URBAN INEQUALITY A CASE OF PUBLIC HOUSING ESTATES IN NIGER STATE, NIGERIA

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ABSTRACT: The vision of any housing policy is to provide liveable housing be it for the high, middle or low-income groups that are always underserved in terms of basic amenities. In the 21st century, the nature of living conditions in most of the public housing estates in Nigeria and Niger state in particular seems to be not any better off. The quality of living places, or cities, neighbourhoods or housing estates are linked with their physical environment, safety, social cohesion and infrastructure provided in the area. Studying the residential neighbourhood quality of public housing estates, the people living there are important. People living in a particular place receive direct effects from the changes of environment and development in their area. They know whether their housing environment status is either good or bad or change from time to time. Housing encompasses all that is necessary to make a living in a particular place pleasurable, and not a burden. It is however seen as an extension of the human frame that should respond to the needs of its inhabitants. Thus, housing serves as one of the best indicators of a person's standard of living. Considering the above, satisfaction with housing neighbourhood environment indicates an environment that meets the needs and aspirations of the users and dissatisfaction means the needs and aspirations of the users were not met. No housing programme or policy can be considered successful only in terms of quantity constructed. Equally as important are the suitability of the residential environment, facilities and services to the users. Therefore, this study examined neighbourhood living conditions in three public low-income housing estates using data derived from household survey involving 366 respondents out of 400 questionnaires distributed based on stratified proportional sampling technique. The structured questionnaires were distributed face-to-face and collected back after completion either immediately or the following day. The data sought through questionnaires include different dimensions and indicators of good neighbourhood quality (liveability) as elicited from the literature review. Based on desktop literature, the study used both subjective and objective measurements to investigate the liveability of the selected housing estates. Issues examined include the home environment, neighbourhood amenities, economic vitality, social environment and civic protection. The data analysis techniques used include descriptive statistics, factor analysis and structural equation modelling (SEM). The outcome of the perception of residents' in these selected housing estates can give a clue to the quality of the environment and serves as a feedback to be injected to housing policy for future development. Further, it could be used as an improvement tool as the study reveals the situation of the estates investigated.
Keywords: neighbourhood quality, satisfaction, public low-income housing, factor analysis, Nigeria

INTRODUCTION

Plato wrote that "any city however small, is in fact divided into two, one the city of the poor, the other of the rich," (Edward, Matthew and Kristina, 2008)
Public housing development is a global trend. The right to adequate housing, which is considered safe, secure, healthy, available and inexpensive, was enshrined in the Habitat Agenda. Nigeria as a lower middle income country alongside twenty other African Countries (World Bank, 2012) have a deficit of housing unit above seventeen million (Akuffo, 2009; Chike-obi, 2013). Evidently, Nigerians are under-housed. Nevertheless, the Nigerian government at different times tackled the housing shortage in the Country through various housing policies. Nigeria's current housing policy is to ensure that all Nigerians own or have access to decent, safe, secure and healthy environment with infrastructure services at affordable prices, and with security of tenure (National Housing Policy, 2012). Affordable housing/public low-income housing programs are undertaken by the Federal and State governments in Nigeria. Public low-income housing provisions is therefore viewed as a policy concept which is well designed, planned, articulated, and implemented to ameliorate the problem of

housing shortage in terms of quantity and quality in order to improve social conditions. It aims at providing subsidized housing that is decent in order to enhance the living standards of the people and restore the aesthetic value of the physical environment.

Niger State is one of the thirty-six states of the Federal Republic of Nigeria and its state government have been developing low-income housing for its citizens over the years. Despite all the efforts by the state government, some of the housing estates developed in the state can be described as a modern day planned slum, and the inhabitants have to live in slums in its inferior and degenerated unhealthy living environment. As planned housing estates, much is expected in terms of housing infrastructure to alleviate undue stress that characterised unplanned area. Access to the basic amenities like electricity, drinking water, good roads, environmental sanitation, health care facilities, schools, public transportation and solid waste management are critical determinants of urban quality of life. These infrastructures serve as an integral part of human life. Evidence from previous studies has shown that facilities are unequally distributed in our cities such that many people are caught in a never ending struggle to gain access to infrastructures in order to improve their quality of life (Aderamo and Aina, 2011; Parry, Kuchav, Ganaie and Bhat, 2013). Apparently, previous studies have examined inner city/peri-urban or rural-urban inequalities, but there is a paucity of empirical studies on the inequalities within neighbourhoods of public low-income housing estates especially in Nigeria and Niger State in particular. This study argues that apart from inequality in the city's development in which most of the public low-income housing estates are located, these housing estates also face infrastructures inequalities and these pose threats to the lives of the inhabitants. This study is guided by the following objectives:

    i.   To analyse the status of the neighbourhoods' amenities in the selected estates
    ii.   To determine the level of disparity in the neighbourhood facilities of the selected estates
    iii.   To validate the measurement items used for the study

CONCEPT OF HOUSING, INFRASTRUCTURE AND INEQUALITY

The word housing connotes the provision of a large number of homes on a permanent basis with adequate physical infrastructure and social services that are well planned, decent and safe with a good neighbourhood sanitary system that meet the basic and special needs of the inhabitants. In addition, it is supported by sustainable maintenance of the built environment for the day-to-day living and activities of individuals and families within the community (National Housing Policy of Nigeria, 2006). Therefore, housing transcends beyond the four walls of a building and as a result, neighbourhood infrastructures become a factor that drives housing satisfaction or liveability. Moreover, infrastructure is regarded as the aggregate of all facilities that enable a society to function effectively. It provides an enabling environment within neighbourhoods and city. This enhances quality of life in the neighbourhood and economic growth in the city. An outline of basic housing neighbourhood/city infrastructure was found in the study conducted by Akujuru (2004), they include:

1. Transportation options – roads, railways, airways, airports, seaports and waterways
2. Water supply – water works and dams
3. Electricity – power stations
4. Telecommunications – postal, telephone and telex
5. Health care – hospitals, maternity homes and health centres
6. Sanitation and solid waste disposal
7. Drainages and embankments

Inequality is defined in Cambridge Advanced Learner's Dictionary (2008) as a situation in which there is no equal or fair treatment in the sharing of wealth or opportunities between different groups in the society. Oluwatayo (2008) views inequality as the dispersion of a distribution either in terms of consumption, income or any other qualities or attributes that demonstrate the welfare status of a population. In this study, inequality is seen as the differences in the neighbourhood facilities of the planned housing estates. In other words, the level of satisfaction or the perception of the residents of

the selected housing estates about the liveability of their housing estates will determine the spatial equality or inequality in terms of housing neighbourhood infrastructure in similar low-income housing estates. Studies have shown that there is inequality in the distribution of neighbourhood facilities in the informal housing sector (Omuta, 1988; Howley, Scott and Redmond, 2009; Godwin, 2012). Inequality of accessibility to social infrastructures within the population of a society has existed since the dawn of civilization (Aderamo and Aina, 2011). Variations in infrastructure provision resulted in spatial disparities in living standards both within and between regions, states, and local government areas including public low-income housing communities.

METHODOLOGY

This research is based on a quantitative approach which includes descriptive statistics and factor analysis. Household survey was adopted for the collection of primary data based on stratified random sampling with the intent to select various homes in three public low-income housing estates selected. Based on the table of sample size selection of Krejcie and Morgan (1970), a total of 400 housing units out of 1000 housing units in the study area were selected for the survey. The questionnaire design for the study includes the dimensions and attributes established from past literature as depicted in Table 1.

Table 1: Dimensions and attributes for good neighbourhood

Housing Unit Characteristics	Neighbourhood Facilities	Safety Environment	Economic Vitality	Social Interaction
House size, Living area size, Dining size, Bedroom size, Kitchen size, No of bathroom, No of toilets, House Ventilation, Affordability, Parking lots, Road network, Estate cleanliness, Housing condition	Children education, Heath care centres, Shopping centres, Garbage collection, Water supply, Open/Green space, Electricity supply, Nature of roads, Public transport, Drainage system, Community hall	Crime safety, Accident safety, Property safety, Police protection, firefighter service, Vigilante services, Street lights.	Total monthly income, Daily cost of transportation, Effect of loan on income, Effect of rent on income, Access to public transport, Standard of living.	Communication with neighbours, Voluntary association, Comm. Activity participation,

Source: Authors' survey of literature and compilation (2015)

In addition, a 5-point Likert scale was used and each variable was assigned weight value ranging from 5 indicating the highest rating, and to 1 indicating the lowest rating (Marques, Pinheiro, Matos and Marques, 2015; Mohit and Hannan, 2012). Out of the 400 questionnaires administered in the study areas, namely: M.I. Wushishi Estate, Bosso Estate and Tunga Low-Cost. A total of 366 (91.7 per cent) was duly returned and the data were analysed in the SPSS version 22 with AMOS 22. The descriptive statistics conducted to determine the mean values and percentages relevant for descriptions. Also, factor analysis and CFA structural equation model were carried out to establish uni-dimensionality and good fit of the dimensions and attributes element of good neighbourhood. The study also involves visual inspection, which forms an assessment of the condition, functionality, and need for repair actions. Thus, data are presented in photographic view for comparison between the selected housing estates and a view from high income housing area.

RESULTS AND DISCUSSIONS

Respondents Profile

The respondents were predominantly male (79 percent). The average age of the respondents was 43 years old, and about 94 percent completed tertiary institution. Married respondents constituted 85 per cent and the average household size in the study area stood at seven people. Over two-third of the respondents were gainfully employed while the majority 63 per cent earned N100, 000.00 monthly. On the length of stay, 73 percent indicated less than ten years. The above demographic details have

shown that the participants in the survey have sufficient knowledge of their neighbourhood environment, and therefore, the data elicited from them could be regarded as reliable.

Descriptive Statistics

Table 2 shows the similarities and differences in the residents' perception of their neighbourhood liveability. Evidence from Table 2 revealed the similarities in the residents' perception of their housing unit characteristics, economic vitality, neighbourhood facilities and social interaction in three housing estates. The respondents were satisfied with the housing unit characteristics and economic vitality, but dissatisfied with neighbourhood facilities and their level of social interaction is low. However, on the safety of the environment, while the residents' of Tunga Low-Cost perceived their housing estate to be safe, the residents of M.I. Wushishi and Bosso Estates, expressed low levels of satisfaction regarding their safety in housing estates.

Table 2: Overall Mean Satisfaction with Liveability Dimensions in Each Estate

	Housing Unit Characteristics	Neighbourhood Facilities	Safety Environment	Economic Vitality	Social Interaction
M.I. Wushishi Estate	3.10	2.62	2.82	3.18	2.65
Bosso Estate	3.54	2.60	2.93	3.37	2.70
Tunga Low-Cost	3.58	2.91	3.16	3.71	2.57

Level of Satisfaction with Neighbourhood Liveability Indicators

Analysing the housing unit characteristics (see Figures 1a, c and d), Tunga Low-Cost and Bosso Estate found it to be fairly well accepted given that the assessment of each element's average score sat at above 3.00 out of a possible 5-point scale with the exception of the road network at Bosso Estate with an average value of 2.98. However, the following were lacking or in poor conditions as expressed by the residents of M.I. Wushishi Estate such as road networks, parking lots, estate cleanliness and house conditions (average score ranges from 1.91 to 2.91). For neighbourhood facilities, the results show a lack of the following neighbourhood facilities in all selected estates. These include: open/green space, shopping centres, community hall and road/drainage systems were in poor conditions (see Figures 1a and 1c). Essentially, there is general satisfaction across the three housing estates in terms of access to child education services, healthcare services and garbage disposal (average score greater than 3.00). However, there is inequality in terms of water supply, electricity supply and access to public transportation. Evidence from the result revealed that Tunga Low-Cost is better served in terms of water supply compared to other estates. Also, Tunga Low-Cost and M.I. Wushishi Estate were fairly served with electricity supply while residents of Bosso Estate face lack of electricity supply. In addition, residents of Bosso Estate and Tunga Low-Cost have good access to public transportation while residents of M.I. Wushishi Estate lack access to public transportation due to non-en route. On the safety of environment, the results show that the three housing estates lack security operatives/apparatus for the safety of life and properties. The average satisfaction scores for police protection, vigilante protection, fire brigade and street lights were less than 2.90 out of a 5-point Likert scale. It was observed during the reconnaissance of the study area that street lights were virtually non-existent. This poses a security threat, especially in the night time in all the selected housing estates.

On sense of community (social interaction), above 70 percent affirmed that there is good communication between neighbours in the study areas, but this does not translate to having voluntary activities to help their community as only about 30 per cent of the respondents in the study areas affirmed/participated in voluntary activities in the estate. On economic vitality, above 60 per cent of the respondents are satisfied with their economic liveliness, meaning that they either pay rent as a tenant or are repaying loans as owner, this does not affect the household daily livelihood.

a. Street at M.I. Wushishi and Housing Type

b. High-income area at F-Layout
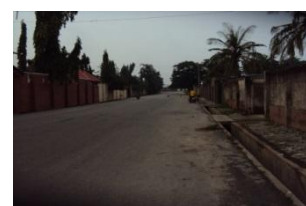
c. Bosso Estate road 16 and Housing Type

d. Tunga Low-Cost housing type

Figure 1: Housing Unit Characteristics and Neighbourhood Facilities

Liveability Ranking of the Estates

This section presents the liveability index (LI), calculated to rank the housing estates as perceived by the respondents. Thus, the equation below denotes the summation of the mean value for each of the dimensions of liveability for each housing estate divided by the total number of respondents in all the five dimensions. Here, HE, NF, SE, EV, and SI respectively denote (HE: Housing characteristics, NF: Neighbourhood facilities, SE: Safety environment, EV: Economic vitality, and SI: Social interaction).

$$LI = \frac{\sum_{i=1}^{N} HEi + \sum_{i=1}^{N} NFi + \sum_{i=1}^{N} SEi + \sum_{i=1}^{N} EVi + \sum_{i=1}^{N} SIi}{N \times 5}$$

Where LI = Liveability index

N = Number of respondents

HEi, NFi, SEi, EVi and SIi represent actual mean satisfaction scores of the *i*th

Table 3: Liveability Index

Housing Estates	Liveability index	Ranking
M.I. Wushishi Estate	2.18	3rd
Bosso Estate	2.63	2nd
Tunga Low-Cost	2.70	1st

Given the above equation, Table 3 presents the liveability index of the housing estates in ascending order. The result corroborates findings from previous studies that the older the residential environment, the more the residents are attached to the area and the higher the satisfaction. Tunga Low-Cost is the oldest estate built during 1980/1981 and emerges 1st in the ranking, Bosso Estate was built in 1990 and M.I. Wushishi Estate was occupied in 2010 (see Table 3 for ranking).

FACTOR ANALYSIS/STRUCTURAL EQUATION MODEL

The validation of the measurement items was conducted through the exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). As part of data cleaning, the Cronbach's alpha supported four-factor constructs based on the alpha value of > 0.7 (Pallant, 2007). Consequently, the data satisfied the thresholds for EFA as found in the literature such as multi-collinearity, singularity problem, Kaiser-Meye-Olkin (KMO) and Bartlett's Test for sample adequacy. Hence, the four-factor extracted based on eigenvalues of 1 has a cumulative variance explained as 67 per cent.

On the other hand, the four-factor model was confirmed in Table 4 with the conduct of CFA. Based on the thresholds such as factor weights < 0.6 were removed, and the Root Mean Square of Approximation (RMSEA) value is < 0.1 (Yuet, Yusof and Mohamad, 2014; Marques *et al.*, 2015), the Comparative Fit Index (CFI) value is > 0.9 (Richard, 2007; Navabakhsh and Motlaq, 2009), the Chi-square range between 1-5 based on scale used for data collection.

Table 4: Model Goodness of fit indices

	Chi-square	P-value	Chi-square	CFI	RMSEA
Model	570.892	0.000	4.426	0.907	0.097

Note: *CFI= Comparative Fit Index; RMSEA= Root Mean Square of Approximation*

CONCLUSION

This study examined urban housing inequality of public low-income housing in Nigeria with three selected housing estates in Niger State. The results show that there is a lack of basic neighbourhood amenities in the study areas compared to other planned areas of high-income housing in Niger State. On this, residents are dissatisfied with neighbourhood facilities in these housing areas such as the deplorable state of roads in the housing estates, irregular water supply and electricity supply failure. There is also lack of security services as expressed by the residents of the study areas and social interaction is very low among the residents. Conversely, from Table 2 it can, therefore, be inferred that government housing programme so far for the low-income group in the state have been fairly successful in terms of housing unit characteristics and affordability. However, there is evidence of poor management of the housing estates, especially in terms of roads maintenance. The residents also failed to come together to form associations that would champion the maintenance of facilities in their estates and press on government to provide their needs. The liveability ranking of the estates confirmed the saying that, the older the age of housing, the higher the liveability perception of the inhabitants due to perceived neighbourhood attachment. Therefore, the relevant government authority should improve roads in these housing estates and maintain it. Also, water and electricity supply should be improved, security of life and property should be strengthened in order to remove the residents' apprehensiveness over security. Furthermore, street lights should be fixed in these housing estates so as to enhance security of the areas during night time. To improve social interaction of the inhabitants of these housing estates, recreation facilities must be provided. Finally, the measurement items used in this study are validated with the satisfaction of the thresholds as found in the extant literature for EFA and CFA. Hence, the measurement items with four factors as validated in this study have potential for other future research.

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