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ABSTRACT

Studies have established that affordable housing provision remains an intractable problem facing low income earners in most nations of the world. Literature have focused more on various aspects of housing affordability, than the measurement of its level among households. This study therefore examines the affordability capability of low income civil servants in Lagos State, Nigeria. The rule of thumb concept was used to anchor the study utilizing a case study research design, sourcing both primary and secondary data. Using a multi-stage sampling technique, 188 questionnaires were administered to respondents on grade levels 1 to 6 drawn from 124 out of 620 randomly selected offices in 16 ministries in the state. Data were analyzed using descriptive statistics, ratio analysis and inferential statistics at p value ≤ 0.05 . The result showed that 50% of the respondents were male and female respectively, 71.5% were married, 22.8% were single while 1.9% were divorcees and separated respectively. Majority of the respondents (57.7%) were young adults earning an average monthly income of 430,002. Also, 14.2%, 13.4%, 16.4% and 38.1% of the respondents were paying average monthly rents of 42,950, 46,200, 48,750 and 410,000 respectively. Ratio Analysis indicated that the respondents spent more than 30% of their monthly income (43.04%) on housing. The regression analysis revealed that additional income from all other sources had a significant impact on their housing affordability (F = 0.028). The study concluded that low income civil servants in the state were cost burdened and recommends an increment in the monthly minimum wage.

Keywords: Housing Affordability, Household Income, Housing Expenditure, Income Ratio Measure, Lagos State

INTRODUCTION/STATEMENT OF PROBLEM

Housing is universally considered as one of the most important basic needs of man and thus an essential need for the citizens of every nation. It does not only serve as shelter against adverse weather conditions but also influences the social, economic, cultural and political life of the people in a nation (Agbola, 1998; Benjamin, 2000; Afon, 2000; Aribigbola, 2000). It equally accounts for between 30 and 70 per cent of the Gross Domestic Product of developed nations such as Canada and United States of America, thus instrumental to their growth and advancement (FRN, 2011).

Global trend in population growth in urban areas indicates that approximately1.6 billion people in the world will be facing the problem of housing affordability by the year 2025 (Woetzel et al, 2014). Nigeria is not exempted in the challenges of provision of affordable housing as evidenced by the fact that housing is increasingly becoming unaffordable in most states in the country (Aliyu et al, 2011). It was estimated that the nation's housing deficit was about 17million in 2012, requiring the production of 800,000 housing units annually to bridge the gap, whereas on the contrary, 100,000 units are produced annually (Centre for Affordable Housing Finance in Africa, 2016). Such a situation has great implication for affordable housing. Lack of affordable housing causes homelessness, squatting, congestion/overcrowding (leading to deviant behavior, health risks, spread of diseases, marital breakdown, mental illness, assaults), growth of



slums/squalor settlements with health hazards, social problems such as alcoholism, drug addiction, urban degradation among others (Aribigbola, 2000; Olotuah, 2000; Ajanlekoko, 2001; Owei, 2007; Kneebone and Wilkins, 2016). Due to the enormous importance of housing, one of the greatest challenges confronting governments all over the world is how to make it affordable to every category of the citizenry of the nation irrespective of their income.

In order to make housing affordable, governments and / or her agencies have embarked on various policies and programmes. These include: rent control, low cost housing scheme, site and service scheme, amongst others. Given the limited income at the disposal of the low income earners, of which low income civil servants are inclusive, the numerous efforts of the government fail to address their housing need. By Civil servants, it refers to workers in government employment in the nation aside those in the military (FRN, 1999 and Ngex, 2013). In Nigeria, income level in the civil service are classified into three parts namely: low, middle- and highincome earners on salary grade levels 1-6, 7-10 and 12-17 respectively. Low income earners are the least paid and there is no doubt that an intractable problem confronting them is inability to afford housing (Ndubueze, 2009; Obi and Ubani, 2014; Anthony et al, 2016) thus making them the focus of this study.

Various scholars have recognized the problem of the inability of the low-income earners to afford housing. For instance, Mostafa Wong and Hui, (1998) investigated affordable housing provision in Shanghai for the low- and middle-income groups. The study was based on a theoretical model under the social market system. The paper revealed that housing demand is emphasised more than government involvement in the provision of affordable housing and concluded that more active government intervention should be embarked upon. Ajanlekoko (2001) examined the financial and infrastructural implication to sustainable housing development in Nigeria. The study revealed that income and high cost of building materials have reduced the ability of all income groups to afford housing.

Furthermore, Akeju (2007) investigated the challenges to affordable housing provision in Nigeria. The study identified cumbersome land registration procedure, absence of mortgage facilities to low income earners, high cost of construction, lack of primary infrastructure such as roads, water, electricity, the impact of the Land Use Act of 1978, among others as major constraints to housing development. The author recommended intensified research on local building materials, provision of long-term funds, and amendment of the Land Use Act of 1978, among others.

In addition, Abimaje et al (2014) conducted a survey on housing affordability in Idah, in Kogi State using structured questionnaire. The result showed that majority of the people in the study area were spending more than 30 percent of their income on housing. The study concluded that the people were cost burdened. Despite all the aforementioned contributions to knowledge on housing affordability, affordability measures are however inadequate. This study therefore examines the housing affordability among low income civil servants in Lagos, Lagos state, Nigeria. This is with a view of developing the nation's housing policy.

The Study Area

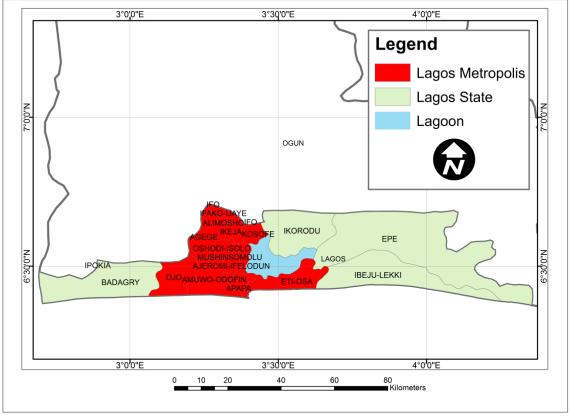
The study area, Lagos State, Nigeria had served as the capital of Nigeria from 1914 until 1991 prior to its replacement by Abuja. The latitude and longitude coordinates are 6.465422 and 3.406448 respectively while the gps coordinates are 6° 27' 55.5192" N and 3° 24' 23.2128" E. It contains over half of the nation's industrial investments, thus the commercial nerve-centre of Nigeria (My Destination, 2015). The capital of Lagos state is Ikeja. Metropolitan Lagos comprises over 85 percent of its population over a land area of about 37 percent (Zodml, 2013). There are twenty local government areas (LGAs) in the state (Fig. 1), as well as thirty-seven local council development areas (LCDAs), each having a chairman as its administrative head (Zodml, 2013). The state has a secretariat located at Alausa. The secretariat is the seat of government and houses government agencies and ministries. The ministries were twenty-four in number but later

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collapsed into twenty. They ranged from ministry of finance, education, agriculture to commerce to information amongst others. The State's population was estimated to be about 21million inhabitants in 2016, thus making it the largest city in Africa (World Population Review, 2019). Considering its present growth rate, based on the United Nations' estimate, the state would have become the third largest mega-city in the world by 2015.

The alarming level of urbanization of the city has led to an acute shortage of affordable housing, thus necessitating the intervention of the Lagos State Government. Various policies have been embarked upon to ameliorate the plight of the masses towards gaining access to affordable housing. Notwithstanding the various efforts of the government, commensurate result is yet to be observed in improving the housing stock and ameliorating the problem of housing affordability. Particularly, the low income civil servants encounter much difficulties in securing affordable housing (Oshodi, 2010; Anthony et al, 2016). There is thus the need to examine their extent of housing affordability. This is particularly relevant in order to provide information for policy formulation towards improving the housing affordability among this group.



1: Lagos Metropolis in the context of Lagos State

Fig

Source: Cooperative Information Network (COPINE) (2016)

THEORETICAL FRAMEWORK: The Concept of Rule of Thumb

Historically, the theoretical foundation for affordability measures is the rule of thumb ratio paradigm which has received a widespread acceptance and use as an indicator of housing affordability in the developed world (Stone et al, 2011). The rule of thumb, based on rent-income ratio, is anchored on Engel Economic Law (Cai, 2017). The law, propounded by Ernst Engel, and translated by Carroll Wright in 1875, states that the proportion of household income set aside for

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The law subsequently gave way to another one in 1940, where maximum rent passable on properties was restricted to twenty percent of income in order to favour workers receiving the lowest wages. The program however failed due increasing costs of maintenance and operation of public housing. In order to address the lapses of the law, the Brooke amendment was proposed and passed in 1969 where rent passing on public housing was made to be a function of tenants' income and was not to exceed 25 percent benchmark. The 25 percent figure was later raised to 30 percent in 1981 by the Congress using the Omnibus Budget Reconciliation Act. Subsequently, the United States Department of Housing and Urban Development (HUD) adopted the 30 percent rule of thumb for measuring housing affordability and basis for analysing rental burden of households. Deriving from the HUD definition, cost burdened households are those whose expenditures on housing exceeds the 30 percent benchmark whereas severe cost burdened households are those paying above 50 percent of their gross income.

Furthermore, based on the 30 percent rule of thumb ratio, Harding et al. (2004) examined the trend in housing stress of different types of Australian households and singles in 1998 and 2004 using the base data of Australian Bureau of Statistics. The findings showed that only a minority, about 8.8 percent of the households and singles were spending more than 30 percent of their disposable income on housing in 2004 against 10.7 percent in 1998.

In the same vein, Zaid (2015) conducted a study measuring housing affordability of public low-cost housing in Kuala Lumpur using questionnaire and interview as data collection instruments. The findings revealed that 88 percent of the households surveyed spent less than 30 percent of their monthly income on rent and housing loan repayment and thus concluded that housing was affordable to majority of them. In the context of this study, the 30 percent rule of thumb is adopted to measure housing affordability of low-income civil servants in Lagos State with the aim of ascertaining their capacity to afford same.

Literature Review

Authors have defined housing affordability in the context of the interaction between cost of housing and household income (Goetz, 2007; Ndubueze, 2007; Boamah, 2010; Wardrip et al, 2011; Litman, 2015; Zaid, 2015; Rangel et al, 2017). Attributable to this fact, studies have adopted income as the key variable in the measurement of housing affordability. For instance, Gyourko and Tracy (1999), conducted a study on real housing prices and incomes with the aim of establishing implications for housing affordability and quality by introducing a new estimation technique based on American Housing Survey. The study utilised household income from two sources. Findings revealed that households that are headed by low skilled workers only manage to afford housing by having access to additional income from another member of the family.

In the same context, using the shelter cost to income ratio, Rea et al, 2008 examined the dynamics of housing affordability of Canadian households over a three-year period by means of two logistic regression models. The cross-sectional and longitudinal analysis of the housing affordability indicated that approximately 20 percent and less than 10 percent respectively of households spent more than 30 percent of their income in any year within 2002 and 2004. Due to high rent against low paying jobs, lack of other revenue sources, existence of a single income earner in the family, among others, lower income households are prone to exceeding housing affordability benchmark which in turn can impact on their wellbeing. Rangel et al (2017) also analysed housing affordability in Malaysia using household income. However, according to Cassells et al, (2014) housing affordability transcends the relationship between cost and income.



Landt and Bray (1997) had earlier extended the relationship by analysing the real housing costs of tenants by incorporating their socio-economic characteristics. Harding et al. (2004) examined trends of housing stress among households between 1998 and June, 2004 by age groups and family type using Australian Bureau of Statistics base data. Findings revealed that over half (55%) of the people facing housing stress were single. Also, majority of households that were stressed were headed by adults in their peak working years (aged between 30 – 39 years). Bujang et al. (2010) investigated the relationship between demographic factors such as age, marital status, employment, household income, among others and housing affordability using Johor Bahru as a case study. The results analysed using Pearson Chi-Square and Correlation analysis and based on the analysis of the socio-economic characteristics of 183 respondents indicated that marital status, level of education, monthly income and the number of people in the households have significant relationship with housing affordability that is not attributable to chance.

In addition, Aribigbola (2000) had identified variables of housing affordability to include rent levels, family income and other socio-economic attributes of the household. Stone (1993) cited in Ndubueze (2009) opined that there exists a great link between housing affordability and social and economic systems. Hence, socio-economic conditions and circumstances of households must not be neglected in the measurement of housing affordability. Inspite of all the scholarly works done in this regard, there is paucity of empirical research in the area of housing affordability among the low-income civil servants. This is the gap the study intends to fill.

METHODOLOGY

A case study research design was utilized. Both primary and secondary data were sourced. Using a multi-stage sampling technique, 188 questionnaires were administered to respondents on grade levels 1 to 6 drawn from 124 out of 620 randomly selected offices in 16 ministries in the state. Variables that were investigated include: socio-economic characteristics, average monthly income and additional monthly income from other sources, average monthly expenses on housing and housing affordability levels of the respondents. Data were analyzed using descriptive statistics, ratio analysis and inferential (ordinal regression) statistics at p value ≤ 0.05 .

Results and Discussion of Findings

1. Socio-economic Characteristics of the Low-Income Civil Servants

The result of the analysis on socio-economic characteristics in Table 1, include gender, marital status and age. From the gender distribution, half (50%) of the respondents were male, implying a zero-level gender discrimination in the state, in terms of employment into the civil services. With regards to marital status, study also revealed that more than half (71.5%) of the respondents were married, 22.8% were single. Divorcees and separated were as low as 1.9% of the sampled population. The findings established that majority of the respondents were married, thus suggesting the likelihood of additional income from the spouses, which is essential if a low-income earner were to find housing affordable. This finding is consistent with the submission of Gyourko and Tracy (1999) which states that a low skilled worker's household would only manage to find housing affordable provided that they have additional source of income from another family member.

Another crucial socio-economic characteristic of the respondents shown in the table was their age distribution. Their ages were categorised based on the World Health Organisation (2011) into four. The distributions are: the youth (18-30) years; young adult (31-45) years; adult (46-60) years and aged (above 60) years. From the table, 17.09%, 54.4% and 22.8% were youth, young adult and adult respectively while none of the respondents was above 60years in age. The result revealed the predominance of young adult followed by the adults and youths respectively. While majority are aged between 31 – 45years, contrary to Harding et al. (2004), there was nothing to



suggest that they were housing stressed on account of their age and possibility of heading their respective households.

Investigation was conducted on the respondents' monthly income. This was classified into five categories for ease of analysis (see table 2). In the state, the highest proportions of the low-income civil servants, 26.9% earned an average of between \$18,000 - \$23,000. Those receiving the ranges \$24,000 - \$29,000 and \$30,000 - \$35,000 were 25.4% and 17.7% respectively. Income range of \$36,000 - \$41,000 was earned by 19.2% of the respondents while 10.8% received above \$41,000.

The minimum monthly salary received by a low-income civil servant in the state was \$18,000. Majority of the low-income civil servants in the study area were at the lowest rung of the ladder in terms of their monthly income. A monthly income of \$18,000 will translate to \$600 per day. Individuals are said to be living below the poverty line if they are living on an average of US\$1.90 per day (World Bank, 2015). Using the CBN pegged exchange rate of \$375 to a Naira ("Central Bank of Nigeria", 2017), this will amount to \$1.60 per day. It can thus be concluded that majority of the low-income civil servants in Lagos state were living below poverty line and may lack access to basic necessities of life such as food and affordable housing, which are considered of enormous importance to man and essential to his wellbeing.

Gender	Frequency	%	
Male	79	50	
Female	79	50	
Total	158	100.0	
Marital status	Frequency	%	
Married	113	71.5	
Single	36	22.8	
Divorced	3	1.9	
Separated	3	1.9	
Widowed	-	-	
No Response	3	1.9	
Total	158	100.0	
Age range (in years)	Frequency	%	
Youth (18-30)	27	17.09	
Young Adult (31-45)	86	54.4	
Adult (46-60)	36	22.8	
Aged (above 60)	-	-	
No response	9	5.7	
Total	130	100.0	
Average Income (N)/month	Frequency	%	
18,000-23,000	35	26.9	
24,000-29,000	33	25.4	
30,000-35,000	23	17.7	
36,000- 41,000	25	19.2	
Above 41,000	14	10.8	
Total	130	100.0	

Table 1: Socio-economic characteristics of the Respondents

Source: Field Survey, 2016

2. Additional monthly income of the respondents and its sources

Investigation was carried out on whether the respondents had additional income to support the salaries received from the civil service and the various sources. Presented in Tables 2 were the findings. It was established that 91.8% of the respondents had additional jobs. Other sources of income include spouses' income and gifts/tips. As indicated, a low-income civil servant's household with additional income sources earned an average monthly income of N79,942.24 from the various sources. The breakdown is as follows: 37.5% (N30,002.00) and

15.5% (H12,358.80) were from the civil service and other jobs respectively. Average sum of H30,887.89, accounting for 38.6% of total income was spouses' income. Gifts and tips constituted 8.4% (H6,693.55) of the total average income. In essence, the bulk of their money came from the spouses' income. This affirmed the study conducted by Gyourko and Tracy (1999) where findings revealed that a low skilled worker headed household required extra income from two sources in order to afford housing. Those that were not married would therefore receive H30,887.89 shortfall in income, that is, H49,054.35. Hence, marital status is critical to income earned and important to ability to afford housing and other basic necessities of life as supported by Bujang et al. (2010) whose findings indicated that marital status among other socio-economic attributes of a household have significant relationship with housing affordability, not attributable to coincidence. Moreover, their seeking of additional jobs on the other hand tends to render them unfaithful in their employment in the civil service and also have dire consequences on their health.

Frequency	%	
145	91.8	
13	8.2	
158	100.0	
Monthly income	%	
N 30,002.00	37.5	
N 12,358.80	15.5	
\\ 30,887.89	38.6	
N 6,693.55	8.4	
N 79,942.24	100.0	
	145 13 158 Monthly income ¥30,002.00 ¥12,358.80 ¥30,887.89 ¥6,693.55	

Source: Field Survey, 2016

3. Average monthly expenses of the respondents on housing related expenses

Table 3 comprise details of the average monthly expenses incurred by the respondents on their housing related expenses in the state. In total, a sum of \$12,915.03 is required for the housing related expenses. For a household that is solely dependent on the minimum wage of \$18,000 per month, 71.75% of their gross income is already being expended on housing instead of the 30% benchmark. This confirms the findings of Rea et al, 2008 that there is the likelihood of lower income households exceeding housing affordability benchmark as a consequence of high rent, low paying jobs, a single income earner in the family and lack of other revenue sources, amongst others which in turn can impact on their wellbeing.

Items	Monthly expenses
Rent	№ 6,903.73
Lighting/ Electricity	₩2,147.80
Water	₩1,676.03
Refuse disposal	₩729.49
Security	₩738.56
Sanitation	₩719.42
Total	₩ 12,915.03

Source: Field Survey, 2016

4. Housing affordability levels of the respondents in the study area

The ratio approach was used in measuring the housing affordability of the respondents in the study area. Ratio analysis was first done using their income from the civil service then, that from all other sources.

i. Housing affordability levels based solely on income from the civil service



The ratio approach involves dividing housing expenses or cost by household income. Recall that average monthly income, from civil service in the state, in Table 2 is \$30,002.00 while housing expenses in Table 3 is \$12,915.03. As such, division of monthly housing expenses by income from civil service, in order to arrive at the ratio is thus: $\$12,915.03/\$30,002.00 \times 100 = 43.04\%$.

Typically, the ratio measurement implies that housing expenses of a household should not exceed 30 percent of a household income. However, from the calculations above, in the study area, households relying solely on a low-income civil servants' income had to spend 43.04% of their monthly income on housing. In this respect also, households relying solely on the income of a low-income civil servant will be unable to afford housing alongside other basic needs and necessities. This can best be described as a situation of being housing cost burdened, where more than 30% of a household's income is required for housing expenses (Andrews, 1998; Luffman, 2006). The income cannot adequately take care of their housing expenses without recourse to seeking for means of earning additional income.

(ii) Housing affordability levels using income from all sources

Table 2 comprise details of the average monthly income from civil service and additional monthly income of respondents from other sources. The average total income from the civil service and income from all other sources culminated in \$79,942.24 in the state. Hence, division of housing expenses by income from civil service and all other sources of income is thus indicated: $\$12,915.03/\$79,942.24 \times 100 = 16.16\%$.

The respondents were spending 16.16%, of their total income from all sources on housing. As such, the 30% benchmark for housing affordability is yet to be exceeded. Hence, households with alternative sources of income inclusive of that from the spouses could be said to be finding housing affordable.

Furthermore, quantitative analysis was conducted using ordinal regression to test the level of significance of average monthly income from the civil service and additional income from all other sources of income on housing affordability. This was done using ordinal regression since the outcome variable otherwise known as the dependent variable is categorical and not continuous in nature. In Table 4, the Analysis of Variance (ANOVA) was examined to determine the existing linear relationship among the variables. The value of F (F = 3.663) is statistically significant at a level of 0.041 (less 0.05). This implies that there is a 95 percent chance that the relationship among the variables is not coincidental.

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Mod	el	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.576	2	.788	3.663	.041 ^b
	Residual	5.164	24	.215		
	Total	6.741	26			

Table 4 ANOVA^a

a. Dependent Variable: housing affordability

b. Predictors: (Constant), additional income realised monthly from other jobs, average monthly income

The value of the constant (Y intercept = 1.511) was determined using the coefficient as shown in Table 5. The coefficient for average monthly income is 1.275E-5. Hence, for every unit increase in average monthly income, there was a predicted increase of 1.275E-5 in housing affordability level, while holding all other variables constant. On the other hand, the coefficient for additional income realised monthly from other sources is in the negative, that is, -2.077E-5. In



other word, for every unit increase that accrues to it, there was a prediction of -2.077E-5 decrease in housing affordability, holding every other variable constant. The result of the t-statistics and their associated 2-tailed p-values indicated that the coefficient for average monthly income is not significantly different from 0 due to the fact that its value, 0.364 is larger than 0.05. However, additional income realised monthly from other sources is significantly different from 0 since its p-value is 0.013, being smaller than 0.05.

Table 5 Coefficients^a

		Unstandardized Coefficients		Standardized Coefficients		
Model		В	Std. Error	Beta	Т	Sig.
1	(Constant)	1.511	.366		4.128	.000
	Average monthly income	1.275E-5	.000	.188	.925	.364
	Additional income realised monthly from other sources	-2.077E-5	.000	543	-2.679	.013

a. Dependent Variable: housing affordability

The outcome of the analysis, shown in Table 6, indicated that additional income from all other sources contributes to housing affordability of the low income civil servants having a p-value of 0.028 whereas the average monthly income from the civil service did not with a p-value of 0.352 which is greater than the 0.05 alpha level. R^2 (R Square).

Table 6 Param	eter Estimate	S					
						95% Confide	ence Interval
	Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Affordability	.147	1.860	.006	1	.937	-3.499	3.793
Monthly income	7.133E-5	7.671E-5	.865	1	.352	-7.903E-5	.000
Additional income	.000	4.802E-5	4.823	1	.028	.000	-1.134E-5

Link function: Logit.

Regressing housing affordability level on average monthly income and additional income from other sources produced an R² (R Square) of 0.234 indicating that 23.4 percent of the variation in housing affordability level can be explained by variability in a respondent's average monthly income and additional income from other sources as indicated in Table 7.

Table 7 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.484 ^a	.234	.170	.46388

a. Predictors: (Constant), additional income realised monthly from other sources, average monthly income

Conclusion and Recommendations

The study has examined the ability of the low-income civil servants to afford housing. Findings revealed that majority of them find housing unaffordable. A greater proportion of them had to seek for additional jobs and other sources of income, otherwise would not have been able to afford housing which is basic to their wellbeing. In summary, the study has established that the low-income civil servants in Lagos state were housing cost burdened. This has grave implication on their living standard. Based on these, the followings are recommended in improving the housing affordability level of low-income civil servants in Lagos State and by extension, Nigeria:



- Inasmuch as low-income civil servants were hardly earning enough to cater for their day to day expenses, government should increase the minimum wage and introduce tax reliefs in order to further alleviate their poverty.
- Government should embark on construction of affordable mass housing schemes strictly for low income earners. Corruption in the allocation of such houses should be mitigated to ensure that higher income earners do not deprive the low-income earners access to such housing. Moreover, such buildings should be on several floors to ease the problem of land availability. Furthermore, the government should introduce the giving of food tickets to low income households by establishing food banks in various local governments where the beneficiaries could collect free rations on a monthly basis to reduce their spending on nonhousing expenses and enhance their ability to afford housing.
- Provision of long-term credit for housing development: Housing development is capital intensive and most low income are unable to afford required fund. As such government should ensure that low income earners have access to affordable long-term loans through the mortgage institutions at very low interest rate.



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