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Rental House Price Determinants and Affordability in Hawassa City, Ethiopia

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Abstract
This study examined rental house price determinants and affordability problem in Hawassa city. To achieve the intended objective, the study used cross-sectional data obtained from 190 sample selected from 3 sub-cities in Hawassa city. To identify the major determinants of rental price and affordability, Ordinary Least Square (OLS) method is adopted. In addition, the shelter-poverty approach is applied to measure the affordability problem in the study area. The regression result for determinants of rental price indicates that number of rooms, the total area occupied by the house, public transport availability, health center availability and housing typology are positively and significantly affect therental price. Among the affordability problem regressors, floor area of the house, migration status of the household head and house typology are positively and significantly influence affordability in Hawassa city. Whereas, dependency ratio of the household has negatively significant impact on affordability problem. With regard to the shelter poverty level of the households, 76.8 percent are shelter-poor (i.e. could not meet their basic non-housing needs such as food, clothing, health care, and transport at some minimal level of adequacy after paying for house rent) and the remaining 23.2% are non-shelter poor. Based on the findings, this study recommends that the provision of publicly owned rental houses that have been started by Addis Ababa City housing agency has to be strengthen and adopted by other cities of the country. In addition, the government has to apply rent-regulation schemes to stabilize the current unbearable rental price.
Keywords: Affordability, Housing Price, Rental Houses, Shelter Poverty

1. Background and Justification of the Study

The question of housing is not only the matter of living space with physical structure and basic facilities but, also human right for the survival of theindividual. According to UN-Habitat (2006), adequate housing has a vital importance for social welfare and for the development process of a given country as a whole and the settlements in which people live and work provide economic, social and physical environments either facilitate or hinder the ability of people to generate and increase income. In addition to these, good housing condition stimulates both the physical and economic improvement of the society. Therefore, habitable housing condition affects the health, economic status, efficiency, productivity and welfare of societies in general.

Because of the significant influence by the social and economic costs of conforming official requirements to access legal shelter, peoples in most developing countries live in an urban settlement that is informal and lacks basic services such as water tap, toilet, kitchen and etc. (Payne, 2012). Subsequently, Bob (2007), identified the imbalance between housing supply and the increasing housing demand due to natural increase in population, high rate of rural-urban migration, overcrowding, and deterioration of the already existing housing. In addition, the study stated the high price of land, building materials, and labor, a lack of alternative investment opportunities and speculation as for the major causes of thehousing shortage in developing countries. Other factors like the absence of an urban policy that incorporates housing policy could help to successfully narrow the gap between urbanization and housing development (Abreham, 2007).

Ethiopia is one of the poorly developed countries which characterized by low per capita income, higher population growth rate, rapid urbanization, import dependent, poor investment in housing because of lack of finance and low supply of serviced residential plot (Habte, 2010). According to Abreham (2007), the housing shortage is one of the major problems that the country faces in almost all urban areas. Even those existing have low quality and space.

Hawassa city is not an exception to this problem. Because of the combined effect of rapid urbanization, increasing rate of migration to the city from surrounding countryside, inadequate residential house supply, and other factors the housing price both rental and cost of buying a private home is gone unaffordable (Bereket and Nigatu, 2015). This city has also a considerable amount of both public and private sector workers due to the fact that it houses more than 56 nations and nationalities.

Most of the previous studies conducted by different researchers (for instance, Tsion, 2016: Alebel, et al., 2016: Bereket and Nigatu, 2015) on the problem of housing are mainly focused on investigation of the supply and affordability of owner-occupied condominium houses in urban Ethiopia. They identified that due to the expensive price, the urban poor are unable to own condominium houses. Even though the accommodation of rental houses are much higher than from both owner-occupied condominium and real estate houses, most studies ignore rental houses. In addition, the finding of the above studies cannot be inferred for rental houses since the features of owner-occupied condominium and real estate is quite different than rental houses. This study, therefore, focuses on factors affecting rental house price and the affordability in Hawassa city.

2. Literature Review: House Price Determinants and Affordability in Ethiopia

2.1. Determinants of Housing Price in Ethiopia

Establishing the relationships that exist between residential property values and these physical and locational housing attributes, amenities etc, are very important to valuers, planning authorities and policy makers. According to De Wondeler (2006), housing is a bundle of attributes i.e. not only the physical aspects of the house but all other services which one gains access to by buying (renting) a house. These attributes are attached to the price that a buyer (renter) is willing to pay. That's why two identical houses built in two different location sold for vastly for different prices. As per Tetteh (2012), assessment of both owner-occupied and rental housing standard needs to consider at least three sets of features: the quality of the accommodation, access to basic infrastructure and services, and the social and economic access to public services and the neighborhood. In line with this UN-Habitat (2003), the quality of accommodation can be influenced by many factors which include: materials of the roofs which can be estimated by their durability, services (such as water tap, electricity, and sewage), access to public infrastructures (such asease of access to transportation, schools, health centers). Negash (2010), investigated the real estate price in Addis Ababa for small families by using hedonic pricing model. The results of the study revealedthat location and plot size has a significant effect on the real estate price. Accordingly, a ten percent increase in plot size around CMC will cause a 5.5 percent increase in real estate price. While the same percentage increase in Alemgena results in 4.5 percent increase in real estate price. The study also identified that house price go up by 10 percent during the Ester holiday period. In line with this Sisay (2006), examined the implicit price of housing characteristics concerning the physical and location of Addis Ababa. The result of the study indicates that the housing typology, plot size of the house and floor area of the house has positively significant impact on the house price of Addis Ababa. Whereas, the age of the house has negatively significant impact on the house price of Addis Ababa (specifically on real estate prices).

Generally, the value of a house is highly correlated with attributes that are attached to it. The proximity to employment, schooling, availability and accessibility of public transport facilities and social infrastructure in the neighborhood are among the major quality attributes of housing (Anthony, 2012). Therefore, rental unit located in the inner city with easy access to social infrastructure and services would attract higher rent compared to theurban periphery where access to these facilities is difficult or simply non-existing.

2.2. Housing Affordability Challenges in Ethiopia

Shelter is one of the basic needs of mankind and it is important for the physical survival of human beings. Housing is also recognized as an entitlement for all human beings (UN-Habitat, 2011). Furthermore, adequate housing has a vital importance for social welfare and for the development process of a given country as a whole (Olayiwola, et al., 2005). Most cities in Ethiopia like many other fast growing cities of developing countriesface a severe shortage of affordable formal housing. It is estimated that Ethiopia's current housing demand in urban areas is about a million units and also the conditions of the existing house are under questions. According to Alebel, et al. (2016), most people in Addis Ababa live in sub-standard housing conditions without access to important urban services. The majority of Ethiopians live in poorly built, overcrowded, old and in bad conditions houses which lack even the basic facilities, such as toilets.

According to Muleta (2014), Bekoji town was faced with the problem of low or inadequate housing. The study revealed that, on average 87.9 percent of the total households in the town has no access to enough housing provision either kebele's houses and municipality's houses or privately rented residential units. In addition, the majority of the residents were challenged by ashortage of housing and majority of them were wanted to move from their current residential if they get a better chance due to shortage of kebele administration or municipality offices houses. As the result, the majority of the residents were forced to live in privately rented residential units and paying an expensive rent. This is because of same factors that related to financial constraints, lack of raw material resources, lack of enough open space and imbalance housing demands and supplies.

Bereket and Nigatu (2015) also found that 61.7 percent of theirsample household in Hawassa city were shelter poor (their housing expense goes beyond 30 percent of their monthly income) whereas, the remaining 38.3 percent were non-shelter poor. Among the major problems that lead households to shelter poverty were low household income, large family size, high rental/mortgage cost, tenants choose of condominium houses for residential purpose, increase in the general price of both housing and non-housing items, down payment problems and bank loans related problems are some the problem.

In general, affordability of owning private home and rent price depends on the demand and supply side factors. The demand side factors includemacroeconomic environment, demographic situations, provision of finance for amortgage, housing subsidies especially targeted at low-income groups and taxation. Availability of free land for real estate developers, skilled labor, reliable infrastructure, availability of appropriate technology for contractors and suitable construction materials are among the supply side factors (UN-Habitat, 2008). In addition, policy intervention towards housing affordability issue is vital because the market by itself cannot fully address by mobilizing the available resources (Habte, 2010). The experience of many developing countries with

the provision housing highlights, ineffectiveness in both targeting and subsidies to low and middle-income households. Due to very poor conditions of the existing stocks and increased demand for new housing, the magnitude of shelter difficulty is increasing through time. Moreover, the government intervention in the housing market to provide anaffordable house for low and middle-income households is vital. The government can stimulate the housing supply by promoting low-cost building technologies and introducing regulation for housing market rather than living for the market that may lower the housing difficulties (Kidst, 2014).

3. Methodology of the Study

Hawassa city has eight sub cities and three of them (i.e. Addis Ketema, Menahreya and Tabor Sub cities) have private rental houses, kebele houses and condominium houses in combination. Thus, among the eight sub-cities by using stratified random sampling technique three of them are selected as a total population of the study. The study selected 190 rental houses (i.e. a combination of private, condominium and kebele rental houses) randomly for questionnaire administration.

In order to undertake this study both descriptive and Inferential statistics methodology is adopted. First, the data obtained during the study is summarized by applying simple statistical measurements such as tables, figures, percentages, means and standard deviation.

The Ordinary Least Square (OLS) method is used to estimate housing characteristics on housing price (i.e. rental price). The OLS method used for this study is of the form:

$$\mathbf{Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 D_1 + \beta_5 D_2 + \beta_6 D_3 + \beta_7 D_4 + \beta_8 C_1 + \varepsilon_i}$$

Where Yi, represents the dependent variable (i.e. rental price in Hawassa city). To make interpretation of the regression coefficient easy the dependent variable is transformed into logarithmic form. β_0 is constant term β_1, β_2, β_3, β_4, β_5, β_6, β_7 and β_8 respectively are the coefficient of explanatory variables. Description of the explanatory variable is given in table 3.1 below.

Table 3.1: Definition of the Explanatory Variables for House Price Determinants of Hawassa City

S.N	Variables	Nature of variable	Expected sign	Remark
1	X_1=Number of bed rooms	Continuous	+	
2	X_2=Floor area in m^2	Continuous	+	
3	X_3=The total area occupied by the house in m^2	Continuous	+	
4	D_1=Availability of transport	Dummy	+	Takes 1, if it is within 10 minutes walking distance to road & 0, otherwise
5	D_2= Availability of market or Gulet	Dummy	+	Takes 1, if is within 10 minutes walking distance to market or Gulet& 0, otherwise
6	D_3= Availability of school	Dummy	+	Takes 1, if it is within 10 minutes walking to elementary school & 0, otherwise
7	D_4= Availability of hospital or clinic	Dummy	+	Takes 1, if it is within 10 minutes walking distance to hospital or clinic & 0, otherwise
8	C_1= Housing typology	Dummy		Takes 1, if the house is condominium & 0, otherwise. Takes 1, if the house is private & 0, otherwise. Takes 1, if the house is governmental & otherwise.

In addition, the shelter poverty approach is adopted to measure the housing affordability in the study area. To identify the determinants of affordability problem in Hawassa city OLS regression model was adopted[1]. The dependent variable is affordability. Affordability is the extent of which a given household's residual income can cover its non-housing needs after deducting incurred housing rent. The international poverty line which is designed by World Bank ($1.25/day) is used to determine threshold standard for non-housing basic necessities.The equivalent value to the "$1.25 a day" international poverty line is determined by using exchanges rates prevailing at the time of data collection. Accordingly, during data collection week, in Hawassa city one USD has been exchanged for Birr 22.69 at commercial banks on average. This is done due to non-availability of a consolidated official family budget standard database at the national level and also for Hawassa city administration.

[1]Prior studies also used OLS method to estimate predictors of housing affordability (for example, Berket and Nigatu, 2015: Habte, 2010).

Table 3.2: Definition of the Explanatory Variables for House Affordability Problem of Hawassa City

S.N	Variables	Nature of variable	Expected sign	Remark
1	Age of the household head	Continuous	+	
2	Dependency ratio of the household	Continuous	-	
3	Headship of the household	Dummy	+	Takes 1 for Male headed & 0, otherwise
4	Year of stay in the study area	Continuous	+	
5	Floor area of the house (m^2)	Continuous		
6	Migration status of household head	Dummy	-	Takes 1, if the head is non-migrant & 0, otherwise
7	Income of the household	Continuous	+	
8	Employment status of the household head	Dummy	+	Takes 1, if the head is employed & 0, otherwise
9	Education level of the household head	Dummy	+	Takes 1, if the head is above grade 8 & 0, otherwise.
10	Housing typology	Dummy	+	Takes 1, if the house is private& 0, otherwise Takes 1, if the house is condominium & 0, otherwise

4. Result and Discussion

4.1. Socio-Demographic Characteristics of the Respondents

This study was conducted based on 190 sample household heads selected from 3 Sub-Cities rental houses in Hawassa city, of which 70.5% (134) were males and the rest 29.5% (56) were females. The average age of sample households was 33.3 years with a standard deviation of 10.8. Table 4.1 shows that, out of the total respondents, 42.1% were in age group 25-34, 34.7% were in age group 35-49, 17.3% were in age group of 15-24 followed by smallest members (5.7%) were in age group 15-24. Regarding the marital status of the respondents, the majority (62.63 percent) was married, 27.89 percent were single, 6.84 percent were widowed and 2.63 percent were divorced. From table 4.1 below around 54% were married and in the age group of 25-34 and 35-50, it implies that most respondents are productive in terms of fertility which has direct impact or pressure on housing demand then to price.

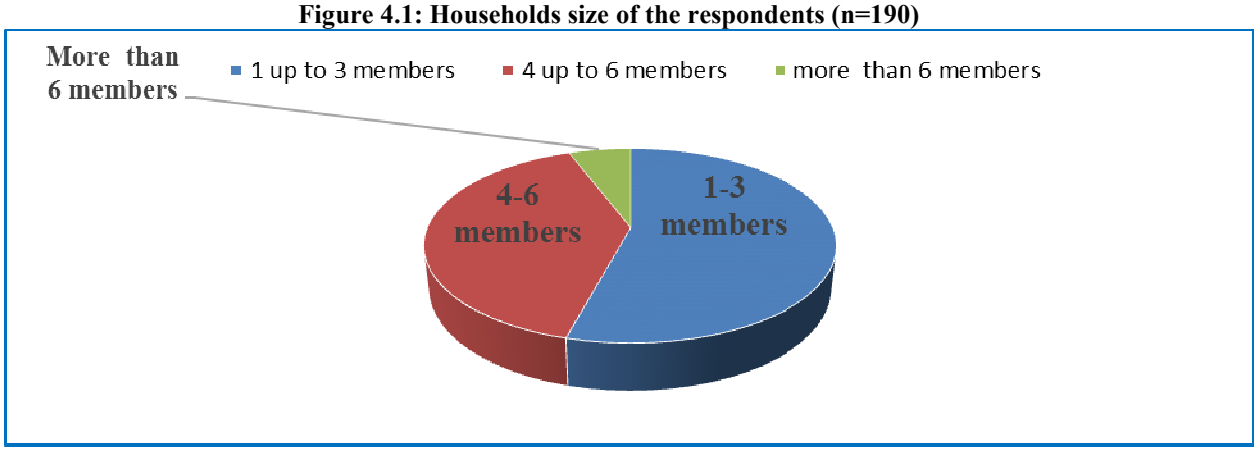
Table 4.1: Age group and Marital Status of the Respondents (n=190)

	Age group				
Marital Status	15-24	25-34	35-50	>50	Percent
Married	10	51	51	7	62.63
Single	23	28	2	0	27.89
Widowed	0	0	9	4	6.84
Divorced	0	1	4	0	2.63
Total	33(17.3%)	80(42.1%)	66(34.7%)	11(5.7%)	

Source: Computed from own survey data, 2017.

The average family size for the sampled household was 3.4 with a standard deviation of 1.6. As shown in the below figure (Pie chart 4.1) of the total respondents 40 percent of the households had medium household size, 6 percent had large household size and the remaining 54 percent had small household size.

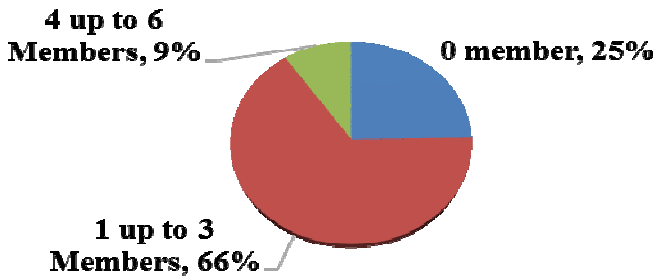
Figure 4.1: Households size of the respondents (n=190)



Source: Computed from own survey data, 2017.

The majority of the sample respondents (88.95%) of the households had 1-2 members in the labor force followed by 8.42% and 2.63% had a size of 3-4 and more than 5 members in the labor force respectively. The survey result for household dependency as revealed in figure 4.2, of the total respondents 25 percent reported that there was no dependent member. Whereas 66 and 9 percent of respondents reported dependent members of 1-3 to 4-6 number of dependents respectively, giving a dependency ratio of about 105% higher than CSA (95.9 %) report for 2017.

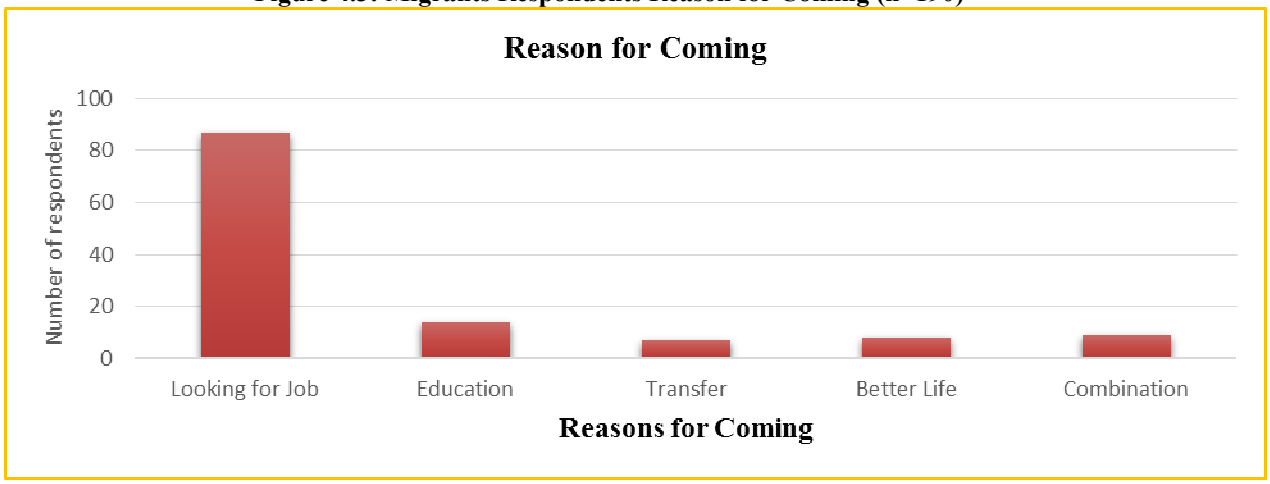
Figure 4.2: Dependent Members of the Households (n=190)



Source: Computed from own survey data, 2017.

The percentage distribution of migration status of the respondents shows that 65.8% of sample respondents were migrants and 34.2% of the respondent were non-migrants. Out of the total number of migrants, the majority of them 69.6% came for abetter job opportunity, 11.4% for better education, 5.6% because of transfer and the remaining 14.4% camefor a combination of better health, education and family matter (figure 4.3).

Figure 4.3: Migrants Respondents Reason for Coming (n=190)



Source: Computed from own survey data, 2017.

Table 4.2, the result from survey revealed that 34.74 percent of respondents lived in Hawassa for 0-10 years,

24.7 percent lived 21-30 years, 23.2 percent lived 11-20 years, 18.9 percent of households lived 6-10 years, 15.8 percent of household heads lived 0-5 years and the remaining minority 17.4 percent lived for longer period (more than 30 years). With regard to the length of residency in the current house (rental houses), the majority of them or 44.7 percent of households have resided in the houses for a 0-2 year, 32.1 percent 3-6 years, 17.9 percent for 7-12 years and the remaining 5.3 percent resided for more than 12 years.

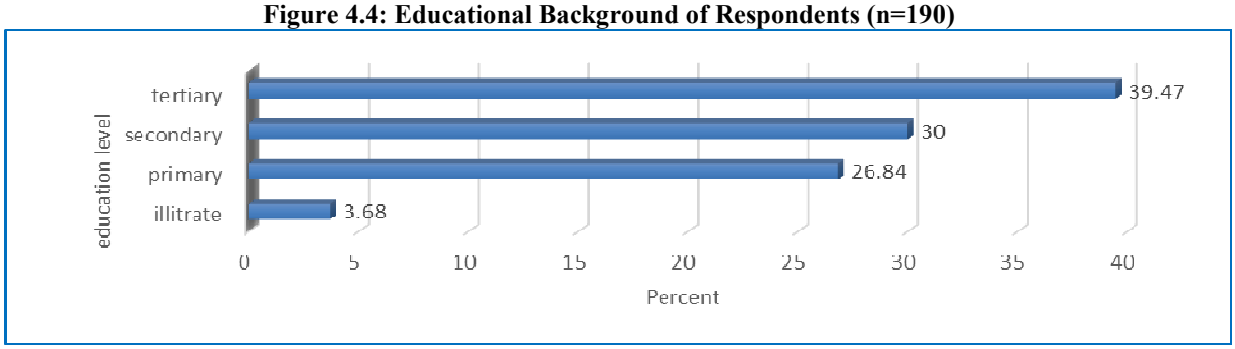
Table 4.2: Summary of Respondents Year of Stay and Residency

Year of Stay	Freq.	Percent	Residency	Freq.	Percent
0-10 years	66	34.74	0-2 years	85	44.74
11-20 years	44	23.16	3-6 years	61	32.11
21-31 years	47	24.74	7- 12 years	34	17.89
>31 years	33	17.37	>12 years	10	5.26
Total	190	100	Total	190	100

Source: Computed from own survey data, 2017.

Regarding their educational background of respondents, 3.68% were illiterate, 26.84% household heads were primary level, 30% were secondary level, the majority 39.47% were tertiary level (figure 4.4). Of the total tertiary level respondents there were 21.3% respondents were a certificate, 13.3% of them were diploma, 52% were degree holders and the remaining 13.4% were found to be at postgraduate level.

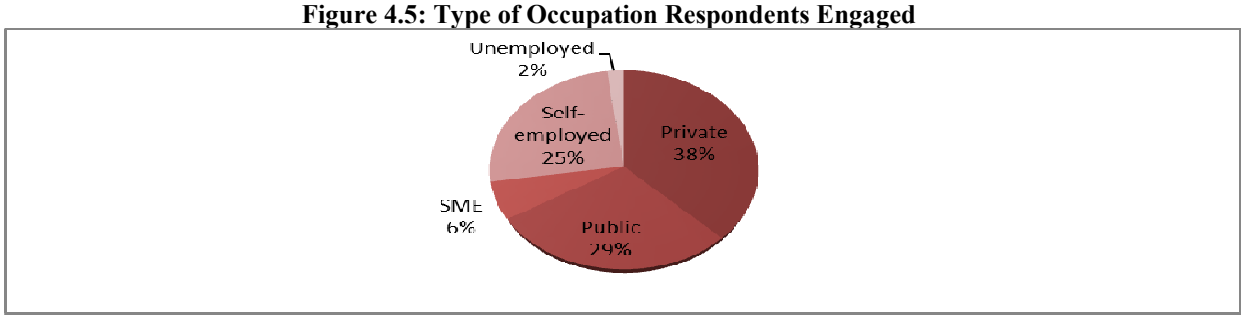
Figure 4.4: Educational Background of Respondents (n=190)



Source: Computed from own survey data, 2017.

The type of occupation that respondents engaged in as shown in the figure 4.5 below shows that, the largest share (38% out of the total) are employed in the private sector, 29% of them are employed in the public sector, 25% are self-employed, 6% are engaged in small and medium enterprise followed by the smallest share (2%) are unemployed.

Figure 4.5: Type of Occupation Respondents Engaged



Source: Computed from own survey data, 2017.

As shown in table 4.3 below the percentage distribution of mean income of sampled respondents was around 3,486 birr per month. The outcome from the survey shows that out of the total sample the maximum household total income was 12,000 birr and the minimum household total income was 400 birr.

Table 4.3: Income Summary of the Respondents (n=190)

Variable	*Mean*	*Std. Dev.*	*Min*	*Max*
Income	3,486.132	1829.849	400	12,000

Source: Computed from own survey data, 2017.

Table 4.4, of the total respondents 3.2 percent earn between 0-1000 birr, 35.2 percent earn between 1001-2500 birr, 27.4 percent earn between 2501-3500 birr, 17.4 percent earn between 3501-5000 birr and the remaining 16.8 percent earn more than 5000 birr per month. Both formal and informal employment was the source of income. Whereas, remittances, pension, and return from assets are also another sources of income for

non-employed household heads.

Table 4.4: Income Group Distribution of Respondents (n=190)

Income group	0-1000	1001-2500	2501-3500	3501-5000	More than 5000
Percent	3.16	35.26	27.37	17.37	16.84

Source: Computed from own survey data, 2017.

4.2. Housing Attributes and Expenditure

The type of housing in the study area was private, condominium and government rental houses with varying number of floors area, number of rooms and bed rooms. The percentage distribution of housing typology in table 4.5 reveals that 10.53 percent of the households live in condominium rental houses, 21 percent live in governmental (i.e. Kebele houses) and the majority 68.47 percent live in private rental houses. Floor area of rental houses in the study area varied from 6.25 to 64 square meters which are revealed in table 4.5 below. Out of the total sample households 36.3 percent of the respondents live in houses within an area of 6.25-15 square meters, 47.9 percent live in an area of 16-30 square meters, 11.1 percent live in an area of 31-45 square meters and the remaining minority (4.8 percent) live in an area of 46-64 square meters.

Table 4.5: The Type and Size of Respondent Houses (Floor Area of the House (n=190))

Housing Typology	Freq.	Percent	Floor area group (in m^2)	Freq.	Percent
Condominium	15	7.89	6.25-15	69	36.32
Private	141	74.21	16-30	91	47.89
Governmental (Kebele houses)	34	17.89	31-45	21	11.05
			46-64	9	4.74
Total	190	100	Total	190	100

Source: Computed from own survey data, 2017.

As stated in table 4.6 below from the total respondents10.53 percent of them spent more than 50% of their monthly income for rent, 6.32 percent spent between 41-50%, 16.84 percent spent between 31-40% and the remaining 24.74, 23.16 and 18.42 percent reported spending between 21-30%, 10-20%, and less than 10% respectively from their monthly income for housing rent and costs of housing utilities.

Table 4.6: Average Monthly Expenditure of Respondents of for the House (n=190)

House Price (as a percentage of income)	<10	10-20	21-30	31-40	41-50	>50
Percent	18.42	23.16	24.74	16.84	6.32	10.53

Source: Computed from own survey data, 2017.

4.3. Shelter Poverty Level of the Households'

Among the major housing affordability measurements shelter poverty approach was selected in order to investigate whether housing is affordable or not in the study area without compromising the basic necessities of households under study. The rental cost of each household was computed and summary of the outcomes are presented in the table below.

Table 4.7: Shelter Poverty Status of Respondents: by using average monthly expenditure of households (n=190)

Characteristics	Percent
Shelter Poor	76.8
Non Shelter Poor	23.2

Source: Computed from own survey data, 2017.

According to the survey result, the substantial portion of households under study could be regarded as shelter poor given the fact that 76.8 percent of households could not meet their basic non-housing needs such as food, clothing, healthcare, and transportation at some minimal level of adequacy after paying for house rent. The remaining 23.2% are non-shelter poor (i.e. can cover their basic necessities including the rent expenses). The major housing problems that exposed households to shelter poverty among others were low household income that may overstate the affordability difficulties, larger family size, larger dependent members within a family, high rental cost specially condominium and private rental price that can easily squeeze out other essentials for low and middle income households and shortage of rental houses shown by expensive and unaffordable price (from the law of demand, it is expected that shortage in quantity supply results in increment in the price of the product).

4.4. Determinants of House Price in Hawassa City

In order to test the overall significance of the model we used F-test and the null hypothesis here is all coefficients are different from 0. The diagnostic tests show that the model well fitted with the data.

Table 4.8: Heteroscedasticity, Multicollinearity, and Model Specification Tests

Heteroscedasticity Test	$chi^2(10) = 8.52$ $Prob > chi^2 = 0.5781$	There is no heteroscedasticity problem and robust estimation is taken.
Multicollinearity Test	VIF=2.25	No Multicollinearity Problem
Model Specification Test	F(3, 176) = 1.25 Prob > F = 0.2940	No model specification Problem

Source: Computed from own survey data, 2017

The regression result shows a p-value of 0.000, which is too small under (95% confidence) therefore, we conclude that all variables have an effect on housing price (in our case rental price). R-square shows the amount of variance of dependent variable explained by the explanatory variables. In our case, the model explains 96% of the variance in house price.

Table 4.9 below shows the coefficient of number of rooms, the total area occupied by the house, dummy variable for taxi availability, clinic availability and a categorical variable for housing typology (i.e. categorical variable for housing typology being private and condominium house) are statistically significant to explain the change in housing price (rental price). On contrary, the coefficient of the floor area of the house, the number of bedrooms, dummy variable for the availability of market, school are statistically insignificant and has no impact on housing price.

Table 4.9: OLS Regression Result for House Price Determinants of Hawassa City (n=190)

Dependent variable (natural logarithm of rental price)	Coef.	t-value
Floor area of the house (m^2)	.0050573	1.12
Number of rooms of the house	.2700897	3.42**
Number of bed rooms	-.1595028	-0.87
Total area occupied by the house (m^2)	.0047596	2.43**
Dummy variable for availability of taxi (below 20 min walk)	.1936604	2.48*
Dummy variable for availability of market (below 20 min walk)	-.1086306	-1.63
Dummy variable for availability of clinic (below 20 min walk)	.2322728	3.63*
Dummy variable for availability of primary school (20 min walk)	-.0054515	-0.08
Categorical variable for house being private rental	4.670528	50.83*
Categorical variable for house being condominium	4.950147	28.59*
Constant	1.42508	7.64*

Source: Computed from own survey data, 2017.

***Note**: * & **indicates that at 1% and 5% level of significant respectively.*

4.5. Determinants of House Affordability in Hawassa City

The value of R^2 explains how much of the dependent variable is explained by the explanatory variable. In this model, 45% of the model is explained by the independent variable. To test for the overall fit of the model F-test is applied and the null hypothesis is all independent variables has an effect on the dependent variable (i.e. affordability). The p-value is 0.0000 and we fail to reject the null and under 95% confidence, we conclude that all variables have indeed effect on affordability. The diagnostic tests also show that the model well fitted with the data.

Table 4.10: Heteroscedasticity, Multicollinearity, and Model Specification Tests.

Heteroscedasticity Test	$chi^2(14) = 123.19$ $Prob > chi^2 = 0.0000$	There is heteroscedasticity problem but, corrected by robust estimation.
Multicollinearity Test	VIF=2.71	No Multicollinearity Problem
Model Specification Test	F(3, 172) = 1.08 Prob > F = 0.3589	No model specification Problem

Source: Computed from own survey data, 2017.

Out of 10 variables, 4 variables are found to be statistically significant to affect the affordability. As depicted in table 4.11 the coefficient of dependency ratio of the household, floor area of the house, dummy variable for migration status of household head and categorical variable for housing typology are statistically significant to explain the change in the housing affordability of the study area. On contrary, age of the household heads, household head years of stay in the study area, income of the household, dummy variable for gender of household head, education status of household head and categorical variable occupation type of the household heads are found to be statistically insignificant or has no statistical effect on affordability problem of the study area.

Table 4.11: OLS Regression Result for Determinants of Affordability Problem (model-2)

Dependent variable (affordability)	Coef.	t-value
Age of the household head	4.172102	0.31
Dependency ratio of the household	-317.3489	-4.67*
Years of stay in Hawassa city	29.77291	1.85
Income of the household	.0160065	0.19
Floor area of the house	29.21521	2.53**
Dummy variable for gender of the household head	-148.2959	-0.72
Dummy variable for migration status of the household head	897.5081	2.31**
Dummy variable for educational status of the head (for >8)	-58.99595	-0.28
Categorical variable for occupation type (for private employee)	337.6305	1.27
Categorical variable for occupation type (for public employee)	-19.62092	-0.07
Categorical variable for occupation type (SMEs)	36.88558	0.08
Categorical variable for unemployed	-370.1398	-0.58
Categorical variable for housing typology being private rent	1325.006	2.27**
Categorical variable for housing typology being condominium	2261.982	3.59**
Constant	-492.8984	-0.56

Source: Computed from own survey data, 2017.

***Note**: * & ** indicates that at 1% and 5% level of significant respectively.*

5. Conclusion and Recommendations

This study adopted two models to examine the major predictors of both rental price and affordability problem in Hawassa city. Accordingly, the study identified that number of rooms, the total area occupied by the house, dummy variable for transport or taxi availability, hospital or clinic availability and categorical variable for housing typology (i.e. categorical variable for housing typology being private and condominium house) are statistically significant and positively affect rental house price. On the other hands, floor area of the house, number of bedrooms, dummy variable for the availability of market and school are statistically insignificant, therefore has no statistical effect on rental house price.

The study has also observed that out of 10 variables 4 variables are found to be statistically significant to affect the affordability. Thus, dependency ratio of the household is statistically significant and negatively influence the affordability. Whereas, the floor area of the house, dummy variable for migration status of household head and categorical variable for house typology are statistically significant and positively affect the housing affordability of Hawassa city. On contrary, age of the household heads, year of stay of household head in the study area, income of the household, dummy variable for sex of household heads, education status of household head and categorical variable for employment type of the household heads are found to be statistically insignificant or has no statistical effect on affordability problem of Hawassa city.

The shelter poverty status of the study area shows that 76.8 percent of households are shelter poor (i.e. could not meet their basic non-housing needs such as food, clothing, healthcare, and transportation at some minimal level of adequacy after paying for house rent). While the remaining 23.2 percent are non-shelter poor. This result indicates thatsubstantial portion of households in the study area can be regarded as shelter poor. The finding of this study is higher in magnitude than other studies (such as Bereket and Nigatu, 2015) who found that 61.7% of their sample were found to be shelter poor. This is because of shelter poverty worse for renters than owners and has a positive relationship with dependency ratio (Stone, 2004). In addition, this study is included governmental houses (Kebele houses) which are provided for low-income earner group of the population that contribute for the higher magnitude of our result. The major housing problems that exposed households to shelter poverty among others were low household income that may overstate the affordability difficulties, larger family size, high rental cost especially condominium and private rental price that can easily squeeze out other essentials for poor urban households and a shortage of rental houses shown by expensive and unaffordable price.

The finding of this study shows that the current state of demand for a rental house in Hawassa city is not satisfied which can be seen from the unfordable price. Therefore, based on the findings of this study, the following recommendations are made in order for rental housing to play its proper role in reducing the problem of housing particularly in Hawassa city and urban Ethiopia in general; Provision of Publicly owned Rental House and Application of Rent-Regulation Schemes or Rent Stabilization Mechanism.

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