

1 Strategies to Increase the Affordability of Publically Built Houses  
2 to Lower and Middle Income Households in Dessie Town,  
3 Ethiopia

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8 **Abstract**

9 The provision of affordable housing is a challenge in Ethiopia which is urbanizing fast. Hence,  
10 integrated housing development program is being undertaken on affording house to lower and  
11 middle income as one objective. This study, therefore, was conducted to forward strategies to  
12 increase affordability of publically built houses particularly Dessie town condominium houses  
13 to lower and middle income groups. Data were collected randomly from 550 respondents who  
14 have condominium house and who don't have yet but wants to acquire it. The condominium  
15 house form of installment payments are the most constraint factor for the households to  
16 purchase a condominium house. Actions in all those constraints increase affordability of  
17 condominium houses to lower and middle income group.

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19 **Index terms**— condominium house, affordability, down payment, periodic payment, completion cost,  
20 strategies.

21 **1 Introduction**

22 everyone needs a place to live. However, it is a critical problem for millions of poor people in developing countries,  
23 and Ethiopia is no exception (Azeb Kelemework, 2007). Ethiopia's urban centers are characterized by poorly  
24 developed economic base. More daunting to that ever mounting cost of living and labor, rising prices of building  
25 materials owing to devaluation of local currency, escalation of land lease price, and others make house owning  
26 process difficult.

27 Ethiopian government designed a condominium house project which is under the program of the Ethiopian  
28 Integrated Housing Development Program (IHDP), to minimize the housing problem. The program has built  
29 several condominium houses in Dessie city since 2007 and distributed them to the people. In Dessie, so far 3306  
30 condominium housing units are built in two rounds. The selling price of the different typologies' of houses are  
31 averagely 80,000 birr for studio, 167, 000 birr one bed room and 205, 000 birr double bed room.

32 Access to adequate and affordable housing is a current and growing problem in all countries in Africa. Housing  
33 problems are largely to do with affordability: housing is expensive and incomes are too low. Ethiopia is a pertinent  
34 example of the challenges facing many African countries (United Nations Human Settlements Programme, 2011).  
35 Mekonen (2007) found out that the development of affordable housing for the low-income groups in the city is the  
36 challenging issues because of the scarcity of land and high cost of building materials. In general, the affordability  
37 of housing is an important subject for Ethiopia, and it has received considerable recent public attention.

38 Shelter cost is the biggest expenditure most households make and its affordability can have an impact on  
39 the wellbeing of household members. For this reason, housing affordability is closely watched by a wide range  
40 of stakeholders (Minister of ??ndustry, 2008). Public concern over housing affordability is due to the fact that  
41 housing is the single largest expenditure in the budget of most families and individuals (Quigley and Raphael  
42 (2004) described in Prince Christian R. Cruz, 2008). Housing affordability is also a critical input to a country

## **6 B) DOES REDUCTION OF THE CURRENT PERIODIC PAYMENT AND IT TO BE PAID FOR LONGER INCREASE AFFORDABILITY OF CONDOMINIUM HOUSES?**

43 Mortgage and Housing Corporation's core housing need indicator which is used by governments to help design, 44 deliver, fund and evaluate social housing programs (Canada Minister of Industry, 2008).

45 Housing affordability is more than just a personal trouble experienced by individual households. It has 46 implications not only for housing but also for employment, health, labour market performance, aged care, 47 finance, community sustainability, economic development and urban and regional development (Michelle Gabriel, 48 Keith Jacobs, Kathy Arthurson, Terry Burke and Judith Yates, 2005). Housing in its very nature has different 49 connotations that range across social, economic and cultural spirits beside its direct function of sheltering. It is 50 a universal fact that shelter is one of the basic necessities of life and occupies the biggest portion of any human 51 settlement.

52 This study is initiated, more, because the different researches done in Ethiopia (Azeb Kelemework, 2007; 53 UN Habitant, 2011a; Mekonen Wube Ermed, 2007; Tameru Woundimagegnehu, 2010) particularly in Addis 54 Ababa regarding condominium houses affordability lacks inclusiveness in measuring affordability and their 55 recommendations to increase affordability of condominium houses. The strategies they suggested to increase 56 affordability are about subsidizing and changing construction designs which don't work yet, but other than these, 57 this current research found out the possible strategies to increase the affordability of condominium houses on 58 the existing condition by analysing the instalment payments as well as the sites distances of CH. Due to these 59 reasons this study sets an objective of identifying the strategies which increases the affordability of condominium 60 house to lower and middle income households.

## **61 2 II.**

### **62 3 Methods of the Study**

63 This study was conducted to identify the possible strategies to increase the affordability of condominium houses 64 to middle and low income households in Dessie town. A descriptive study was used to test the strategies to 65 increase affordability of Dessie town condominium houses. For this study, data were collected from potential 66 condominium houses' buyers who are living in Dessie town permanently. Hence data were collected from 550 67 sample households. A simple random sampling design was used for this research to select the representative 68 sample with equal chance from the population. Here, as discussed above, we stratified the population into two 69 different heterogeneous groups to select samples from each group and collect data from different source who have 70 different experience. Self-developed questionnaire was distributed to collect data for this study. Data collected 71 were analyzed by using descriptive statistics and t-test.

## **72 4 III.**

### **73 5 Research Finding**

74 To forward strategies to increase affordability of condominium houses to those income groups, people in Dessie 75 who have purchased condominium houses and who did not purchased yet were taken to participate in the study. 76 Of this infinite population of the study 550 respondents' response were used for this study. a) Does Reduction 77 of current initial payment and it to be paid in the long run with periodic payment increase affordability of 78 condominium houses?

79 Respondents were asked about whether reducing the initial payment and paying it in the long run increases 80 their ability to purchase a condominium house. Accordingly, majority of the respondents which consists of 34.1% 81 of the total respondents replied that it highly increases their ability. The other second majority respondents which 82 comprise 24.6 % of the total respondents reported that the scenario fairly increases their ability to purchase a 83 condominium house. In cumulative, 58.8% of the respondents indicated that the scenario is favorable for them 84 to purchase a condominium house of their choice. The smaller proportion of respondents which consists of 10.9% 85 of the total respondents reported that it doesn't increase highly. And 15.6% of the respondents are indifferent 86 about the issue and the remaining 14.7% of respondents reported that it doesn't increase their ability to own a 87 condominium house. In general, this finding informs us that reducing the initial payment and pays the amount 88 in long period increase the affordability of condominium houses to majority of the respondents.

## **89 6 b) Does Reduction of the current periodic payment and it 90 to be paid for longer increase affordability of condominium 91 houses?**

92 As it is depicted in the above table, more than half of the respondents (67%) reflected that reduction of the 93 current amount of condominium house periodic payment and it to be paid in longer year enhances their ability to 94 own a condominium house. The respondents which consist of 11% of the total respondents are indifferent about 95 the issue. The other remaining respondents which consist of 11.5% and 12.9% of the total respondents reported 96 'not increased' and 'not increased highly' respectively. From this result we can understand that reducing the 97 periodic payment by extending the installment year increase the affordability of condominium houses to most of 98 the households.

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99 7 c) Test of mean for significance of respondents opt about  
100 the possible ways that increase affordability of condominium  
101 house

102 Beyond a percentage description as discussed above below we test the significance of the majority opt from the  
103 total average of the scale.

104 Note: Not increased highly = 1, not increased = 2, indifferent = 3, increased = 4, and increased highly =  
105 5. The average mean for this scale is =  $1+2+3+4+5=15/3 = 3$  The mean of both initial payment and periodic  
106 payment reduction scenarios are above the average of the scale which is 3. This implies that both scenarios  
107 enhance the ability of the majority of households purchasing ability of condominium house. A one-sample t-test  
108 was run to determine the extent reducing initial payment and pay it for long year along with periodic payment  
109 increase ability of the respondents household to purchase a condominium house. The average mean of the scale  
110 is 3 used which is used for comparison. According to the test result as it is depicted in the above table, mean of  
111 initial payment reduction score ( $3.56 \pm 0.1.37$ ) was higher than the average score of the scale 3.0, a statistically  
112 significant difference of 0.56 (95% CI, 0.38 to 0.75),  $t(210) = 5.97$ ,  $p = .000$ .this indicated that majority of the  
113 respondents reported that the scenario increases their ability to own a condominium house.

114 **8 One-Sample Test**

115 And also, the extent reducing periodic payment and pays it for longer year increases the ability of the household  
116 to purchase condominium house is tested in respect with the average values of the scale which is 3. Accordingly,  
117 the mean score of the respondents on the extents that reduction of periodic payment scenario increases households  
118 to own a condominium house ( $2.70 \pm 1.29$ ) was statistically different from the average score of the scale 3 by 0.70,  
119 (95% CI, 0.53 to 0.88),  $t(208) = 7.89$ ,  $p = .000$ . Therefore, based on the above test result, we can say that the  
120 reduction of periodic payment increases the majority of the households ability to purchase a condominium.

121 We have also checked, of the two, which one is most preferable by the respondents by conducting a Wilcoxon  
122 Signed Ranks Test. The test below signify that there is no statistical significant difference between the opt of  
123 the two means,  $z = -$  The relationship results of the above correlation table are discussed separately for each  
124 below i. Relationship between DPI and DPR The spearman's correlation of down payment influence to own a  
125 condominium house (DPI) and reduction of down payment in enabling households to purchase a condominium  
126 house(DPR) have positive relationship,  $\rho = 0.295$ ,  $p = .000$ . This tells us that for respondents who are highly  
127 impacted by down payment to own a condominium houses, more likely, the reduction of down payment highly  
128 increases their ability to purchase a condominium house.

129 **9 ii. The relationship between PPI and PPR**

130 Correlation analyses were used to examine the relationship between the extent that the existing periodic payment  
131 influences households to own a condominium (PPI) and the extent that the current periodic payment reduction  
132 and to be paid in longer period households' ability to purchase a condominium house (PPR). The result suggest  
133 that the relationship between those two scenarios ( $\rho = 0.177$ ,  $p = 0.011$ ) is statistically significant.

134 This confirmed that for respondents who are strongly impacted by periodic payment to own a condominium  
135 houses, more likely, the reduction of periodic payment highly increases their ability to purchase a condominium  
136 house. when the influences of down payment to own a condominium house is going from 'not strongly impact' to  
137 'strongly impact', the ability of respondent to purchases a condominium house in the reduction of down payment  
138 moves also from not increase to highly increase.

139 **10 iii. The relationship between SDI and SDR**

140 The relationship between the influence of site distance to own a condominium house (SDI) and the extent  
141 the reduction of site distance increases the ability of households to purchase a condominium house (SDR) is  
142 statistically significant at  $\rho = 0.166$ ,  $p = 0.017$ , which means that for respondents who are not impacted by site  
143 distance to own a condominium houses, more likely, the reduction of site distance don't increases their ability to  
144 purchase a condominium house.

145 **11 iv. The relationship between DPI and DPil**

146 Do respondents who are strongly influenced by condominium houses current down payment to own a condominium  
147 houses more likely to rank the impact of down payment first among periodic payment, completion cost, and site  
148 distance? A spearman's correlation were undertaken to get answer for the above. Accordingly, the extent that  
149 down payment influences households to purchase a condominium house(DPI) has a positive relationship with  
150 down payment rating of the respondents (DPil),  $\rho = 0.277$ ,  $p = 0.000$ . this informed us that respondents who  
151 are highly impacted by down payment to own a condominium houses are more likely to rate the impact of down  
152 payment to purchase a condominium house at first from among periodic payment, completion cost and site  
153 distance.

## 14 CONCLUSION

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154 v. The relationship between PPI and PPil As to the rho correlation coefficient the extent of periodic payment  
155 influences household to own a condominium house(PPI) and the periodic payment rating of the household (PPil)  
156 have no statistically significant relationship, rho= 0.004, p= 0.965.

### 157 12 vi. The relationship between CCI and CCil

158 The correlation result of the extent that completion cost respondents assumed influenced households to own a  
159 condominium house (CCI) and completion cost rating of the respondents (CCil) indicated that the CCI and CCil  
160 have a positive relationship, rho = 0.230, P= 0.005. The relationship reflects that respondent's expression of  
161 the completion cost influence to own a condominium houses are more likely be similarly with their rating of the  
162 impact of completion cost to purchase a condominium house.

### 163 13 vii. The relationship between SDI and SDil

164 Correlation analyses were also undertaken to examine the relationship between the extent that the site distance  
165 influences households to own a condominium (SDI) and the site distance rating of the respondents (SDil). The  
166 result suggest that the relationship between SDI and SDil (rho = 0.326, p = 0.000) is statistically significant.  
167 This indicated that the respondents who are not influenced by site distance are more likely to rate site distance  
168 at fourth.

## 169 14 Conclusion

170 The financial burden of condominium houses in the households own experiences also confirmed that condominium  
171 houses are unaffordable to lower and middle income group. Beyond the measurement results of affordability,  
172 respondents themselves experienced the burden of condominium house payments to them to own a condominium  
173 houses. Statistically a significant majority of respondents are highly impacted by condominium house initial  
174 payment, periodic payment and completion cost they assumed to purchase a condominium house. That burden  
175 makes houses unaffordable for middle and low income families. However, site distances of condominium house  
176 don't hinder households to purchase a condominium house. In fact, though one of the IHDP main objectives was  
177 to carry out slum upgrading, so far the implementation of the programme in Dessie has been carried out in open  
178 spaces. The sites of condominium houses in Dessie town looks they are far from market places as well as work  
179 place of most of the residence of the town. But, the interest of the residence/respondents of this study to own a  
180 condominium house wasn't influenced by site distance of the condominium houses because the influence of site  
181 distance to own a condominium house as a burden for the household like initial payment and periodic payment  
182 was not statistically significant to say it does have an impact to own a condominium house. Site distance was not  
183 the factor for those majority of individual who were booked to purchase a condominium house but latter become  
184 reluctant to purchased while they were asked to take their condominium house. From Among condominium  
185 house required down payment, periodic payment, completion cost and distances of sites, Condominium house  
186 down payment is the most constraining factor for household to purchase condominium house. Respondents  
187 themselves rate them based up on the burden they have to them to own a condominium house from high burden  
188 to lower burden. Accordingly though we don't have a statistically significant difference between the burden rate  
189 of periodic payment and completion costs, just to know which one is the second and which one is the third, initial  
190 payment and site distance are leveled as first and fourth respectively. Among the factors which give a burden  
191 for the household to purchase a condominium, initial payment required took the highest followed by periodic  
192 payment and completion cost. The burden of periodic payment and completion cost to own a condominium  
193 house is, in fact, statistically equal.

194 There are some means that reduce those burdens for the household as well as increases the affordability of  
195 condominium houses to the households. The first one is just reducing the amount of current initial payments  
196 required for condominium house and makes it to be paid periodically in a longer period perhaps after the  
197 total payment of required periodic payments. This strategy is normally design considering initial payment is the  
198 significant factor which influences households to own a condominium house as it is discussed above with statistical  
199 significance. For the designed strategy statistically a significant majority of the households' ability to purchase  
200 a condominium house will increase. More specifically, if instalment payments are to be adjusted a priority has  
201 to be given to down payment because significant number of respondents put it in the first level based upon its  
202 impacts in comparison with periodic payment as well as distance of sites. This way we can make condominium  
203 houses affordable to households. The Ethiopian new housing project which is called usually as "Arba Silisa"  
204 complies with this scenario.

205 The other strategy is that there are also statistically significant majority of respondents whose affordability  
206 will increase if the amount of current periodic payment reduced and paid for longer period. If these periodic  
207 payments are reduced to a certain amount and to be paid for longer period than the above, majority of households  
208 could afford the periodic payment of a condominium house.

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## 210 15 Recommendation

211 If reducing the current cost of construction of condominium houses as well as any housing project has no  
212 alternatives, as a second option, making some adjustments in the payment system of a house is needed. Small  
213 amount of periodic payment as well as down payment to be paid for longer period/years significantly increases  
214 the affordability of houses to lower and middle income group. Condominium house down payment is the most  
215 factor that impact individuals to purchase a condominium house than others like periodic payment, completion  
216 cost and site distance. Hence when a new housing program is designed it should propose a means to avoid or  
217 minimize the down payments requirement to make houses affordable to many households.

218 Housing projects which will be conducted to make lower and middle income group house owner should do the  
219 finishing activities of the house to the most possible level because there are significant majority of households  
220 which are impacted by costs to be incurred for such activities to purchase a condominium house.

## 221 16 Global



Figure 1:

1

the extent that the reduction of initial payment & it to be paid for longer period along with a periodic period payment increases ability to own CH  
the extent that the reduction of periodic payment & it to be paid for longer period increases ability to own CH

increased  
highly  
34.1%

increased  
highly  
33.5%

Indifferent  
increased  
increased  
not increased  
highly  
10.9%  
8.6%

Figure 2: Table 1 :

**2**

Strategies to increase affordability of CH

		Mea	Std.	Std.	
				Er-	ror
	N	n	Deviatio	Mean	
-the extent that the reduction of initial payment and it to be paid for longer period along with periodic payment increase ability to own CH	211	3.56	1.373	.095	
-the extent that the reduction in periodic payment and it to be paid for longer period increase ability to own CH	209	3.70	1.289	.089	

Figure 3: Table 2 :

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Ranks		Strategies to increase affordability of CH		N	Mean
the extent that the reduction in periodic payment enable the household to buy CH -the extent that the reduction of initial payment enable the household to buy CH	PPil = periodic payment impact level	Negative Ranks	51 a	48.49	
		Positive Ranks	57	59.88	
		b			
		Ties	98		
		c			
Total CCI = the extent that completion cost influences the household to buy a CH			206		
Volumethe extent that the reduction in periodic payment enable the household to buy CH -the extent that t	XV				
Is-					
sue					
IV					
Ver-					
sion					
I					
Year					
Global	The Correlation between Instalment Payments Influence to Own CH, Strategies Increase Affordability				
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( )					
Sig. (2-tailed)		.702	.041	.017	.03303
N		207	206	208	153147

[Note: \*\*. Correlation is significant at the 0.01 level(2-tailed). \*. Correlation is significant at the 0.05 level(2-tailed). DNote:]

Figure 4:



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