

# PREDICTORS OF HOUSING SATISFACTION IN ABUJA, NIGERIA

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## Abstract

*The study examined the relationships between housing satisfaction and structure types, building features, housing conditions, neighborhood facilities, management, and demographic characteristics among a sample of 1,089 households, randomly selected from residents living in public housing in five districts in Abuja, Nigeria. The public housing units were constructed by the federal government and supervised by the Federal Capital Development Authority (FCDA). The data for the study were collected through self-administered questionnaires, which measured residents' level of satisfaction on a five-point Likert scale. The data were analyzed using analysis of variance and multiple regression.*

*The majority of the households were larger than four persons, headed by males from 31 to 40 years of age. Most of the residents were renters, educated, and employees of federal agencies. Significant positive relationships were found between housing satisfaction and the various housing characteristics, and housing management. The mean satisfaction score for residents of the room units differed significantly ( $p < 0.05$ ) from the mean satisfaction score of residents in the other structure types. Based on the regression analysis, the variable that contributed most to the explanation of variance in overall housing satisfaction was housing management. Also, all the five single-item satisfaction measures contributed significantly to the prediction of housing satisfaction except demographic/socioeconomic characteristics.*

## Introduction

The city of Abuja was created in 1976 to be the capital city of Nigeria. An extensive public housing program was begun at that time to house federal employees and their families. The provision of large-scale public housing by the federal government

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of a developing country does not necessarily measure the success of a country's housing program. The suitability of the living environment in relation to location, safety, privacy, services, and social organization should be seen as important aspects of the programs. However, often the completed housing projects indicate that there has been no understanding by the designers, planners, or managers of these environments of factors that would contribute to residents' level of housing satisfaction.

Today the housing conditions in the public housing complexes of Abuja are not of good quality. The health of the population is degenerating due to overcrowding and trash that litters the environment (Ocholi, 1992). Transportation shortages and poor neighborhood facilities (e.g., lack of designed playgrounds for children) are other problems that jeopardize the well-being and quality of life of the residents (Ocholi, 1992). Moreover, the physical attributes of the buildings are deteriorating due to poor quality construction, including poorly fitted windows and louver panes, and poor quality doors and wall paints. In spite of the federal government's commitment to build housing, the provision of adequate, livable, affordable, and satisfactory housing still remains a problem in the new city.

The purpose of this study was to investigate the predictors of satisfaction with public housing in Abuja, Nigeria, and to develop an empirical model for explaining relationships between factors associated with housing satisfaction in a developing country.

### **Background Information**

When Abuja was created, the federal government established the Federal Capital Development Authority (FCDA) to coordinate the development, provision, and implementation of the housing programs for the city. The construction of public housing started in 1980, and more than 22,000 housing units have been completed (FCDA, 1994) while construction of new housing units is still going on. Most residents have been living in the public housing since 1982. In 1991, the president of the country, senior cabinet staff, and most civil servants moved into the city to join other civil servants already in the city, significantly increasing the urban population. The new capital, which is centrally located in the country, has a population of 378, 671 (National Population Commission, 1992).

The FCDA has focused on developing the urban areas based on the guidelines of the Master Plan that was designed primarily by International Planning Associates (IPA), based in the United States, in collaboration with other consultants (FCDA, 1979). Four residential districts (Garki, Wuse, Maitama, and Asokoro) with 33 neighborhoods and a central business district were planned in Phase I of the development. Presently the city is in the second phase of planning, and public housing units have been developed in 11 districts of the city.

The Master Plan proposed four categories of housing types: bungalows, townhouses, multifamily apartments, and detached/semi-detached houses. A fifth type, room units, is currently used to house junior staff, but was originally built as labor camps for construction workers. The bungalows have either one, two, or three bedrooms with a living room, kitchen, toilet and shower or full bath (see Figure 1). They are constructed

in row form (four to six units attached). The townhouses have two- or three-bedroom units on two floors with a living room, dining room, kitchen, and toilet (half bath) on the first floor. The bedrooms and a full bath are on the second floor. The multifamily housing are one-, two-, or three-bedroom apartments with a living room, dining room, kitchen, and full bath (see Figure 2). The units are built in apartment blocks of three- or four-story walk-ups. The single-family houses (detached/semi-detached) have two floors with the living room, dining room, kitchen, and half bath on the first floor (see Figure 3). The bedrooms, family lounge, and a full bath are on the second floor. The room units are one- or two-room units (four units attached) arranged in clusters or blocks (see Figure 4). Three blocks share a court yard, kitchen, toilets, and showers. The major building materials used in the construction of all these housing types are corrugated roofing sheets, cement block for walls and foundations, wood for doors and door/window frames, glass louvers for window panes, and reinforced concrete for slabs, beams, and columns.

The FCDA assigned the completed housing units to other federal agencies who in turn assigned their staff to the units based on their ranks in the civil service. Housing allowance programs were introduced by the federal government as subsidies to enable staff to obtain housing in the private market. The allowance, a certain percentage of the monthly salary, is added to the basic salary. Civil servants who were assigned housing do not pay rent or get a monthly housing allowance as long as they live in public housing. Those not assigned participate in housing allowance programs, which are housing subsidies to enable participants to seek housing in the private market.

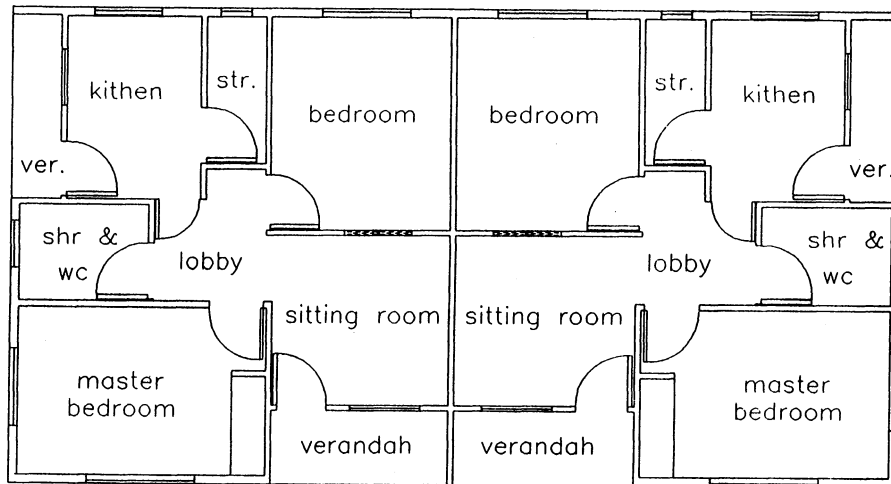


Figure 1. Two-bedroom bungalow (semi-detached) on the Karun District of Abuja, Nigeria.

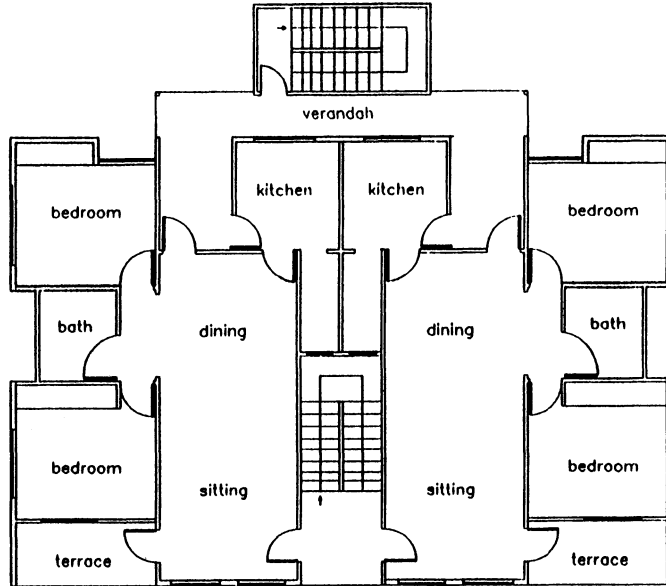


Figure 2. Multi-family walk-up apartments in the Karun District of Abuja, Nigeria.

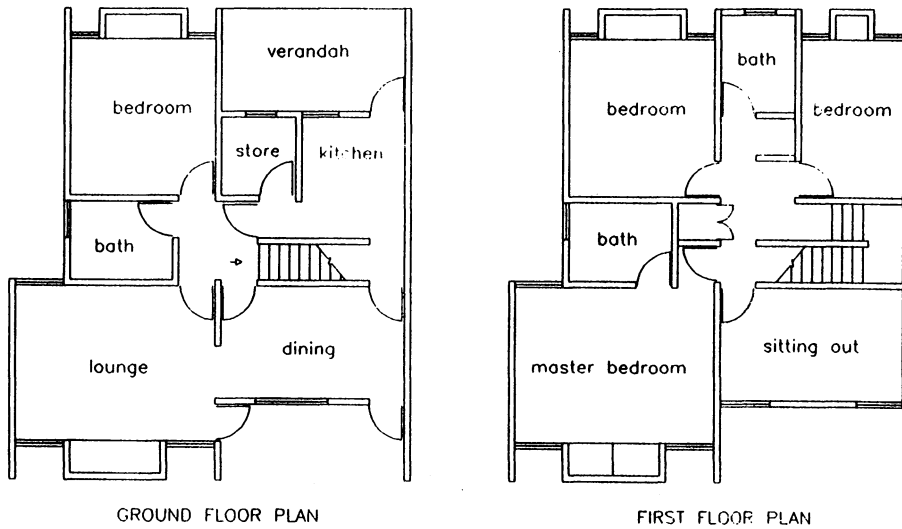


Figure 3. Single-family house (semi-detached) typically found in the Garki, Wuse, and Karun Districts of Abuja, Nigeria.

The city of Abuja is a unique setting in Nigeria since it is a new city and housing has been planned for civil servants who work for the government. Most of the residents are highly educated, middle- and upper-income families. A typical family in Nigeria usually has more than five in the household and has a median income of fifteen thousand Naira (N15,000 or \$672 US). Most of the housing that has been provided is multifamily housing and is distributed through an allocation process.

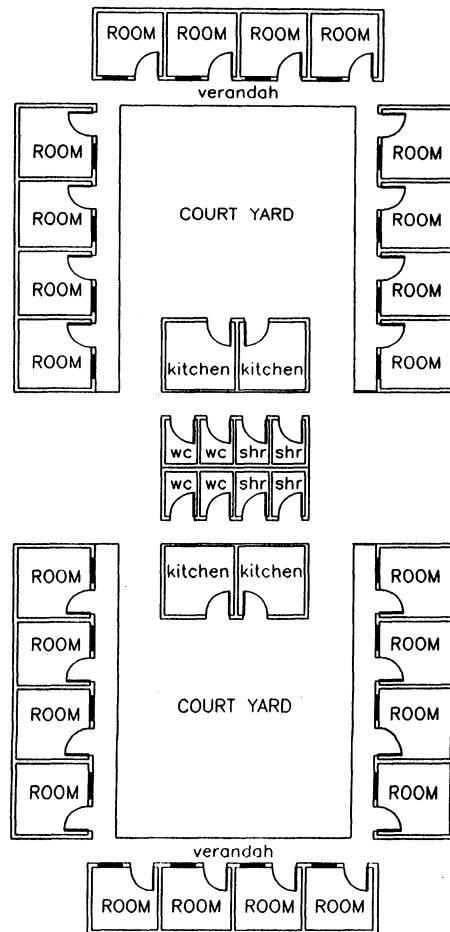


Figure 4. Room units were originally planned as temporary housing for construction labor in Nyanya District of Abuja, Nigeria.

### Conceptual Framework

Morris and Winter (1978) presented predictors of housing satisfaction in their Theory of Housing Adjustment. Satisfaction with housing occurs when the housing situation is consistent with the cultural, family, and community housing norms. When there is a deficit in the housing situation, the family will make some adjustment or adaptation to make the housing consistent with their norms. The Residential Satisfaction Model of this theory was used as the basis for the conceptual framework used in this study (see Figure 5), although concepts and terms more appropriate to the public housing situation in Nigeria have been used. The framework suggests relationships between the independent variables (public housing management, neighborhood facilities, housing conditions, building features, structure type, and demographic/socioeconomic characteristics) and the dependent variables (housing and neighborhood satisfaction). Housing satisfaction is directly affected by the demographic/socioeconomic characteristics and public housing management. Also, both public housing management and demographic/socioeconomic characteristics indirectly influence housing satisfaction through housing deficits such as structure type, housing conditions, building features, tenure, and neighborhood facilities.

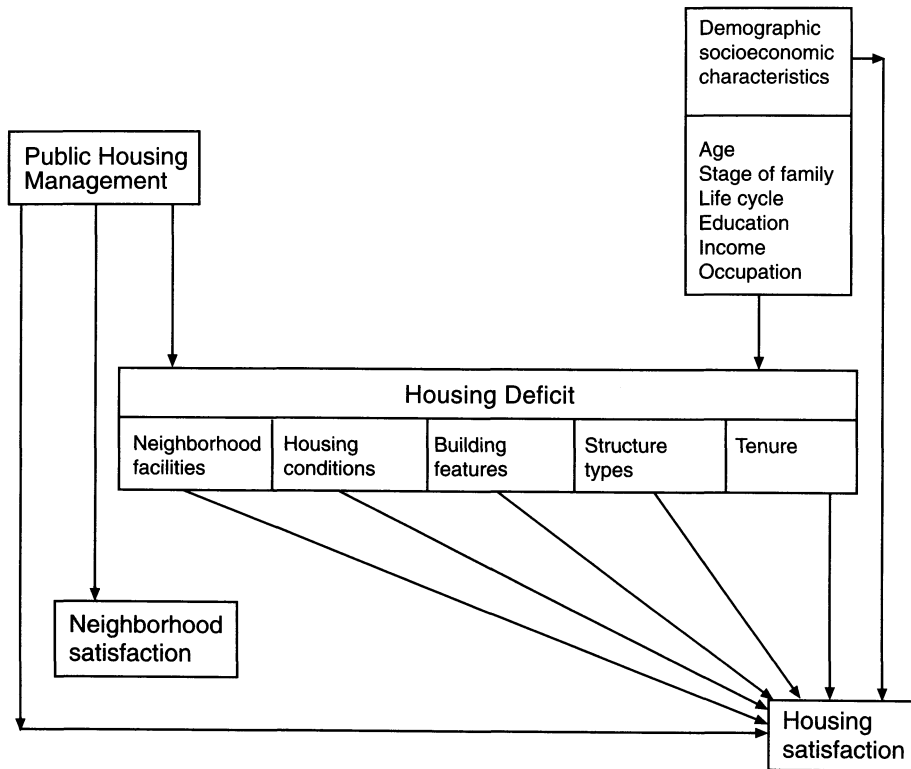


Figure 5. Proposed Conceptual Framework

and neighborhood facilities, which have direct effects on housing and neighborhood satisfaction. Neighborhood facilities affect neighborhood satisfaction directly, and housing satisfaction indirectly through neighborhood satisfaction.

The suggested relationships in the framework may be consistent among people in various regions of any country, including developing countries. The framework establishes the basis for examining the relationships between management, normative housing deficits (structure types, building features, housing conditions, tenure, and neighborhood facilities), demographic characteristics, and housing satisfaction. Tenure was not examined in this study since most of these public servants are renters. Each of the normative housing deficits used in the model is discussed in the following literature review in order to better explain the cultural context of Nigerian housing.

## **Review of Literature**

### ***Structure Types***

Structure type refers to the overall layout of the housing unit and whether or not it is attached or grouped with other housing units. The structure type of housing in urban Nigeria has been influenced by Western architectural styles. Structure type and facilities have direct relationships to the socioeconomic status of Nigerians (Onokerhoraye, 1977). For example, in most urban centers the residents of Government Reserve Areas (GRAs) are the elitists who occupy the single-family dwelling units with all necessary facilities. Also, some high-income families rent luxurious apartment units, while the middle-income households rent modest apartments, and the indigenous rooming houses provide shelter for people in the low socioeconomic classes. Single family housing residents in Nigeria have expressed more satisfaction than have apartment and rooming house residents (Awotona, 1990).

### ***Building Features***

Having adequate space for living includes having areas for social and work activities, as well as appropriate privacy areas. In Nigeria, the planning and designing processes of public housing do not appear to adequately recognize the importance of space among residents with varied socioeconomic status and within a diverse culture that includes polygamy, extended families, and large family sizes. Thus, the users of public housing tend to be dissatisfied with the shelters allocated to them by the government. Most of the residents of the core housing projects in Maidaguri, Bornu State, had housing with too few bedrooms, which contributed to their housing dissatisfaction (Ozo, 1990). Similarly, more than three-quarters of the Federal Low Cost housing estate at Owerri, Imo State, are one-bedroom bungalows, which are inadequate for the average large family size of the low-income inhabitants of the Owerri community (Nwachukwu, 1989).

Nigerian cultural norms allow sharing of space among family members/relations to some extent. However, residents of public housing in Nigeria may share their bedrooms with spouses and children/relations or friends not because they do not recognize

the importance of privacy, but because they have no alternative. Residential mobility occurs in response to space deficits in the United States. Unfortunately, in urban Nigeria residents with large families are compelled to live in crowded spaces in public housing, since the residential mobility rate is low among moderate- and low-income groups.

### ***Housing Conditions***

From a multicultural perspective, housing conditions can be seen as a combination of several variables, including standards based on people's cultures and norms (United Nations, 1969), space standards, regulations of construction and materials (Turner, 1972), and neighborhood and environmental conditions (Muoghalu, 1991). Housing conditions to some extent reflect the nature of standards, bylaws, codes, and regulations in existence on the local level. They may also express the prevailing socioeconomic circumstances of the society and its ability to utilize available resources to meet the housing needs of its members.

In Nigeria, researchers observed that the housing estates built in Enugu and Owerri, under the auspices of the Federal Housing Authority (FHA), were of poor construction and did not meet minimum neighborhood and environmental facilities guidelines (Nwachukwu, 1989; Muoghalu, 1991). Similarly, Muoghalu (1991) found that some of the FHA estates in Benin had leaking roofs and cracked walls, demonstrating poor construction services provided by contractors as well as apparent tacit approval by government representatives. Also, some housing units were without running water, and were obtaining their water from wells or were buying expensive and poor-quality water from itinerant water vendors.

### ***Neighborhood and Location***

Neighborhoods and the location of housing in the community have social and physical characteristics that affect users' satisfaction. Research has shown that residents of existing public housing estates in Nigeria have expressed dissatisfaction with their housing because it lacks basic features such as roads, schools, refuse disposal systems, transportation systems, places of employment, safety, management, and shopping centers in the neighborhoods (Awotona, 1988).

In Nigeria, the neighborhood and the location of the public housing have acted against any success of the housing or any satisfaction with housing programs. Public housing units in the Okigwe, Nsukka, and Lokoja areas were not occupied for some years after the completion of the projects. The units were overgrown with weeds and suffered from serious vandalism in which most of the window louvers, door panels and frames, and electrical wiring were looted. Similarly, the core housing projects in Maiduguri, which lacked access as a result of poor location, remained vacant until they were converted into military barracks (Ozo, 1990).

The Festival Town in Metropolitan Lagos was developed under the auspices of the Federal Housing Authority (FHA) as a result of federal government involvement in direct construction of public housing estates for low- and moderate-income families at

subsidized rates (Federal Republic of Nigeria, 1991). The Festival Town was designed as a typical European new town with basic amenities such as roads, green verges, playgrounds and open spaces that are regularly maintained, but the majority of the residents were found to be dissatisfied with the geographical location of the housing estate in relation to medical facilities, recreational centers, urban services and employment (Awotona, 1990).

The planning and designing stages of these public housing programs did not consider vital variables such as accessibility to the neighborhoods, proximity of local markets, drainage systems, schools, police protection, health centers, religious institutions, playgrounds, open spaces, and good roads, which have been found to be important variables in neighborhood development and to greatly influence users' satisfaction (Muoghalu, 1991; Ozo, 1990).

### ***Tenure and Management***

Tenure, a type of holding or possessing of housing, usually implies either ownership or rental. In some countries, home ownership has been prevalent and a major contributor to housing satisfaction. However, rental programs have been the dominant approach used by the private and public sectors in providing shelter for middle- and low-income families in Nigeria. Renting is the tenure norm in urban Nigeria (Ozo, 1990). Housing policies in Nigeria have failed to address the concept of alternative tenure or to establish financial institutions to facilitate home ownership for all income groups.

The level of housing satisfaction of residents who live in rented houses is generally low, especially among those in private rented housing where the majority of the population lives. These rented houses are characterized by overcrowding, inadequacy of space, and poor quality, unlike housing designed for single-family ownership where satisfaction is generally high and basic facilities are available. Moreover, residents in rental housing have been spending more than 30% of their income on their accommodation, while receiving services not commensurate to the rents (Federal Republic of Nigeria, 1975). The landlord-tenant relationship is always tense due to a lack of response to maintenance requests, fear of eviction with or without notice, and infringement on the privacy of the tenants.

Management is an important element that contributes to the level of housing satisfaction. Previous studies have indicated that good housing management could increase the relative satisfaction of tenants in public housing (Onibokun, 1974).

### ***Summary***

The literature revealed that satisfaction with housing is related to the availability of acceptable housing characteristics within the diverse culture among the ethnic groups in Nigeria. The few studies conducted in this field in Nigeria confirmed the importance of housing characteristics in influencing the level of housing satisfaction and indicated that there are problems related to structure type, building features, housing conditions, and neighborhood and location within many housing developments. More-

over, renting is the housing norm in urban Nigeria, and alternative tenure (home ownership), which could increase satisfaction, has not been aggressively explored. Therefore, housing management plays a vital role in the success of the housing programs.

## Methodology

### *Instrument*

A self-administered questionnaire was developed by the researcher based on the review of literature. The questionnaire was validated by housing researchers and pre-tested in January 1994 with residents in public housing in Abuja. Revisions were made based on suggestions from the pilot test. The instrument measured the residents' level of housing satisfaction with various housing characteristics and public housing management using a five-point Likert scale ("1" for "very dissatisfied" to "5" for "very satisfied"). The questionnaire had 68 closed-ended questions and one open-ended question that asked the residents to comment on their housing situation and environment. The questionnaire contained six sections: structure type, building features, housing conditions, neighborhood facilities, management, and demographic/socioeconomic characteristics.

### *Sample*

The sample of 1,089 households was selected from residents living in a total of 19,863 public housing units. To select the sample, the housing units were categorized into five different structure types located in the five selected districts. In each district, residences were randomly selected, with the sample size proportional to the number of that particular structure type in the district.

The data for the study were collected through self-administered questionnaires between November and December of 1994. Research assistants (FCDA estate inspectors) were trained to distribute and collect the questionnaire, which was completed by the household head. Where it was impossible to identify one person as the household head, or after unsuccessful attempts to contact the household, the researcher utilized a random procedure to select another household within the same block or from another block.

### *Data Analysis*

The Statistical Package for the Social Sciences (SPSS-X) was used to examine the hypotheses in the study. One-way analysis of variance was used to examine if satisfaction differed among residents in different structure types. Multiple regression analysis was employed to reveal the relative importance of the variables in explaining overall satisfaction with housing.

## Description of the Sample

The dependent variables in the study were the single-item measures of satisfaction with various housing characteristics (structure types, building features, housing condi-

tions, neighborhood facilities, and housing management) and overall housing satisfaction.

The independent variables in this study were the multiple measures of satisfaction with various housing characteristics, and the demographic/socioeconomic characteristics. The following independent variables were used: structure types, building features, housing conditions, neighborhood facilities, management, and demographic/socioeconomic characteristics. Correlations among the independent variables and the regression of each predictor which entered the equation were examined for the presence of multicollinearity and none was found.

### ***Characteristics of the Respondents***

Most of the respondents (72%) were male. Over half (54%) of the respondents were between the ages of 31 and 41 years. More than a quarter (28%) were under 30 years. This age group is unique to Abuja because as a new capital it offers job opportunities which attract young graduates. The educational level ranged from First Leaving Certificate (fifth grade in U. S.) to Post Graduate Degree. Most of the respondents were well-educated; over half (55%) had a Diploma/National Certificate of Education (Community College Degree in U. S.) or a University Degree. Almost all (99%) were civil servants working in various federal agencies in Abuja. About two-thirds (67%) of the civil servants were senior officers. Over half (53%) reported income ranging from N10,000 to N20,999, while more than a quarter (28%) reported annual income in the range of N21,000 to N50,999. Twenty-two Naira (N22) equals approximately \$1.00 (U.S.), the official exchange rate in 1995 (Europa Publications Limited, 1995). The reported income was the amount left after deducting the housing allowance, if present. The high proportion of civil servants in public housing in Abuja demonstrates that the Nigerian housing policy in this city is geared towards providing housing to government employees. The findings are consistent with previous research, which has found that high-income groups benefited more than low-income groups from the federal public housing programs (Awotina, 1984).

About three-fourths of the respondents (74%) lived in households of four or more persons, most often due to the prevalence of an extended family system in the culture. On the average, most (72%) were living with spouse, children, brother, and sisters. More than half (55%) were assigned a housing unit based on the availability of space, while over one-third (40%) were assigned housing based on their ranks in the civil service.

### ***Satisfaction with Housing Characteristics***

On the overall housing satisfaction, more than half (52%) of the residents were dissatisfied with their housing, while more than one-third (40%) indicated they were satisfied with their housing. More than half (55%) of the residents were dissatisfied with their housing structure types, and slightly less than two-fifths were satisfied. Residents of the room units were the most dissatisfied. About half (49%) expressed dissatisfaction with both building features and housing conditions, and less than half (44%)

were satisfied with these aspects of their housing. Space for children to play and study, number of bedrooms, and privacy were the features in which the residents indicated dissatisfaction. They also noted their dissatisfaction with the functioning of the plumbing fixtures, quality of doors, and quality of exterior and interior painting. A majority (61%) expressed dissatisfaction with the FCDA management, although about one-third (30%) were satisfied. The residents attributed the high level of dissatisfaction to poor management responses to necessary repairs, handling of complaints, and enforcement of rules and regulations of the development. The satisfaction rating for neighborhood facilities was different. Most of the residents (64%) were satisfied with their neighborhood facilities, while one-third indicated dissatisfaction. The residents noted that their neighbors, location of the house, the general cleanliness of the neighborhood, and closeness to schools, shops/markets, and hospital, contributed to the high level of satisfaction.

### **Findings and Discussion**

The following sections discuss the findings of the analysis that examined the composition of housing deficits and the relationship of these deficits to housing satisfaction.

#### ***Structure Type***

Residents' responses were categorized by structure types, as shown in Table 1. A one-way analysis of variance, applied to the mean satisfaction scores, yielded significant differences. An application of the Tukey's HSD post hoc test indicated that the mean for the room units differed significantly ( $p < .05$ ) from the means of the other structure types. They were the least satisfied. By contrast, residents of single-family housing were the most satisfied; they had a mean equal to 3.29.

The room units lacked the basic features of a dwelling such as separate living room and bedroom; that is a single room is being used as a multi-purpose space by the residents. Facilities such as kitchen, toilet, and bath are shared among the residents of the development. Clearly, the room units do not fulfill the expectations of these residents and are not a normative solution. Most residents occupy these room units with great reluctance and only because they have limited housing choices.

#### ***Building Features***

As shown in Table 2, seven variables entered the building features regression equation although 14 items were originally in this section. The relative importance of each variable in this association is indicated by the value of the beta weights. The highest beta weights were for privacy within the house ( $\beta = 0.27$ ), size of the living room ( $\beta = 0.25$ ), and number of bedrooms ( $\beta = 0.20$ ). The seven variables predicted 70% ( $R^2 = .70$ ) of the variance in the single-item indicator of satisfaction with building features.

The findings suggest that residents living in housing in which privacy is ensured were most likely to be satisfied with building features. Moreover, those variables that entered the equation reflect the amount of available living space (both size and number

**Table 1. Residents' Responses by Structure Types and Mean Satisfaction Level (n = 1,089)**

Variables		1	2	3	4	5	Mean	Std. Dev.
Single-family (n=34)	n	5	7	0	17	5	3.29 <sup>a</sup>	1.36
	%	14.7	20.6	0	50.0	14.7		
Townhouse (n=69)	n	5	25	7	24	8	3.07 <sup>a</sup>	1.22
	%	7.2	36.2	10.1	34.8	11.6		
Bungalow (n=396)	n	65	20	23	156	32	2.92 <sup>a</sup>	1.29
	%	16.41	30.4	5.8	39.4	8.1		
Multifamily (n=313)	n	48	100	20	130	15	2.89 <sup>a</sup>	1.24
	%	15.3	31.9	6.4	41.5	4.8		
Room units (n=271)	n	113	110	8	36	4	1.92 <sup>b</sup>	1.05
	%	41.7	40.6	3.0	13.3	1.5		

**Note:** 1= very dissatisfied, 2= dissatisfied, 3= neither, 4= satisfied, 5= very satisfied  
 Significance level  $p \leq 0.05$   
 Mean satisfaction scores with same superscripts are not significantly different from each other (Tukey's ).  
 Higher mean satisfaction scores are associated with satisfaction with structure types.

**Table 2. Regression Analysis of Selected Individual Building Features on the Single-item Measure of Satisfaction with Building Features**

Independent Variables	Seq. R <sup>2</sup>	b	Beta	t-value	p-value
Size of the living room	.48	0.24	0.25	9.19	$\leq .0001$
Privacy within the house	.62	0.25	0.27	12.81	$\leq .0001$
Number of bedrooms	.66	0.19	0.20	9.20	$\leq .0001$
Size of the kitchen	.69	0.15	0.16	6.35	$\leq .0001$
Size of the bedrooms	.69	0.11	0.11	4.23	$\leq .0001$
Location of the kitchen	.70	0.09	0.09	3.65	$\leq .0003$
$R^2 = .70$ Adj. $R^2 = .69$ $F = 377.48$ $df = 6/993$					

**Note:** Seq. R<sup>2</sup> — Sequential R<sup>2</sup>.  
 Selected individual building features were items common to most structure types

of rooms) with two exceptions — the location of the kitchen and sense of privacy. Obviously, the larger the dwelling, the greater sense of privacy one can expect. The descriptive findings of this study indicated that often households had four or more persons living in various housing units of one or two bedrooms. Thus, most residents expressed dissatisfaction because there was a space deficit.

### ***Housing Conditions***

As shown in Table 3, nine variables entered the housing conditions regression equation. The highest beta weights were for the quality of interior construction ( $\beta = 0.26$ ), the quality of the exterior painting ( $\beta = 0.18$ ), and the functioning of the plumbing fixtures ( $\beta = 0.13$ ). These nine variables predicted 61% ( $R^2 = .61$ ) of the variance in the single-item indicator of satisfaction with housing conditions.

The results indicate that residents living in public housing in which the interior spaces had better construction were most likely to be satisfied with the housing conditions. In addition, aesthetic qualities, durability, and the functionality of various services are determinants of satisfaction with housing condition.

### ***Neighborhood Facilities***

As presented in Table 4, 12 variables entered the neighborhood facilities regression equation. The results of the analysis revealed that the single-item measure of satisfaction with neighborhood facilities was largely predicted by the general cleanliness of the neighborhood ( $\beta = 0.16$ ), and closeness to work ( $\beta = 0.14$ ). These variables predicted 58% ( $R^2 = .58$ ) of the variance in the single-item indicator of satisfaction with neighborhood facilities.

The findings suggest that residents' satisfaction with neighborhood facilities was mainly determined by their feelings about their neighborhood as being clean and safe with pleasant neighbors, providing opportunities for shopping, and being accessible to work. In addition, public transportation and parking facilities were two other factors that determined satisfaction with neighborhood facilities. However, the residents' satisfaction with neighborhood facilities might be a result of living in neighborhoods where facilities and infrastructures (pipe-borne water and roads) were recently completed. The high level of satisfaction with neighborhood contrasts with findings from studies on other Nigerian cities, which reported inadequate social and physical infrastructures in new housing developments (Ogunshakin & Olayiwola, 1992).

### ***Management***

As shown in Table 5, the highest beta weights in the management regression were for the way the officials of the FCDA treat residents when they visit their houses ( $\beta = 0.26$ ), the amount of rent paid ( $\beta = 0.20$ ), and the rules and regulations of the development ( $\beta = 0.18$ ). The eight variables predicted 60% ( $R^2 = .60$ ) of the variance in the single-item indicator of satisfaction with management. The findings suggest that the FCDA's housing management policies and personnel attitudes toward residents are important factors in predicting satisfaction with management. The results reveal that

**Table 3. Regression Analysis of Individual Housing Conditions on the Single-item Measure of Satisfaction with Housing Conditions**

Independent Variables	Seq. R <sup>2</sup>	b	Beta	t-value	p-value
Quality of interior construction	.44	0.24	0.26	8.14	≤ .0001
Quality of exterior painting	.52	0.17	0.18	7.22	≤ .0001
Functioning of plumbing fixtures	.55	0.13	0.13	6.05	≤ .0001
Quality of doors	.58	0.10	0.11	4.36	≤ .0001
Quality of walls	.59	0.09	0.10	3.27	≤ .0011
Water pressure	.60	0.08	0.08	3.93	≤ .0001
Quality of exterior construction	.60	0.10	0.11	3.42	≤ .0007
Quality of the floor	.60	0.07	0.08	2.95	≤ .0032
Quality of the windows	.61	0.06	0.06	2.48	≤ .0133
R <sup>2</sup> = .61					
Adj. R <sup>2</sup> = .60					
F = 182.15					
df = 9/1063					

Note: Seq. R<sup>2</sup> — Sequential R<sup>2</sup>

**Table 4. Regression Analysis of Individual Neighborhood Facilities on Single-item Measure of Satisfaction with Neighborhood Facilities**

Independent Variables	Seq. R <sup>2</sup>	b	Beta	t-value	p-value
Closeness to work	.27	0.12	0.14	5.06	≤ .0001
General cleanliness of the neighborhood	.42	0.16	0.16	6.12	≤ .0001
Closeness to shop/markets	.47	0.12	0.13	4.74	≤ .0001
The landscape of the neighborhood	.49	0.12	0.13	5.69	≤ .0001
Police protection	.52	0.08	0.09	3.80	≤ .0002
Neighbors	.54	0.15	0.13	5.79	≤ .0001
Location of the house	.55	0.11	0.10	4.33	≤ .0001
Public transportation facilities and services in the neighborhood	.56	0.08	0.09	3.83	≤ .0001
Closeness to friends and relatives	.57	0.09	0.09	4.18	≤ .0001
Physical condition and appearance	.58	0.10	0.10	3.92	≤ .0001
Closeness of hospitals/clinics	.58	0.07	0.08	3.04	≤ .0024
Incidence of burglary activities	.58	0.06	0.07	2.80	≤ .0053
R <sup>2</sup> = .58					
Adj. R <sup>2</sup> = .58					
F = 120.64					
df = 12/1029					

Note: Seq. R<sup>2</sup> — Sequential R<sup>2</sup>

residents' satisfaction would increase if the services provided by the FCDA management were equivalent to the rent paid. The rents paid by residents are forfeited housing allowances, in effect a higher income. Housing allowances are calculated as certain percentages of residents' salaries. The junior staff receive approximately 56% of the monthly salary as housing allowance, while senior staff receive 50% (Dr. E. Etuk, personal communication, April 24, 1995). Allowances are regarded as rent subsidies to enable civil servants to afford housing in the private sector or to improve their housing conditions. Thus, those who are provided with public housing forfeit these monthly allowances. Based on the comments from the open-ended section of the questionnaire, residents in public housing felt that the housing allowances they forfeit are too much for the housing in which they live and for the services that are being offered to them through the management.

Moreover, according to other residents' comments, it appears that the FCDA management has failed to establish necessary policies and procedures to reinforce regulations and encourage orderly environments. Comments by respondents also pointed out the inefficiency of the management in allocating the public housing according to regulations of the federal government. The ineffective allocation process has resulted in senior officers occupying housing units meant for junior officers and vice versa. Thus, the FCDA housing management procedures have been instrumental in causing the high level of dissatisfaction noted in this study.

### ***Overall Housing Satisfaction***

The overall housing satisfaction was regressed on both the demographic/socioeconomic characteristics and the single-item measures of satisfaction. Table 6 shows the results of the block entry forward selection multiple regression to predict overall housing satisfaction. Three of the demographic/socioeconomic characteristics variables were entered in block 1 and explained only 7% ( $R^2 = .07$ ) of the variance in the overall housing satisfaction. This result indicates that demographic/socioeconomic characteristics had little effect in explaining overall housing satisfaction of the residents. All of the five single-item measures of satisfaction were entered in the second block and the  $R^2$  increased from .07 to .59. The multiple item measures had been found to be highly correlated with the single-item measures; therefore, the single-item measures were entered into one block in the analysis.

The highest beta weights for the demographic characteristics were for availability of space as the rationale for assigning residents to housing units ( $\beta = -0.21$ ), and age ( $\beta = 0.12$ ). Federal agencies are supposed to assign housing units to residents based on their rank in the civil service. Apparently, these rules were not rigidly followed. Thus, when housing was assigned based on availability of space, rather than economic status (rank), or family size, residents were more likely to be dissatisfied.

The results reveal that demographic/socioeconomic characteristics had minimal effect on satisfaction, but older respondents and those with higher levels of education tended to report somewhat higher levels of satisfaction in public housing. Nonethe-

**Table 5. Regression Analysis of Management Items on the Single-item Measure of Satisfaction with Management**

Independent Variables	Seq. R <sup>2</sup>	b	Beta	t-value	p-value
Enforcement of rules	.31	0.16	0.17	5.76	≤ .0001
Amount of rent paid	.43	0.17	0.20	5.20	≤ .0001
FCDA officials' treatment of residents	.52	0.22	0.26	10.87	≤ .0001
Handling of residents' complaints	.55	0.14	0.13	5.03	≤ .0001
Rules and regulations of the development	.57	0.17	0.18	6.25	≤ .0001
Garbage collection system	.59	0.11	0.13	5.80	≤ .0001
Management response to necessary repairs	.60	0.11	0.09	3.54	≤ .0004
Rent compared to comparable privately owned houses	.60	0.07	0.08	2.20	≤ .0277
$R^2 = .60$ Adj. $R^2 = .59$ $F = 174.82$ $df = 8/942$					

Note: Seq. R<sup>2</sup> — Sequential R<sup>2</sup>

**Table 6. Regression Analysis of Single-item Measures and Demographic/ Socioeconomic Characteristics on Overall Housing Satisfaction (Empirical Model)**

Independent Variables	Seq. R <sup>2</sup>	b	Beta	t-value	p-value
<b>Block 1</b>					
Availability of space	.04	-0.51	-0.21	-7.00	.0001
Age	.06	0.11	0.12	3.91	.0001
Education	.07	0.08	0.09	2.96	.0031
$R^2 = 0.07$ Adj. $R^2 = 0.06$ $F = 25.77$ $df = 3/1071$					
<b>Block 2</b>					
Overall satisfaction with building features	.36	0.22	0.23	8.66	.0001
Overall satisfaction with management	.51	0.31	0.30	13.75	.0001
Overall satisfaction with housing conditions	.56	0.22	0.23	9.80	.0001
Overall satisfaction with neighborhood facilities	.58	0.16	0.16	7.09	.0001
Overall satisfaction with structure types	.59	0.13	0.14	5.25	.0001
$R^2 = .59$ Adj. $R^2 = .59$ $F = 192.96$ $df = 8/1066$					

Note: Seq. R<sup>2</sup> — Sequential R<sup>2</sup>.

less, the level of overall housing satisfaction is most likely to decrease when the rationale for assigning the housing units is based on the availability of space.

With regard to the single-item measures, the variable that contributed most to the explanation of variation in overall housing satisfaction was management ( $\beta = 0.30$ ). In addition, overall satisfaction with building features as well as housing conditions was largely predictive of overall housing satisfaction.

### Empirical Model

Figure 6 presents the proposed empirical model based on the beta weights from the regression analyses of the overall housing satisfaction. The predicted relationships between satisfaction with specific housing deficits, with housing management, and with housing characteristics, and overall housing satisfaction are shown in the empirical model. The figure also illustrates the relationship between demographic/socioeconomic characteristics and overall housing satisfaction as well as the direct and indirect relationships.

Satisfaction with specific housing deficits has direct influence on satisfaction with various housing characteristics. The model further demonstrated that satisfaction with individual housing management procedures had an influence on overall satisfaction with housing management. Moreover, the satisfaction with various housing character-

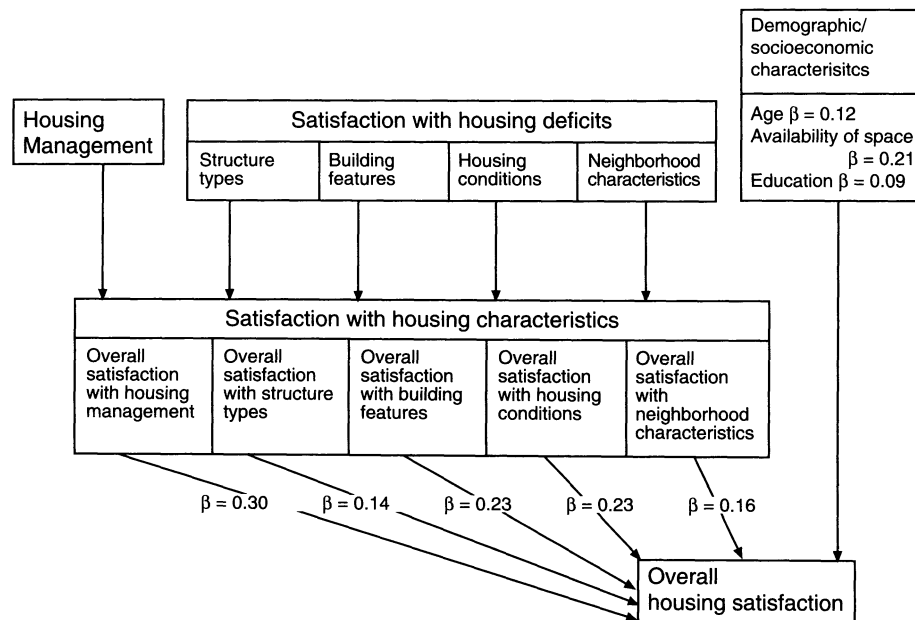


Figure 6. Proposed Empirical Model

istics (overall satisfaction with: structure types, building features, housing conditions, neighborhood facilities, and housing management procedures) is directly related to overall housing satisfaction. Demographic/socioeconomic characteristics (age, education, assignment of space) also had a direct influence on overall housing satisfaction.

### **Implications**

The results of this study establish the applicability of the Residential Satisfaction Model (Morris and Winter, 1978) in the context of a new city in Nigeria. The model, as adapted here, could be used for cross-cultural housing studies. The study confirms the direct influence of housing deficits such as structure types, building features, housing conditions, and neighborhood facilities on housing satisfaction and demonstrates that demographic/socioeconomic characteristics have minimal direct effect on housing satisfaction. The study has provided information on the direct association between management and housing satisfaction. Moreover, the information derived from this study has laid the foundation for examining the indirect effects of both demographics and management on housing satisfaction in the context of urban Nigeria. Specifically, the management should adhere to stated policy to assign housing based on rank. The assignment of housing units based on rank would ensure that public officials are assigned to housing appropriate to their status. However, within the appropriate housing variation in size of units would allow for consideration of family size. Currently, assignment of space is based on what is available and who the civil servant knows. Having more units of varied size should permit a better fit between rank, family size, and the housing unit. Implementing tenant management programs and ownership programs could provide more substantial solutions to management issues, and increase satisfaction with housing.

Housing conditions are a reflection of the quality of housing and environment in which various groups live. The residents living in the one/two room units lack space, fight over shared facilities, and have limited access to safe drinking water or proper drainage. Such living conditions pose a threat to human life. More bungalows, townhouses, and multifamily and single-family houses should be built so that these room units are no longer needed.

Most of the residents in the study were senior officers of the federal ministries. Thus, junior officers do not seem to be adequately represented in this housing, despite the government's stated commitment to provide housing for all by the year 2000 (Federal Republic of Nigeria, 1991). Currently, the available housing in Abuja is dominated by senior officers. Government policy should now aim at providing adequate and satisfactory housing for the junior officers in the civil service. The findings provided information that most households had four or more persons per housing unit. The housing policy which encouraged the construction of one-bedroom (bungalows and multifamily apartments) units in a cultural system where extended families are accepted, should be reviewed with the intention of formulating realistic housing policies based on the needs of residents.

The results of this study offer information which could be used in formulating design guidelines for planning and designing different structure types based on the established relationships between these structure types and housing satisfaction. In future housing developments, designers should provide an adequate number of bedrooms (3-4) for the typical large families; doing so might enhance space for privacy. Interior and exterior materials should be durable. Space for children to study and play, and storage for the occupants, must be provided. The neighborhoods of Abuja seem to be the most successful aspect of the residential environment and planners should resist attempts to convert open spaces and green belt areas to building lots. They should continue to enforce the regulations of the development and discourage illegal structures which destroy the fabric of the city.

By analyzing housing satisfaction, the factors associated with it, and the factors which regulate its degree, it is anticipated that the residents' norms for housing can be better understood. Thus, the identification and understanding of which attributes of the dwelling units contribute to housing satisfaction is important for policy-makers, designers, planners, and others responsible for housing delivery in Nigeria.

### References

- Awotina, A. (1984). Who gains from public housing in Nigeria's capital? *The Journal of Institute of Housing Manager*, 21, 3-8.
- Awotina, A. (1988). The perception of housing conditions in Nigeria by the urban poor. *Habitat International*, 12 (2), 75-96.
- Awotina, A. (1990). Nigerian government participation in housing: 1970-1980. *Habitat International*, 14 (1), 17-40.
- Europa Publications Limited. (1995). *Africa South of Sahara* (24th ed.) Rochester, England: Staples Printers Rochester Limited.
- Federal Capital Development Authority. (1979). *The Master Plan for Abuja the new federal capital of Nigeria*. Lagos: Author.
- Federal Capital Development Authority. (1994). *Report on federal capital house census*. Abuja: FCDA.
- Federal Republic of Nigeria. (1975). *Third national development plan, 1975-1980*. Lagos: Federal Ministry of Economic Development.
- Federal Republic of Nigeria. (1991). *National housing policy*. Lagos: Federal Ministry of Works and Housing.
- Morris, E. W., & Winter, M. (1978). *Housing, family and society*. New York: Wiley.
- Muoghalu, L. N. (1991). Measuring housing and environmental quality as indicators of quality of urban life: A case of traditional city of Benin, Nigeria. *Social Indicators Research*, 25, 63-98.
- National Population Commission. (March, 1992). *Provisional census report*. Lagos: Government Printing Office.
- Nwachukwu, A. N. (1989). Housing in Nigeria: The Case of Owerri, Imo State. *Habitat International*, 13 (1), 87-103.

- Ocholi, E. A. (1992). New housing estate for Abuja. *Rehnt, 1*, 12.
- Ogunshakin, L., & Olayiwola, L. (1992). The collapse of official housing policy in Nigeria. *Habitat International, 16* (1), 41-53.
- Onibokun, A. G. (1974). Evaluating consumers' satisfaction with housing: An application of systems approach. *Journal of American Institute of Planners, 40*, 189-200.
- Onokerhoraye, A. G. (1977). *The spatial pattern of residential districts in Benin, Nigeria*. Ibadan: National Institute for Social and Economic Research.
- Ozo, A. O. (1990). Low cost urban housing strategies in Nigeria. *Habitat International, 14* (1), 41-54.
- Turner, J. F. C. (1972). Housing issues and standards problems. *Ekistics, 33*, 152-158
- United Nations Center for Housing Building and Planning. (1969). Methods for establishing targets and standards for housing environmental development. *Ekistics, 27*, 3-14.