



Housing Quality and Housing Development in Rural Ghana

Emmanuel E. Fiadzo

The World Bank



Background



- ◆ Deteriorating physical characteristics and limited access to social services characterize much of the housing stock in Ghana
- ◆ Such characteristics may be accentuated in rural areas



Objectives



- Identify physical and access indicators of housing quality
- Develop a valid housing quality index, and
- Evaluate relationship of index score to select socioeconomic and demographic indicators in Ghana



The CWIQ Survey

- Data on standardized core welfare indicators
- Nationally representative sample of 14,514 households
 - 9,162 rural
 - 5,352 urban



Survey Sample Demographics

- ◆ Household heads
 - 55% work full-time in agriculture/forestry/fishing
 - 60% have attended school
 - average 8 years of formal education
 - fewer than half can read and write

Predominant Housing Types in Ghana

- ◆ Single family homes
- ◆ Flats/apartments
- ◆ Single room occupancy in compound housing
- ◆ Huts (earthen materials)
- ◆ Urban vs. rural frequency of types

Household Characteristics

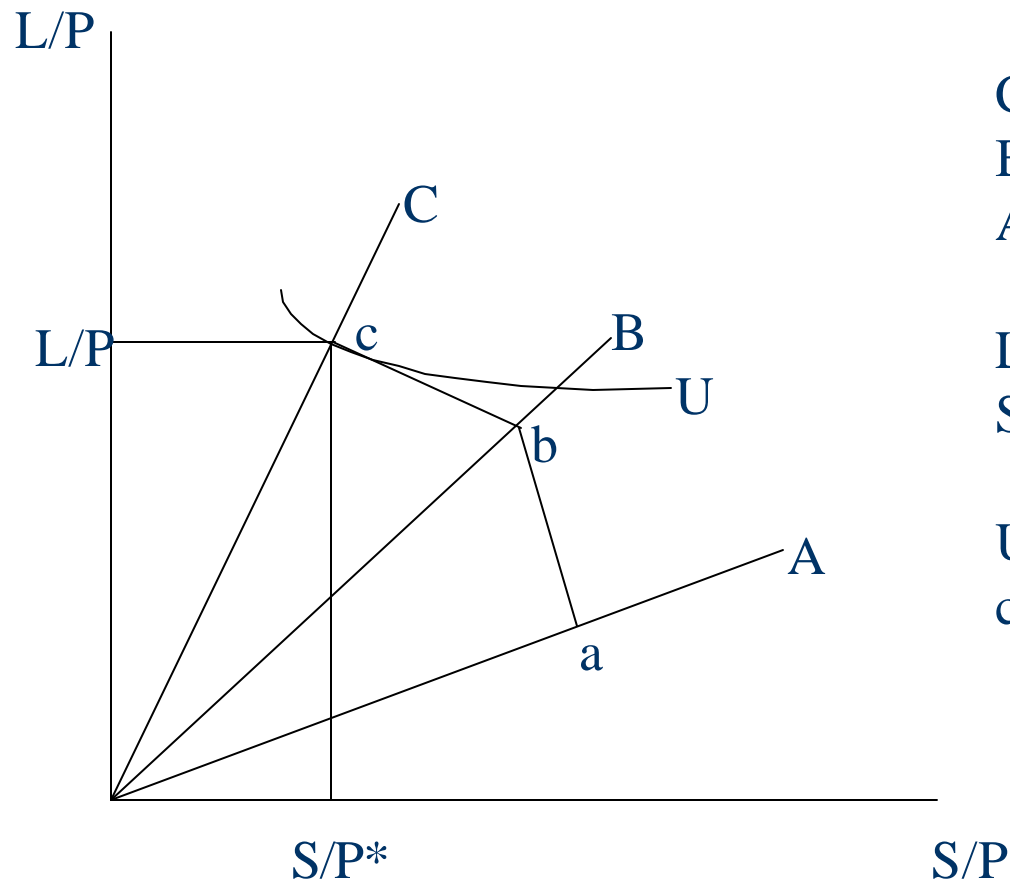
- ◆ 44.5% live in overcrowded housing
- ◆ Most do not have access to
 - Indoor plumbing facilities/water
 - Adequate sewage systems, or
- ◆ Over 25% drink water from river, lake, pond
- ◆ 15% drink from indoor piped source
- ◆ Most have walls of wood, mud brick
- ◆ Typical roofing material is sheet iron or mud



Constructed Housing Quality Index

- ◆ Set of 13 items evaluated for scaling into HQI for Ghanaian case
- ◆ Physical housing characteristics standardized using UN approach (Arias & DeVos 1996)
- ◆ Extended to include access to quality of life amenities, such as schools, health centers, public transportation

Lancasterian Product Characteristic Model



C = multi-family housing
B = single family housing
A = compound housing

L = location characteristics
S = structural characteristics

U = willingness to trade characteristics



Physical indicators of housing quality

Categorical variables

- Main source of drinking water
- Cooking fuel
- Lighting fuel
- Roofing material
- Wall material
- Sewage system
- Tenure



Access indicators of housing quality

Categorical variables

- Distance (time) to nearest
 - drinking water
 - food market
 - public transportation
 - primary school
 - secondary school
 - health clinic/hospital

Methodology for Testing Index

- ◆ Cronbach's alpha to assess internal consistency and reliability
 - Low inter-item correlation for 4 items of original index (roofing material, sewage system, tenure, distance to primary school)
- ◆ Led to re-specification of index into a 9-item scale (0.80 alpha and more parsimonious)



Testing (continued)

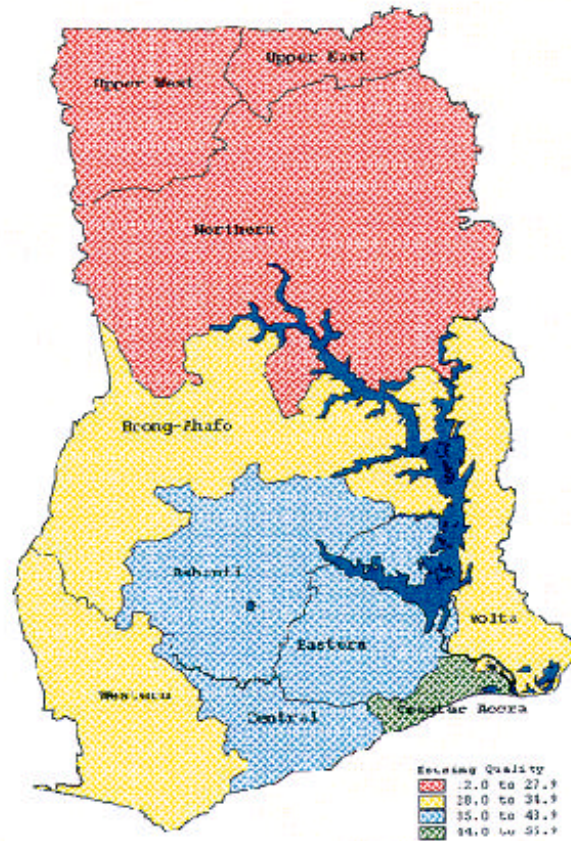


- ◆ Factor analysis on both 13- and 9-item indices to assess single construct
- ◆ 9-item index relatively unidimensional

Table 2 Chronbach's alpha and Factor Analysis

	9-Item Index			
	Inter-item Correlation	Alpha	Factor 1	Factor 2
Distance, Public Transport	0.649	0.767	0.730	0.341
Distance, Hospital	0.623	0.770	0.718	0.291
Distance, Secondary School	0.603	0.773	0.709	0.156
Lighting Fuel	0.575	0.789	0.736	0.336
Cooking Fuel	0.533	0.797	0.690	0.431
Distance, Nearest Market	0.527	0.787	0.591	0.604
Wall Materials	0.503	0.804	0.654	0.335
Main Water Source	0.496	0.789	0.647	0.276
Distance, Water Source	0.400	0.800	0.484	0.036
Cronbach Alpha/Eigenvalue		0.80	4.00	1.08

Regions of Ghana



Methodology

Factors affecting housing quality in Ghana

- HQI found normally distributed
- Relationship posited to socioeconomic and demographic variables
- Estimate influences on housing quality index by household
- Only 2 of 12 posited variables not significant at 0.05 level –
 - ~ Household size, full-time employment



Independent variables

Continuous variables

- Age
- Household size
- Number of rooms
- Highest grade completed by household head



Independent variables (continued)

Dummy variables

- Full-time employment
- Employment sector (Ag/Forest/Fish)
- Gender
- Marital Status
- Location (Rural/Urban)
- Tenure

Table 3. Regression on Housing Quality Index

Independent variable	Parameter estimate	Standardized estimates	Standard error	T-value
<i>Head of household</i>				
Sex	2.393	0.115	0.151	15.809***
Marital status	-0.829	-0.040	0.151	-5.484***
Employment status	-0.448	-0.010	0.281	-1.591
Work in agriculture	-3.583	-0.183	0.160	-22.403***
Occupation group	-0.387	-0.145	0.193	-2.004**
Income quintile	1.785	0.258	0.051	35.041***
Age	0.060	0.089	0.004	13.000***
Highest grade completed	0.059	0.050	0.009	6.295***
<i>Household</i>				
Tenure	-2.354	-0.118	0.145	16.200***
Location	9.139	0.445	0.149	61.144***
Size	0.032	0.009	0.027	1.177
Rooms in dwelling	-0.200	-0.033	0.044	4.561***
R ²	0.528	*** p<0.001		
F-value	1182.5***	** p<0.01		

Factors affecting HQI

- ◆ Rural/urban location difference in housing quality significant and substantial
 - * 9.14 points higher in urban than rural
- ◆ Employment of household head in ag/for/fish significant and negative
 - * 3.5 points lower score than formal sector

Factors affecting HQI (cont'd)

- ◆ Household heads employed in private informal sector (e.g., vendors, artisans) score marginally lower than those in formal sector
- ◆ Tenure significant and negative
 - * 2.35 points lower for households in owned homes
 - * Not typical of other countries

Factors affecting HQI (cont'd)

- ◆ Households headed by females significant and positive
 - * 2.3 points higher than male headed HH
- ◆ Marital status significant and negative
 - * 0.82 points lower for married HH
- ◆ Education impact significant but small
- ◆ Households headed by older people significant and positive association with index



Conclusions/Policy Implications

- ◆ 9-item HQI has ranking attributes that can be used to evaluate housing welfare of people in developing countries
- ◆ Suggests housing quality in Ghana necessitates significant improvement
- ◆ Rural/urban location, marital status and tenure primary determinants of which households occupy physically deficient housing in Ghana



Measures to stimulate housing improvements

- **Tax credits/other incentives for developers**
- **Encourage savings in traditional banks**
- **Incentives to produce building materials locally**
- **Create local NGOs specialized in housing**
- **Intensify efforts to create industries in rural areas and minimize migration to urban areas**