



Determinants of home-ownership in Kumasi, Ghana

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Abstract

This paper reports the results of an empirical analysis of home-ownership determinants that makes use of household level data from Kumasi, Ghana. Among the variables investigated, permanent income, represented by household expenditure was the most critical factor influencing the probability of owning a home in Kumasi. Other significant, relevant factors, that reflected the study's a priori expectations, included age and mobility level of the household head. The type of occupation as hypothesised in the study was, however, at variance with the study results indicating the continued importance of cocoa farmers in the city's housing market. It is hoped that the results emanating from the study could be extrapolated to other urban settlements with similar characteristics in sub-Saharan Africa.

Keywords

Home-ownership, tenure choice, housing policy.

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This paper is concerned with estimating the determinants of home-ownership in Ghana. Two objectives are involved; to identify and discuss the major factors that are considered relevant in any analysis on home-ownership decision-making and also to attempt to measure the influence of such factors on home-ownership as a tenure choice in Ghana.

Tenure choice decisions provide important inputs for the formulation of housing policies. Such decisions provide the focus for assessing who owns and who rents in the housing market, a decision which relates significantly to household consumption and investment levels (Li, 1977). In addition, household transactions involving renting and purchasing of housing units also carry with them the acquisition of some neighbourhood amenities, service and characteristics with their attendant geographical or spatial significance. Furthermore, there are some legal rights and obligations involved in such decisions. Increasing the rate of home-ownership has become one of the major goals of national housing policies world-wide because of the numerous benefits it confers on home-owners. For example, Cheshire and Sheppard (1989) have asserted that in Britain

it has been a deliberate policy of government to substitute home-ownership for rental. In Ghana, all past national housing policies have recognised the importance of home-ownership. One of the policy objectives enshrined in the country's maiden housing policy framework was the adoption by Government of a strategy of new construction to provide and increase standard housing stock in urban areas until there was "one house per family" (UN, 1957). Home-ownership, according to Jorgensen (1975), leads to the possession of a major household asset which could be used as a collateral security for loanable funds, improves family and community health and in most developing nations, provide bases for the pursuit of home-based or informal industrial activities.

In spite of the numerous benefits associated with home-ownership that have been outlined above, little research has gone into quantifying its importance in the Ghanaian setting and it is the purpose of this paper to begin to provide relevant information on some aspects of this important housing policy formulation input. This attempt focuses on the isolation of home-ownership characteristics and determinants in urban Ghana with a case study from

Kumasi. It is hoped that findings emanating from this quantification exercise could be extrapolated to other parts of sub-Saharan Africa with similar urban environmental conditions where such type of research undertakings are seldom carried out.

In addition to this introductory part, section two focuses on the study's theoretical background and model formulation. Section three illuminates on data sources and estimation procedures while section four discusses study results. The final section is devoted to conclusions emanating from the study.

Theoretical background and model formulation

Theoretically, the model of tenure choice decision assumes the form of utility maximization models expounded by Muth (1969), Alonso (1964) and other urban and land economists for urban housing and land market analyses.

A basic assumption underlying the operation of such tenure choice decision models has been that owning and renting are mutually exclusive and that both the owner occupier and rental units yield housing services which are distinct commodities with different characteristics (Muth, 1969; Quigley, 1979).

That is for example, if the k^{th} household chooses to own, then this household's utility function is given by

$$V_{ok} = V_o(P_{ok}, P_{xk}, Y_k) \dots (1)$$

Where $V(.)$ is the indirect utility function, P_{ok} is the net price of housing services generated by the owner-occupied housing. P_{xk} represents the price of all other goods (excepting housing) and Y_k is the permanent or real income.

On the other hand if the k^{th} household is a renter, the utility function of this household is represented as follows;

$$V_{rk} = V_r(P_{rk}, P_{xk}, Y_k) \dots (2)$$

where P_{rk} is the price of renting while the other variables remain the same as defined in (1) above.

The utility of a household that chooses to own is maximised only under the following tenure choice condition;

$$V_{ok} - V_{rk} > 0 \dots (3)$$

To be able to successfully execute the model it is pertinent to assume a functional form and stochastic specifications. The Logit (Li, 1977), Probit (Rosen, 1979) and Ordinary least square (OLS) (Lim et al, 1980) functional forms have commonly been used to obtain relevant estimates.

For the purpose of this empirical estimation, the conventional two choices of owning and renting were considered.

For home-owners (which constitutes our research focus), equation (1) was assumed to contain the following variables:

$$PO = f(Y, HC, S, M) \dots (4)$$

where PO is used to represent the probability of home-ownership.

Y is some measure of income.

HC represents household characteristics which include:

- a) Age of household head
- b) Number of dependants
- c) Type of occupation

S represents the level of housing shortage in the city. (Room occupancy level was used as a proxy for this variable).

M is a measure of mobility which is represented here by the length of stay in the city.

The above variables were deemed sufficient enough to explain home-ownership determinants in Kumasi.

Obtaining a reliable measure of income for housing policy formulation has become one of the most difficult tasks confronting housing planners. The choice has usually been made by choosing between permanent and current income but this study attempted to test the relative importance of the two measures by employing both. Current income as used here represents the home-owner's monthly income minus tax payments or what is generally referred to as disposable income. For permanent income, the household's monthly expenditure on food, housing, transportation, health, entertainment and other incidentals was used as a proxy. It is generally difficult to collect income data in Ghana because of the fact that a large segment of the income earning population (estimated to be over 60%) belong to the informal sector where record keeping of business transactions rarely takes place. This makes tax assessment and collection difficult. The alternative which is frequently employed is to rely on expenditure or consumption profiles which is quite handy as it is relatively easier for household to recount their past expenditures over certain periods. Expenditure levels in Ghana have tended to be more reliable and realistic in terms of current socio-economic conditions and have in most cases surpassed income levels in aggregate terms. Its advantage over the use of current income in policy related research has been the fact that people are forward looking and base their consumption decisions on their permanent rather than their current income.

The other variables employed were hypothesised to have strong influence in explaining the phenomena. For in-

stance, age has been found in countless studies to have a strong influence on tenure choice decisions. The number of dependants factor was included to test whether the extended family system which is so prevalent in the study area and which results in large households has any effect on home-ownership decisions.

Another variable that was included in the test was occupational status. Historically, the city's housing sector has been dominated by cocoa farmers who own most of the housing stock. The test here was to ascertain whether the dominance of cocoa farmers in the housing sector still holds. This scepticism is attributed to poor performance of the cocoa industry which has resulted in dwindling incomes of cocoa farmers in the past two decades or so. It is hypothesised here that their influence on the city's housing market has waned considerably in recent times.

The study also relates the phenomenon to the availability of houses since home-ownership is only possible when that condition is present, at least in the short run. Room occupancy level was used as a surrogate for this variable in assessing the impact of availability of houses on the dependent variable.

Finally, to investigate the impact of long time residency on home-ownership decisions, a measure of mobility, represented here by the length of stay in the city, was employed. By extension, this variable could also be proxy for indigenous Asantes (Asantes refer to the indigenous people of Kumasi, the Ashanti region and some other parts of Ghana) who benefit from subsidy (discount) prices when they purchase housing land from their chiefs. This lot-size discrimination against non-Asantes who are likely to be predominantly recent migrants have been validated empirically (Asabere, 1981). Through such an evaluation, the problems of recent migrants in acquiring homes could be highlighted.

Data sources and estimation procedures

The study area, Kumasi, is Ghana's second largest city. According to the latest census organized in 1984, the city's population stood at 759,109 and this includes all the areas that presently constitute the Kumasi Metropolitan area.

Like most other major Ghanaian and African cities, the city has experienced rapid population growth in the last three decades. Between 1960 and 1984, the city's mean annual population growth rate was 7.2 percent and this is

predominantly attributed to in-migration from the countryside. The result has been serious deficits in the provision of essential urban environmental facilities and services particularly housing as the city and the national government can hardly meet the financial requirements associated with such rapid and overburdened demands for vital services and facilities (Asiedu, 1991).

The housing stock in Kumasi is dominated by the traditional compound house which represents a single storey structure with numerous rooms around three sides of the courtyard facing inwards. The fourth side usually contains facilities that are used communally by all resident households. These facilities include bathrooms, kitchen and toilets (Tipple, 1982).

Housing provision in Kumasi is characterized by a four tier system of operation - the formal or high cost sector, the informal sector, the tenement and the indigenous sectors (Tipple, 1982). The high cost sector which is often referred to as the formal sector derives its name from the fact that the operators within it are organised, formal and affluent institutions (Tipple, 1982). The housing environment is superb and top class with neighbourhoods that are dominated by modern single storey family houses. The sector caters predominantly for top civil and public servants and expatriates and during the colonial era used to be the preferred place for European and other foreign settlers.

In sharp contrast to the above sector is the informal sector which may be called the unauthorised or illegal sector. These areas are akin to slums and are usually occupied by migrants from other regions of the country or from some of the neighbouring countries. The residents are mostly engaged in lowly placed jobs. House construction is done mainly through personal and informal (hired labour) modes and the cost is borne principally from personal savings and sources. Houses within this sector are largely illegal or unauthorised because their construction contravenes the city's housing construction codes on material used and techniques employed.

The tenement or semi-formal sector is similar to the indigenous sector which is the dominant sector except that it exhibits higher quality and construction technology. It is usually characterised by multi-storey compound houses. The indigenous sector on the other hand, is dominated by sub-standard conditions and found mainly in some of the oldest parts of the city and within the previously adjoining villages which have in recent years been incorporated into the city's area of jurisdiction. Both sectors are legal.

Home-ownership type is also varied. Ownership within the high cost sector is primarily individual or nuclear family. This situation contrasts sharply with ownership structures within the remaining three sectors which are dominated by the extended family system (Amole et al, 1993).

The housing market is characterised by renting. Willis, et al (1990) estimate that in 1986, 65.2% of the households paid rent, 9.4% were owners or landlords and the remaining 25.4% occupied rent free room in houses owned by an extended family member. It seems however that lately, these tenurial arrangements are changing in favour of the nuclear type (Asiedu, 1997).

The data employed for this study was obtained from a field survey carried out in September and October, 1989 in the city. The basic units of enquiry were the households and their heads. Four hundred and one (401) households made up of 96 homeowners and 305 renters were selected for interview (more renters were interviewed in line with the objective of the major study of which this presentation is a small part). The selection was based on a multi stage random sampling technique involving all the census enumeration areas of the city. An a priori segmentation of the housing areas of the city into the four (4) housing sectors described earlier was carried out. This was followed by the selection through random sampling of the neighbourhoods in which the data collection was organized. Map of the city showing residential areas and the 10 sampled neighbourhoods is provided in Figure 1.

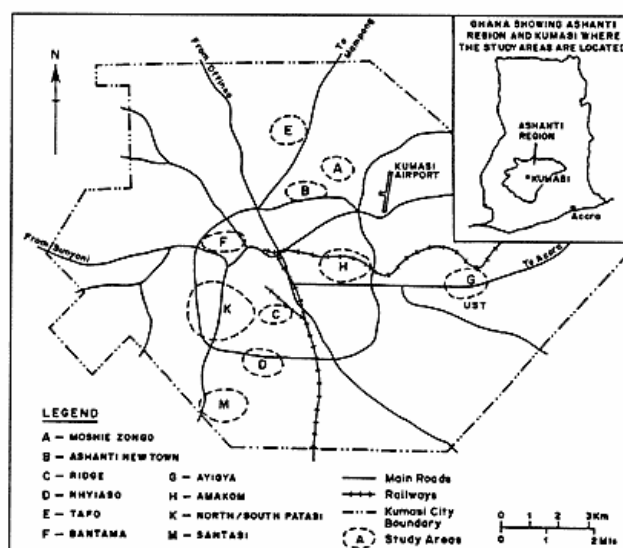


Figure 1: A map of Kumasi showing the study areas

The sampled neighbourhoods were as follows; Ridge, Nhyiaso and Patasi for the high cost sector. Bantama, Ashanti New Town (Ashtown) and Amakom for the tenement sector, Santasi and Tafo for the indigenous sector and finally, Moshie Zongo and Ayigya representing the informal sector. For each of these neighbourhoods, ten houses were selected through random sampling technique and for each of these houses, the house-owner and a maximum of four households were selected for the interview. This restriction was imposed in order to ensure that more houses were covered as a way of providing variations in household characteristics among houses within the city scape. Publicly owned houses were excluded from the sample because they were constructed using state finances and other resources and also because of the fact that occupiers are not owners but temporary residents.

Some problems emerged during the conduct of the interviews of home-owners and they relate to situations where the house-owner or builder who could provide information on the various facets of the issues under investigation was either not available or the property had been inherited by someone who could not adequately provide these vital information. Due to this and other related problems (like not meeting the home-owner after numerous callbacks), only 73 of the responses were deemed credible for this analysis.

These responses were however biased in favour of the high cost sector where all the 30 respondents were located for interviewing. The remaining 43 responses were distributed among the other sectors as follows; tenement- 11, informal- 18, indigenous- 14. Smaller sample sizes for these non-high cost sectors produced very limited variations in the variables considered. To overcome this analytical problem, the result presented in the study is limited to the one based on the pooled data. The disaggregated result that represents the various residential sectors outlined above has not been presented and discussed here. This approach was thought to be appropriate in the light of the above account for two major reasons. First, it was felt that this general picture of the determinants would suffice for a pioneering study of this nature and that future studies could be geared towards unearthing city wide variations in the phenomenon. The second reason was the fact that home-ownership in the city and in Ghana as a whole is changing towards nuclear family ownership. The current law on succession in the country give strong backing to this form of ownership and as a result the extended family form of property ownership is being discouraged and in-

creasingly becoming anachronistic because of numerous problems that it poses. Amole et al (1993) have recounted some of the problems associated with the maintenance of extended family properties in West Africa.

The ownership structure under the high cost sector which dominated the pooled data used for this analysis is identical to those found under nuclear family ownership. Also prudent to mention here is the fact that in spite of the residents' apprehensions about shortage of housing accommodation, quick fix approaches in the form of slum, squatter and other low quality housing are being abandoned in favour of high quality and durable housing similar to those in the high cost sector. Ongoing housing developments in the city attest to this fact and it is anticipated that this trend would continue so that these quality houses dominate the housing landscape in the future. This partly supports the use of the pooled data which is dominated by the high cost sector sample. The presumption here however is that the results of the statistical tests are likely to be skewed in favour of the High cost sector.

Specific data collected for the household heads included those on monthly consumption income or expenditures, monthly household earnings, educational level attained, size of household, age, marital and tenancy status, duration of stay in the house and length of stay in the city. Data on physical characteristics of each housing unit as well as the housing characteristics of the households that were interviewed were also collected.

Some of the general observations of the housing sectors obtained from our pooled data suggested the following; that the major housing construction material was concrete. Eighty one per cent (81%) of the houses were put up with concrete while nineteen per cent (19%) used landcrete or sandcrete. The quality of construction material is therefore very high.

On tenurial arrangements, renters dominated with fifty two per cent (52%), subrenters - six per cent (6%), relatives of owners - seventeen per cent (17%) with the remaining twenty five per cent (25%) being home-owners. These arrangements corroborate those found in earlier studies cited elsewhere in the text on changing tenurial arrangements in the city.

Table 1 provides the mean values of home-owner characteristics that were employed for the analysis. For comparative purpose however, renter characteristics for these variables have also been provided. The data indicate that apart from occupancy levels, values for house-owner char-

<i>Variable</i>	<i>Home-owner</i>	<i>Renter</i>
1. <i>INC (Monthly Expenditure)</i>	81,000 (64,000)	66,990 (23,160)
2. <i>INC. (Monthly income)</i>	56,900 (41,086)	37,439 (29,346)
3. <i>AGE (% within 40-60 years bracket)</i>	80.2 (18.7)	43.4 (41.4)
4. <i>MOBILITY (% with 10 years stay in city)</i>	97.6 (15.6)	79.0 (44.3)
5. <i>OCCPNCY (% with occupancy rate of over 2.5 persons per room)</i>	19.5 (40.1)	49.1 (31.6)
6. <i>JOBTYPE (% Cocoa farmers)</i>	17.3 (26.8)	5.7 (2.2)
7. <i>DEPENDNTS (Number of Dependents)</i>	7.3 (2.5)	6.3 (11.7)

Table 1: Mean values of home-ownership and renter attributes. Shown in the parentheses are the respective standard deviations. All monetary values are in Ghanaian cedis. US\$ 1.0 approximated 290 Ghanaian cedis in September/ October, 1989.

acteristics exceed those for the rental sector. These results to a large extent fall in line with our study expectations.

Using equation (4) above, we estimate the probability of home-ownership tenure choice as a non-linear function of the independent variables noted above in Table 1. The value of PO as a logistic function is limited to the interval (0,1).

Discussion of Results

The estimates for the model are as presented in Table 2.

Included in the estimates is the likelihood ratio which tests whether the variables jointly have significant effects on the probability of deciding to either own or rent. Macfadden (1974) discusses extensively the use, interpretation and significance of this ratio. It is generally accepted that the likelihood ratio be treated similarly to the F-statistics of the Ordinary Least Squares (OLS).

The likelihood ratio test of significance of the null hypothesis at the conventional 5 per cent level is rejected for this model. The interpretation is that the relationship between the dependent and independent variables are significant. Another measure, a pseudo R-square (R-square Index) developed by Macfadden (1974) and based on the deviation of observed from fitted values is used here to evaluate the goodness of fit of the model. A figure of 0.64 as a measure of goodness of fit, gives an indication that the model's explanatory power is moderately strong. Asymptotic t-values which are frequently used as standard "t"

statistics (Macfadden, 1974) were also estimated for the study.

Of the variables considered relevant in this study, INC representing household expenditure exerted the strongest influence on the probability of owning a house in Kumasi. The variable was both positive and statistically significant at the conventional level. The other INC representing monthly income was statistically insignificant even though it related positively to the probability of becoming a homeowner. These results on the two measures of income corroborates the widely held view that transitory sources of income like those based on monthly earnings cannot be treated as a reliable measure of income upon which future and sustainable housing investment decisions could be based. The reason for this assertion is that monthly incomes are highly unpredictable under conditions of economic instabilities like those that characterise the economic environments of most developing countries, particularly those in sub-Saharan Africa.

AGE was positively related to the probability of home-ownership and was also statistically significant reflecting our a priori expectations. The interpretation of this result is that holding all the other variables constant, an addition of one year to the age of a Kumasi household head increases his or her likelihood of becoming a home-owner by approximately 3 per cent. This result is supportive of the widely accepted view that home-ownership is directly related to the stage in a person's life cycle.

Similarly MOBILITY which was used to mimic the length of stay of a household in the city yielded both positive and statistically significant results. The implication of this result is that household heads who are long time residents (over 10 years) were more likely to become home-owners than their more recently arrived counterparts. Longer period of residence in the city is expected to lead to an improvement in socio-economic status, better familiarisation with the environment and more time for going through the "search process" of becoming a home-owner. This condition is more likely to favour the indigenous Asante residents who in addition to benefiting from long periods of residence are also more likely to enjoy the advantage of housing land price rebates from their chiefs. This is in contrast to the armlength land transaction costs that recent migrants and non-Asantes face. This practice may however lead to inefficient use of housing land by the Asante beneficiaries (Asabere, 1981).

JOBTYPE was also significant and positive indicating

NO.	Explanatory Variables	Parameter Estimates	Asymptotic t-values
1	INC (expenditure)	0.19 (0.088)	2.16
2	INC (Monthly income)	0.11 (0.081)	1.36
3	AGE	0.03 (0.008)	3.75
4	DEPENDNTS	- 0.053 (0.183)	- 2.9
5	JOBTYPE	0.06 (0.023)	2.52
6	OCCPNCY	- 0.064 (0.061)	- 1.05
7	MOBILITY	0.034 (0.009)	3.47
	Constant	- 1.069 (0.007)	- 1.657
	Log likelihood ratio	- 22.0	
	R - index	0.64	
	Sample size	73	

Table 2: Parameter estimates for the home-ownership determinants model. All monetary values are in Ghanaian cedis US\$ 1.0 approximated 290 Ghanaian cedis in September/ October, 1989. Shown in the parentheses are the asymptotic standard errors

that the probability of a cocoa farmer becoming a home-owner is still moderately strong despite reduced earning accruing to farmers in the cocoa industry. This result sharply contravenes our posited position. The result obtained for OCCPNCY which depicts the extent of housing shortage in the city was not unexpected. Even though statistically insignificant, the result gives an indication of the housing situation in the city which leads to a negative probability of becoming a home-owner. The variable DEPENDNTS attracted a negative coefficient even though it was statistically significant. The result can be considered reasonable in the light of present day realities in the city where the trend has been towards nuclear rather than extended families. Households with fewer dependants are therefore more likely to become home-owners than those with larger ones.

Conclusion

As Stren (1994) has rightly pointed out, economic analyses of urban development issues in sub-Saharan Africa is limited especially as it relates to the situation in com-

parable geographical areas. This anomaly needs to be addressed so that economic variables are accorded the importance that they deserve in urban development planning in the region.

Promotion of home-ownership continues to be one of the most essential policy inputs in the formulation of national housing policies in most countries. In spite of this however, our knowledge on this subject matter in Ghana remains sketchy.

The major preoccupation of this research endeavour has been to investigate and isolate the salient parameters that determine home-ownership in urban Ghana. In spite of some analytical limitations imposed by data coverage, some worthwhile results have emerged.

The research has indicated that permanent income is the dominant factor in the determination of home-ownership in the study area. This finding may not be unique to the Ghanaian setting but may depict the general tendency in most low income developing countries where outlets for finance for home acquisition are very limited.

Other factors that seem to play significant roles in home-ownership determinants in Kumasi include age of household head (AGE), length of stay in the urban setting (MOBILITY), occupational type (JOBTYP) and room occupancy level (OCCUPANCY). Of particular interest has been the continued importance of cocoa farmers in home-ownership in the city, a factor that seems to be at variance with the study's *a priori* expectations.

The study has indicated that homeownership will continue to be a mirage to a large section of the urban population unless better and more appropriate mechanisms are put in place to improve incomes of households, especially the poorer and disadvantaged ones. There is the need for the overall revamping of our housing policies. The government should act as a facilitator and encourage the private sector to provide more housing for potential homeowners. This is especially important at a period when governments in poor countries are being increasingly asked by international financial institutions and the donor community to divert resources from direct housing provision. Housing financing systems geared towards the promotion of availability of mortgage and other loanable funds for home purchasing should be encouraged. In addition, avenues for home-ownership through self help schemes, especially for people on low and unstable incomes, should also be facilitated through a combination of both public, private and non-governmental sectors interventions.

The importance of population factors in housing policy formulation has once again been demonstrated here. One of the findings of the study has confirmed the fact that households with large dependants have lower chances of becoming home-owners. It is therefore expedient that to be able to reduce household sizes and number of dependants as a way of boosting home-ownerships, population related measures should be accorded high priority attention. This is very critical because population variables represent the pivot around which all development decisions and activities gravitate.

In Ghanaian and other urban environments in sub-Saharan Africa that are fraught with development problems imposed largely by large populations, it is essential that population reduction measures should attract pre-eminent concerns among all relevant public and private bodies, institutions and individuals.

In conclusion, it must be reiterated that more studies need to be undertaken on the subject matter in future to help broaden our knowledge of it. Such studies could help capture some city wide variations in these determinants and which remain unearthed in this study due to data limitations. Our deeper knowledge of these causative factors would contribute significantly towards the enhancement of housing policy formulation and thereby help to achieve some of our oft-stated housing policy goals of increasing the rate of urban home-ownership in Ghana and elsewhere with similar socio-economic milieu.

Acknowledgement

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References

- Agyeman, Konadu, Kwadwo (1990): Reflections on the Absence of Squatter Settlements in West African Cities: The Case of Kumasi, Ghana. *Urban Studies* 28, (11): 139-151.
- Alonso, W., (1964): *Location & Landuse*, Cambridge, Mass, Harvard University Press.
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References

- Agyeman, Konadu, Kwadwo (1990): Reflections on the Absence of Squatter Settlements in West African Cities: The Case of Kumasi, Ghana. *Urban Studies* 28, (11): 139-151.
- Alonso, W., (1964): *Location & Landuse*, Cambridge, Mass, Harvard University Press.
- Amole, B., Korboe, D. & Tipler G. (1993): *The Family House in*

- West Africa - A Forgotten Resource for Policy Makers. *Third World Planning Review* 15 (4): 355-372.
- Asabere, P. K. (1981): The Price of Land in a Chiefdom - Empirical Evidence on a Traditional African City. *Journal of Regional Science* Nov. pp 529-539.
- Asiedu, Alex, B., (1991): A Study on Planning for Housing Provision in Kumasi City, Ghana Based on Dynamic Forecasting and Cross Sectional Modelling Approaches, Unpublished doctoral dissertation, Hokaido University, Japan.
- Asiedu, Alex, B., (1997): Housing Improvements in an Informal Urban Neighbourhood in Accra, Ghana, *International Journal of Environmental Creation* 1 (2), (forthcoming).
- Hirioka, C.Y., (1988): Tenure Choice and Housing Demand in Japan, *Journal of Urban Economics*, 24, 289-309.
- Jorgensen, N.O., (1975): Housing Finance for Low Income Groups, with Specific Reference to Developing Countries, Bouwcentrum, Rotterdam.
- Kim, Chulsoo (1996): Measuring Deviations from the Permanent Income Hypothesis, *International Economic Review*, 37 (1): 37-49.
- Li, M.M., (1977): A Logit Model of Homeownership, *Econometrica*, 45: 1081-1097.
- Lim, G.-C, Follain, J. & Bertraud, R., (1980): Determinants of Homeownership in a Developing Economy. The case of Korea. *Urban Studies* 17: 13-23.
- Mcfadden, D. (1974): Conditional logit analysis of Qualitative Choice behaviour. Pp. 105-142 in Zarembka, P. ed.: *Frontiers in Econometrics*. New York, Academic Press.
- Muth, R., (1969): *Cities and Housing*, The University of Chicago Press, Chicago.
- Quingley, J.M., (1979): What Have We Learned About Urban Housing Markets? In chapt. 12, pp. 98-109 in *Current Issues in Urban Economics* Peter M. Mieszkowski & Mahlon R. Straszheim, eds.: Baltimore, John Hopkins Univ. Press.
- Rosen, S., (1979), Housing Decisions and the US Income Tax: An Econometric Analysis, *Public Econom*, 11, 1-23.
- Stren, Richard (1994), *Urban Research in Africa, 1960 - 1992* Urban Studies, Vol. 31 NQs 4/5, pp 729 - 743.
- Tipple, G.A., (1982): A Manual for the Course in Housing in the BSc. Program, Department of Planning, UST., Kumasi, Ghana.
- UN (1957), *Housing in Ghana*, UN, New York.
- Willis, K. G., Malpezzi, S & Tipple, A. G. (1990): An Econometric and Cultural Analysis of Rent Control in Kumasi, *Ghana Urban Studies*, 27, (2), 241 - 256.