissatisfied with the availability of urban services. In the next section the researcher examined the satisfaction of respondents on shopping facilities and also proximity of home to the place of work for the condominium residents. Additionally, the researcher examined the availability of shopping center and the proximity of the house to place of work as indicated in the table given below.

Table 6-9: Satisfaction of respondents shopping facility and Proximity of home to place of work

Satisfaction of respondents shopping facility and Proximity of home to place of work					
	Response	F	%	Mean	Std. Deviation
Shopping facilities	Very dissatisfied	85	20.1%	2.7441	1.31713
	Dissatisfied	117	27.7%		
	Neutral	102	24.1%		
	Satisfied	57	13.5%		
	Very satisfied	61	14.4%		
Proximity of home to place of work	Very dissatisfied	66	15.6%	2.7393	1.18715
	Dissatisfied	128	30.35		
	Neutral	118	27.9%		
	Satisfied	70	16.5%		
	Very satisfied	40	9.5%		

Source: survey result, 2019

The availability of shopping centers/facilities is very important to satisfy residents. It is indicated in the table given above and shows that 47.8% of the respondents are dissatisfied and 24.1% of them are Neutral. Only 27.9% are satisfied. The mean score 2.74 shows that residents are not satisfied with the availability of shopping center/facility. It is also observed in the table given above that 48.8% of the residents are dissatisfied with the proximity of the house with shopping center. Shopping center inaccessibility also exposed dwellers to spent high cost to bought goods and travel long distance for shopping.

In the table given below the researcher examined the satisfaction of the residents on the availability of medical/ health care facilities are very important. In addition the existence of quality parking area is very important because the number of cars in the condominium areas increased from period to period. It is stated that availability of sufficient and convenient parking areas is an important indicator for those having private vehicle. In condominium sites there is place for parking but the provided space were not sufficient, inconvenient for parking and no security system. These may lead to challenges like stealing of parts of vehicles and also automobile collision among residents in the condominium sites.

Table 6-10: Satisfaction of respondents on Medical/healthcare facilities proximity to the parking

satisfaction of respondents on Medical/health care facilities proximity to the parking					
	Response	F	%	Mean	Std. Deviation
proximity to the parking	Very dissatisfied	69	16.3%	2.9645	1.19427
	Dissatisfied	65	15.4%		
	Neutral	136	32.2%		
	Satisfied	116	27.4%		
	Very satisfied	36	8.5%		
Medical/healthcare facilities	Very dissatisfied	96	22.7%	2.7275	1.31107
	Dissatisfied	95	22.5%		
	Neutral	111	26.2%		
	Satisfied	68	16.1%		
	Very satisfied	52	12.3%		

Source: survey result, 2019

Another issue to be considered to examine the satisfaction of the residents is the availability of parking. In the current urban development parking is a problem. It is clearly indicated in the table given above that 31.7% of the respondents are dissatisfied 32.2%are Neutral and the remaining 35.9% of the respondents are satisfied. Data from interview justified that even if there is a parking facility but there is a question about quality of parking areas.

The existence of standard health/ medical facility is important in the residential environment. As indicated in the table given above only 28% are satisfied with the availability of medical/health care facilities. Around 72% are not satisfied and 45.2% are dissatisfied and the remaining 26% are Neutral. The mean score 2.72 shows that majority of the respondents are not satisfied with the availability of standard health or medical facility. Interview result also revealed that there are health centers in the housing estate; there is no quality service and there is huge number of clients in the health centers. And also they stated that specialized hospitals are distant from the residential areas.

Among the very important social services that are demanded in the urban centers is availability of children's school and also distance of the bus station. The satisfactions of respondents are given below.

Table 6-11: Satisfaction of respondents on Distance to Bus station and Children's school

satisfaction of respondents on Distance to Bus station and Children's school					
	Response	F	%	Mean	Std. Deviation
Children's school	Very dissatisfied	89	21.0%	2.7014	1.25811
	Dissatisfied	105	24.8%		
	Neutral	114	27.0%		
	Satisfied	71	16.8%		
	Very satisfied	43	10.2%		
Distance to Bus station	Very dissatisfied	93	22.0%	2.6531	1.25683
	Dissatisfied	107	25.3%		
	Neutral	111	26.2%		
	Satisfied	66	15.6%		
	Very satisfied	41	9.7%		

Source: survey result, 2019

Availability of school for children is important issue to be noted in the selection of residential environments. As it is indicated in the table given above only 27% of the respondents are satisfied; 45.8% of the respondents are dissatisfied and the remaining 27.0% of the respondents are Neutral on the availability and proximity of the residential environment to Children's School. As indicated in the table above the location of the house to the government infrastructure is not as such per the required quality demanded by the people at large (the residents). The proximity of the residential environment with Children's school 48% of the respondents replied that it is not satisfying. It is noted that Families relocated in urban periphery site in the middle of academic year, their children travel long distance to previous school location or else forced to school dropout. In some selected condominium sites there is no publicly owned school and people are forced to admit their children at private school with huge periodic costs compared with their monthly earning. This increases the monthly costs – this also increases the cost of housing.

Distance to bus station also assessed by the researcher. The table given above shows that majority of the respondents 45.3% is dissatisfied; 25.2% are Neutral and the remaining 25.3% are satisfied. Most of the condominium constructed in a distant place compared with the center and most of the respondents have no positive perception about the distance of their home from the center and has a mean score of 2.74. The respondents also agreed that the location of their home from working area makes the respondents to incur high transportation cost and also they are traveling long in every day and it makes them too tired. The analysis of the resident's satisfaction regarding distance to masjid/church and also proximity from the nearest market is important.

Table 6-12: Distance to Masjid/church and Proximity of home to the nearest market

Distance to Masjid/church and Proximity of home to the nearest market					
	Response	F	%	Mean	Std. Deviation
Distance to Masjid/church	Very dissatisfied	52	12.3%	3.0498	1.28573
	Dissatisfied	109	25.8%		
	Neutral	100	23.6%		
	Satisfied	88	20.8%		
	Very satisfied	73	17.3%		
Proximity of home to the nearest market	Very dissatisfied	97	22.9%	2.7464	1.31488
	Dissatisfied	96	22.7%		
	Neutral	90	21.3%		
	Satisfied	95	22.5%		
	Very satisfied	44	10.4%		

Source: survey result, 2019

Another requirement in the residential environment and the important social institution is religious institutions. The existence of church and masjid has a contribution for the satisfaction of the respondents in the residential environment and it has a mean of 3.04. In the discussion with open ended question the respondents agreed that even if there is church but it is difficult to find masjid in and around the estate and they perceive that there is less availability of masjid compared with church Religious institutions are important for the resident's satisfaction. Majority of the respondents 61.7% of the respondents are Neutral. But the remaining 38.1% are satisfied.

Among the different issues to be considered in the selection of residential environment and taken as a principal factors of residential satisfaction is the proximity of home to the nearest market and it shows that 45.8% of the respondents are dissatisfied; 27.9% are Neutral. The remaining 26% are satisfied. The mean score 2.74 also shows that the residents are not satisfied with the proximity of the residential environment from shopping centers. It also must note that; considering the market that supply different products to the residents are very important because there are different types of products; lack of availability of the nearby market increases the cost to access the market. It is indicated in the table above the mean score of the Prices of goods and services in the housing estate 2.5450 and Proximity of home to the nearest market 2.7464. This shows the condominium site is relatively distant from the market. Protecting the security of the residents is also important by establishing institution such as police station and fire station. The satisfaction of the residents about distance from the police station and also the distance of the residential environment from fire station are indicated in the table given below.

Table 6-13: Satisfaction of residents on distance from police and distance from fire station

satisfaction of residents on distance from police and distance from fire station					
	Response	F	%	Mean	Std. Deviation
Distance to police	Very dissatisfied	98	23.2%	2.6943	1.27423
	Dissatisfied	87	20.6%		
	Neutral	128	30.3%		
	Satisfied	64	15.1%		
	Very satisfied	45	10.6%		
Distance to Fire station	Very dissatisfied	86	20.3%	2.6754	1.21991
	Dissatisfied	107	25.3%		
	Neither sat. nor dissatisfied	126	29.8%		
	Satisfied	64	15.1%		
	Very satisfied	39	9.2%		

Source: survey result, 2011

It is also noted that the security of residential environment is also another issue to be considered to select residential environment. As indicated in the table given above majority of the respondents

74.1% fail to say it is satisfying. But only 25.9% of the respondents are satisfied. In addition to police station the existence of fire station is important is important for the residents to protect themselves for different accidents. But majority of the respondents 75.4% of the respondents are not satisfied with the proximity of the residential environment to fire station only 24.6% are satisfied.

In the formation of housing program institution which is providing the security of the people at large and the residents is very important such as distance from police station and fire station. But the mean score of the respondents are 2.69 and 2.67 for the police station and fire station respectively. This shows that lack of availability of these institutions has its own negative impact on the security of the people.

Another issue that increases the cost of living and also the affordability as well as satisfaction of residents is the availability of goods and services at affordable price in and around the residential environment.

Table 6-14: Satisfaction of respondents on price of goods and services and quality of parking areas

satisfaction of respondents on price of goods and services and quality of parking areas					
	Response	F	%	Mean	Std. Deviation
Prices of goods and services in the housing estate	Very dissatisfied	123	29.1%	2.5450	1.33529
	Dissatisfied	97	22.9%		
	Neutral	100	23.6%		
	Satisfied	53	12.5%		
	Very satisfied	49	11.6%		
Quality and security of parking areas	Very dissatisfied	116	27.4%	2.5463	1.35431
	Dissatisfied	115	27.2%		
	Neutral	95	22.5%		
	Satisfied	34	8.0%		
	Very satisfied	61	14.4%		

Source: survey result, 2019

It is known that the existence of higher price in the residential environment affects the satisfaction as well as the affordability of the residents. Respondents were asked their satisfaction with respect to the price of goods and services in the housing estate 75.6% of the respondents replied that they are not satisfied but the remaining only 24.6% replied that they are satisfied with the price of goods and services on the residential environment. It is also noted that the quality and the security of the parking area has a significant contribution for the satisfaction of respondents on the residential environment. As it is indicated in the table given above only 22% of the respondents are satisfied but the remaining 54% of the respondents are dissatisfied and the rest of the respondents 22.5% of them are Neutral. The mean value of parking area 2.54 and also the price of goods and services in the housing estate with a mean value of 2.545 shows that the residents are not satisfied on the stated issues given above.

In addition to the discussion given above the researcher also identified the relevant variables that explain Public infrastructure in and around the around the estate. The variables were compared using their factor loading. KMO value of 0.90 is best, below 0.50 is unacceptable. In this study, cutoff above .50 is used as good measure of sampling adequacy. It is indicated in the table given above that the KMO value is .857 and it show the sampling is adequate. In the table given below the researcher presented the rank of the dimensions used by the researcher to determine the satisfaction of residents on the physical characteristics public establishments.

Table 6-15: Dimensions used to measure Satisfaction of residents on physical characteristics of housing

Factor Matrix[a]	
Dimensions used to measure Satisfaction of residents on government establishment	Factor loading
Public infrastructure and urban services	.765
Shopping facilities	.753
Proximity of home to place of work	.750
Distance to Bus station	.742
Medical/healthcare facilities	.731
Children’s school	.702
Proximity of home to the nearest market	.633
Recreation/sporting facilities	.604
Distance to Masjid/church	.574
Distance to police	.569
Distance to Fire station	.479
Prices of goods and services in the housing estate	.467
Parking areas	.353
Extraction Method: Principal Axis Factoring.	
Percentage of factors explained	57.53%

Source: survey result, 2019

As it is indicated in the table given above all variables are relevant in determining public infrastructure in and around the residential environment. But Public infrastructure and urban services with its factor loading of .765; Shopping facilities with .753; Proximity of home to place of work with .750; Distance to Bus station with.742; Medical/healthcare facilities with .731; Children's school with .702; Proximity of home to the nearest market with .633 are the most important factors determining the satisfaction of residents on public infrastructure in and around the residential environment.

As per the discussion given above, it is noted that Dwellers' housing dissatisfaction may aggravate if a site may have low or no employment access for low income or informal worker. This implies that inaccessible site location has increase the budgetary constraint and decreasing wealth accumulation by increasing expenses. Previous finding also suggested that accessible house improve quality of life (Yang, 2008; Olajuyigbe et al., 2013). Zainal et al. (2012) also found that it increase person mobility and strengthen social network. The implication is fair and proper basic service intervention in order to improve the quality of life of urban periphery sites.

Unavailability of mode of transport increase travel cost (e.g. walking distance to access the mode of transport, transport waiting time, transportation cost) and service cost of individuals to access the service. These cost has direct implication on house unaffordability, i.e. it increase direct housing cost plus high service cost due to housing location.

This result is well expected in the condominium housing in Ethiopia in general and Addis Ababa in particular, because it observed that most of the public housing estates investigated lacked adequate supply of utilities and social infrastructures such as educational, recreational, shopping and healthcare facilities as well as market place to find different products and services demanded by the people at appropriate quality and affordable price.

6.5 Satisfactions of respondents on the Management practice of the residential environment

The housing program which is the IHDP initiated with the goal of an adequate supply of quality affordable housing that is fairly allocated to residents. The program also has planned to reduce the number of homeless people. In addition, it contributes to individuals and families staying in the communities. In the smaller communities, social housing is an important part of the housing market.

The provision of the Social Housing Program also allows families to accept employment with lower wage levels. Without the existence of sound program, people would either be living in poor conditions or be forced to change communities. After providing the house to the beneficiaries there must be appropriate management of the estate.

The researcher focused on the selection of committee member to administer the estate, the rules and regulations governing the residents, maintenance in the communal and other assets that is used by the residents commonly, solid waste disposal and management, security of the environment and others. The respondents view on the management of the estate is given below by comparing with its mean value and using frequency and percentage. Because quality management has a contribution to create peace and security as well as to maintain the neatness of the residential environment by creating green area and walk ways in the estate.

The table gave below shows the satisfaction of residents on management and maintenance of facilities as well as the rules and regulations within the housing estate to manage different infrastructure and also facilities.

Table 6-16: Satisfaction of respondents on management and maintenance of facilities and rules and regulations in the housing estate

Satisfaction of respondents on management and maintenance of facilities and rules and regulations in the housing estate					
	Response	F	%	Mean	Std. Deviation
Management and maintenance of facilities	Very dissatisfied	111	26.2%	2.5877	1.27488
	Dissatisfied	89	21.0%		
	Neutral	105	24.8%		
	Satisfied	84	19.9%		
	Very satisfied	33	7.8%		
Rules and regulations within the housing estate	Very dissatisfied	117	27.7%	2.6706	1.33758
	Dissatisfied	101	23.9%		
	Neutral	107	25.3%		
	Satisfied	59	13.9%		
	Very satisfied	38	9.0%		

Source: survey result, 2019

Appropriate management of the housing estate is very important to make the residents more satisfied on the residential environment. The researcher examined different aspects related to management of the housing estate in condominium housing. The first issue that assessed by the researcher was management and maintainace of facilities in the residential environment as the condominium residential area is utilized by residents in common. The table given above shows that 47.2% is dissatisfied; 24.8% are neither dissatisfied nor satisfied and the remaining 19.7% and 7.8% are satisfied and very satisfied respectively. The calculated mean score 2.58 indicates that the residents are not satisfied with the management and maintenance facility of the environment.

The existence of sound rules and regulations is very necessary to have a suitable residential environment. The rules and regulation must be developed with the participation of the residents and the policy must be consistent with the interest of the residents. But, regarding rules and regulations majority of the respondents 76.9% are not satisfied; only 22.9% of them are satisfied. The mean score 2.67 shows that the residents are not satisfied on the residential environment of condominium housing regarding the existence of rules and regulations in the residential environment. In the table given below the researcher presented the satisfaction of the respondents on the security of life and property in the housing estate and also the selection of committee member.

Table 6-17: Satisfaction of respondents on security of life and selection of committee members

satisfaction of respondents on security of life and selection of committee members					
	Response	F	%	Mean	Std. Deviation
Security of life and property in the housing estate	Very dissatisfied	62	14.7%	2.6161	1.27632
	Dissatisfied	111	26.2%		
	Neutral	130	30.7%		
	Satisfied	89	21.0%		
	Very satisfied	27	6.4%		
The selected committee members selection and support	Very dissatisfied	62	14.7%	2.6540	1.23247
	Dissatisfied	111	26.2%		
	Neutral	130	30.7%		
	Satisfied	89	21.0%		
	Very satisfied	27	6.4%		

Source: own result, 2019

Another issue raised by the researcher to assess the management of the residential environment is security of life and property in the housing estate. Majority of the respondents 40.9% are dissatisfied; 30.7% are Neutral and the remaining 28.4% are satisfied with the security of life and property in the housing estate. The mean score 2.61 shows that the residents are not satisfied with the security of life and property in the housing estate.

As the condominium program is a kind of public housing (mass housing program) the selection of appropriate committee member to administer the residential environment is very important. The researcher asked respondents about the selection of committee member as well as the contribution of the committees in creating suitable environment to live. It is indicated in the table above that only 27% of the respondents are satisfied; 41% are dissatisfied and the remaining 30.7% of the respondents are Neutral. The above discussion supported by the data collected from interview and open ended questions that the committee members were selected using the traditional and informal methods. In addition they are not permanent employees concerned to manage different aspects of the residential environment; because of the stated reasons respondents argued that there is a loose control in the management and control of different aspects such as children play ground, green areas and communal and others in the residential environments.

Another issue to be noted is neatness of the residential environment. In the table given below the researcher examined the satisfaction of residents by focusing on cleanliness of the housing estate and also cleaning of corridor and stair case in the buildings.

Table 6-18: satisfaction of residents on cleanliness of the housing estate and cleaning of coo rider and staircase

cleanliness of the housing estate and cleaning of coo rider and staircase					
	Response	F	%	Mean	Std. Deviation
Cleanliness of the housing estate	Very dissatisfied	94	22.2%	2.6469	1.16805
	Dissatisfied	98	23.2%		
	Neither sat. nor dissatisfied	110	26.0%		
	Satisfied	96	22.7%		
	Very satisfied	24	5.7%		
Cleaning – corridor & staircase	Very dissatisfied	75	17.7%	2.6706	1.15046
	Dissatisfied	92	21.7%		
	Neither sat. nor dissatisfied	114	27.0%		
	Satisfied	108	25.5%		
	Very satisfied	33	7.8%		

Source: survey result, 2019

Regarding the cleanliness of the housing estate 45.4% are dissatisfied; 26% are Neutral and the remaining 28.4% are satisfied. Not only the housing estate but also the corridor and the staircase must also be clean. It shows that 40.4% are dissatisfied; 27% are Neutral and the remaining 32.3% are satisfied. The mean score 2.64 also shows that the residents are not satisfied with the residential environment. The above discussion shows that the cleanliness of the residential environment as well as the Cleaning of corridor & staircase is not satisfactory by the residents. The data from open ended questions supported that it is not as such clean; it is observed that there are different paper posts (people posts different notices on the wall) especially in the corridor to advertise the different business. This reduces the attractiveness of the stair case and corridors. In addition to the above stated issue; it is important to consider street quality and lighting and also garbage collection and disposal in the residential environment as it is given in the table below.

Table 6-19: Satisfaction of residents on street quality and garbage collection

Satisfaction on street quality and garbage collection					
	Response	F	%	Mean	Std. Deviation
Street quality and lighting	Very dissatisfied	77	18.2%	2.8578	1.19527
	Dissatisfied	96	22.7%		
	Neutral	116	27.4%		
	Satisfied	74	17.5%		
	Very satisfied	55	13.0%		
Garbage collection & disposal	Very dissatisfied	77	18.2%	2.6967	1.16478
	Dissatisfied	99	23.4%		
	Neutral	146	34.5%		
	Satisfied	81	19.1%		
	Very satisfied	19	4.5%		

Source: survey result, 2019

Another issue to be noted is street quality and lighting and the table given above shows that 40.9% of the respondents are dissatisfied; 27.4% are Neutral with the street quality and the remaining 30.5% are satisfied. The mean score 2.85 indicated that the residents are not satisfied with the residential environment's street quality and lighting. As discussed in the interview the street is not as such with the required quality that is made of mud and not with quality design and also lack of street lighting.

To protect the health of the society in the residential environment appropriate garbage collection and disposal is important. But majority of the respondents are not satisfied i.e. 41.6% are dissatisfied and 34.5% of the respondents are Neutral. The remaining only 23.6% of them are satisfied with the garbage collection and disposal undertaken by the city administration. The mean score 2.69 shows that the residents are not satisfied with the residential environment. Poor garbage collection; poor street quality; poor standard residential environment and also poor quality of staircase make the residents dissatisfied on the residential environment.

In addition by comparing with the factor loading of the extracted variables using principal axis factoring component extraction method the researcher identified the relevant variables that explain the satisfaction of the residents on management practice in and around the around the estate. To undertake the dimension reduction; the researcher checked Bartlett's test of Sphericity and Kaiser-Meyer-Olkin Measure of Sampling Adequacy as indicated in the table given below. It is important to check if the data are considered to be appropriate for factor analysis using Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. It is indicated in the table given above that the KMO value is .875 and it show the sampling is adequate. In the table given below the researcher presented the rank of variables used to determine the management of the residents

Table 6-20: Dimensions used to check satisfaction of residents on management of the housing estate

Factor Matrix[a]	
Dimensions used to check satisfaction of residents on management of the housing estate	Factor loading
Cleaning – corridor & staircase	.871
Cleanliness of the housing estate	.843
Garbage collection & disposal	.802
Street quality and lighting	.786
Rules and regulations within the housing estate	.748
Management and maintenance of facilities	.744
Security of life and property in the housing estate	.423
The selected committee members selection and support	.412
Extraction Method: Principal Axis Factoring	***66.01%***

Source: survey result, 2019

As it is clearly depicted in the table given above all of the variables is explaining the satisfaction of residents on the management practice of the residential environment. Cleaning – corridor & staircase with factor loading of .871; Cleanliness of the housing estate with .843; Garbage collection & disposal with .802; Street quality and lighting with .786; Rules and regulations within the housing estate with .748; Management and maintenance of facilities with .744 are among the variables given above.

To sum up the discussion given above and the presentation in the table about the management of the estate is with the mean value of less than three. And this shows that, the residents felt and perceive that the management aspects of the living environment is not as such with appropriate standard compared with the expectation and the level of the expected standards. In this section the researcher examined Management and maintenance of facilities in and around the estates; the Rules and regulations within the housing estate; Cleanliness of the housing estate; Security of life and property in the housing estate; Cleaning – corridor & staircase; Street quality and lighting; Garbage collection & disposal and the committee members selection and support to have a sound and livable residential environment in the estate. Because the existence of appropriate management is important as the number of residents within the smaller area is high and also there are different infrastructures that can be used by the people in common.

On the other side, dissatisfied dwellers criticizes condominium contribution for quality of life for the poor people in particular and the residents in general. The main causes of dissatisfaction are associated with housing cost burden, structural inconvenience for home-based business, absence of recreation and children playground, urban periphery (sites located in the edge of the city) site inaccessibility for basic social services. But as it is indicated in the table given above the mean value of the alternative housing estate is below three. As per the measurement given at the beginning of the analysis it indicates the housing estate is inadequate. And residents are not satisfied on the issues mentioned above. As it is given on the open ended question there is critical disagreement between the committee member and the residents in different aspects and activities to be performed in the compounds because sometimes the committee members are making their own decision at the expense of the residents in the compound without the participation of the residents.

6.6 Satisfaction of the residents on Social interaction in the housing estate

There are different social aspects that are required in the residential environment such as Social interaction compared with the previous residential area, absence of noise in the housing estate, Communal activities in the housing estates, privacy in the residence, relationship with neighbors, the type of home related to age and health, crime and anti-social activities in the housing estate and business and job opportunities within and around the estate must be examined because it is a very important issue to be noted in the development of housing program.

In the table given below the researcher assessed the satisfaction of the residents about different social issues demanded by the residents in the residential environment. It is related to business and job opportunities; the types of home related to the age and health condition of the residents; crime and anti-social activities; relationship with neighbors and communal activities that are requirements to have a suitable residential environment in the urban centers.

Table 6-21: Satisfaction on business and job opportunities and types of home related to age and health

Satisfaction on business and job opportunities and types of home related to age and health					
		F	%	Mean	Std. Deviation
Business and job opportunities within and around the estate	Very dissatisfied	87	20.6%	2.6754	1.16207
	Dissatisfied	88	20.8%		
	Neutral	148	35.0%		
	Satisfied	73	17.3%		
	Very satisfied	26	6.1%		
The type of home related to age and health	Very dissatisfied	73	17.3%	2.7844	1.21097
	Dissatisfied	109	25.8%		
	Neither sat. nor dissatisfied	112	26.5%		
	Satisfied	92	21.7%		
	Very satisfied	36	8.5%		

Source: survey result, 2019

The business opportunities within and around the residential estate is the very crucial issue in the formation of housing projects in different states especially if the housing is designed for the poor people because most of the poor people are undertaking home based business activities to raise income. The satisfaction of the respondents examined with the availability of business and job opportunity and as it is clearly shown in the table given above majority of the respondents around 76% of the them are not satisfied with 41% of them dissatisfied and 35% are neither dissatisfied nor satisfied and the remaining 24% is satisfied with the business opportunity in and around the housing estate. The mean of 2.74 shows that the residents are not satisfied with the issue stated above. Based on the data from open ended and interview the researcher justified that lack of private and public establishments in and around the estate and also the housing structure is not suitable to undertake the president's own home made business.

The housing design in urban centers must consider age and health of the residents and there must be consistence between the age and health of the residents and also housing typology. Most of the respondents replied that there is no critical consideration of age and health of respondents to distribute the house to the beneficiary. Only 20% of the respondents agreed that the design of housing is considering age and health of the residents. But majority of the respondents i.e. 80% of which 43% are dissatisfied and 37% are Neutral. The respondents agreed that the house is not related to health and age of the residents. As it is shown in the table given above with the mean score of 2.78 indicates the residents are not satisfied. And it shows that the residents are not satisfied on the suitability of the residential environment with the age and health condition of the residents.

Table 6-22: Satisfaction of respondents on crime and anti-social and relationship with neighbors

satisfaction of respondents on crime and anti-social and relationship with neighbors					
	Response	F	%	Mean	Std. Deviation
Crime and anti-social activities in the housing estate	Very dissatisfied	70	16.5%	2.7915	1.21124
	Dissatisfied	109	25.8%		
	Neither sat. nor dissatisfied	122	28.8%		
	Satisfied	84	19.9%		
	Very satisfied	34	8.0%		
Relationship with neighbors	Very dissatisfied	50	11.8%	2.8555	1.19598
	Dissatisfied	134	31.7%		
	Neither sat. nor dissatisfied	117	27.7%		
	Satisfied	69	16.3%		
	Very satisfied	52	12.3%		

Source: survey result, 2019

The consideration of Crime and anti-social activities in the housing estate is important issue to consider in designing the housing policy in urban centers. As it is indicated in the table above even if only 28% of the respondents are satisfied with the management and control of crime and anti-social activities in the housing estate. But majority of the respondents 42.3% are dissatisfied and the remaining 28.8% of the respondents are Neutral. Interview result supported that the poor social interaction of the residents is also the reason for the existed insecurity because residents do not know each other.

Related to relationship with neighbors majority of the respondents i.e. more than 70% are dissatisfied with 43% dissatisfied and 27% are neither satisfied nor satisfied. The remaining 30% of the respondents are satisfied with relationship with neighbors. The social interaction of the people in Ethiopia is strong and high but as it is indicated in the table above; the relationship with neighbors are not as such strong indicated with the mean value of 2.63. And it is also clearly indicated in open ended question that the social interaction with the neighbor is too poor in condominium especially, when they compared with the previous residential environment, they stated that it is incomparable; there was strong social interaction in the previous residential environment than in condominium. Additionally, they stated that they lost different social values. Even if there are different social interaction through **Edir and Equib**; but still the relationship with neighbors to solve different social problem is poor compared with the previous residential environment.

Table 6-23: Satisfaction of respondents on communal activities and privacy in the residency

Satisfaction of respondents on communal activities and privacy in the residency					
	Response	F	%	Mean	Std. Deviation
Communal activities in the housing estates	Very dissatisfied	48	11.3%	2.7820	1.43749
	Dissatisfied	137	32.4%		
	Neither sat. nor dissatisfied	135	31.9%		
	Satisfied	81	19.1%		
	Very satisfied	20	4.7%		
Privacy in the residence	Very dissatisfied	81	19.1%	2.5829	1.17435
	Dissatisfied	135	31.9%		
	Neither sat. nor dissatisfied	122	28.8%		
	Satisfied	47	11.1%		
	Very satisfied	37	8.7%		

Source: survey result, 2019

In addition to the housing for residential purpose, there is house given to communal activities used by the residents together for common purposes. The respondents were asked whether they are satisfied or not on the communal activities. It is indicated that 23.8% of the respondents are satisfied but the remaining 75.8% of the respondents are not satisfied. The mean score 2.78 also indicates the residents are not satisfied on the communal activities in the housing estate. Data from interview also supported that communal in the condominium sites were constructed for multi-purpose hall, common traditional kitchen, and traditional launder and also any other common purpose. These were important for residents to attempt cultural demand and those residents practical traditional kitchen continue their activities in new location for different ceremonies. The concerns were too much related with the life (culture and norms) of Ethiopia. But they argued that the communal are used for different purpose/ rented for different purposes such as shopping and warehouse as well as for the residential purpose. Because of the decision made; there is a problem to host special occasions in the communal.

Another issue raised by the researcher is the existence of privacy in the residential environment also has its own impact for the satisfaction of the residents in the residential environment. But, in the study it is shown that only 19.8% of the respondents are satisfied with the existence of privacy in the residential environment. The remaining 80.2% are not satisfied with the privacy of individuals in the residential environment. Data from interview also justified that residents are sharing different issues in common such as corridor's, stair case, communal and others. This affects the privacy of residents. In the table given below the researcher presented the satisfaction of the respondents about the existence of noise in the housing estate. And also social interaction with the neighbors related to the previous residential area.

Wednesday Table 6-24: Satisfaction of respondents on noise in the housing and social interaction compared with the previous residential environment

Satisfaction of respondents on noise in the housing and social interaction compared with the previous residential environment					
	Response	F	%	Mean	Std. Deviation
Noise in the housing estate	Very dissatisfied	55	13.0%	2.7607	1.10368
	Dissatisfied	124	29.3%		
	Neither sat. nor dissatisfied	140	33.1%		
	Satisfied	73	17.3%		
	Very satisfied	30	7.1%		
Social interaction compared with the previous residential area	Very dissatisfied	58	13.7%	2.6919	1.11346
	Dissatisfied	137	32.4%		
	Neither sat. nor dissatisfied	139	32.9%		
	Satisfied	53	12.5%		
	Very satisfied	35	8.3%		

Source: survey result, 2019

Another issue to be noted in the urban housing program is maintaining peace and order in the residential environment. The very important thing to be considered is absence of noise in the housing estate, Privacy in the residence and Crime and anti-social activities in the housing estate to keep the safety of the residents. The presentation given in the table above shows that majority of the respondents are dissatisfied with the security in and around the housing estate. It is also indicated that more than 73% of the respondents are not satisfied. Only 28% are satisfied with the absence of noise and crime rate in the environment.

As it is clearly indicated in the table given above the mean value of the different social issues is almost close to 2.7 and it is clearly shown that the perception of the respondents felt that their social interaction is low compared with their expectation and it is affecting the social interaction of the residents.

In addition to the analysis given above the researcher identified the basic variables related to the dimensions used to measure the satisfaction of residents on social interaction in the housing estate (residential environments). By comparing with the factor loading of the extracted variables using principal axis factoring component extraction method the researcher identified the relevant variables that explain the satisfaction of the residents on social interaction in and around the around the estate. To undertake the dimension reduction the researcher must check the sample adequacy and test of sphericity using KMO and Bartlett's respectively. The KMO value is .826 and it show the sampling is adequate.

Table 6-25: Dimensions to measure satisfaction of residents on Social

Factor Matrix[a]	
Dimensions to measure satisfaction of residents on Social interaction in the residential environment	Factor loading
Relationship with neighbors	.768
Privacy in the residence	.732
Crime and anti-social activities in the housing estate	.715
The type of home related to age and health	.712
Social interaction compared with the previous residential area	.670
Noise in the housing estate	.632
Business and job opportunities within and around the estate	.544
Communal activities in the housing estates	.481
Extraction Method: Principal Axis Factoring.	***55.48%***

Source: survey result, 2019

As it indicated in the table given above the stated variables are relevant to determine the satisfaction of residents on their social interaction in and around the residential environment. But relative to others business and job opportunities around the housing estate with .544; Noise in the housing estate with .632; Social interaction compared with the previous residential area with .670; The type of home related to age and health with .712; Crime and anti-social activities in the housing estate with .715; Privacy in the residence with .732; Relationship with neighbors with .768 are very important variables in determining the satisfaction of the residents on the social interaction in the residential environment.

Hence, housing is most often referred to as a social good and inadequate housing conditions considered as a major social problem. The implication of this is that public planned actions and activities aimed at addressing challenges of inadequate housing conditions are conceived as social intervention programmes, and are evaluated as such across several disciplines. Because the interest of the residents must be examined from different angles using specialized professionals.

As a Summary of checking the satisfaction of respondents on the housing program it observed that the housing adequacy of the public urban housing is not as it is expected by the beneficiaries (residents). It is not a special scenario in Ethiopia rather it is also observed in different African countries According to the 1991 Nigerian National Housing Policy (Federal Republic of Nigeria, 1991), lack of adequate monitoring and evaluation of housing policy implementation have contributed to letdown of public housing programmes in the country. This assertion supported by Obashoro (2002) who noted that proper programme evaluation was rarely done in Nigeria, and as a result, it is very difficult to assess the real outcome of programmes in this country.

When we are dealing about the housing program it is much better to consider different aspects of the social, economic and the physical characteristics of the housing requirements. As it is clearly indicated in E.O. Ibem et al (2015) it is not about the issue of constructing a mass of housing by the expectation of the problem only but also much better to evaluate whether the program is adequate as well as consistent with the needs and expectations of the residents. Therefore, to check the quality of housing project satisfaction and adequacy must be checked and issues are important to examine the housing policy in different states. Especially public housing is constructed to supply housing for huge portion of the society especially for the poor people in Ethiopia in general and Addis Ababa in particular.

The researcher examined and checked the consistence of the housing program with their perceptions and expectations as well as aspirations. The issue of condominium is new in Ethiopia established with the critical objective of addressing housing problem of the poor and enhancing city renewal in different urban centers in Ethiopia in general and Addis Ababa in particular. Generally speaking, the evaluation of housing programmes involves human perceptions on the product and outcome of such programmes, process and organizational framework involved. Perception on the product of housing programmes centers mainly on the quality and satisfaction of residential environment.

Table 6-26: The convenience of home related to the preference of the residents

The status of home related to the preference of the residents?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	142	33.6	33.6	33.6
	No	280	66.2	66.4	100.0
	Total	422	99.8	100.0	

Source: survey result, 2019

The table indicated above shows that majority of the respondents 280 (66.2%) of the respondents perceive that the home is not consistent with their preference. The respondents agreed and indicated that socio-economic characteristics of residents and their past living conditions, physical attributes of housing units, housing management structure, physical and environment facilities are key factors influencing satisfaction with residential environment, and are critical for improving quality of housing design and standard of living of residents. This suggests that assessment of housing or residential satisfaction is an important aspect of evaluative measure used in judging the success of housing programmes and the remaining 33.6% of them felt that the housing is related to their preferences. This shows the housing program is not related to the needs and preferences of the resident's tests and preferences.

The respondents provide their arguments on their positive and negative attitude about the housing program arranged by the government (condominium housing). Respondents who said that the home is consistent with the preference mentioned the following reasons such as quality of housing compared with their previous housing, and also the housing design and structure because they were living in a very congested housing structure with common compound and common toilet and kitchen. It can be inferred from the previous justification that residential environment evaluation is based on a parameters associated with individual's previous experience, personal attributes, cultural values, perceptions, goals, aspirations, and needs as well as generally defined and acceptable standards set by the housing beneficiaries. The features of residential environment, personality and attributes of residents are the key determinants of the perception on the outcomes of housing programmes in different urban centers.

Respondents' reflections with satisfied indicators do not necessarily mean that they were in perfect condition and no need of improvement in the housing program. Instead, it indicates how much those indicators were valued for them as a resident. The majority also reported that condominium was much better than their previous residential house even if it is less than their expectation. This finding supported by the findings of Dennis and Rent (1987), who reported that dwellers' satisfactions are related with improvement over previous residential environments. Moreover, respondents compared the site with those of urban periphery site condominiums they considered themselves as lucky by comparing site accessibility (vary from one to another sites). This could suggest that it is important to consider expectation and previous experience in addition to objective housing condition in subjective satisfaction analysis.

Regarding the issue stated above Galster (1985) justified that the home owners tend to evaluate their housing condition based on how they see it help in facilitating the achievement of the stated goals. This means that people judge their housing situations based on how they perceive their homes to be important in helping them to achieve their individual or family goals. Therefore, the extent to which one's housing condition is seen as playing a facilitating role in the achievement of one's goal in life is a measure of the extent to which his/her housing is sufficient; and the level of happiness one expresses with his/her current housing situation. In order to make the housing project consistent with public interest rather than designing by their own plan. But before implementing the project there must be critical analysis on the interest and demand of the people. But in the existing housing program only the amount of contribution is assessed. But the cost is increasing from period to period because of the delay of the project (delay in construction because of different reasons including institutional problems).

6.7 Residential apartment in stories building and their satisfaction

The preference of the residents regarding the floor depends on different aspects that the people are demanding in the residential environment even if it is highly dependent on the income and age condition of the residents as well as level of security and accessibility of water and any other factors. In the section given below the researcher presented residential apartment in stories building and also check their satisfaction with respect to the stories building. Additionally the respondents are asked the reasons for satisfaction and dissatisfaction related to the condition of stories building.

The researcher examined to what extent residents are satisfied and dissatisfied and also examined the reason for satisfaction on the one hand and also dissatisfaction on the other hand regarding the number of floor that respondents are living. Accordingly, the results revealed that majority of condominium dwellers prefer to live in ground floor while only few in 4^{th} and 7th floors and above (depending on the number of total floor) means upper floor. However, all explain advantages and disadvantages of living in each floor irrespective of their preferences. Respondents who prefer to live in ground floor explained that it was good in terms of easy movements, saving energy and time climbing staircase, water pressure, and doing daily activity on ground. On the other hand, privacy was seen as a problem for them because all upper floor dwellers movement around their floor and noise when children playing in their corridors. Frequency of experiencing stolen was high on ground floor as well as the sound of the sewerage system.

Despite all condominium site construct with drainage and sewerage pipe, ground floor dwellers expressed dissatisfaction with sewerage system frequent blockage problem. Because of poor drainage system flush from the upper floors, residents are dissatisfied to live in a ground floor. Above all, they were dissatisfied with garbage throw away from upper floors and extra burden to clean their surroundings.

On the contrary, some respondents are satisfied with their house not because it is top floor but because it is secured. They spent high housing cost to improve housing quality and to maximize their life satisfaction, even though absence of elevator problematic for their visitors as well as the residents themselves because residents may use it four or five times per day and it is found too much annoying. This implies that to increase housing satisfaction in any floor dwellers perception and adaptation play an important role. Additionally respondents said that the stories building are not considering age and health of the respondents.

In summary, result shown that majority of respondents had positive perception and prefers to live in ground floor than top floors. In addition, experience shows that residents pay more for the ground floor (for rent) and its selling as well as renting price decrease as the floor level increases. This could be related to absence of elevators for upper floor, inadequate water pressure in the upper floor, less or no living experience in multi-story buildings and perceive top floors as less comfortable to live. To check the satisfaction of the respondents with respect to their sex; the researcher used cross tabulation. The cross tabulation is given below.

Table 6-27: cross tabulation sex and home related to their preference

Sex of the respondents * Overall your home related to your preference? Cross tabulation						
		Overall your home related to your preference?				Total
		Yes	Percentage	No	Percentage	
sex of the respondents	Male	85	35.86%	152	64.14%	237
	Female	57	30.81%	128	69.19%	185
Total		142		280		422

Source: survey result, 2019

As clearly indicated in the table above even if majority of the respondents answered that the housing program and the housing estate is not related to their preferences but there is no significant difference between male and female regarding the housing needs and preference. But the table given above shows that large percentage of male (35.86%) sensed that the home is related to their preference and (30.81%) of female felt that housing is related to their preference. And the remaining 64.14% of male and 69.19% of female respondents said that the housing estate is not related to their preferences. From the above given cross tabulation there is no critical difference between sex of the respondents and the preference of housing.

6.8 Mode of housing delivery and satisfaction on condominium housing

Condominium housing delivered to the beneficiaries through two methods i.e. housing delivery through the urban renewal relocation for the residents in the center at the private and also legal public housing; and also registered home seekers. It is known that housing delivery strategy in this research refers to a procedural strategy from registration to owning condominium (deliver the house to the beneficiary). The two main housing delivery strategies are without lottery for urban renewal project relocated person and with lottery for eligible residents.

The general screening processes and the basic requirements from the residents to get the house from these two groups are stated below: the requirements are related to legality of owning a house or registration, payment of down payment, and loan agreement with the bank (commercial bank of Ethiopia). Urban renewal relocated person eligibility criteria to own condominium: a legal private homeowner or public house tenant in renewal area; willingness to move condominium; willing to pay 20% down payment and make collateral agreement with Bank by the expectation of paying the installment payment on monthly basis. Other Homeowner: A registered house seeker in office database; Won the lottery; Confirmation letter city administration who has no house in the city; Willing to pay 20% down payment and make collateral agreement with Bank similarly by the expectation of paying installment payments on monthly basis.

In this part; the researcher is interested to examine who satisfied with the condominium housing program is residents who are relocated or lottery owners? The relation of methods of housing delivery and the satisfaction of the residents are given below in the table using cross tabulation.

Table 6-28: Cross tabulation- Methods of housing delivery and satisfaction of residents on residential environment?

Cross tabulation- Methods of housing delivery * Are you satisfied with your residential environment?							
		Are you satisfied with your residential environment?					Total
		very dissatisfied	Dissatisfied	Neutral	Satisfied	very satisfied	
methods of housing delivery	registered and through lottery	14	56	70	11	3	154
	relocated for city renewal	137	131	0	0	0	268
Total		151	187	70	11	3	422

Source: survey result, 2019

As it is clearly indicated in the table given above even if majority of the respondents are dissatisfied but compared to the residents registered and getting their house; those residents who were relocated from their permanent residence are dissatisfied. As per the information given in open ended question residents who are relocated has a life practice of leading with the group because there were strong social bond among and between the residents.

Additionally, Data from interview reveal that the residents who are relocated in a condominium because of city renewal have major complain on the residential environment than those who get the house with lottery system. According to the respondents "*Most of the respondents were residing at the center of Addis Ababa and also they were undertaking their personal business at a lesser capital (informal business). Compared to their previous experience the life of the displaced (relocated) people is too much difficult".* Respondents also said that their expenditure is incomparable with the monthly income of the residents.

The researcher asked to provide the overall satisfaction of residents with the residential environment because it is dependent on different aspects of the physical, management in the residential environment and also availability of different public and private establishments. As it is indicated in the table below that most of the residents is not satisfied with the residential environment compared with the previous residential area.

Table 6-29: Are you satisfied with your residential environment?

	Frequency	Percent	Cumulative Percent
Very dissatisfied	151	35.8	35.8
Dissatisfied	187	44.3	80.1
Neutral	70	16.6	96.7
Satisfied	11	2.6	99.3
Very satisfied.	3	.7	100.0
	422		100%

Source: survey result, 2019

As it is clearly indicated in the table majority of the respondents around 79% are dissatisfied with the residential environment and the remaining are satisfied with the residential environment. It is known that there are different reasons for the satisfaction and dissatisfaction of the respondents on the residential environment but in this part of the research; the researcher discussed that the data collected from the respondents using open ended question and interview. Accordingly respondents justified that the reason for the dissatisfaction of the respondent is lack of experience on living multi story building; noise from sharing common floor, bar and entertaining shop (such as game zone); Feeling of insecurity and fear of crime because there is no appropriate straight lighting; luck of fences and poor standard fences and the existence of bars and drug house as well as DSTV house even at the middle of the night there is disturbance and also increase the number of people that is unknown by the residents; Leaking from sanitary utilization and roof; inaccessibility of urban boundary site; Low water pressure especially in upper floor; absence of children and elders outdoor play area; structural inconvenience for low income group to do home-based business; absence of elevators, incline and emergency exit for elders, physically challenged and kids; fear of young children falling from upstairs; low quality construction and narrow housing unit space and corridors which is not attractive.

And respondents who are satisfied replied that Privately own water tape, private electric, toilet facility; relatively better residential place than slum; relatively better sewerage system and solid waste disposal; better quality kitchen; positive influence on housing unit space management; Experience of modern life style; and Strength culture of tolerance between sharing floor areas are the major reasons for the satisfaction of respondents on the residential environment. Similarly according to the responses of the respondents, there was no direction and awareness creation on how to live in condominium houses.

The result of the study shows that most of the respondents were satisfied with the housing unit attributes of the condominium housing. But, they were least satisfied with location of neighborhood facilities in the residential environment, social interaction and also management of the housing estate. This is also evident in the result which indicates that majority of the respondents found the housing to be inadequate, and thus were dissatisfied with the residential environment provided the public housing programme in the study area.

On the other hand, irrespective of the condominium sites, respondents were less satisfied due to day and night bar noise around the residential estates. Especially, respondents who live in nearby place of the center they pointed out that they were dissatisfied by both bar noise and other malicious social practice. The reason of dissatisfaction was highly associated with feeling insecure and demand to live in a place where free from evil social practice that are the wrong model for kids and young people (***especially the existence of shopping for khats*** and most of the youngsters are starting chewing as well as smoking cigarettes). This suggest that if the condominium project allow residential and commercial housing units in the same building it should put rights and restrictions for conflicting interest parties i.e. bar owner, customers and residents. This practice needs critical adjustments and needs regulatory frameworks to tradeoff the interest of the business owners, customers and residents

According to respondent's, the reason of dissatisfaction was highly associated with feeling insecure and demand to live in a place where free from evil social practice. This suggest that if the condominium project allow residential and commercial housing units in the same building it should put right and restriction for conflicting interest parties i.e. bar owner, customers and residents.

6.9 Multiple Regression Analysis

In examination of the satisfaction of residents on the residential environment, the last analysis in this chapter is identifying determinant factors affecting residential considering that mean satisfaction score is the dependent variable. In carrying out this particular analysis, mean adequacy score (MSS) described earlier was the dependent variable, and the identified attribute as the independent variables including sex of Respondent's; age of Respondents; marital status; average monthly income; highest educational qualification ; household size; employment status; mean adequacy scores (MAS) considering that the Dependent Variable is satisfaction Score (MSS).

Assumption test in multiple regressions

To undertake multiple regressions the researcher cheeked different assumption tests to be undertaken such as tests of autocorrelation, normality, multicollinearty, and model adequacy.

Table 6-30: Model summery

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.848[a]	.719	.713	.39042	1.869

Source: Survey result, 2019

Durbin-Watson's tests the null hypothesis that the residuals are not linearly auto-correlated. While can assume values between 0 and 4. As a rule of thumb values of 1.5 < d < 2.5 show that there is no auto-correlation in the multiple linear regression data. Autocorrelation occurs when the residuals are not independent from each other and seriously affects the result of estimation. In dataset whether autocorrelation present or not tested using Durbin-Watson test. Durbin-Watson test 1.898 lies between 1.5 and 2.5 and it indicates there was no auto correlation.

Model adequacy: From the regression results in table, the model's R_2 is 0.713 and tells how much of the variance in the dependent variable (housing affordability) is explained by the model. Expressed in percentage, it means that the model comprising of the nine (9) variables explain 71.3% of the variance in housing affordability.

Table 6-31: *ANOVA test*

ANOVAa						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	160.985	9	17.887	117.346	.000b
	Residual	62.802	412	.152		
	Total	223.786	421			

Source: Survey result, 2019

The ANOVA is used to test whether or not the proposed model significantly predicts the dependent variable. In this case, F- statistics in ANVOA table shows that $P<0.01$. This means that the independent variables are significantly predicts the dependent variables in the estimated model.

In factor analysis there are several assumptions that must be met before analysis has been carried out. The first procedure in factor analysis is a test of normality (linearity) of the data. Parametric tests, say regression analysis assumes a Gaussian (normality) distribution of the continuous data. However, likert scale items may violate this assumption. Thus, in this study items or data constructed using likert scale and used in factor analysis tested for normality by using a very conservative test approach called Kolmogorow-Smirnov normality test using SPSS to assess whether the items constructed using likert-scales are normally distributed.

Table 6-32: Tests of Normality

Tests of Normality						
	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Mean satisfaction score	.047	422	.086	.992	422	.018
a. Lilliefors Significance Correction						

Source: Survey result, 2019

If test statistics are statistically significant ($p<0.05$), the probability that the data follows normality distribution is very low. Thus, for a normally distributed variable the result is non-significant ($p>0.05$). The test result shows that the data was normally distributed

According to Wooldridge (2002), collinearity for a given dataset is measured using tolerance value and variance inflation factor (VIF). As a rule of thumb, tolerance values of 0.10 or less are cited as problematic. This implied that, the independent variables are highly correlated with other variables in the model. In this case, remove one or more highly inter-correlating variables from the model. The VIF shown in the regression is less than 10 and it indicates that there is no Multicollinearity.

Table 6.31: Regression result for determinant factors affecting housing satisfaction

Coefficient								
		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	-.132	.161		-.818	.414		
	Age of the house hold	.008***	.002	.133	4.808	.000	.890	1.123
	Marital Status	.028	.035	.022	.801	.424	.892	1.121
	Sex of the respondents	.060	.044	.041	1.367	.172	.761	1.315
	Household head	.097**	.048	.063	2.010	.045	.704	1.420
	Educational level	-.031**	.015	-.062	-2.100	.036	.787	1.271
	Total family size	-.009	.013	-.020	-.722	.471	.890	1.124
	Employment status	.037**	.018	.054	2.027	.043	.955	1.047
	Mean adequacy score	.795***	.026	.818	30.118	.000	.924	1.082
	Total monthly income(in birr)	2.154E-5***	.000	.110	3.913	.000	.867	1.153
a. Dependent Variable: mean satisfaction score								

*****, **, and ***denote significance at **1%, 5%, and 10%** levels, respectively.

Source: Survey result, 2019

As it is indicated in the regression total monthly income (in birr); mean adequacy score; employment status; Educational level; sex of the respondents and age of the house hold has an association with the mean satisfaction score.

Age of the respondents has positive association with the mean satisfaction score. As the households age increase by one year the mean satisfaction score will increases by 8% at 1% level of significance. As condominium is given for the poor people in the city administration; most of the residents are the poor people who are relocated from kebele houses. That is why the mean satisfaction score were high for older residents.

Educational level has a negative association with the mean satisfaction score. As the educational level increased by one level; the mean satisfaction score will decrease by 3.1% at 5% level of significance. People with higher level of education may have preference to have quality houses like apartments and individual compounds. As condominium is constructed for the poor people, it is expected that it may not address the interest of the educated section of the society.

Total monthly income (in birr) has an association with mean satisfaction score. As the level of income increased by one level; the mean satisfaction score will increase by 0.025 % at 1% level of significance. It is noted that there are different costs expected from the residents as down payment, installment mortgage payments and also finishing costs. Those residents with high level of income make the condominium housing too suitable for living. That is why the mean satisfaction score were increased with an increase in income.

It is noted that the mead adequacy score also has an association with mean satisfaction score. As the level of mean adequacy score increased by one level; the mean satisfaction score will increase by 79.5 % at 1% level of significance. As it is indicated in different literature it was noted that there is critical association between adequacy of housing and also residential satisfaction.

Among the different objectives of condominium housing one is to change the standard of living of the people from the traditional to the modernized way of life. It is known that in condominium people are using different electronic devises in place of traditional materials. Residents with better employment status are familiar with modern way of life.

Moreover, female headed households are more satisfied than that of male headed households. On average the satisfaction level of female headed households is higher than that of male headed households by 9.7 % at 5% level of significance.

6.10 Summary of the Chapter

In this chapter the researcher presents the satisfaction of residents on the residential environment and also the housing estate. In this chapter the researcher used different methods of analysis to address the stated objectives. As per the analysis made the following conclusions were drawn: Even if all of the respondents are not dissatisfied with the residential environment but as the respondents who are dissatisfied justified that the reason for the dissatisfaction of the respondent is lack of experience on living multi story building; noise from sharing flat; bar and entertaining shop (game zone); feeling of insecurity and fear of crime because there is no appropriate straight lighting and the existence of bars and drug house as well as DSTV house even at the middle of the night there is disturbance and also increase the number of people that is unknown by the residents; leaking from sanitary appliance and roof; inaccessibility of urban periphery site; low water pressure in upper floor; absence of children and also elders playground; structural inconvenience for low income group to do home-based business; absence of elevators, lack of emergency exit for elders, physically challenged residents and kids; fear of young children falling from upstairs; low quality construction and narrow housing unit space and corridors.

And respondents who are satisfied replied that Privately own water, electric, toilet facility; relatively better residential place than the previous residential area; relatively better sewerage system and solid waste disposal; better quality kitchen; Positive influence on housing unit space management; Experience of modern life style; and Strength culture of tolerance between residents sharing building and floors are the major reasons for the satisfaction of respondents on the residential environment. Similarly according to the responses of the respondents, there was no direction and awareness creation on how to live in condominium houses as well as lack of adequate information about the process of owing the condominium houses.

The result also shows that most of the respondents were satisfied with the housing unit attributes but were least satisfied with location of neighborhood facilities, social interactions in condominium sites and also the existed management system. This is also evident in the result which indicates that majority of the respondents found the housing to be inadequate, and thus were dissatisfied with the residential environment provided the public housing programme in the study area. On the other hand, irrespective of domains, respondents were less satisfied due to day and night bar noise around the residential environment.

Especially, respondents who live in nearby place of the center they pointed out that they were dissatisfied by both bar noise and other evil social practice undertaken in the residential environment. The reason of dissatisfaction was highly associated with feeling insecure and demand to live in a place where free from evil social practice that are the wrong model for kids and young people because as a residential area there are many children.

Additionally the researcher used principal axis factoring extraction method to determine the dimensions of the residential satisfaction dining area size and condition; size of cooking and storage space; location of residence in the housing estate; size of bed room in the house are the most important dimensions in determining the satisfaction of respondents on physical characteristics of housing.

The basic dimensions determining the satisfaction of residents on the physical infrastructure is availability of water, electricity and also availability and accessibility of road. Among the dimensions used to check the satisfaction of residents on the management of housing estate are cleaning corridor and stair case; cleanliness of the housing estate garbage collection and disposal and also street quality and lighting.

It also indicated that relationship with neighbors; privacy in the residence; crime and anti-social activities in the housing; types of the house related to age and health conditions are the main variables used to explain the satisfaction of the residents on the social interactions. Additionally, availability of public infrastructure; shopping facilities; proximity of home to place of work; distance to bus station; medical and health care facilities; children school and proximity of house to the nearest market are the main variables to determine the satisfaction of residents on the availability of public infrastructure.

As per the regression analysis total monthly income (in birr); mean adequacy score; employment status; Educational level; sex of the respondents and age of the house hold has an association with the mean satisfaction score.

CHAPTER SEVEN

7 DETERMINANT FACTORS AFFECTING CONDOMINIUM HOUSING AFFORDABILITY IN ADDIS ABABA CITY ADMINISTRATION

7.1 Introduction

It discussed in different literature and also in the previous chapter of these dissertation, housing is the very important asset demanded by the people that affect both fertility and mortality of the people. Additionally, it is also affecting the social and also the economic aspects of the residents (Hancock, 1993). Housing is a basic need that protects us from the elements keeps us safe, and gives us privacy and personal comfort. Housing affordability is not easy to determine and measure. In the formulation of housing policy it is not about the issue of constructing a mass of housing by the expectation of the problem only but also much better to evaluate whether the program is adequate as well as consistent with the needs and expectations as well as aspiration of the residents. In addition the issue of affordability must not be neglected in developing housing policy in developing countries. Especially public housing is constructed to supply housing for huge portion of the society by the expectation of urban housing problem. The condominium housing program that initiated by the government of Ethiopia in 2005 is to supply housing for the poor section of the society in Ethiopia. In dealing with the issue of urban housing; the concern of affordability is very important.

In most of the developing countries the middle- and lower-middle income groups are thrown out of the formal housing and land market due to high price of land and of rental or owner-occupied housing (Malpass and Murie, 1994). This situation also observed in Ethiopia because the land value is increased from period to period and makes the housing in the city administration unaffordable by the middle and poor people. The existed rapid growth of urbanization in the developing world has accelerated the need for adequate affordable housing. The rapid development pressure in relation to the pace of urbanization creates enormous needs for land and housing in the developing countries. Due to the high price of residential land and housing in Addis Ababa city administration, the middle-income groups often have to rely on informal land markets to gain access to land and housing. That is why the government of Ethiopia initiated to establish a housing policy called integrated housing program (IHDP) to address the existed housing problem in Ethiopia including the issue of affordability. In order to determine affordability of housing different researcher have been used various approaches and methods in their efforts to determine housing affordability, (i.e. the financial capacity to pay off the costs involved in being able to occupy a housing unit) (Stone, 1993).

Normally, to determine whether someone can afford to own a house or not, means looking at their expenses that is incurred by the firm; where after paying for basic necessities, residual income exists to purchase other things. In this situation, they are considered as capable of owning a house. However, if they are unable to pay monthly housing installments and have insufficient money to purchase other things, then they are considered as incapable of owning a house. The researcher examined weather the periodical payments expected from the residents (monthly mortgage payment, interest payment down payment, penalty charged and others) are the determinant factors affecting housing affordability or not (Joshua,2014).

There are a lot of factors affecting affordability of public urban housing in developed as well as developing countries. In this part of the dissertation the researcher identified the determinant factors affecting affordability of condominium housing.

To achieve the objective of the study the researcher collected from 422 respondents using well-structured questionnaires. The researcher used both qualitative and quantitative data to address the objective set. In order to examine the affordability of condominium housing the researcher used both descriptive statistics to evaluate the perception of residents on the fairness of different payments expected from residents and also regression analysis to identify the determinant factors affecting housing affordability in the city administration.

7.2 Concepts of Housing Affordability

The issue of housing affordability is very important issue in formulation of the housing policy in the urban centers. The term housing affordability is used widely in evaluations of the impact of the cost of housing on consumers (residents) but with a number of different meanings and measures. The most general use of the term centers around consideration of the extent to which housing costs for a given standard of housing impact upon a household's 'income to live on' or their capacity to meet their total household needs (Hancock, 1993).

The Central point for the achievement of adequate and affordable provision and distribution of housing is the issue of managing the relationship between the price of housing and the capacity of the household to pay for their housing (Malpass and Murie, 1994). It is hardly possible to justify the relevance of housing affordability without being tempted to discuss the importance of housing and its centrality in our day-today life. Stone (1993) succinctly noted that:

> *"Housing is not only a necessity of life; it has inescapable impact on all aspects of our existence. Housing – if it is adequate - provides privacy and security against interruptions, both physical and moral. It is the principal asset of personal and family life. It defines the community and determines access to jobs, to services, to stores, and to significant other people in our lives. It contains not only our material possessions, but our dreams and despair."*

Affordable public housing is generally defined as "adequate in quality and location and does not cost so much that it prohibits its occupants meeting other basic living costs or threatens their enjoyment of basic human rights" (Un-Habitat, 2011). In addition, According to Kamete (2001) there are external and internal factors that affect housing affordability.

The external factors are related to the cost of the housing. That is ability of households to purchase a house is affected by the purchase cost which is the sum cost of land, infrastructure, building materials and labor and profit and the ability to finance the purchase of the housing unit which is set by down payment financing requirement and the balance of household savings. But in this research the focus of the researcher is condominium housing in which it is provided by the government and its price were not determined the market based on demand and supply. That is why the researcher considered the monthly mortgage payments as a dependent variable.

The internal factors that affect affordability have to do mainly with socio economic circumstances of the target group (residents of condominium). The first set of this is the economic character of the community, such as employment opportunities, income, and expenditure patterns. As it is indicated in different literature the other factors have to do with the target group's social characters like household sizes, family structures, needs, customs, aspirations and priorities. (ibid)

7.3 Measurement of Affordability

Affordability as defined in different literature is the ability of a person in providing something, which is usually referred to his/her ability in financial terms (Bujang et al. 2010). Housing affordability has been referred to by a number of researchers in many different ways. They also articulated that house affordability is a condition when people have the potential to save certain portion of their income to pay for a house, as well as to pay for non-housing expenses. As it is clearly indicated in Bujang et al (2010) housing affordability is expressed as the relationship between household income and housing expenditure and is measured as the proportion of family income that goes into the payment for a house. In addition, Affordability in the home- ownership mortgage housing sector is thus defined as the proportion of the household's monthly income that goes into repayment of the mortgage loan. In this dissertation, therefore, the affordability of each sampled household was measured using the simple housing cost- to- income ratio as follows:

Housing affordability of household = (household's monthly mortgage repayment/ household's monthly income) x 100%.

In order to identify the determinant factors affecting housing affordability of the residents the researcher was used multiple regressions. Regression models are understandably the most valuable and widely used multivariate statistical techniques in most studies that involve ratio/interval variables (Mayfield et al., 2005; van Leeuwn, 2010). The model was used two or more independent variables to predict the value of one dependent variable (Mayers, Gamst & Guarino, 2006). The model was chosen to be used in this study owing to its appropriateness to analyze the causal relationship between dependent and independent variable that are quantitative in nature. The model used with the implicit assumption that the dependent variable, Y is quantitative, whereas the explanatory variables are quantitative, qualitative (or dummy), or a mixture thereof (Mayers, Gamst & Guarino, 2006).

$$Y = ß + ax1 + bx2 + cx3 + dx4 + \ldots\ldots + έ$$

Where Y= dependent variable i.e. housing affordability

X1, X2, X3, X4 …Xn is independent variable (variables that will affect dependent variables).

In undertaking the necessary regression analysis the necessary test of normality, autocorrelation and any other tests were performed.

In distinguishing the determinants of condominium housing affordability in Addis Ababa the dependent variable (the ratio of monthly mortgage payment over monthly income) regressed on the households socio-economic characteristics and other variables influencing factors to know whether they have effects or not. The aim is to identify the key characteristics of housing and households associated with affordability**.** Likewise, the model used to identify factors that determine the housing affordability in Addis Ababa. Estimation via Ordinary Least Square (OLS) is an extensively used method in regression analysis since it is automatically appealing and mathematically simple (Gujarati, 2004). Therefore, OLS estimation employed to identify key factors that affect housing affordability in Addis.

In determining the determinant factors affecting condominium housing affordability the researcher used Mode of loan re- Payment, Interest on loan, Loan repayment Period, Loan amount, Job status/position of borrower, number of dependents, number of family members with income, size of household, level of education of residents, marital status of residents, gender of residents, Age of residents, distance from the center, down payment, finishing cost, quality of house design, building PRICE, size of a house, location of property and mortgage insurance Premiums as independent/ explanatory variables

The researcher checked the affordability of the condominium housing in the city administration using descriptive statistics and also regression analysis. In the first part the researcher examined the perception of residents' affordability of different expected payments such as the total housing payment, down payment, interest rate, penalty charged and also the reasonableness of the grace period.

7.4 The perception of residents on the affordability of monthly housing payments

It is obviously known that the beneficiaries are entering in to a loan agreement to pay the housing payment after paying the down payment at the time of getting home and regular (installment). And it is mandatory to pay the monthly mortgage to commercial bank of Ethiopia on a monthly basis. The monthly installments of the houses are differing with regard to their size and number of rooms.

From the data it is indicated that increases the size and number of room also increase the price of housing. Additionally, monthly installments expected from the residents also increased. Respondents are asked whether they are paying their housing expenditure on time or not and also about the reason for not paying their obligation on time? The perceptions of the respondents are given below in the analysis.

Table 7-1: The practice of paying housing expenditure on time

Do you pay your housing expenditure on time?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	328	77.7	77.7	77.7
	No	94	22.3	22.3	100.0
	Total	422	100.0	100.0	

Source: survey result, 2019

The table indicated above shows that more than 77.7% (328) of the respondents are paying their obligation to commercial bank on time. But the remaining 23.3% (94) of the respondents fail to fulfill their obligation on a regular basis. Those beneficiaries fulfilling their requirement replied and believe that it is the obligation of the respondents and also agreed that there is no room of tolerance by the commercial bank of Ethiopia about the periodic payments. They also critically argued that there is a warning letter that are posted by commercial bank of Ethiopia to remind about their default of the residents to fulfill monthly obligation and this affects the moral value of the residents. That is why they are paying their obligation on time.

Respondent fail to fulfill their obligations on time contended that they fail to pay on time because of their financing problem. The financing problem is due to unexpected increase in none housing expenditure. Some of the respondents replied that the monthly obligation is satisfied by collecting money from other family members and it is mandatory to wait until the money is collected. They confirmed that if they fail to get money from expected family members; they fail to pay because of the beneficiary’s lack of regular income. Compared to our monthly income and other non-housing expenses like food, clothes and social activities, it is difficult to pay the monthly installment regularly.

7.5 Affordability of Interest Payment

The beneficiaries are obliged to pay periodical interest rate for the amount of loan granted from commercial bank of Ethiopia. It is known that when the interest rate is rising, the cost of borrowing is also rising and the potential buyers are getting discouraged. In the table given below the researcher raised a question about affordability of periodic interest payments.

Table 7-2: Affordability of Interest Payment

Dou you think the interest rate is affordable?				
	Frequency	Percent	Valid percent	Cumulative percent
Yes	120	28.4	28.4	28.4
No	302	71.6	71.6	100

Source: survey result, 2019

Regarding the interest rate of monthly mortgage payment it is clearly indicated in the table above majority of the respondents 302 (71.6%) replied that the interest rate is not affordable compared to their paying capacity and the remaining 120 (28.4%) noted that the interest rate is affordable. According to the group discussion they stated that not only the interest rate even the total prices of the condominium houses were not comparable to the earning capacity of the lower income earners. The poor's do not have the financial capacity to pay the required down-payment. The down payment cost increase year after year. If they get money from family and relatives to pay the down payment, but it is difficult to pay the monthly installment regularly. Most of the time, low income earners can't live in their houses by paying regularly installments. They are forced to leave their house by renting for others. These and other factors forced lower income dwellers to be unable to afford the payment.

As it is clearly indicated in the table below almost all of respondents are paying down payment and agreed for monthly installments. Low and middle income families required to invest first the down payment for the cost of condominium unit, rather than paying 100% of the cost at a time. However, paying the down payment for low and middle income household is difficult because these people are low income earners and they fail to pay the whole down payment as well as the installment on time. Central to the achievement of adequate provision and distribution of housing is the issue of managing the relationship between the price of housing and the capacity of the household to pay for their housing (Mal pass and Murie, 1994).

7.6 Affordability of Down Payment

Respondents asked whether down payment required from the residents are fair or not? And the responses are given below in the table.

Table 7-3: Affordability of down payment

Dou you think the down payment is fair?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	141	33.4	33.4	33.4
	No	281	66.6	66.6	100.0
	Total	422	100.0	100.0	

Source: survey result, 2019

The data presented above clearly shows us majority of the respondents 281(66.6%) said that the down payment is not affordable compared with the paying capacity of the respondents and the remaining 141(33.4%) of them said that the down payment is affordable. The respondents also critically argued that the periodic payment of the housing expenditure affects the routine life of the residents. The costs that are associated with condominium housing are related to their ownership status. Ownership of a condominium consists of two parts: owning one's own unit and owning a percentage share of the common areas. The cost of living in a condominium has three components: the individual cost of purchasing or paying for a mortgage loan for the unit; individual cost of upkeep and repairs and also finishing costs because all of the housing estate distributed to the beneficiary is not finished completely; and a monthly condominium fee. That fee must cover the costs of maintaining common areas; insurance for the building as a whole; and a recommended replacement reserve to build up funds to pay for future replacement of major items (roof, windows, etc.) Condominiums do not offer an inherent cost saving feature, but rather provide a means for a group of owners to share common costs. It is critical that potential buyers of a condominium understand that they are obligated to pay their share of the common expenses on an ongoing basis.

7.7 Fairness of Penalty Charged

If the respondents fail to pay the required monthly installment payment on time, there is penalty expected by commercial bank of Ethiopia. In the table given below the respondents are asked the fairness of the penalty charged.

Table 7-4: Fairness of penalty charged

Do you think the penalty charged is fair?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	131	31.0	31.0	31.0
	No	291	69.0	69.0	100.0
	Total	422	100.0	100.0	

Source: survey result, 2019

As it is clearly depicted in the tables above majority of the respondents believe that the penalty charged in case of default by the borrower. It shows us majority of the respondents 69% of them believe that the penalty charged is not fair and the remaining 31% agreed that the penalty charged is fair. And they agreed that the interest payment is mandatory in the process of loan. Respondents also agreed that the expected cost from the housing bureau is not comparable with the respondents earning power and it affects the paying capacity of the residents and the routine life of the residents on another side. That is why residents are paying penalty even if they agreed that payment of interest is a cost and it adversely affects housing affordability.

Using the housing cost-income ratio approach of measuring affordability; the researcher examined the affordability of condominium housing affordability in Addis Ababa city administration. The researcher indicated that the condominium housing is not affordable for the residents because it shows that the residents are spending more than 40% of their monthly income for housing expenditure.

Table 7-5: The status of affordability rate

	Mean	Std. Deviation
Affordability rate	40.3433	26.86329

Source: Survey result, 2019

As it is indicated in the table given above the mean score shows that the average monthly expenditure of housing is greater than 30% and it is not affordable. Even if the condominium housing is organized for the poor people it is not as such affordable. Usually as a " rule of thumb" standard of not more than 25% or 30% of households monthly income being spend on housing costs is considered appropriate and affordable (Stone, 1993 in Okechukwu, 2009). Additionally as it is indicated in Kieti (2015) the ratio has also been used by the World Bank, United Nations development Programme and the United Nations Human Settlement Programme in their urban management programmes. As it is indicated in the table given above the ratio of monthly mortgage payment to their monthly income is 40% and it is greater than the standard stated above; and considered that the housing mortgage payment is not affordable.

7.8 Regression Analysis

In order to find the determinant factors affecting housing affordability the researcher used linear multiple regression by considering affordability ratio as a dependent variable and by considering demographic characteristics of residents, loan factor; socio economic characteristics of the respondents and physical characteristics of housing as a dependents variable.

Assumption tests for multiple regression analysis

In order to undertake the regression analysis different assumption tests must be undertaken by the researcher. As it is given in the following section the researcher checked model adequacy, autocorrelation, multi collinearity; Homoscedasticity and normality as follows:

Table 7-6: Model Summery

Model Summery					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.723a	.522	.494	19.09503	1.898

Source: survey result, 2019

The very important tool used to diagnose OLS estimation model fit the data well is the absence of autocorrelation in the datasets. Autocorrelation occurs when the residuals are not independent from each other. Autocorrelation in multiple linear regression models tested using Durbin-Watson test. Durbin-Watson's tests the null hypothesis that the residuals are not linearly auto-correlated. While can assume values between 0 and 4. As a rule of thumb values of $1.5 < d < 2.5$ show that there is no auto-correlation in the multiple linear regression data. Autocorrelation occurs when the residuals are not independent from each other and seriously affects the result of estimation. In dataset whether autocorrelation present or not tested using Durbin-Watson test. Durbin-Watson test 1.898 lies between 1.5 and 2.5 and it indicates there was no auto correlation.

Model adequacy is situation of checking by how much the model fitted describes the collected data. In the OLS estimation method, R-square (R2) and Adjusted R-square ($\bar{R}2$) are commonly used techniques to check the fitness of the model (Wooldridge, 2002). Adjusted R2 as indicated in the model 49.4% shows that the dependent variable explained by the independent variable close to 50%. From the regression results in the table, the model's R_2 is 0.494 and tells how much of the variance in the dependent variable (housing affordability) is explained by the model. Expressed in percentage, it means that the model comprising of the thirteen (13) variables explain 49.4% of the variance in housing affordability.

R-square is the measure of the 'Goodness-of-fit' of the fitted regression model and is calculated by the ratio of the explained to the total variation. It describes how much of the variation in the dependent variable is explained by the included factors or explanatory variables in the model. In social science low R-square in regression is common, especially for cross-sectional analysis (Wooldridge, 2002).

The ANOVA is used to test whether or not the proposed model significantly predicts the dependent variable. In this case, F- statistics in ANVOA table shows that $P<0.01$. This means that the independent variables are significantly predicts the dependent variables in the estimated model.

Table 7-7: ANOVA test

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	158332.946	24	6597.206	18.093	.000b
	Residual	144754.268	397	364.620		
	Total	303087.214	421			

Source: Survey result, 2019

It is indicated in the table given above F- statistics in ANVOA table shows that P<0.01 i.e. 0.000. This means that the independent variables are significantly predicts the dependent variables in the estimated model.

In factor analysis there are several assumptions that must be met before analysis has been carried out. The first procedure in factor analysis is a test of normality (linearity) of the data. Parametric tests, say regression analysis assumes a Gaussian (normality) distribution of the continuous data. However, likert scale items may violate this assumption. Thus, in this study items or data constructed using likert scale and used in factor analysis tested for normality by using a very conservative test approach called Kolmogorow-Smirnov normality test using SPSS to assess whether the items constructed using likert-scales are normally distributed.

Table 7-8: Tests of Normality

Tests of Normality						
	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Affordability ratio	.047	422	.076	.992	422	.018
a. Lilliefors Significance Correction						

Source: Survey result, 2019

If test statistics are statistically significant (p<0.05), the probability that the data follows normality distribution is very low. Thus, for a normally distributed variable the result is non-significant (p>0.05).

According to Wooldridge (2002), collinearity for a given dataset is measured using tolerance value and variance inflation factor (VIF). As a rule of thumb, tolerance values of 0.10 or less are cited as problematic. This implied that, the independent variables are highly correlated with other variables in the model. In this case, remove one or more highly inter-correlating variables from the model.

VIF-indicates the degree to which the standard errors are inflated due the levels of collinearity. Thus, VIF of 10 or greater are often cited as inductive problematic collinearity. If the above two ways of detecting multicollinearty assumptions are violated, there is the problem of collinearity in the predictor variables. In this case, the researcher is advised to remove the independent variables which have a highest correlation coefficient in the model. In case when two or more independent variables have a high correlation coefficient, remove the variables which have higher P-value in the estimated model. The VIF shown in the regression is less than 10 that is close to 2 and it indicates that there is no Multicollinearity.

Table 7-9: Regression result for Determinants of Housing Affordability

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	53.157	12.347		4.305	.000
age of the house hold	-.078	.089	-.035	-.874	.382
Marital Status	-1.968	1.772	-.042	-1.110	.267
sex of the respondents	4.111**	2.043	.076	2.012	.045
Educational level	-.499	.744	-.027	-.671	.503
what is your status of living	-2.192	1.427	-.061	-1.536	.125
Number of family member with income	1.642	1.134	.060	1.448	.148
Number of dependent outside the nuclear family	-.163	.929	-.007	-.175	.861
Number of children in school	1.102	.864	.053	1.275	.203
total family size	-.002	.812	.000	-.003	.998
what is your employment status	.480	.946	.019	.507	.612
Non housing expenditure	-003***	.001	.257	4.262	.000
Size of the room in M2	.269***	.080	.238	3.346	.001
Number of rooms	-2.481	1.955	-.083	-1.269	.205
Housing design	-.930	1.316	-.027	-.707	.480
Finishing cost that you incur	-2.480E-5	.000	-.060	-1.291	.197
Distance from the center in KM	-.110	.155	-.029	-.712	.477
Residential apartment in stories building	1.584**	.739	.082	2.142	.033
Interest payment	-4.225***	1.838	-.089	-2.298	.022
Amount of loan awarded	1.573E-5	.000	.071	1.402	.162
Loan term	-.350	.371	-.039	-.944	.346
Mortgage insurance	-.001	.001	-.059	-1.603	.110
DOWN PAYMENT	2.786E-5	.000	.027	.596	.552
Mode of loan repayment	.018	.745	.001	.025	.980
RESIDINC	-.007***	.000	-.796	-13.904	.000

*****, **, and ***denote significance at **1%, 5%, and 10%**levels, respectively.

Source: survey result, 2019

As it indicated in the table given above sex of the respondents; none housing expenditure; Size of the room in M2; Residential apartment in stories building; Interest payment and residual income are the significant variables affecting the affordability of condominium housing.

Interest payment compared to paying capacity has a negative impact on housing affordability. As the households' interest payment charged increase by a unit in severity (Low average or average to High) the house affordability rate will decrease by 4.2 percent at 1% significance level. Kieti (2015) found that there is a significant linear relationship between housing affordability and the factors: Interest on loan and it is noted that the study finding consistent with the previous findings.

It is also observed that the amount of money spend by the residents (amount spent for a month for food, cloth and any other social and economic requirements) has a negative impact on affordability of the residents. As the amount of none housing expenditure increase by one unit; the housing affordability decrease by 3% at 1 % level of significance. Regarding the none-housing expenditure Stone (1993) clearly argued that since housing costs generally make the first claim of a household's disposable income with non-housing expenditure having to be adjusted to whatever remains of the income, the most a household should be required to pay for housing is that which leave it able to meet non-housing basics at a minimum level of adequacy. A household is, therefore, paying more than it can afford for housing if after paying for housing, it is left with insufficient income to meet other basic household needs.

Residential apartment in stories building has an association with the housing affordability. Residential apartments which are located at the upper floor are more affordable than those which are located at lower floor because the regression result shows that as we step up by one floor the housing affordability rate increases by 3.1% at 1 % level of significance. According to Oduwole, H. K. and Eze, H. T. (2013) residential apartment in stories buildings has a link with the pricing of condominium housing and it affects affordability adversely.

Sex of the respondents also has an association with the housing affordability. Female residents have better affordability capacity than the male once. As it is depicted in the table above females has 41.1% affordable capacity than male respondents.

Residual income that is the difference of monthly income and mortgage payment has also an association with the housing affordability. Resident's residual income has a negative relation with the affordability of residents. A negative sign of the correlation coefficient for the factor number of family members with income implies that when the number of income earners in a family increases, the affordability ratio decreases, which means housing becomes more affordable to the household. This is because of the financial capacity of the condominium beneficiaries. It organized for the poor people with low level of income. Those residents with high residual income have high affordable capacity compared with low residual income because the regression result shows that as the residual income increase by one unit affordability rate also increased by 7% at 1 % level of significance.

As per the discussion of Kieti (2015) affordability can therefore be conceptualized to be a function of housing demand and supply, which are in-turn influenced by factors such as household income. But in the case of condominium housing in Ethiopia; the program arranged for the poor people and the residual income is not the indication of their huge income rather it shows there will be huge expenditures expected from the residents.

Size of the room in M2 has an association with housing affordability and it is indicated that the affordability of the residents (beneficiaries) increased when the number of rooms increased. It is known that the preference of the beneficiaries on the number of rooms increased when their income is increased. The poor prefer one bed room or studio; and those residents with better income prefer two and three bed rooms. When the size of the room increased; affordability also decreased. As the size of the house increased by one unit; the housing affordability decreased by 26.9% at 1 % level of significance. The factor size of the household also showed a strong correlation with affordability with correlation coefficient of + 0.269. The positive sign of the correlation coefficient implies that when the size of household increases, the affordability ratio increases meaning housing becomes less affordable to the household. It discussed by Oduwole, H. K.* and Eze, H. T. (2013) that the number of rooms and also the general lot size of the building increased the housing price and affects the affordability of residents. But the finding of this study contradicts from the researcher because as it clearly depicted in UNHABITAT (2011) the condominium housing arranged for the poor people.

As it is indicated in the table given above and shown in the results of the analyses there are different factors affecting the affordability of condominium housing in the city administration such as: the social and economic factors are affecting housing affordability because they influence households' income in one or another ways. The loan factors influence affordability because they affect the price of housing and the monthly mortgage repayments of the household's means that the loan factor makes the cost of money expensive in one way or another. The property factors affecting the price of housing and therefore the monthly loan repayments because it is the expected housing mortgage payment is related to the physical characteristics especially the size of the house. As compared to males, condominium house is more affordable to females. This might be because of the fact that female having relatively higher level of saving habit than males. Moreover, the regression result revealed that there are other structural variables that could be address in other studies that had affected house affordability significantly as the constant is statistically significance at 1% level.

7.9 Summary of the Chapter

In this chapter the researcher examined the determinant factors affecting affordability of condominium housing in Addis Ababa city administration. The researcher used both descriptive statistics to describe the attitude of respondents about the affordability and fairness of the expected payments from the beneficiary and also multiple regression to find the determinant factors affecting housing affordability. As it is indicated in the analysis it is indicated that even if there is a default made by the residents to fulfill the monthly mortgage payments; Majority of the respondents paid their monthly mortgage payments regularly. Those beneficiaries fulfilling their requirement replied and believe that it is the obligation of the respondents and also agreed that there is no room of tolerance by the commercial bank of Ethiopia about the periodic payments. Respondents fail to fulfill their obligations on time contended that they fail to pay on time because of their financing problem.

Additionally, it is noted that not only the interest rate even the total prices of the condominium houses were not comparable to the income capacity of the lower income earners. The poor's do not have the financial capacity to pay the required down-payment. The down payment cost increase year after year. Most of the time, low income earners can't live in their houses by paying regular installments. They are forced to leave their house by renting for others. These and other factors forced lower income dwellers to be unable to afford the payment. They also stated that majority of the respondents believe that the down payment and also penalty charged is not fair compared with the earning power of the residents.

Lastly the researcher identified the determinant factors affecting the affordability of condominium housing using multiple regression methods and it identified that sex of the respondents; none housing expenditure; Size of the room in M2; residential apartment in stories building; Interest payment and residual income are the significant variables affecting the affordability of condominium housing.

As per the data analysis using multiple regressions the researcher identified sex of the respondents; non-housing expenditure; size of the room in M2; residual incomes are the significant variable affecting the affordability of condominium housing. As it is indicated in the table given above and shown in the results of the analyses there are different factors affecting the affordability of condominium housing in the city administration such as: the social economic factors affect affordability because they influence households' income in one or another ways. The loan factors influence affordability because they affect the price of housing and the monthly mortgage repayments of the household's mean that the loan factor makes the cost of money more expensive in one way or another. The property factors affect the price of housing; and therefore the monthly loan repayments because it is the expected housing mortgage payment is related to the physical characteristics especially the size of the house.

CHAPTER EIGHT

8 DETERMINANTS OF CONDOMINIUM HOUSING PRICE IN ADDIS ABABA CITY ADMINISTRATION: A HEDONIC REGRESSION MODEL

The housing market is defined as one where housing services are allocated by the mechanism of supply and demand. One of the characteristics of the housing market that is different from markets of goods and services is the inelasticity of housing supply. Housing services are one of the most expensive household expenditures in different states in the world both developed and developing countries (Herath, Shanaka and Maier, Gunther 2010). It is also similar in Ethiopia in general and Addis Ababa in particular. Changing housing prices have been of concern to both individuals and governments in developed and developing countries because it influences the socio-economic conditions as well as physical and moral situation of the people and have a further impact on national economic conditions.

In this part of the dissertation; the researcher assessed the determinant factors affecting the pricing of housing particularly the housing program developed by the government of Ethiopia with multi-purpose objectives: to solve housing problem of the poor and also creating job opportunity in Ethiopia in general and Addis Ababa city administration in particular. Different literature shows that, the price of the condominium housing was increased from period to period (Tsion, 2012; Meles et al, 2015). Though they stated that housing price increased from period to period (from round to round), but fails to identify the determinant factors affection the price of housing in Addis Ababa city administration. This study focused on identifying the determinant factors affecting the price of housing from period to period.

The factors that are considered to determine the price of housing (condominium) is very important to be considered by the policy maker, housing investor, real estate developers as well as housing financers and researchers. The examination of determinant factors affecting condominium housing is critical for the government. To examine the issue stated above the researcher used hedonic regression model (HPM) that is not yet found in the housing literature in Ethiopia. The data that were relevant to the study collected from 422 respondents who are the residents of condominium housing in the city administration of Addis Ababa from different condominium sites. Even if it important to use secondary data to undertake the study; the researcher used primary sources using questionnaire. Even if it is much better to use secondary sources of data in undertaking the regression analysis the researcher used data from primary sources. It is due to apparent luck of secondary data. To undertake the study the researcher used housing price as a dependent variable.

8.1 Introduction

No two houses are alike, due to their heterogeneity characteristics; housing prices differ according to a wide variety of attributes: such as locational; availability of infrastructure; management of the housing estate and physical attributes. It is noted that Econometric methodologies could be employed to construct a model that the relative significance of various characteristics of the residential environment as well as the housing characteristics. This is the concept used in the hedonic pricing model.

In this research the researcher examined the determinant factors affecting the price of condominium housing in Ethiopia especially in the city administration of Addis Ababa. It is also indicated in different literature that the price of condominium housing increased from period to period in Addis Ababa. Why? Addressing this question is the central issue in this part of the dissertation. In order to answer the stated question above the researcher used hedonic pricing model to determine the determinants of condominium housing price in Addis Ababa city administration. The hedonic price method (**HPM**) is also known as the hedonic demand theory or hedonic regression. This methodology estimates the value of the characteristics of a house (condominium housing) that indirectly affects its market price (Herath and Maier 2010).

Alternatively it is used for estimating the demand for a commodity. The term hedonic used to describe *"the weighting of the relative importance of various components among others in constructing an index of usefulness and desirability"* (Goodman, 1998). Additionally, Rosen (1974) defines hedonic prices as "the implicit prices of attributes and are revealed to economic agents from observed prices of differentiated products and the specific amounts of characteristics associated with them".

In addition to affordability, the researcher is motivated to check the determinant factors affecting housing (condominium) price in Addis Ababa. As it is stated in Case et al (2004) for many people, houses do not only offer an alternative for a place to live in rather housing mostly represent the most important percentage of assets in these household's portfolio. In most industrialized countries real estate is the greatest component of private households' wealth. As a consequence, the value of their house has a major impact on households' consumption and savings opportunities by reducing non housing expenditure. It is also justified that Housing prices are therefore of great interest to real estate developers, banks, policy makers or, in short, the general public as well as to actual and potential home owners (condominium residents) (Schulz and Werwatz, 2004).

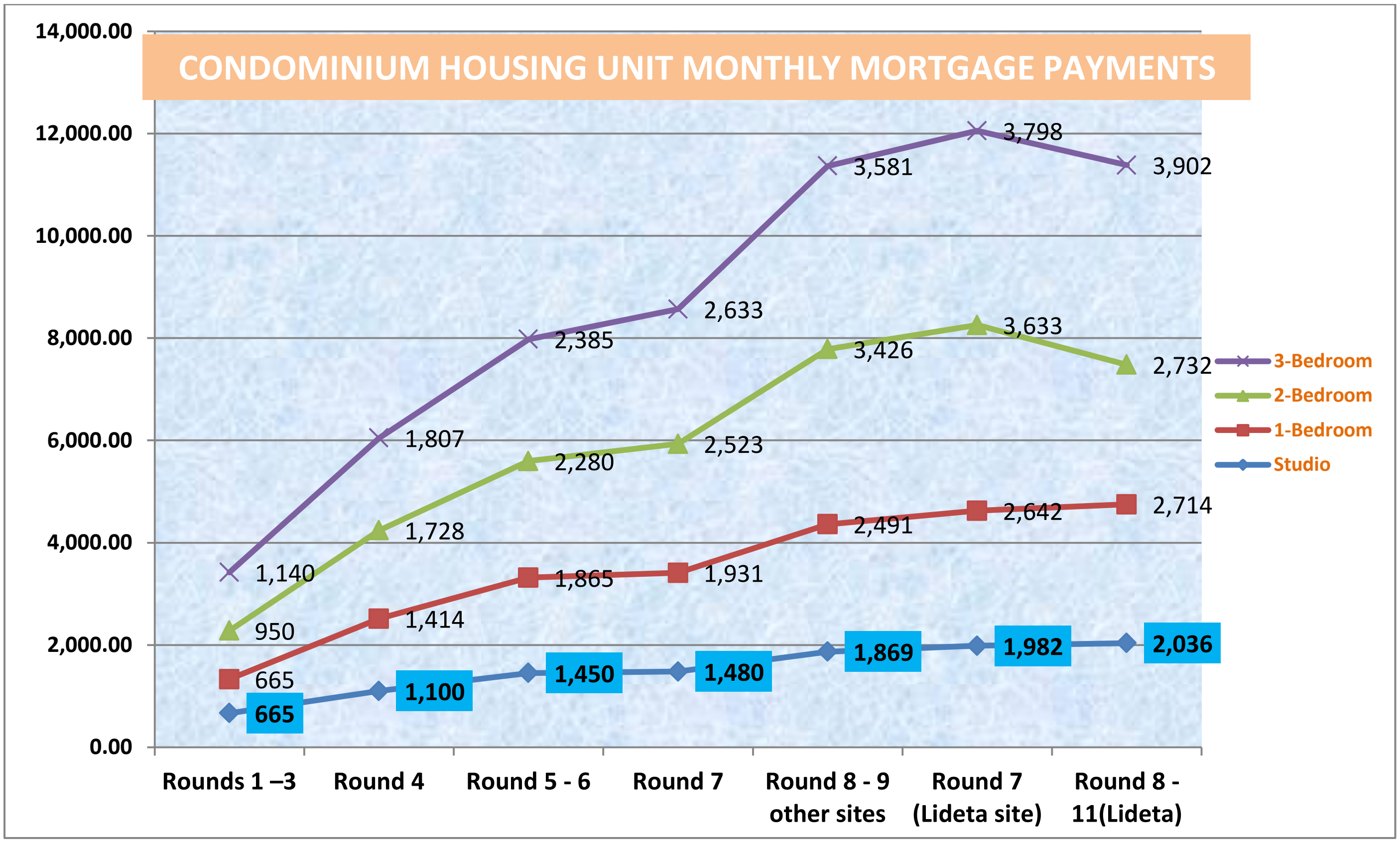
As it is indicated in Sibel Selim (2008) housing services are one of the most expensive household expenditures in the urban centers in different states and it is not especial in Ethiopia. Changing housing prices have been of concern to both individuals and governments in that they influence socio-economic conditions and have a further impact on national economic, social and even political conditions. Likewise the price charged to condominium must consider different factors because the housing scheme is developed to minimize the housing problem in the urban areas including in Addis Ababa and also to provide a house for those individuals displaced for the city renewal purpose.

As it is indicated in Meles et al. (2015) the prices of condominium have raised steeply for each house typology from period to period in Addis Ababa city administration. Unfortunately, family incomes during the same period did not keep pace with the rising housing prices and, clearly, affordability has been severely tested by the increasing of condominium prices compared with the change in of household's income (no significant change). But here the intention of the researcher is to find out the determinant factors affecting housing price (using Hedonic pricing model).

8.2 Condominium housing price pattern in Addis Ababa city administration

As it is indicated in the graph below; the price of condominium increased from period to period. On the contrary there is no significant change on the income level of the people (beneficiaries) (Meles etal, 2005). Most of the people in Addis Ababa are engaged in different informal business affairs as well as low income earning activities. The rise in price from period to period affects the two important elements of the housing program i.e. affordability as well as satisfaction of the respondents. The Graph below shows the rise of the housing price from period to period.

Graph 8.1: Condominium Housing Unit Monthly Mortgage Payments



Source: Addis Ababa City Housing Development Administration Agency

As it is indicated in the graph given above the price of condominium were increased from period to period in all typology. Interview result from the officers revealed that the price change from round to round (increase) of condominium housing in the city administration is because of an increase in price construction materials in particular as well as the inflation observed in the country in general.

According to the United Nations Global Report on Human settlements, the cost of a complete dwelling could be 2.5 to 6 times the average annual salary of a worker (Okpala et al, 2006). But, it is indicated in the graph given above the price of condominium housing is increased from period to period.

Additionally, in Meles et al. (2015) and others the prices of condominium have raised steeply for each house typology from period to period. It is also stated that, family incomes during the same period did not keep pace with the rising housing prices and, clearly, affordability has been severely tested by the increasing of condominium prices compared with the increasing of household's income.

In order to find out the determinant factors affecting housing price in Addis Ababa city administration the researcher used Hedonic pricing model (HPM). In this chapter the researcher is motivated to identify the determinant factors affecting affordability of condominium housing by the residents.

As Herriges, Secchi and Babcock (2005) stated that Hedonic price models have long been used to value not only the physical attributes of housing units but also the surrounding location and environmental amenities. The hedonic regression method the product prices on its characteristics. In land and housing markets, prices are regressed on housing attributes such as age, size and on site characteristics, neighborhood characteristics location and public services.

In order to determine the determinant factors affecting the price of condominium housing in Addis Ababa city administration, the researcher used hedonic pricing regression model (HPM) by considering housing price as a dependent variable and there are different independent variables (explanatory variables).

In order to make appropriate analysis on the determinants of housing price; the initial variables that entered into the multiple regression procedure include price of houses which is the dependent variable and the independent variables are related to physical characteristics of the residential environment; location of the residential environment; neighborhood characteristics; and also socio-economic characteristics of the residents.

8.2 Hedonic Regression (Dependent and Independent Variables)

Identification of dependent and independent variable is very important to undertake the study; in the next part of the study the researcher identified both dependent and independent variables that considered in the hedonic regression model. The researcher tried to identify the factors affecting the price of condominium housing. This study employed **hedonic regression analysis** to examine the impact of structural, neighborhood and locational characteristics on the price of the condominium housing in Addis Ababa city administration. The independent variables used by the researcher in determining the determinants of condominium housing are size of a house, number of rooms, parking space , position of apartment , schools , recreational Site , electricity, access road , Central Business District (CBD) , access to Electricity, Pipe borne Water ,and Crime Rate

In order to undertake the dissertation in a required quality and to check the determinants of housing (condominium) price, the researcher considered data that collected from the primary sources of data because there is no organized secondary housing data.

In collecting the required data the researcher used 1=available, 2= moderately available, 3=not available. But a previous study conducted using "yes" and "No" such as (Oduwole, H. K. and Eze, H. T**, 2013).** The researcher prefers the three scales to assess the opinion of the respondents better than "yes" and "No". The model estimates the relationship between the price of an asset (the dependent variable) and all of its various characteristics (independent variables).

Hedonic pricing model theory is based on the assumption that the price of a property such as (office, house, rent price) is a direct function of a fixed number of characteristics (say) measured by quantities (Limsombunchai et al., 2004 and Hamid, 2006). Hence the hedonic pricing model decomposes the transaction price into various components or characteristics. To achieve the stated objective the researcher used OLS regression (Multiple Regression Analysis).

8.3 Assumption tests for multiple regression analysis

In order to undertake the regression analysis different assumption tests must be undertaken. It is given as follows.

Table 8-1: Model Summary

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.314[a]	.099	.074	1138.23942	1.555

Source: Survey result, 2019

An important tool used to diagnose OLS estimation model fit the data well is the absence of autocorrelation in the datasets. Autocorrelation occurs when the residuals are not independent from each other. Autocorrelation in multiple linear regression models tested using Durbin-Watson test. Durbin-Watson's tests the null hypothesis that the residuals are not linearly auto-correlated. While can assume values between 0 and 4. As a rule of thumb values of $1.5 < d < 2.5$ show that there is no auto-correlation in the multiple linear regression data. Autocorrelation occurs when the residuals are not independent from each other and seriously affects the result of estimation. In dataset whether autocorrelation present or not tested using Durbin-Watson test. Durbin-Watson test 1.555 lies between 1.5 and 2.5 and it indicates there was no auto correlation.

Model adequacy is situation of checking by how much the model fitted describes the collected data. In the OLS estimation method, R-square (R2) and Adjusted R-square ($\bar{R}2$) are commonly used techniques to check the fitness of the model (Wooldridge, 2002). Adjusted R2 as indicated in the model 0.074 shows that the dependent variable explained by the independent variable close to 7.4%. From the regression results given, the model's R2 is 0.074 and tells how much of the variance in the dependent variable (housing price) is explained by the model. From the description given above it is clearly indicated that the dependent variable price of condominium housing is poorly explained by the given independent and explanatory variables.

R-square is the measure of the 'Goodness-of-fit' of the fitted regression model and is calculated by the ratio of the explained to the total variation. It describes how much of the variation in the dependent variable is explained by the included factors or explanatory variables in the model. In social science low R-square in regression is common, especially for cross-sectional analysis (Wooldridge, 2002).

Even if the independent variables are adopted from Oduwole, H. K. and Eze, H. T (2013) and any other literatures; the explanatory power of the independent variable is poor. It may be because of the nature of condominium housing market in Ethiopia. The condominium housing price is not determined based on the demand and supply existed in the housing market. Rather the prices were determined based on the decision of government.

Table 8-2: ANOVA test

ANOVAa						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	58092865.240	11	5281169.567	4.076	.000b
	Residual	531191478.200	410	1295588.971		
	Total	589284343.500	421			

Source: Survey result, 2019

The ANOVA is used to test whether or not the proposed model significantly predicts the dependent variable. In this case, F- statistics in ANVOA table shows that $P<0.01$. This means that the independent variables are significantly predicts the dependent variables in the estimated model. As it is indicated in the table given above the significance of 0.000 indicates that the dependent variable predicts the dependent variables.

Parametric tests, say regression analysis assumes a Gaussian (normality) distribution of the continuous data. However, likert scale items may violate this assumption. Thus, in this study items or data constructed using likert scale and used in factor analysis tested for normality by using a very conservative test approach called Kolmogorov-Smirnov normality test using SPSS to assess whether the items constructed using likert-scales are normally distributed.

Table 8-3: Tests of Normality

Tests of Normality						
	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
mean satisfaction score	.047	422	.083	.992	422	.017
a. Lilliefors Significance Correction						

Source: Survey result, 2019

If test statistics are statistically significant ($p<0.05$), the probability that the data follows normality distribution is very low. Thus, for a normally distributed variable the result is non-significant ($p>0.05$).

According to Wooldridge (2002), collinearity for a given dataset is measured using tolerance value and variance inflation factor (VIF). As a rule of thumb, tolerance values of 0.10 or less are cited as problematic. This implied that, the independent variables are highly correlated with other variables in the model. In this case, remove one or more highly inter-correlating variables from the model. But it is indicated that the tolerance level of individual variables are greater than 0.5 and as per the definition given there is no Collinearity between variables

VIF-indicates the degree to which the standard errors are inflated due the levels of collinearity. Thus, VIF of 10 or greater are often cited as inductive problematic collinearity. If the above two ways of detecting multicollinearty assumptions are violated, there is the problem of collinearity in the predictor variables. In this case, the researcher is advised to remove the independent variables which have a highest correlation coefficient in the model. In case when two or more independent variables have a high correlation coefficient, remove the variables which have higher P-value in the estimated model. As it is indicated in the table given below the VIF is below two and it indicates that there is no Collinearity between variables. And it is fitted to undertake multiple regressions.

In the table given below the researcher presented the regression result to show the significant and insignificant variables in determining the price of condominium housing price in Addis Ababa city administration. It is observed that most of the variables are not significant in determining the price of condominium housing in the city administration.

Table 8-4: Regression result for determinants of housing price in Ethiopia.

Coefficients[a]							
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1542.426	272.560		5.659	.000		
Size of the house im M2	1.269	2.043	0.356	2.012	.013	.584	1.584
Number of rooms excluding toilet and kitchen	2.31	1.989	.467	2.21	.049	.570	1.730
The presence of government establishment	277.505	96.795	.184	2.867	.064	.534	1.873
The presence of private establishment.	-33.806	97.086	-.022	-.348	.728	.559	1.788
The presence of schools (primary, secondary & Tertiary) in the neighborhood	-62.197	91.842	-.036	-.677	.499	.758	1.320
The availability of major access road in the neighborhood.	-182.637	98.079	-.113	-1.862	.063	.594	1.684
The presence of electricity installation in the neighborhood.	-375.322	110.834	-.209	-3.386	.051	.576	1.736
The presence of pipe borne water (or borehole) installation in the neighborhood.	473.445	107.128	.264	4.419	.060	.617	1.622
Solid and liquid waste disposal	31.155	78.323	.020	.398	.691	.829	1.206
Absence of noise	-47.196	84.389	-.030	-.559	.576	.741	1.349
Access to employment opportunity	13.866	86.202	.009	.161	.872	.750	1.333
Presence of religious institution	215.452	93.920	.125	2.294	.022	.744	1.345
Presence of crime management	-11.816	34.566	-.017	-.342	.733	.927	1.078

a. Dependent Variable: what is your monthly housing expenditure paid for the bank? (monthly mortgage)

*****, **, and ***denote significance at **1%, 5%, and 10%** levels, respectively.

Source: Survey result, 2019

As it indicated in the tables given above most of the independent variables are insignificant in determining the dependent variable monthly housing mortgage payment expected from the residents on a monthly basis.

As indicated in the regression result table given above, the size of the house in M2 and number of rooms except toilet and kitchen are the significant variables in condominium housing price in Addis Ababa city Administration. And it shows that the condominium housing price in the city administration is influenced by the size of the house and number of rooms and this finding is consistent with ketit, 2015. However, the presence of private establishment; the presence of government establishment; the presence of electricity installation in the neighborhood; the availability of water (or borehole) installation in the neighborhood are significant variables to determine the price of condominium housing; the presence of schools (primary, secondary & Tertiary) in the neighborhood; the availability of major access road in the neighborhood; absence of noise (silence); existence of solid and liquid waste disposal; access to employment opportunity; presence of religious institution and presence of crime management posts are not significant variable to determine the price of condominium housing in the city administration.

As it is indicated in different literature Several robust fundamental determinants are identified, among them the supply-side factors of construction activity and housing stock as well as the demand-side factors of apartment rents, market size, age structure, local infrastructure and rental prices. Results suggest that these factors are robustly linked to fundamental real estate prices and thus can be used to detect misalignments of market prices. But the price of condominium housing in Ethiopia is not determined by the market depending on the demand and supply of condominium rather it is noted that the price were determined based on policy decision by considering any other factors such as social and political situations of the state. Such as it is clearly indicated in Tigist (2015) the demand and supply mismatch in Addis Ababa was contributed for high rent price and housing selling price.

8.4 Summary of the chapter

In this chapter the researcher examined the nature of condominium housing price in Addis Ababa city administration and also the determinant factors affecting the price of condominium housing.

Accordingly, it was indicated that the price of condominium housing were increased from period to period for different housing typology. But, as it is indicated in different literature housing price is influenced by its location relative to a local urban Centre (LOC), the type of house (TYPE), the size of the house (SIZE) in M2, the quality of its view (VIEW), and neighborhoods characteristics

(NEIGH) such as school quality and crime. In this research Hedonic pricing model theory is based on the assumption that the price of a property such as (house price) is a direct function of a fixed number of characteristics (say) measured by quantities.

The researcher examine the condominium housing price in the city administration and it shows that the price of condominium housing were increased from round to round in the city administration. The rise in price from period to period affects the two important elements of the housing program i.e. affordability as well as satisfaction of the respondents.

As indicated in the discussion given above even if the presence of government establishment; the presence of electricity installation in the neighborhood; the presence of pipe borne water (or borehole) installation in the neighborhood are significant variables in determining condominium housing price. But the presence of private establishment; the presence of schools (primary, secondary & Tertiary) in the neighborhood; the availability of major access road in the neighborhood; noise in the residential environment (silence); Solid and liquid waste disposal; access to employment opportunity; Presence of religious institution and Presence of crime management are not significant variable to determine the price of condominium housing in the city administration. The stated variables are not a significant variable in determining the condominium housing price; as per the discussion the price of condominium was not determined based on the demand and supply rather the intention of the project is by focusing the housing problem in the city administration and also to increase employment opportunity by encouraging MSEs. That is why price of condominium housing was not affected by different factors affecting the behavioral character of the beneficiaries when people are purchasing from the market using/considering demand and supply rather it is dependent on cost factors.

CHAPTER NINE

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Introduction

The main objective of this research is to examine the adequacy and affordability of condominium housing in Addis Ababa city administration; given specific emphasis on the adequacy of housing; challenges of implementing condominium housing in the city administration; satisfaction of the residents on the residential environment; housing affordability and also the determinants of housing price. The researcher raised specific objectives to be achieved throughout the study and correspondently there are research questions that were answered through data collection and analysis. Data collected from primary and secondary sources. The analysis and interpretation of results also made based on the theoretical and conceptual model developed in chapter two of this dissertation. Additionally, mixed method concurrent triangulation strategy giving equal emphasis for qualitative and quantitative research used; the study investigated the adequacy and affordability as well as residential satisfaction on condominium housing provision in Addis Ababa city administration. Additionally, characteristics of condominium housing and challenges providing adequate and affordable public urban housing (condominium) in the city administration of Addis Ababa and also the adequacy and residential satisfaction were examined in chapter four, five, and six respectively.

Additionally, the researcher examined the determinant factors affecting condominium housing affordability and also the determinant factors affecting condominium housing price in the city administration in chapter seven and eight using the theoretical and conceptual frameworks developed in chapter two, key findings were found from the analysis and interpretation of primary and secondary data, which the researcher believes have effectively answered the given specific objectives of the research. The following major conclusion, directions of future research and policy recommendations, which are thoroughly informed by analysis and interpretation of data, and lastly relevant conclusions, were drawn.

9.2 CONCLUSION

Housing development can be considered as pioneering step for sustainable development having multiple objectives and multi - institutional significance both in urban and rural areas in the world including in Ethiopia in general and Addis Ababa in particular. As the housing needs of individuals differ from person to person depending on various factors such as income, age, culture and others an integrated approach can be very helpful in defining the problem in general.

This study "examination of housing adequacy and affordability in Ethiopia particular emphasis on Addis Ababa city administration" mainly focused on evaluation of condominium housing affordability, adequacy and residential satisfaction. The researcher investigated and analyzed the housing adequacy, satisfaction and affordability and also determining the dimensions of housing adequacy of condominium residents (beneficiaries) in eleven rounds of condominium in the city administration by taking 422 residents as a sample. In this research the researcher examined the challenges faced by government in providing condominium housing, the housing affordability, price of condominium housing (using hedonic pricing model), adequacy of housing units and satisfaction of residents.

It is clearly indicated that dealing with housing issue is important because it has a link with the social and economic aspects of the people at large. The housing program must be examined from the implementation performance of the housing program; the determination of the price of the house, check whether the people are affording the monthly mortgage housing payment – related to down payment, interest rate, finishing costs and periodic mortgage payments. Not only examining affordability it is also better to examine the adequacy of condominium as well as the satisfaction of respondents.

The challenges related to implementation of the condominium housing program in Addis Ababa city administration examined using qualitative analysis by using narrative analysis; the price of housing analyzed using hedonic pricing model; regression analysis used to identify the determinant factors affecting affordability and the mean score and factor analysis (principal axis factoring method) employed to examine dimensions of the housing adequacy and satisfaction of residents. Additionally, the researcher used frequency and percentage to describe the observed facts regarding the affordability, adequacy and satisfaction of the residents on the residential environment.

The researcher evaluated housing adequacy and satisfaction of residents on residential environment based on five key dimensions: The first dimension is the physical characteristics of condominium such as the size of bed room, dining spaces, the size of kitchen, security, and others. The second dimension is related to infrastructure such as water supply, electricity, access to road and sanitary in the residential environment; the third dimension used to evaluate the housing features i.e. adequacy is related to the existence of government establishments such as recreational center, availability of parking, the distance from bus station, distance from the market, distance from police station, distance from school and hospitals. The management practice in the housing estate is the fourth dimension used in the study to evaluate the adequacy and satisfaction of the housing estate. In this dimension the researcher considered the selection of committee members, the rules and regulation in the estate, waste disposal in the housing estate, the road with the required light and other dimensions. The last dimension is related to social infrastructure that includes the existence of job opportunity, relationship with neighborhood, the utilization of common goods in the housing estate, and also the existence of security in the housing estate.

Based on the discussion and analysis, the researcher drawn the following conclusions by considering the specific objectives of the study as a thematic areas. Accordingly, the conclusions are given below:

The first conclusion given was related to the characteristics of condominium housing and challenges of implementing the programme in Addis Ababa city administration. Based on the data analysis and discussion, the following conclusions were drawn:

The respondents' evaluation regarding the condominium housing in Addis Ababa city administration and assessment on the condominium housing project program is given here under and based on the analysis and discussion given in chapter four; condominium housing in the city administration of Addis Ababa is characterized by the following features:

- Most of the respondents felt that the housing quality is not up to the preference of the residents even if it is with better physical quality than the previous residential areas such as kebele houses.
- The residents felt that the distribution of housing to the beneficiary is not fair and also it does not consider the age and health condition of the residents.
- Most of the respondents felt that the process of getting the house from the housing administration is not easy.
- Residents are renting and /or selling their house because they stated that the housing is not affordable in one side and also not adequate in another side. The discussion of the study shows that people are forced to rent and sell their house because of the social and economic problem observed in and around condominium housing. Additionally, they stated that the condominium housing are not suitable for disables, elders and pregnant.
- Most of the residents have no positive look at grace period (one year) given to start installment payments.
- Even if the finishing cost incurred is dependent on the preference and capacity of the beneficiaries, most of the beneficiaries argued that it demands huge amount of finishing costs. And most of the residents stated that even if there are doors, shower appliances, toilet flash and window maintained by government it is not functional as it was not appropriately installed and also it was too much damaged.
- In most of the condominium sites especially in the peripheral condominium sites there is no organized market place. Additionally, they stated that the prices of different goods and services are larger compared with the price observed in the larger market place.

- It is also stated that there is a problem of water especially in the upper floor, electric interruptions and also lack of well-designed road and also street lighting. Related to the public establishments there is no as such affordable school and health care services especially in the peripheral sites. Residents felt and sensed that the social interaction is poor compared with the previous residential areas.
- Most of the residents also stated that the management practice in the residential environment is not as such sound and developed. Because the management (committee) members were selected by the residents voluntarily; and people faced a problem when the members are not around.
- The interest rate charged by commercial banks compared with their income generating capacity of the target condominium housing beneficiaries and existing increase of non-housing expenditures.
- Even if most of the residents were paying the down payment on time. But, some of the beneficiaries argued that that the down payment required is also not as per the paying capacity of the respondents.
- The stated assessment shows that the residents are not comfortable with the practice of condominium provision, required payments (down payment, installment payments and others such as finishing cost) as well as the time given for grace period. Such issues must be revised as per the interest of the respondents for the better achievement of the program because the program was initiated by government by focusing on solving housing problem as a central point and other goals of the program such as solving the problem of unemployment through MSEs in different urban centers.
- The respondents stated that the modes of payment as well as the amount of payment expected from the residents are not comfortable for the residents and also they perceive that the expected payments are not fair (not affordable).
- Even if majority of the residents are dissatisfied with the residential environment, but there are residents who are satisfied.
- The social interaction in the condominium housing was not as such good compared with the previous residential areas. Ant it observed that most of the residents are closing their doors. And most of the respondents argued that they lost their social values from period to period.

- The housing mortgage to monthly income ratio (cost to income ratio) i.e. 40.37%, shows us the condominium housing is not affordable.

Additionally, the main challenges that the condominium housing program was faced are:

- As the integrated housing development program (IHDP) is the massive housing project planning to construct mass housing for the residents; regular supervision and motivation from government side (city administration) is important to achieve the stated goals. Lack of motivation and follow up of city governments has decelerated the implementation of low-income housing. It is observed that the motivation of the city administration (government) decreased from period to period and this shows the program was overambitious. This problem might be associated with different factors such as availability of quality construction raw materials, increasing of cost of construction materials, lack of contractors and supervisors with appropriate skill and ethics, lack of organized institutional framework in the housing project, corrupted culture of the participants, lack of financing the housing program, poor affordability of the people and any other factors such as increasing non-housing expenditure in the country in general and also city administration in particular. The conclusion related to challenges observed in condominium program was given as follows:
- Lack of stable financial funding to finance the integrated housing project in the city administration is also the challenge of the housing project implementation in Addis Ababa, as it is clearly discussed in different parts of this dissertation the financing issue is addressed using commercial bank of Ethiopia (one of the largest public owned commercial bank); but the problem is the ambitious housing program is not easily financed by commercial bank. This is due to poor paying capacity of the beneficiaries because of increasing non-housing expenditures, and also the increase of cost of construction material from period to period in the country. The financing problem was not observed only from government side it is also a problem of beneficiaries.
- Another difficulty of the condominium housing program in Addis Ababa city administration is its ambitious nature. When the program is initiated in 2005 it was overambitious; having a plan to construct mass housing to the urban poor in Ethiopia in general and Addis Ababa in particular. This ambitious nature of condominium housing demands huge financial resources as well as construction materials and construction management experiences. Compared with

the plan, the number of families which could benefit from the condominium housing scheme is still rather small, thus the impact of the project in addressing housing problem to the society is not as such significant regarding solving the affordability issue of urban housing as well as supplying a bulk of housing for the targeted section of the society. Additionally, there is large number of unsatisfied demand in the housing market in the city administration and also there are large numbers of waiting lists. If we are considering the rural-urban migration, there are large numbers of people who are demanding house; this increase the housing demand in the city administration and it shows that the housing deficit still exists.

- Periodical examination and supervision of the government body on the implementation process of the program is too poor compared with the sensitivity of the housing problem in the city administration. It was also stated that there is a problem of assigning professionals on those areas demanding its own professional personnel.
- Among other problems observed was the inconsistence of the constructed houses with the plan related to number and design of the building as well as the features of each housing unit. It is the result of poor supervision and also corrupted culture such as accept the building without fulfilling technical requirements.
- Moreover, limited local engineering and construction capacity are factors hindering the achievements set by the program (AMCHUD, 2008). The poor capacity of the contractors and engineers are the reason for the existence of poor implementation of the housing program in the city administration. The city administration enters in to an agreement with the contractors (contractor with less experience) to create employment opportunity. This will have its own adverse effect on the quality of condominium houses.
- Another challenge of the condominium housing in Ethiopia was the poor affordability capacity of the condominium beneficiaries in the city administration. As a result, the condominium program may lead to a process of renovation in the city administration by keeping objective of city renewal by doing so there is relocating the residents from the previous residential areas. But, the condominium sites are not suitable compared with the previous residential areas through which poorer people who are allocated to condominiums are renting or selling to other person and rent another house with low cost. Gradually, this may lead to a situation where the urban middle class reside in and own the housing that was planned for the urban poor, who may be pushed to the peripheries, where they may not be

able to find employment in the informal sector and may be unable to afford to travel to the city center for work, thus becoming even more disadvantaged and also incurring additional costs than before.

The second conclusion given was related to the second objective i.e. examination of adequacy of condominium housing in Addis Ababa city administration. Based on the discussion and the analysis made the conclusion was given here under:

According to the analysis and discussion given respondents have no similar perception about housing quality and adequacy but they have both positive and negative perceptions by different residents depending on their own culture, age, health condition and also perception and aspiration of the beneficiaries. Residents justified and stated different factors to have either positive and/or negative perceptions about the adequacy condominium housing program in the city administration. Residents who have a positive perception about the adequacy of the house stated that good sanitation, privacy, availability of private water and electric power and relatively better house and service facility as compared to the previous residential environment. On the other hand respondents who has negative perception about the adequacy of condominium housing stated that financial constraint (difficult to afford) the house, considering previous location as a better place for the home based business, lack of living experience in condominium buildings, huge finishing costs to furnished the condominium houses including doors and windows and also shower appliances and also toilet flash; structural inconvenience for elders and physically disabled and potential risk of old people and children. Additionally adequacy of the housing unit was discussed by considering different dimensions:

- The First dimensions considered to examine the adequacy of condominium is related to the physical characteristics of the condominium housing (dwelling unit features) stated that the most important physical characteristics of the housing characteristics with significant influence on residents' perception of housing adequacy in public housing are sizes of cooking and storage spaces; number of bedrooms in the residence; size of dining and living space; sizes of bedrooms in the house; design of residence in relation to occupants' natural way of life; natural lighting and air circulation in living and bed rooms; aesthetic appearance of residence; dining Area - size & condition and also location of residence in the estate. As per the analysis even if the residents agreed that the stated issues related to the physical characteristics of the condominium housing, it observed that most of the respondents felt and sensed that the housing unit is not adequate compared with their expectation and aspiration.

- The second dimensions used by the researcher were dwelling unit support services (physical infrastructures) in and around condominium sites. It is also is indicated in the analysis that; the residents sensed and felt that the housing unit are not adequate related to supply of electric power, expansion of road but they felt that there is no critical problem of water supply and sanitation services. And also they stated that the distribution of water is not similar in different floors. Additionally, they stated that the water pressure in the upper floor is low. According to UN Habitat (2009) improving water accesses implies less cost burden, reducing water related disease and improving quality of life. Electricity interruption also pushed dwellers to used charcoal, which is very expensive than electric bill, which affect the environment and the health of residents. This suggests that connecting utility without adequate service level could not improve housing satisfaction.

- Adequacy of housing related to Neighborhood environment (government establishments) in and around the residential environment is the third dimensions used to examine the adequacy of condominium housing in Addis Ababa city administration. The adequacy of the condominium housing examined by considering recreation/sporting facilities, public infrastructure and urban services, shopping facilities, proximity of home to place of work, medical/healthcare facilities, children's school, distance to Bus station, distance to Masjid/church, proximity of home to the nearest market, distance to police, distance to fire station, parking areas and also Prices of goods and services in the housing estate. And it shows that there uneven and unfair service provision between sites in the city administration that is related to location of the sites. It is stated that the establishments are easily available and accessible in the inner city sites but fail to find easily in the peripheral condominium sites of the city administration. As indicated in the discussion; it is indicated that the housing unit is not adequate related to government establishments including children's school, health station, market place and others.

- The fourth dimension was the management of the housing estate in the residential environment. It also discussed that the housing units are not adequate related to management of the housing estate in the city administration. Respondents stated that the committee member make a decision on different aspects of the residential environment and facilities without active participation of the residents and the rules and regulations are not as such consistent with the needs and aspiration of the residents. It is also observed that residents are not participatory in different aspects of the residential environment. Such as cleaning the residential environment including the corridor and stair case and also monetary contributions made by the residents for environmental developments in the residential environment.

- Based on the principal axis factoring methods of dimension reduction location of residence; in the estate; natural lighting and air circulation in the living and bed room; aesthetic appearance of residence; design of residence in relation to occupants natural way of life are among the main factors affecting adequacy of housing dwelling unit features (physical characteristics). Existence of water supply, electricity and availability of road are the very important variables in determining the dwelling support services (physical infrastructure) of the housing environment. The adequacy of neighborhood environment (government establishments) was determined using availability of shopping facilities; children's school; distance from bus station; public infrastructure and urban services. Additionally, adequacy of housing related the management of the estate is described using cleanliness of the housing estate security of life and property; street quality and lighting; cleaning corridor and stair case. It is also stated that communal activities in the housing estate; absence of noise; crime and anti-social activities are the main variables to explain the social issues in the residential environment.
- Lastly, Based on the regression analysis it is found that total monthly income (in birr); mean satisfaction score; Educational level; sex of house hold head and age of the house hold are the determinant factors affecting housing adequacy.

The third conclusion given related to the third objective i.e. examination of residential satisfaction among condominium residents in Addis Ababa city administration. Accordingly, the conclusion given below:

The satisfaction of residents on the condominium housing were examined from different dimensions: such as the physical characteristics related to condition of interior design and spaces, security of residence, availability of utilities, neighborhood facilities and social infrastructure; privacy and sizes and condition of housing to undertake own business and areas for sleeping areas in the dwelling units. As well as interior spaces, security of residence, availability of services and social infrastructure; privacy and sizes of main activity areas in dwelling units in the design, planning, construction and management practice of the housing estate in the condominium site.

- The study found that majority of the residents are slightly satisfied with the dwelling unit features (physical characteristics) of the housing estate, though satisfactions levels varied with the provision of services and public facilities, compared to satisfaction with physical features of the housing unit and the social environment within the housing area as well as satisfaction on management of the housing estate related to level of income, age, marital status as well as their culture of the residents. The satisfaction of the residents' on different element of the housing feature is varied from site to site. Residents are not as such satisfied related to size of bed room, cleaning services for corridors and staircases, street lighting, garbage collection, security level within the housing area and the study identified that there was improve garbage collection and disposal within the housing area; in adequate street lighting within the housing area; and lack of security because of the existence of different bar houses and khat houses in the residential environment and it also observed that there is disturbance and shouting to the mid night.
- As per the analysis of the study it is observed that the dissatisfaction of the respondents are related to affordability problem of the residents because it is highly tested with increased non-housing expenditure compared with their monthly income of the residents. It is also discussed that the monthly mortgage payment, down payment, the interest rate considered during the grace period, finishing costs and the total cost of the condominium units, is far beyond the income levels of the applicants and the residents too. The problem is observed due to lack of defining and identifying the low and middle income residents in advance and also lack of need assessment on the preference of housing typology so as to make effective provision of condominium housing to the beneficiaries. The house is not completely finished and also well-furnished; due to this reason the residents incur additional finishing costs. This increase the total cost of housing and also it affects the affordability of the residents.
- It also stated that compared with the previous residential areas the condominium house is not as such contributing to undertake home based business to support their income generating capacity of the condominium residents. And this is also means of dissatisfaction by the residents.
- Another means of dissatisfaction by the residents is problem related to the quality of the condominium construction process undertaken in the city administration. It is observed that

condominium houses are not constructed and transferred on time as per the plan of government; as a result, most of the applicants are exposed to additional costs for renting a house until they got the house from government; there is double payments one for condominium on a regular basis and also for rent until the condominium housing will be distributed to the beneficiary. The other thing, there is absence of orientation and awareness creation on how to live in each condominium units and tackle the existing socio cultural accommodation problems.

- The residents also stated that the existence of bar houses; pool houses and any other game zone and also any other unethical practices that was undertaken by the people in the residential environment create a problem in living condominium in Addis Ababa city administration. And it is one of the principal reasons for the satisfaction of respondents on the residential environment.

The fourth conclusion given related to the determinant factors affecting affordability of condominium housing in Addis Ababa city administration. Accordingly, the conclusion is given below:

According to UN-Habitat (2011), those households who are able to get condominiums are allocated on the periphery of the city administration, which restricts their employment opportunities and forces them to incur high transportation costs. The existing high transportation cost faced by the residents forces them to rent and search any other houses either similar with their rental amount, or at a less rental cost than their rental income. The inability to pay the monthly mortgage and service payments forces many households to move out of their unit by sell and rent it out.

- The condominium housing program in Addis Ababa city administration was not affordable. As per the affordability measure of the monthly housing mortgage payment to monthly income ratio (ratio approach); residents housing expenditure is 40.73% of their income. It is greater than the rule of thumb i.e. 25%-30%. This shows the condominium housing is not affordable.
- As it is indicated in the analysis even if there is a default made by the residents to fulfill the monthly mortgage payments; majority of the respondents paid their monthly mortgage payments regularly. Those beneficiaries fulfilling their requirement replied and believe that it is the obligation of the respondents and also agreed that there is no tolerance by the commercial bank of Ethiopia about the periodic mortgage payments. Respondents fail to fulfill their

obligations on time contended that they fail to pay on time because of their financing problem. Additionally, it is noted that; not only the interest rate even the total prices of the condominium houses were not comparable to the income generating capacity of the lower income earners. The poor's do not have the financial capacity to pay the required down-payment and also the monthly mortgage payments.

- It is also shown that the down payment increase year after year in each housing typology. Most of the time, low income earners can't live in their houses by paying regular installments. They are forced to leave their house by renting and/or selling for others. These and other factors forced lower income dwellers to be unable to afford the payment. They also stated that majority of the respondents believe that the down payment and also penalty charged is not fair compared with the earning power of the residents.
- Based on the regression analysis the researcher identified sex of the respondents; none housing expenditure; Size of the room in M2; residential apartment in stories building; interest payment and residual income are the significant variables that are affecting the affordability of condominium housing. As it is indicated in the results of the analyses there are different factors affecting the affordability of condominium housing in the city administration such as: the socio-economic factors affecting affordability because they influence households' income in one or another ways. The loan factors influence affordability because they affect the price of housing and the monthly mortgage repayments of the household's; mean that the loan factor makes the cost of money more expensive in one way or another. The property factors affect the price of housing; and therefore the monthly loan repayments because it is the expected that housing mortgage payment is related to the physical characteristics especially the size of the house.

Lastly, the researcher draw a conclusion related to the determinant factors affecting the price of condominium housing in the city administration:

- As it is indicated in chart 8.1 on page 281, the price of condominium housing increased from period to period.
- As it is indicated in the analysis part of the dissertation given in chapter eight; even if the size of the house and number of rooms are significant variables that are affecting the price of condominium housing price in Addis Ababa city administration. But, the presence of schools (primary, secondary & Tertiary) in the neighborhood; presence of government

establishment; the presence of electricity installation in the neighborhood; the presence of pipe borne water (or borehole) installation in the neighborhood ;the availability of major access road in the neighborhood; noise in the residential environment (silence); Solid and liquid waste disposal; access to employment opportunity; Presence of religious institution and Presence of crime management are not significant variable to determine the price of condominium housing in the city administration.

- The stated variables are not a significant variable in determining the condominium housing price in Addis Ababa city administration. As per the discussion with the housing distribution officer the price of condominium was not determined based on the demand and supply rather the intension of the project focused on solving the housing problem of the poor and also the relocated in the city administration and they stated that even the price charged was considering different subsidies in to consideration.

9.3 Policy Recommendation

The findings and conclusions in this study indicated that there is a need to further examination of the condominium housing project in Ethiopia in general and Addis Ababa city administration in particular as the demand of the people towards different social services changed from period to period including the public urban housing (condominium) and any other forms of housing program in Addis Ababa city administration. However, the affordability as well as the adequacy of condominium urban housing in general and condominium housing unit in particular needs to be improved to satisfy the residents and also to resolve the challenges and limitations of public urban housing program (condominium) or any other forms of housing in the city administration. The following recommendations are therefore forwarded for policy makers.

- First of all, the provision of a decent, adequate and affordable housing that satisfy the residents is important in different urban and rural centers in Ethiopia including in the city administration of Addis Ababa and the public should be seen as the citizen's human right under the Social contract of the state and therefore, a critical component of the socio-economic development of the people in Ethiopia in general and Addis Ababa in particular. Having this, there is the need to publicize a comprehensive, workable and enforceable national housing Policy and the related relocation programs of the city residents considering age, health condition, income and any other aspects of the residents.
- When the land is demanded by the city government for different developmental projects (relocation of residents for city renewal) the adjustment should be developed with the participation of all professionals in the construction sector, sociologists, any other behavioral science professionals and the expected beneficiaries to allow for effective implementation of the designed housing program and also for utilization of local materials produced by MSEs to address the challenges of housing and unemployment in Ethiopia in general and Addis Ababa in particular.
- There should be strong collaboration between different sectors and minister offices and housing development program to solve infrastructural problems observed in the condominium housing projects in Ethiopia in general and Addis Ababa city administration in particular. The Ministry of Water and energy, electric power generation and ministry of urban development and construction and ministry of housing as well as ministry of transport should strengthen its

collaboration to provide a house with appropriate infrastructures demanded by the beneficiaries. And also there must be a strong association to create a strong public-private partnership (PPP) to assist in the provision of mass affordable housing units in Addis Ababa and the country as a whole and also it will have a potential to address housing problem of different social groups including the poor. Because the current implementation performance of government fail to achieve the target housing supply as well as fail to satisfy the demand of housing within the designed time period.

- The policy implications of the study suggest that residential satisfaction and the quality of life of residents of public housing initiated in 2005 by the government of Ethiopia and indeed future housing projects can be improved through the provision of basic social and infrastructural facilities in the housing estates. To achieve this, it is important to emphasize that future public housing projects for low and middle-income earners should be located closer to where there are shopping centers, educational centers; recreational centers, healthcare facilities and other public infrastructure to enable the residents enjoy these vital services, which are necessary for decent living and hygienic environment.
- It is also suggested that government as a promoter of public housing should continue to improve the quality of dwelling units they produce by ensuring that houses are designed and constructed to provide adequate security, privacy, natural air and lighting for the residents. And it also expected that there must be constant supply of water and electricity in the housing estates and also considering that the walkways and street lighting must not be neglected because it has its critical association with the security of the residents.
- The selection of the committee member in the residential environment must be participatory and based of the interest of the residents by considering the leadership capacity of individuals and/or better to recruit independent management as an employee of the union. Besides, more attention should be given by the committee members of the residential estate about periodical maintenance of facilities for the building and environmental developments and any other infrastructural developments, regular collection of solid waste and also there must be adequate sewerage system in the residential environment. There is also dissatisfaction of residents on the financial management practice of the committee member in the residential environment because there are different sources of income such as rental income from communal and also residents monthly contribution made by the residents. Therefore, it is recommended that the

financial activities of the housing union must be utilized rationally and with accountability to create trust between the residents and the committee member.

- Another policy implication is that there must be active participation of the residents on the development of the housing development program as well as allocation of residents in different condominium sites. In addition the government only checks the monetary contribution of the residents wile registering for housing but much better to consider age of the residents, health condition (disability) of the residents to make the housing estate adequate. It is also noted that the housing strategy do not consider location preferences of the residents rather it arbitrarily assigned and this implementation strategy increase the cost of living of the residents because people assigned long distance from its working area, market place, children's school. Therefore, allocation of condominium sites should consider the location preferences of the residents.
- The social interaction of the residents in the condominium housing is also another issue raised as a policy implication depending on the analysis of the study. In the discussion of the study it discussed that the social interaction of the residents with their neighbor is too poor compared with the previous residential environment. Therefore, it is recommended that the social interaction of the people must be taken into consideration while relocating the people from one place to another. The housing program do not consider social interactions rather the social bond of the people broken such as "***Iquib", "Edir"*** that were formed previously and contributed by the resident were dissolved.
- It is recommended beneficiaries who are relocated for city renewal, rather than locating them in a peripheral area by breaking their social bonds (interaction) much better to construct the building at the center (previous residential environment) by considering their social bonds. This provides solution for the problems raised by the residents regarding social interaction.

- In order to maintain public housing in meeting occupants' needs, expectations and aspirations and by extension their satisfaction levels: First, there must be need assessment and researches conducted by different professionals such as construction professionals, psychologists, sociologists, health professionals and others behavioral science professionals about concept of housing adequacy, affordability and residential satisfactions. By doing so users' housing preferences and standard of living, quality of housing and the performance of housing projects were decided. Findings of such studies should be considered and used in the development of providing and managing residential facilities to the residents in the city administration that satisfy the beneficiaries. Second, there is a need for government officials, construction and property professionals (e.g. architects, planners, engineers, project and facilities managers) to give adequate attention to physical conditions of interior spaces, security of residence, availability of services and social infrastructure; privacy and sizes of main activity areas in dwelling units (such as dining area, bed room and also cooking and storage areas) in the design, planning, construction and management of public housing projects by considering income, age culture and any other social and economic issues. Lastly, the development and management of residential facilities (physical characteristics, social issues, availability of public and private establishments, selection of committee member, infrastructure (water, electricity and road) and the social interaction in the residential environment) should follow user-focused and participatory approach, which enables end-users to provide critical input into the design, planning, development and management of housing facilities. This is to ensure that the conception, development and management of such facilities are not based only on the ideas and understandings of construction and any other experts, rather the views of target population are required and taken into consideration. Therefore, it is recommended that the housing program must always start from the need assessment related to the preference of the residents on the residential environment as well as the affordability nature of people.

- Based on the research findings, it is also recommended that improving physical quality of buildings in terms of physical structure, space design, improving sites, socio-physical characteristics of sites would increase condominium dwellers' satisfaction level. Additionally, condominium projects must considered structural aspects of the house, physical characteristics consistent with the needs, interest and aspiration of the residents; must considered the social aspects of the residents, and it must also take in to account the economic aspects of the poor people such as conducting home based business and cultural needs of the residents into account in the designing and construction of the housing projects.
- From the basic ideas indicated in the finding and presentation regarding the social aspects of the study; the researcher indicates the following policy implication improving social interaction of the residents like the previous residential environment, there should be training provided by the government body as well as NGO to create awareness in living condominium (multy - story

buildings). It is noted that there was security problem observed in different condominium sites. Therefore, it is recommended that the residents should have active participation in community policing and also the police must also increase their patrol rather than their irregular patrols. Additionally, it is recommended that the housing project must consider the repayment capacity of the residents because high housing cost increases the burden of the residents to address any other non-housing expenditure.

- It also stated that the housing project was not implemented in accordance with the stated plan of government. This delay was because of different reasons such as poor project management; poor workmanship and technical problem from the side of the contractors because of their poor experience; financial constraints to finance the housing program and also any other reasons. Therefore the researcher suggested that government should build capacity of contractor participating in the housing projects, consultants and micro and small-scale enterprises and control construction material quality that are used for construction of condominium housing. Additionally, there must be critical accountability for unethical activities undertaken by the participants of the housing programs.
- Another issue that observed in the discussion of the study was affordability of the housing (condominium housing). Affordability were tested is due to mode of payments expected from the residents such as down payment, mortgage payments, finishing costs and also the expected interest rate. Therefore, it is recommended that different methods of payment modality such as increasing the grace period, decreasing interest than the existing interest rate, access long-term credit to the poor people, decreased finishing costs by providing finished housing (completed) units or decreasing the incomplete part of the housing units because it makes the cost of housing very expensive.
- The satisfaction of the residents was varying from site to site especially; accessibility in urban periphery site was the main reason for housing dissatisfaction compared with the sites in the inner city because of luck of different infrastructure demanded by the residents. Therefore, it is recommended that the city administration should arrange solutions to the stated problems especially problems related to transportation through launching public bus and also taxi stops with proper connection to main resident's stations in different peripheral condominium sites. Another challenge observed in different condominium sites are lack of modern and affordable health centers in and around the residential environment. Concerning health center facility; the

health centers must be organized with modernized material and also specialized health professionals in different health areas. Additionally, the city administration need also to plan construction of schools, fire station, police station and market centers in nearby places to address the needs of residents who cannot afford to buy services from private sectors. Because the finding of the study indicated that the price of goods and services are very high in condominium sites compared with the prices of goods and services in the central market.

- On the other side, homeowners those fail to afford the condominium houses were forced to sell as well as rent to any another person. This decision forced the homeowners to live in any other slum areas or any other poor standard houses that is not convenient place for their life. The policy implication is that the upcoming housing policy should considered more housing design alternatives according to their ability to pay (level of income), physical disability, age and other factors to be considered.
- The availability of the business opportunity in the residential environment and also the suitability of the house to undertake personal business are very important issues to be considered. Particularly relocated homeowners who do not have livelihood to pay mortgage in extreme case, those do not have anything to feed themselves and also their dependent families (children), need practical solution to ensure livelihood and home ownership such as establishing their personal business and any other business activities to increases the level of income.
- It is also noted that the children are not confortable in the residential areas because of lack of recreational centers and also children's paly ground. Therefore, the housing project should consider providing children's playground; constructing safe staircase suitable for children, pregnant and elders; children recreational areas and also the existence of the school to minimize the problem of travelling long distance and affordability. Not only children but also Elders and disabled are also facing a problem in the condominium housing because they are unable to climb staircase and need special attention by providing a privilege for the disables and elders if they are applying for similar houses with the healthy people.
- In order to minimize the crime rate observed in the residential environment the following strategy should be implemented. Such as designing the physical environment including suitable walkways from streets; sharing of crime related information in the residential areas to protect the crime rate in the residential environment. Notifying the code of conduct expected from the

residents on a visible place and also through residents hand book (if any) if not it is advisable to have a residential hand book that is used as basis for decisions; Provide locked parking for car to protect theft and damages; install lighting along walkways in the residential environment; additionally government should create public awareness to minimize the crime rate in the residential areas including facilitate learning using community policing; Prepare a residential handbook that includes different rules and requirements fulfilled by the residents to make the residential environment very comfortable to live and also it is recommended that increase police patrol in housing areas in a regular basis to minimize the criminal rate in the condominium sites rather than irregular patrol. The community policing must be organized in a better position than the existing practice.

- As per the discussion and the conclusions given the price of condominium housing was not considered different factors in to account such as the location of housing; but it is recommended that the price of condominium housing should consider the floor area and also the location related issues of condominium housing in to consideration including availability of different infrastructures. Additionally, it must be noted that the mortgage payment expected from the beneficiary must consider any other aspects of the beneficiary such as number of dependents, number of children in school, earning capacity of the beneficiary as well as any other elements that affect paying capacity of the residents to determine the mortgage payments of condominium housing in the city administration in particular and also Ethiopia in general.

Note that, the study supposes that only providing housing does not indicate success of housing development and policies, but meeting the actual housing needs and preferences of the residents will determine whether the government can achieve the goal of providing adequate and affordable housing for all especially for the poor because they are tested due to poor affordable capacity

9.4. Directions of Future Research

The researcher achieved the specific objectives and also answered the research questions stated in the first chapter of the dissertation by collecting both qualitative and quantitative data using mixed concurrent triangulation strategy. Additionally, the researcher stated the major limitation of the study in chapter one; the stated limitation of the study demands the researcher to show the alternative areas to undertake similar studies in the future.

The future research directions were given considering the limitations in to account because the coming researcher having interest to undertake studies in similar areas consider the following gap observed in this study to undertake the study in the future researches undertaken by researchers. The first future research direction is considering any other methodology than a methodology employed by this dissertation. Though, the research design used in this study are rigorous for the research question raised by the researcher, future researchers may carry on similar studies to answer the research questions raised in this dissertation using a different design and approach to check the consistency of the findings.

As clearly stated in the limitation part; another limitation of the study was generalizability of the conclusion in different regional states because the conclusions given by this study were undertaken by taking respondents from the condominium beneficiaries in the city administration of Addis Ababa. Therefore, the coming researchers may carry similar studies by considering any other condominium projects indifferent cities than condominium in the city administration of Addis Ababa.

It is also stated that the dissertation focused only on condominium housing program; but it is suggested that the coming researcher can undertake similar studies by considering different housing schemes such as Kebele houses, private housing developments, real estate's and housing cooperatives.

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Appendix A: Sample Questionnaire Distributed to Respondents

Addis Ababa University
College of Business and Economics
Department of Public Administration and Development and Management
PhD Program in Public Management and Policy

Research Title: "*examination of adequacy and affordability of public urban housing (condominium) in Ethiopia: The Case of Addis Ababa City Administration"*

Questionnaire to be filled by the residents of condominium in Addis Ababa city Administration

Introduction

This questionnaire is designed to collect the appropriate information relevant to study condominium housing: affordability, payment arrangement, efficiency and effectiveness - fitness to purpose in the city administration of Addis Ababa. The information which is expected from the respondents has a great role for the success of this study. And the researcher will be responsible for keeping the information you provide confidential. This questionnaire was organized to collect relevant data related to the following objectives: the determinants of public housing (condominium) price in Addis Ababa (using hedonic pricing model) and its association with affordability of housing; the adequacy of housing and satisfaction of the condominium residents on the residential environments; and also to identify the determinant factors of households housing (condominium) affordability in Addis Ababa

I would like to give too much thanks in advance for your cooperation.

Direction: - On the following pages you will find Different questions. Please read each question and provide appropriate response.

- No need of writing your name
- Mark '□' in the boxes to indicate answer of choice
- Write your answers briefly on the blank spaces

PART I: The following questions are raised to collect data about the background information about the respondents. In addition the information will be important to collect data related to affordability and factors affecting affordability of residents.

SECTION I: BACKGROUND INFORMATION

1. Age of household head. Please indicate exact age on the side
   Exact age in years or date of birth ……………………
2. Marital Status married ( ) single ( ) widowed ( )
3. sex male ( ) female ( ) tick only one
4. Household head A. male headed B. Female headed
5. Educational level? Illiterate **( )** Write and read **( )** Primary &secondary **( )** TEVT level **( )**
   Diploma **( )** Degree **( )** **above degree ( )**

6. What is your mode of living:
   a. Rented b. purchased c. owned

SECTION II: FACTORS ACCFECTING HOUSING AFFORDABILIT

Factors affecting housing affordability (the factors stated below are factors related to socio economic factors, loan factors and property related factors

II: BACKGROUND INFORMATION

1. Number of family members with income______________________
2. Number of dependents (outside nuclear family) _______________
3. Number of children in school___________________________
4. Size of the family (in number) ________________________________
5. What is your employment status? put( ) mark Unemployed**( )** Private Business**( )** Government employee **( )** Private Sector employee**( )** NGO**( )**
6. What is your monthly housing expenditure paid to the bank_____________________
7. What is your total monthly income? (In Birr)_____________________
8. How much money do you spend a month for food, clothes and other social and economic purpose? ____
9. What is your monthly saving________________________________
10. The cost incurred to transfer the home______________________

II.HOUSING CHHARACTERSTICS

1. In which round you are taking the home 1**( )**, 2 **( )**, 3 **( )**, 4 **( )**, 5 **( )**, 6 **( )**,7 **( )**,8 **( )**,9 **( )**,10 **( )**,11 **(** (Select which round)
2. The size of the room measured in m^2___________________
3. Number of rooms excluding bath rooms and kitchen_______
4. Is the housing design good related to your preference? Very good b. Medium c. poor
5. Finishing cost that you incur__________________________
6. Distance from the center______________________________
7. Residential apartment in stories buildings________________
8. Total housing price___________________________________
9. The name of your locality______________________________

III. LOAN CHARACTERSTICS

Please indicate the following about the mortgage loan that you are in agreement with commercial bank of Ethiopia (CBE):

1. Interest payment compared to your paying capacity a. high b. medium c. low
2. Amount of loan awarded______________
3. Loan term ___________________________
4. Mortgage insurance___________________
5. Down payment______________________
6. Mode of loan repayment: A. total payment at lumbsum B. down payment and installment
7. Housing payment compared to your payment capacity. A. high b. medium c. low

The following are factors related to the location and physical characteristics of condominium housing.

1. Adequately available 2. Available 3. Not available

	Variable description and measurement	1	2	3
9	Availability of packing space for vehicles			
11	The presence of government establishment			
12	The presence of private establishment.			
13	The presence of schools (primary, secondary & Tertiary) in the neighborhood			
14	The presence of recreational sites (parks, zoos, beaches etc.			
15	Proximity to the (businesses, markets etc.) (Available within 15 minutes' walk			
16	The availability of major access road in the neighborhood.			
17	The presence of electricity installation in the neighborhood.			
18	The presence of pipe borne water (or borehole) installation in the neighborhood.			
19	Safety (low crime reported)			
20	Solid and liquid waste disposal			
21	There is no noise (silence)			
22	Access to transport services			
23	Access to employment opportunity			
24	Presence of religious institution			
25	Presence of crime management			

1. Do you pay your housing expenditure on time? A. Yes B. No
2. IF your answer is no, please specify the reasons
3. Dou you think the interest rate is fair? A. Yes B. No
4. Dou you think the down payment is fair? A. Yes B. No
5. Do you think the penalty charged is fair? A. YES B. NO
6. Do you think the distribution to the beneficiary is fair? A. YES B. NO
7. If your answer to the above question is NO please specify the reason ____
8. How do you evaluate the process of getting the house from housing bureau
   a. Very easy b. easy c. medium d. difficult 5. Very difficult
9. If your answer to the above question is **difficult and very difficult please** specify the reason ____
10. Are you satisfied with your residential environment?
    a. Very satisfied b. satisfied c. Neutral d dissatisfied e. very dissatisfied
11. If your answer to the above question is **dissatisfied and very dissatisfied please** specify the reason ___
12. Do you think the given grace period to start your installment payment is enough? A. yes b. no
13. Please put your comment about the given grace period

PART IV: ASSESSMENT OF SATISFACTION AND ADEQUACY OF CONDOMINIUM HOUSING

The following questions were raised by the researcher to assess the satisfaction of the residents on the residential housing; please put 1: very dissatisfied 2: dissatisfied 3: neutral 4: satisfied 5: very satisfied

Assessment of housing satisfaction					
Dwelling unit features	1	2	3	4	5
Sizes of living and dining spaces					
Sizes of bedrooms in the house					
Number of bedrooms in the residence					
Sizes of cooking and storage spaces					
Location of residence in the estate					
Dining Area - size & condition					
Aesthetic appearance of residence					
Natural lighting and air circulation in living and bedrooms					
Design of residence in relation to occupants' natural way of life					
Overall satisfaction on Dwelling unit features					
Dwelling unit supports services					
Water supply and sanitary services					
Electrical services					
Expansion of road					
Neighborhood environment: (Residents' satisfaction with public facilities provided close to the housing area)					
Recreation/sporting facilities					
Public infrastructure and urban services					
Shopping facilities					
Proximity of home to place of work					
Medical/healthcare facilities					
Children's school					
Distance to Bus station					
Distance to Masjid/church					
Proximity of home to the nearest market					
Distance to police					
Distance to Fire station					
Prices of goods and services in the housing estate					
Parking areas					
Management of housing estates					
The selected committee members selection and support					
Rules and regulations within the housing estate					
Management and maintenance of facilities					
Cleanliness of the housing estate					
Security of life and property in the housing estate					

Cleaning – corridor & staircase					
Street quality and lighting					
Garbage collection & disposal					
Overall satisfaction on housing estates					
Residents' satisfaction levels for social environment within the housing area					
Business and job opportunities within and around the estate					
The type of home related to age and health					
Crime and anti-social activities in the housing estate					
Relationship with neighbors					
Communal activities in the housing estates					
Privacy in the residence					
Noise in the housing estate					
Social interaction compared with the previous residential area					
Overall satisfaction on social environment					

PART V. ADEQUACY OF CONDOMINIUM HOUSING:

The following questions are raised by the researcher to assess the adequacy public urban housing; please put 1: inadequate 2: inadequate 3: neutral 4: adequate 5: very adequate

Assessment of housing adequacy					
Dwelling unit features	1	2	3	4	5
Sizes of living and dining spaces					
Sizes of bedrooms in the house					
Number of bedrooms in the residence					
Sizes of cooking and storage spaces					
Location of residence in the estate					
Dining Area - size & condition					
Aesthetic appearance of residence					
Natural lighting and air circulation in living and bedrooms					
Design of residence in relation to occupants' natural way of life					
Overall satisfaction on Dwelling unit features					
Dwelling unit supports services					
Water supply and sanitary services					
Electrical services					
Expansion of road					
Neighborhood environment: (Residents' satisfaction with public facilities provided close to the housing area)					
Recreation/sporting facilities					
Public infrastructure and urban services					
Shopping facilities					
Proximity of home to place of work					
Medical/healthcare facilities					
Children's school					

Distance to Bus station					
Distance to Masjid/church					
Proximity of home to the nearest market					
Distance to police					
Distance to Fire station					
Prices of goods and services in the housing estate					
Parking areas					
Management of housing estates					
The selected committee members selection and support					
Rules and regulations within the housing estate					
Management and maintenance of facilities					
Cleanliness of the housing estate					
Security of life and property in the housing estate					
Cleaning – corridor & staircase					
Street quality and lighting					
Garbage collection & disposal					
Overall satisfaction on housing estates					
Residents' satisfaction levels for social environment within the housing area					
Business and job opportunities within and around the estate					
The type of home related to age and health					
Crime and anti-social activities in the housing estate					
Relationship with neighbors					
Communal activities in the housing estates					
Privacy in the residence					
Noise in the housing estate					
Social interaction compared with the previous residential area					
Overall satisfaction on social environment					

1. Overall your home related to your preference? A. yes B. no
2. If your answer is NO specify the reason:______________________________
3. If you are renting the house please specify the reason:_____________________________

Anything to say about condominium housing in Addis Ababa city administration
____
____
____
____

Appendix B: Interview Guide for Key Informant Interviews

Addis Ababa University
College of Business and Economics
Department of Public Administration and Development Management
PhD Program in Public Management and Policy

Research Title: ***"examination of adequacy and affordability of public urban housing (condominium) in Ethiopia: The Case of Addis Ababa City Administration***"

In-depth structured interview to collect data from key informants related to adequacy of the housing estate and also affordability

Interview Date: ___________________________ Time: ______________________________
Location: _________________________________ Organization: _______________________
Qualification of the interviewee: _____________ Year of experience: _________________
Current Position: __________________________ Interviewer: ________________________

Introduction:

Thank you for your contribution to this dissertation as a respondent. This interview is conducted to Collect data for the PhD research entitled ***"examination of adequacy and affordability of public urban housing (condominium) in Ethiopia: The Case of Addis Ababa City Administration".***

Your experiences and credible information will significantly add value as an input to this dissertation. I, the researcher, assure you that the information you provide will be used only for academic research purpose and secrecy of the respondent will be maintained throughout the research process. Thank you for your cooperation.

1. Condominium housing practice and challenges

1.1. How do you evaluate the status of condominium housing delivery in Addis Ababa?

a. Supply of housing compared with the target (plan)
b. Affordability of the housing unit
c. Coordination of housing administration with concerned parties
d. Housing design related to residential assessment

1.2. What do you think are the challenges that the city administration of Addis Ababa is facing in delivering condominium housing.

a. Problem related to financing
b. Problems related to construction material
c. Problems related to poor workmanship

d. Problems related to corruption

1.3. what do you think are the basic challenges of loan processing by commercial bank of ethiopia and also:

a. the fairness of the down payment

b. fairness of interest rate

c. fairness of penality charged

1.4. There is the practice of selling condominium housing unit before five year. Please tell me the legal issues related to the practice

2. Condominium housing Adequacy:

2.1. How do you evaluate the adequacy of condominium housing?

2.2. Is there any need assessment conducted by the city administration?

2.3. To what level the city administration is evaluating the design and any other aspects of the housing sites and units.

2.4. What are the challenges in the city administration related to the government establishments such as school, market palace, health centers, recreational centers and others?

3. Satisfaction of residents on condominium housing

3.1 Did your office undertake satisfaction survey about the housing unit

3.2 Does the housing units given to the beneficiary consider age, sex and health

Thank you for your time and contribution

Appendix B: KMO and Bartlett's Test results

Table 0-1: Bartlett's Test and KMO and for the adequacy of housing on physical characteristics of housing

KMO and Bartlett's Test adequacy of housing related to physical characteristics of condominium housing		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.855
Bartlett's Test of Sphericity	Approx. Chi-Square	1554.491
	Df	36
	Sig.	.000

Table 0-2: KMO and Bartlett's Test physical infrastructures in the residential environment

KMO and Bartlett's Test **adequacy of housing related to physical infrastructure**		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.714
Bartlett's Test of Sphericity	Approx. Chi-Square	525.387
	Df	3
	Sig.	.000

Source: Survey result 2019

Table 0-3: *KMO and Bartlett's Test for adequacy of adequacy of housing related to government establishment*

KMO and Bartlett's Test **adequacy of housing on government establishments**		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.857
Bartlett's Test of Sphericity	Approx. Chi-Square	2755.367
	Df	78
	Sig.	.000

Source: Survey result, 2019

Table 0-4: KMO and Bartlett's Test for adequacy of housing related to management of the housing estate

KMO and Bartlett's Test **Adequacy of housing related to management of the housing estate**		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.831
Bartlett's Test of Sphericity	Approx. Chi-Square	2290.678
	Df	28
	Sig.	.000

Source: Survey result, 2019

Table 0-5: KMO and Bartlett's Test for adequacy of housing related to social interaction

KMO and Bartlett's Test **Adequacy of housing related to social interaction**		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.764
Bartlett's Test of Sphericity	Approx. Chi-Square	1648.924
	Df	28
	Sig.	.000

Source: Survey result, 2019

Table 0-6: KMO and Bartlett's Test for satisfaction of the respondents on physical characteristics of the housing estate

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.870
Bartlett's Test of Sphericity	Approx. Chi-Square	2055.530
	Df	36
	Sig.	.000

Source, Survey result, 2019

Table 0-7: KMO and Bartlett's Test for satisfaction of residents on the physical infrastructure

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.675
Bartlett's Test of Sphericity	Approx. Chi-Square	810.921
	Df	3
	Sig.	.000

Source: Survey result, 2019

Table 0-8: KMO and Bartlett's Test for the satisfaction of public establishment

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.849
Bartlett's Test of Sphericity	Approx. Chi-Square	2993.521
	Df	91
	Sig.	.000

Source: Survey result, 2019

Table 0-9: KMO and Bartlett's Test for the management of the housing estate

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.875
Bartlett's Test of Sphericity	Approx. Chi-Square	1853.245
	Df	28
	Sig.	.000

Source: Survey result, 2019

Table 0-10: KMO and Bartlett's Test for the satisfaction on social interaction

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.826
Bartlett's Test of Sphericity	Approx. Chi-Square	1466.771
	Df	28
	Sig.	.000

Source: Survey result, 2019