



42 HOUSE TYPES AND HOUSING USES IN KUMASI, GHANA

Irit Sinai

The use of homes not only for shelter, but also for income generation through informal-sector activities, is a widespread phenomenon in many cities in developing countries. A woman can cook in her kitchen and sell meals in the market or at street corners, and a family store or workshop can be located at home. Such activities are highly prevalent in cities where self-employment in the informal sector is high (Fass, 1987).

Using the home for income-generation activities is more widespread in some cities than others. A 1981 survey of Colombo, Sri Lanka, which excluded squatter settlements, showed that a quarter of all dwellings housed a home business (Strassman, 1987). Strassman also discusses surveys in Peru and Zambia, suggesting that home enterprises are more widespread in poorer, smaller cities. In his survey of four Bogota communities, Gilbert (1988) found stores everywhere in homes. A 1987 survey of a South Delhi settlement demonstrated that 20.3% of all housing was used for income generation. Over half of these were wholly or partially rented out, while the remaining households operated business, service, or manufacturing enterprises (Raj and Mitra, 1990).

Little is known about the characteristics of households that use their homes to generate income. Most of the scant literature on such activities focuses on the characteristics of the business rather than the household (see, for example, Tiple, 1993) and ignores economic activities that are not visibly a part of a business, such as cooking food to sell elsewhere and storage. Strassman (1987) studied the effect of gender and location on income of home-based enterprises, and concluded that the type of goods or services produced by a home business determines its income less than its other characteristics, such as location, floor space used in the business, customers, and education of the person who runs the business.

In a previous work I studied the socioeconomic and housing characteristics of households engaged in home-based economic activities in a traditional West African city Kumasi, Ghana (Sinai, 1998). I showed that households undertake such activities regardless of location, tenure arrangement, and income. Larger households with older but less educated heads use their housing for income generation more than other households. Migration history also distinguishes the two groups. The longer migrants are in the city, the more apt they are to use their home for income generation. Of the housing variables examined, only three seem to discriminate significantly between the two respondent groups. First, residents of self-sufficient houses (single-household houses or apartments) use their homes for income-generation less than compound dwellers. Second, households using the home for income-generation occupy more rooms, but their housing

Irit Sinai is a Research and Planning Analyst, at the Institute for Reproductive Health, Georgetown University Medical Center. She holds a Ph.D. in City and Regional Planning from the University of North Carolina at Chapel Hill, and her major research interests are housing, the informal economic sector, and migration within developing countries.

quality is not as good as that of other households.

Here I examine the characteristics of households that use their homes to generate income in different types of housing, using the same data.

The Data

The data were collected in a survey conducted in 1996 in the Kumasi Metropolitan District. Data collection involved detailed interviews of 596 household heads. The questionnaire asked about housing quality, location characteristics, the use of housing for income generation, and economic and demographic characteristics of household heads.

Data collection employed a two-stage sampling design. In the first stage, 31 city blocks were selected. Enumerators then systematically listed every household residing in the selected blocks. Out of 3,133 listed households, 617 were systematically selected. Of these, 596 were successfully interviewed. Recent migrants and households that had recently moved within Kumasi were oversampled. The data are, therefore, weighted in the forthcoming analysis, and all results in the text, tables, and figures of this paper refer to weighted data. Household heads only were interviewed.

Housing in Kumasi

Kumasi lies within a dense rain forest, about 260 kilometers from the capital, Accra, and the Atlantic coast. The metropolitan area of about 150 square kilometers is estimated to have a population of nearly a million, making it Ghana's second largest city (Korboe and Tipple, 1995).

About half of Kumasi's residents live in traditional compound houses. Typically, a compound house is a one-story series of single rooms surrounding a square courtyard. Entrance to most rooms is from the yard, which provides a center for daytime activities and interaction among compound residents and offers security (Korboe, 1992). Most compound rooms have a small veranda on the courtyard side, and some have an additional entrance via a veranda that opens directly to the street (Tipple et al., 1997). A typical compound house covers about 100m². Three sides of the compound consist of 10–16 rooms. The fourth side often includes a bathroom (usually a cubicle with a small drainage hole at the base of the wall), kitchen (a shelter open on the courtyard side, used for storing cooking utensils), and sometimes a bucket latrine (Willis and Tipple, 1991).¹ All households residing in the compound share these cooking and bathing facilities.

A variation of the single-story compound house is the multi-story compound, with two or more floors. The upper floors are reached via a staircase in the courtyard. Each floor has a veranda facing the yard and rooms on the upper floors are accessed from it. Kitchen, bathroom, and bucket latrine are usually found at each level, shared by all households residing

on the floor. A good example is the largest house in my sample. This is a three-story compound house, consisting of 56 rooms, three of which are used as shops. The remaining 53 rooms are occupied by 45 households over 200 people (assuming average household's size of 4.8 persons) in a 100m² plot. This building is by no means the largest in the city while most multi-story compound houses have two or three floors, some have four, five, and even six floors. About a quarter of Kumasi's population live in multi-story compound houses (Korboe, 1992).

The remaining quarter of the population occupy three types of housing: villa-type house; a small sector of government-built houses; and employer-provided housing. Villas, like compound houses, are large. However, a typical villa house does not have a courtyard, and resembles large single-family houses in the U.S. Government-built housing comprised about 7% of the city's rooms in the early 1980s.² Some estate houses are rows of single rooms, while others are small detached or semidetached bungalows, plus some substantial villas (Tipple and Willis, 1992). Most of these units were initially for rent, and tenants were given an option to purchase them (Tipple and Owusu, 1994).

Finally, large employers often provide housing for their workers at nominal rents. The houses range from rows of 4–5 rooms sharing kitchen, bathroom and toilet facilities, through single family houses for senior staff. An example is the University of Science and Technology. When I was there, the university had a staff of about 2,500. About a quarter of them were living on campus.³ Faculty live in 2–4 bedroom single-family homes, smaller than the typical villa in the city. Senior staff usually live in self-sufficient apartments. Junior staff reside in various types of miniature compound houses. Their living conditions are better than those of compound dwellers because they have cold showers and flush toilet, and because they share these and the outdoor cooking areas with fewer households. While only one block in the sample is employer-provided housing, a number of houses in the sample are owned by employers in other types of blocks.

All of these housing types are represented in the sample used for this study. In the analysis, houses in Kumasi are categorized into single-story compound, multi-story compound, and self-sufficient houses. Self-sufficient houses are defined as one-household residences, not sharing cooking and bathing facilities with other households.⁴ Villas, by definition, are self-sufficient. Some government estate and employer-provided houses are self-sufficient, and some are not (considered here single-story compounds).⁵

Although Kumasi is a large city, it is a collection of villages. Except for the very center of city, which is densely built, small tracts of undeveloped land within the city boundaries are still used for subsistence or market agriculture. Most villages have a core area of traditional compound houses (larger villages also have multi-story compounds). Urban sprawl surrounds them in the form of villa houses. A typical example is the village of Ayeduase, adjacent to the University of Science and Technology, about eight kilometers from the roundabout

which is considered to be the center of the city. According to the 1984 census, the village had a population of 1,834. I expect that today the population is much larger, because of a higher density in the existing compounds and because of all the new development around them. The village consists of seven city blocks of compound houses, two of them very old, built of laterite (processed mud), and the rest newer, built of cement. There is one two-story compound in the village, the rest are single-story. Around this traditional core is a large area of 12 city blocks of villa type houses that keeps expanding towards neighboring villages. Maps drawn in 1992 by the Land Valuation Board of the Kumasi Metropolitan District show 110 residential properties in the traditional compound blocks, and 8 more under construction. In the new blocks of the village, the maps show 67 residential houses, and 107 more under construction.

Housing Uses in Kumasi

Out of 596 households in the survey 144 (24.2%) use their home for income generation. Virtually every compound house in Kumasi is used for income generation by one or more resident household, but often households residing in other types of housing also undertake such activities. This makes Kumasi an ideal location for the study of households that use their homes for income generation. Almost all economic

sectors are represented, with the exception of heavy industry. Table 1 shows the type of economic activities undertaken at home.

Renting rooms to others is different from other economic activities taking place in the home since it is passive it does not require work. Many landlords have a job, and renting rooms to others is not the only income source for the household. Households that rent rooms to others have another common characteristic they are home owners. Of the 105 respondents (17.5%) who own their homes, 40 households rent rooms to others. To prevent bias in the results, renting rooms to others is excluded from my analysis.

The variables

Three groups of variables are used to compare households that use their home for income generation and those that do not, in the three housing types: socio-demographic characteristics, economic characteristics, and housing and location characteristics. Note that socio-demographic characteristics, other than household size, refer to the household head. The-mean-of-goods-owned index is used as a proxy to measure household wealth. Income information in Ghana is notoriously unreliable. Several surveys found that income questions produced figures that only averaged

Table 1: The economic uses of housing in Kumasi

Economic use of housing	n
Prepare food to sell in the house, to shops, in the market, or in the street	56 9.4%
Manufacture something other than food, to sell to shops, in the market, in the streets, or on order (for example, furniture, cement blocks, soap, clothing, shoes, and artifacts)	20 3.3%
Operate a shop in the house or yard	21 3.5%
Repair in the house or yard (e.g., radios, sewing machines, watches)	5 0.8%
Provide services from the home for pay (e.g., hairdressing, shoe shining, day care services)	10 1.7%
Raise livestock or grow fruit trees in the yard to sell produce	4 0.7%
Store things for later sale in the market or street (petty traders sell their wares by carrying it on their heads for people to see; since the quantity they can carry is limited, they store surplus merchandise in the house). ^(a)	39 6.5%
Rent rooms to others for pay	40 6.6%
Total ^(b)	144
24.2% of all households in Kumasi	100.0%

^(a) There are probably more than 39 petty traders in the sample, but many cannot afford to have surplus merchandise. They buy in the morning what they sell during the day, so they have no need for storage space in the house.

^(b) Many respondents specified more than one activity, so the numbers sum to 195.

about 40% of reported expenditures. These studies consider expenditure information more realistic than income information (Tippel et al., 1997). Possession of consumer goods is often used as a relative measure of household wealth and is considered reliable. The index used here is based on ownership of a fan, sewing machine, radio/cassette player, television set, refrigerator, and a car. These goods represent a wide range of costs, and it is perceived that most Kumasi households would wish to own the full set if they could afford to. The index was calculated based on estimated costs of these goods and the relative frequency of ownership of each good by sample households. Tippel et al. (1997) introduced the mode of calculation in their study of wealth and home ownership in Kumasi and Berekum (another city in Ghana). The index ranges 0 to 1, with a mean of 0.13 and a median of 0.03 (showing how poor the majority of respondents are⁶).

The housing quality index is a modification of indices used in other housing studies (Johnson and Nelson, 1984; Lacey and Sinai, 1996; Muoghalu, 1991). Housing quality indicators included in the index are the materials of the roof, walls, floors, and windows; the availability of water and electricity; the types of toilet and cooking area used; accessibility to a veranda; and the number of households sharing bathing and cooking facilities with the responding households. The scores of all indicators were normalized and summed. The final housing quality index is a continuous variable ranging from 39 to 95, with a mean of 68.5 and a median of 69.

The dominant form of residence arrangement in Kumasi is renting. More than 60% of households in the sample rent their rooms, mostly from private landlords (18 respondents rent their dwelling from a government agency or from their employers). Another common form of residence in Kumasi is rent-free family housing, an arrangement resulting from the traditions of the Asante people, the ethnic majority in Kumasi. Asantes have obligations to members of their maternal lineage. Social convention does not allow a house owner to resist requests from lineage members for a room in the house they have a right to a room (Willis and Tippel, 1991). As a result, it is very common for people to occupy rooms rent free in houses owned by a lineage member. About 21% of households in the sample enjoy this arrangement. In the analysis, owners and those living rent free in family-owned housing are contrasted with renters (the base category).

As a result of the sprawling nature of development in Kumasi, neighborhoods cannot be easily classified by income. All income groups are represented in most areas of the city. This means that indicators often used to classify quality of life in communities are not useful. For example, a 200-year-old laterite compound house can be on one side of the road and a huge villa housing a single family on the other. The former has no latrine and one water tap in the yard, shared by numerous households; the latter has running water and a modern kitchen. Both share the same access road, both can smell the same public toilet (although only the residents of the compound use it), and both are located at the same distance from schools, health facilities, and markets. Two indicators are available in the data that can be used to characterize

neighborhoods: the area of the city (core of periphery) and accessibility. The core area of Kumasi is surrounded by a circular road. Of the 31 blocks selected for this study, eight (25.8%) lie within the circle and 23 in the periphery. Since core area blocks are densely populated, the eight blocks account for 48.1% of respondents⁷. Neighborhoods can be divided into those lying within the core area and those in the periphery. To measure accessibility, respondents were asked about walking time to the nearest public transportation route⁸, and how long it took them to reach the markets used most often and the work location of the household member who earns the most income.

Who Lives Where

Standards of living in compound houses and self-sufficient villas or apartments are quite different. Households residing in compounds usually occupy just one or two rooms, have no running water in their dwelling, and share cooking and bathing facilities with many other households. In contrast, households living in villas occupy the whole house, and enjoy running water, modern kitchen and bath. This implies that villa dwellers have higher incomes than compound residents, which is confirmed in my data. Table 2 shows the characteristics of residents of the three housing types: single-story compound, multi-story compound, and self-sufficient housing.

Clearly the characteristics of single- and multi-story compound dwellers are quite similar, contrasting with residents of self-sufficient houses⁹. Households residing in self-sufficient houses are larger (mean household size 6.08, compared to 4.81 and 4.91 of single- and multi-story compound residents respectively); their heads are much better educated than compound dwellers only 6.4% of household heads residing in self-sufficient housing have no formal education, and 62.9% completed at least partial high school education; they are wealthier (triple the goods owned index value of compound dwellers); a smaller proportion of them use their home for income generation; their housing quality exceeds that of compound dwellers (note that housing quality is better in multi- than single-story compounds); they occupy more rooms; almost half of them own their dwelling; and only 7.3% reside rent-free in family owned housing. Self-sufficient houses are less accessible to work and markets than compound houses of both types, but single-family compound houses are less accessible to public transportation

Multi-story compound dwellers share their yard and cooking areas with many more households than single-story compound residents which may affect their use of their homes for income generation. The data confirm that residents of single-story compounds use the yard and veranda for income generation more than rooms in the house; residents of multi-story compounds use their rooms more. Therefore multi-story compound dwellers clearly use the yard and verandas less than single-story compound residents. Therefore dwellers of single- and multi-story compounds are examined separately in the following analysis.

Single-Story Compound Dwellers

Discriminant analysis is used to compare the characteristics of households residing in single-story compounds, in which at least one member use the home for income generation, to other single-story compound residents. *Discriminant analysis* is a multivariate statistical technique that can be used to study the differences between two or more groups of respondents. The results show that single-story compound dwellers undertake income-generation activities in their home, regardless of their income (goods owned index) and tenure arrangement, and that their housing quality is not affected. The characteristics that most discriminate between single-story compound households that use their homes for income generation and those that do not is household size. Households that use their home for income generation are larger (mean 6.08 persons) than other households (mean 4.41 persons). This is not surprising. Larger households consist of more members who can work from the home (even older children can work after school) and can contribute to the higher income needed to sustain more people.

Number of occupied rooms also distinguishes strongly between the groups. Households that use their homes for income generation occupy more rooms (mean 1.84) than households that do not (1.42). This also makes sense, since

the use of housing for income generation requires space.

Age and education of household head have smaller discriminating power, but they are still important. Heads of households that use their homes for income generation are older (mean 48.4) than other household heads (mean 44.7). Intuitively it seems that older household heads have larger households, so it is household size that explains the effect of age. However, the correlation between age of household head and household size is only 0.272, and the effect of household size is controlled for in the multivariate analysis. Household heads who use their housing for income generation are less educated than the heads of other households. While 31.9% of household heads who use the home for income generation have no formal education, only 24.9% of other household heads have none. Similarly, only 5.3% of household heads who use the home for income generation have an education of O-level or higher, compared to 16.4% of household heads that do not use their homes for income generation. It is well established in the literature that informal-sector workers are less educated than formal-sector ones (Sethuraman, 1981). But education here is of the household head, who is not always the one using the home for income generation through informal-sector activities.

Other factors that discriminate somewhat between single-story

Table 2 Characteristics of residents of different housing types

Characteristic and significance level ^(a)	Single-story compound house n=402	Multi-story compound house n=140	Self-sufficient house n=54
Socio-demographic characteristics			
% male household head*	68.7%	57.7%	66.5%
Mean age of household head	45.54	45.58	45.95
Mean household size**	4.81	4.91	6.08
% household head with no education***	26.6%	16.2%	6.4%
% household head with O-level diploma or higher ^(b)	13.8%	23.3%	62.9%
% migrant household head***	66.3%	52.1%	78.2%
Mean length of stay of migrant household head in city (years)	21.93	25.46	20.33
Economic characteristics			
Mean of goods owned index***	0.10	0.12	0.37
% use home for income generation	23.6%	25.2%	12.9%
Housing characteristics			
Mean of housing quality index***	64.41	72.91	87.55
Mean number of occupied rooms***	1.52	1.38	3.77
% own their dwelling***	16.8%	5.6%	54.5%
% reside in rent-free family housing**	22.1%	25.0%	7.3%
Location characteristics			
% live in core area of the city***	44.9%	100.0%	37.5%
% travel time to work 15 minutes or less***	39.9%	43.9%	25.1%
% travel time to market 15 minutes or less**	65.7%	72.8%	51.2%
% walking time to public transportation 5 minutes or less***	54.0%	75.5%	71.4%

^(a) For means, this is the significance level of F-test comparing the means. For percentages, this is the significance level of χ^2 of cross-tabulation. ***, **, and * denote significance levels of 10%, 5%, and 1% respectively.

^(b) In Ghana, the O-level diploma is given part way through high school.

compound residents that use their homes for income generation and those that do not are migration, gender, and location. Migration itself does not discriminate between households that use their homes for income generation and those that do not, but length of stay of migrants in the city does. The longer migrants are in the city, the more they tend to use their homes for income generation through informal-sector activities. In the multivariate analysis, the value of this variable for nonmigrant respondents is age. Examining migrants only, we can see that this relationship is held when controlling for age. For single-story compound migrant household heads younger than 30, the mean length of stay in the city is 12.77 for those using their home for income generation, compared to 10.31 for those who do not. Similarly, for ages 30 and up, the mean length of stay in the city is 26.5 for migrant household heads who use their home for income generation, but only 24.9 for those who do not. These findings indicate that for single-story compound residents in Kumasi, informal-sector jobs are not a transition stage on the way to finding formal-sector positions. Another factor influencing these results is Ghana's improved education system in recent years. As in most developing countries (Zachariah and Condé, 1981), migrants in Ghana are often young adults, who are better educated than young adults 10 and 20 years ago. This means that recent migrants are, on average, more educated than migrants who have been in the city longer, and better education means easier access to formal-sector occupations.

Not surprisingly, female-headed households use their homes for income generation more. Moser (1987) showed that in developing countries women have a triple role in society: child care, community participation, and income-earning work. Using the home for income-earning activities allows them to accomplish the three roles as is clear in these data. Among single-story compound dwellers, 37.3% of households that use their homes for income generation are female-headed, compared to 29.4% of households that do not.

Finally, location of the house (city core or periphery) discriminates between the groups, but accessibility to markets and public transportation does not.

Multi-story compound

Discriminant analysis is used to compare the characteristics of households residing in multi-story compounds, in which at least one member uses the home for income generation, to other multi-story compound residents.¹⁰

The effects of household size, education, gender, and length of stay of migrants in the city are similar to those observed for single-story compound residents. Larger households, female-headed households, households with less educated heads, and households that have been in the city longer, use their homes for income generation more¹¹.

There are, however, some differences between the variables that discriminate between households using their housing for

income generation and those that do not among single- and multi-story compound houses. First, number of occupied rooms, a strong discriminator in single-story compound houses, does not discriminate between households that use their homes for income generation and those that do not in multi-story compound houses. Second, accessibility to market and public transportation, not a discriminator in the analysis of single-story compound dwellers, does discriminate between households that use their homes for income generation and those that do not among multi-story compound residents. Households using their homes to generate income live in less accessible locations.

To understand these findings we need to remember that while 140 respondents live in multi-story compound houses (23.5%), they reside in just two city blocks (out of 31 in the sample). Both blocks are in the city's core, but one is more central than the other. The first block is part of the community of New Asafo (76 respondents, 54.2% of multi-story compound dwellers). New Asafo market is within the community, on the main road about three blocks away from the sample block. The block is also within about 15 minutes walk to Central Market, one of the largest markets in West Africa, and to Kejetia, Kumasi's main transportation depot. All major public transportation routes in the city merge in this depot. The second block is in the community of Bantama (64 respondents, 45.8% of multi-story compound dwellers). It is within the city's core area and densely populated, but it is about a 10–15 minute car ride to Central Market and Kejetia. A household in Bantama wishing to go to almost anywhere in the city needs to take one taxi ride to Kejetia, and another to its destination. Households residing in New Asafo can walk to Kejetia, and save transportation expenses. As a result, rooms in New Asafo are hard to come by, explaining why there is no difference in the mean number of rooms occupied by households using their homes for income generation and those that do not in that community. In Bantama, the mean number of occupied rooms is somewhat larger for households that use the home for income generation (1.44) than for other households (1.25). In New Asafo, on the other hand, both groups of households occupy, on average, the same number of rooms. This shows that although number of occupied rooms does not discriminate between the groups in multi-story compound houses, households that use their homes for income generation occupy more rooms, when they can, in this house type, too. Unfortunately, none of the single-story compound blocks in the sample is as central as New Asafo, so direct comparison is impossible.

Multi-story compound households that use their homes for income generation live further away from the markets they use and from public transportation, but there are some differences between residents of the two blocks. The block in Bantama is on a major transport route, parallel to it. Respondents residing on the road side of the block need only to go out the door to get public transportation. Those living on the far side need to walk around the block. This is reflected in the data, where most respondents (87.8%) walk five minutes or less to the nearest public transport route, regardless of whether they use their homes for income generation or not.

The block in New Asafo, however, is perpendicular to the nearest major road, about two blocks away from it, so more respondents need to walk longer to reach public transportation (only 62.6% walk 5 minutes or less). Clearly, households in the block that use their homes for income generation walk longer to public transport than other households.

The data also reflect that New Asafo is more accessible to markets than Bantama. There is a small market within the community, and Central Market is a short walk from there. In both communities, however, households using their homes for income generation use markets that are further away from their home than other households.

Thus, households residing in multi-story compound houses that use their homes for income generation live, in both blocks, in the part of the block that is further from markets and public transport. A possible explanation is that this gives them a larger scope for their businesses. For example, a woman who makes her living by going to the market each morning, buying some vegetables, and selling them to her neighbors from her room, will have a more thriving business if she lives further from the market. And because she lives in a multi-story compound, she has more neighbors to sell to. This may explain why accessibility discriminates between households using their homes for income generation in blocks of multi-story compounds but not in blocks of single-story compounds. The larger number of households per house makes for a larger potential clientele in less accessible houses.

In both single- and multi-story compounds, households that use their homes for income generation enjoy lesser housing quality than other households. The difference is more pronounced in multi-story houses, where housing quality is a strong discriminator between the groups. In single-story compounds housing quality does not discriminate between the groups, but the effect is in the same direction: households that use their housing for income generation have inferior housing quality compared to other households. It is tempting to think that housing quality is lower because the house is used for income generation. However, recall that housing quality is measured as an index of the quality of the physical characteristics of the dwelling, such as materials that different components are built off. These cannot be directly affected by the fact that the house is used for income generation.

Self-Sufficient Houses

Only 54 (9.1%) of sample households resided in self-sufficient houses. Of these, only eight households used their homes for income generation. These numbers are not sufficient for statistical analysis. However, by observing the characteristics of these eight households, compared to other households residing in self-sufficient housing, we can make some observations as to the differences between households that use their homes for income generation and those that do not in self-sufficient housing. Table 3 shows how the eight households use their homes for income generation. Table 4

shows the characteristics of the eight households residing in self-sufficient dwellings that use their housing for income generation. For comparison, the right cell of Table 4 shows information on households residing in self-sufficient housing that do not use their housing for income generation.

Clearly, the eight households that use their home for income generation vary a lot. Still, some common threads can be seen. First, household heads who use their housing for income generation are younger. All but one are below the average age for household heads in self-sufficient housing. This is in contrast to the older age of household heads who use their housing for income generation in single-story compound houses. While in compound houses female-headed households use their homes for income generation more than male-headed ones, in self-sufficient housing seven of the eight

Table 3 Households residing in self-sufficient dwellings

Household A
Household head is a minister. He preaches at home, and also farms at home. His wife cooks kenkey ^(a) in the yard.
Household B
Household head is a trader. He takes public transport to work (30-59 minutes travel). His wife cooks fufu ^(b) in the house and sells it in front.
Household C
Household head is a herbalist. He repares and sells medicines at home, using a room exclusively for work.
Household D
Household head is a teacher. He drives a car to work. In addition, he cuts timber and sells it. His daughter cooks kenkey in the house.
Household E
Household head is a government official. He takes public transport to work (30-59 minutes travel). His wife raises livestock in the yard.
Household F
Household head is a self-employed mason. His wife operates a small shop in front of the house.
Household G
Household head used to be a primary school teacher. He is now a student. He owns a taxi and works part time driving it. His brother drives the taxi most of the time. A relative is a seamstress sewing in the house.
Household H
Household head sells fish in the street and stores them in the house. An adult son tailors in the house.

^(a) Kenkey is a local dish made of ground corn.

^(b) Fufu is a local dish made of cassava and plantain.

households that use their homes for income generation are headed by men. Also in contrast to compound dwellers, in self-sufficient housing household heads who use their homes for income generation are better educated than other households.

Another common characteristic of households residing in self-sufficient housing that use their homes for income generation is that they are larger than those that do not use their homes for income generation. Thus, household size may differentiate between households that use their homes for income generation and those that do not in all three house types.

As for housing characteristics, the mean number of rooms occupied by the eight households that use their homes for income generation is 4.7, compared to only 3.6 for households not using their homes for income generation. At the same time, housing quality of households that use their homes for income generation is lower, on average (mean 80.6), than housing quality of households that do not do so (mean 88.6), among residents of self-sufficient housing (only household A has a housing quality index value that is higher than the average for households not using their home for income generation among residents of self-sufficient housing). Thus, more occupied rooms and inferior housing quality may also be common characteristics of households that use their homes to generate income, compared to those that do not, in all three housing types (although housing quality is only marginally inferior in single-story compound houses). This is particularly interesting when we recall that average housing quality and number of occupied rooms differ for residents of the three housing types (see Table 2).

Conclusion

The use of housing for income generation is common in Kumasi. Households undertake such activities in all parts of the city, regardless of income and tenure arrangement. Gender, education of household heads, and length of stay of migrants in the city differentiate between the groups in all three housing types, but the direction of the effect is different for compound dwellers and self-sufficient housing. Age discriminates between the groups in single-story compound and self-sufficient housing, but in different directions. Location accessibility differentiates between households that use their homes for income generation and those that do not only among multi-story compound dwellers.¹² Residents of this housing type who use their home for income generation reside in somewhat less accessible houses.

If we trust the results regarding self-sufficient housing dwellers (given that the sample is not sufficient for multivariate analysis), then it is not surprising that so many discriminating factors have a different effect on households residing in self-sufficient housing, compared to compound houses. Recall from Table 2 that self-sufficient housing residents are quite different from compound dwellers, in that their households are much larger, they are better educated and wealthier, they enjoy better housing quality and occupy more rooms, and many more of them own their house. It is interesting, therefore, to explore the three factors that affect households in all three housing types similarly.

First, households that use the home for income generation are larger. This is not surprising. Larger households include more members who can work from the home and can contribute to the higher income needed to sustain more people. Second, in all three housing types households using their homes for income generation occupy more rooms (with the

Table 4 Characteristics of households residing in self-sufficient dwellings

	Use the home for income generation								Do not use the home for income generation
	A	B	C	D	E	F	G	H	
Male	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	34.7% males
Age	47	43	36	42	46	40	22	49	mean 46.46
Household size	6	7	11	8	6	7	5	9	mean 5.80
Education of household head	JSS ^(a)	JSS	JSS	JSS	University	JSS	High School	JSS	17.2% with JSS or higher
Migration history	23 years	27 years	8 years	1 years	17 years	non migrant years	7 years	36 years	75% migrants; mean 20.58 years
Tenure	owns	owns	owns	rents ^(b)	rents ^(b)	owns	rents ^(b)	owns	52.9% own
Number of rooms	6	2	6	4	3	3	5	6	mean 3.64
Housing quality index	94.7	71.4	65.4	87.8	88.3	87.7	88.6	88.26	mean 88.58
Core area	No	No ^(c)	No ^(c)	No	Yes	No	No	No	33.5% in core

^(a) Junior Secondary School

^(b) Households D and G rent from private landlord; household E rents from employer

^(c) Most remote block in the periphery

exception of one block of multi-story houses that is very central, so that additional rooms are harder to obtain). Third, housing quality of households that use their homes for income generation is inferior to that of other households, in all three housing types. This suggests that perhaps households that use their homes for income generation invest more in occupying extra rooms, so that they have more space to use for their business, at the cost of not improving the physical characteristics of the house. They can afford one type of expenses but not the other. If this is the case, than this housing choice is not only shelter-related, but it is also a business decision. Further research is necessary to determine if that is indeed the case.

Notes

- ¹ Residents of compounds without latrines use public toilets or the bush.
- ² Information was given by K.S. Mensah, area director of the State Housing Cooperation Ltd., in a personal interview.
- ³ Information was given by Mr. Baga, a senior officer in the Estate Office of the University of Science and Technology.
- ⁴ Note, that this definition does not include sole use of toilets. Many Kumasi houses do not have toilets. Their residents share public toilets or the bush with hundreds of other households. If they do not share cooking and bathing facilities with other households their residence is considered here to be self-sufficient.
- ⁵ The sample includes one block of government estate houses. Built as small single-family homes, many have been expended since. Four out of nine estate houses in the sample are self-sufficient. Extensions to the other five houses turned them into compound houses of sorts. They are not shaped like traditional compounds, but they house several households that share facilities. They are therefore considered here to be single-story compound houses.
- ⁶ The index is heavily influenced by the inclusion of cars, which are much more expensive than any other good in the index, and are owned by less than 10% of respondents. Excluding cars from the index results in an index with a mean of 0.27 and median of 0.12.
- ⁷ Since households were selected systematically from a complete listing of all households residing in each block, core area residents were not oversampled, so these figures represent higher density.
- ⁸ Public transportation in Kumasi is in the form of taxies and vans that travel the main arteries, picking up and dropping off passengers on demand.
- ⁹ But note the higher proportion of female-headed households in multi-story houses, and that average age of household head is about the same in all housing types.

¹⁰ All multi-story compound houses in the sample are in the core area of the city, so this variable is excluded from the analysis.

¹¹ Among multi-story compound dwellers: (a) The mean household size for households using their home for income generation is 6.84, compared to 4.24 of other households; (b) 64.2% of households that use their home for income generation are female-headed, compared to only 34.7% of other households; (c) 29.6% of household-heads who use their home for income generation have no formal education, compared to 11.4% of other households. Similarly, only 17.9% of household-heads that use their home for income generation have accomplished an education level of O-level diploma or higher, compared to 25.2% of other households; and (d) The mean length of stay of migrant household heads younger than 30 is 18.58 if they use their home for income generation, and 14.16 if they do not. Similarly, for migrant household heads 30 or older the mean is 33.62 if they use their home for income generation, and 26.42 if they do not.

¹² Location accessibility was not examined for self-sufficient housing residents, because of the great variability among the eight households that use their homes for income generation.

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