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EFFECTS OF HOUSEHOLDS' ASSETS ENDOWMENT ON PARTICIPATION IN URBAN FARMING IN IBADAN METROPOLIS

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ABSTRACT

The study examines the relationship between household initial asset endowment and participation in urban farming in Ibadan metropolis. A stratified random sampling method was used to stratify the city into two strata. It was followed by the random selection of two Local Government Areas from each of the two strata. One hundred and ninety-eight urban producers of high - value horticultural crops were selected from the two LGAs based on probability proportionate to size. Data on socio-economic characteristics, household stock of assets and agricultural productive activities were collected with structured questionnaire. Data were analyzed using descriptive statistics, principal component and Tobit regression. Results showed that household size, gender, dependency ratio, and access to credit and distance to urban market significantly affected participation in urban farming. The study recommends both the governmental and non-governmental agencies should contribute to sustainability of urban farming by providing good roads and better access to credit.

Keywords: Household asset, Horticultural crops, stratified random sampling, Participation, Urban farming

INTRODUCTION

Food is a basic human need. It is important for our survival as well as growth and good health. It enables us to be able to lead decent and fulfilling lives. Kruger et al (2008) emphasizes that freedom from hunger is the most fundamental human right that can be attained. This right can only be enjoyed if an individual is food secured. Despite persistent economic growth around the world, food insecurity and unemployment remain pressing problems in many parts of Africa (UN Habitat, 2006), especially in and around the major urban centres (Satterthwaite, 1999). About 33% of people in sub-Saharan Africa is undernourished (FAO, 2002) and UN-Habitat, (2006) report that the percentage of urban residents in Sub-Saharan Africa is expected to rise from 39.7 to 53.5% between 2005 and 2030. This scenario is expected to bring new and severe challenges for assuring household food security and access to basic services (Klemesu, 2000). In order to eradicate poverty and achieve economic development, the 1987 Brundtland Report 6 proposes a development path that is sustainable which involves a progressive transformation of economy and society for both developing and developed countries. As per the Brundtland report: *"Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs"* (WCED, 1987). Against this backdrop, urban agriculture (UA), or food production conducted in or around urban regions, seems to provide a realistic and pragmatic solution (Mougeot, 2001). Urban agriculture may improve household nutrition as it provides a source of fresh, locally grown crops that increase the micronutrients in poor households' diets (Maxwell, 2001; FAO, 2001) and it can increase household incomes (Sabates et al., 2001; Henn, 2002; IFPRI, 2002 cited in Mkwambisi 2007). Urban and rural livelihoods are often intertwined through goods, services, and people. In many cities, the majority of urban dwellers depend indirectly on agriculture for their livelihoods, through employment in food transport, retailing, and processing (Brook and Davila 2000). Survival strategies may involve maintaining links with a home community in rural areas, through a plot of land to return to for retirement or continued connections with family (Gregory, 2005). It may also include, especially for the urban poor receiving food support from their rural place of origin, using their homes as a work place, and engaging in urban agriculture. While there is a growing consensus that urban agriculture can alleviate poverty, it is important to distinguish between the different social groups involved in urban agriculture as they face different constraints and opportunities and have different reasons to engage in urban agriculture (Fuller, 2003). Whereas for the middle-income households, urban livestock keeping can be seen as a response to growing urban demand and markets, for the poor it is in the first place a response to crisis where food security, social security, and day-to-day income generation for school fees and emergency expenditures are in the foreground. Little effort has been made by development agencies, either government or private, at understanding or assisting urban farmers and urban livestock keepers in Africa. There is a glaring lack of an accumulated body of knowledge about the practice of urban agriculture on the continent. It is also apparent that urban agriculture, like many other informal sector initiatives, is almost entirely a local/indigenous response to a set of conditions which has failed to be entrenched in policy pronouncements and official development rhetoric. The scarcity of accumulated knowledge in both research and the development practice community underlies the need for studies on urban and peri-urban agriculture.

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For this study, following Boughton et al 2007, we take an asset-based approach, hypothesizing that household participation in urban agriculture will be associated with asset endowments. If asset stocks are strongly associated with entry into high value urban agriculture, this carries potentially important implications for policy makers, private sector, civil society and donor partners who make investments and design programs that seek to increase smallholder market participation. In this regards, it becomes pertinent to know:

What are the different urban household assets sources? Whether initial asset endowment of the households influencing their participation in urban farming?

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

Sustainable Livelihood Approach

In order to survive and prosper in what can often be difficult circumstances, rural and urban households pursue a 'livelihood strategy' that may comprise a number of different activities such as farming, herding, fishing, off-farm employment and the exploitation of natural resources through hunting and gathering. In order to engage in these activities, households mobilize the assets at their disposal. A hallmark of the livelihood approach (see Ellis (2000) is its emphasis on the capabilities of the rural poor, based on the recognition that even the poorest families hold wealth in at least some of the following categories: Natural capital (the natural resource stock, or local environmental endowment); Social capital (such as interpersonal networks, membership in groups, relationships of trust); Human capital (including formal and informal education and good health); Physical capital (productive assets e.g. land, tools, oxen, access (roads, communication infrastructure such as radio broadcasts); Financial capital (most fungible of assets e.g. cash savings, remittances and pensions).Households' wealth is comprised of some combination of these assets. The type and amount of each that a household holds is a function of past investment and accumulation strategies, which in turn are shaped by social, cultural, political and economic opportunities and constraints.

Asset Endowments and Market Participation Framework

A simple model of household choice captures the core issues surrounding the impact of asset endowments on market participation. Consider a household that maximizes its utility, defined over consumption of a staple food, S, and a Hicksian composite of other tradable, x. It earns income from production, and possibly sale, of any or all of three crops – the staple and two cash crops, C_1 and C_2, respectively – and from off-farm sources, Y, which could be earned or unearned. Production of each crop is a function of flows of services provided by privately held quasi-fixed assets, including land, labor (both quantity and quality, as reflected in education and experience), livestock and other productive capital (e.g., irrigation, tractor), reflected in the vector A. Public goods and services, such as extension services and farmer associations that provide information or inputs, represented by the vector G, may likewise affect output. The aim of this study is the urban farmer's choice as to whether or not to participate in vegetable markets as a seller. We represent that choice by the indicator variable M, which takes value one if the household enters the market for a crop, and zero otherwise. Thus MSS=1 if the household sells the staple crop (equals zero if it does not), MSB=1 if the household buys the staple crop, MC_1=1 if the household sells

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the first cash crop, and MC2=1 if the household sells the second cash crop. These choices will be guided by net returns to market participation. Each household faces a parametric market price for each crop – PSM, PC_1M, and PC_2M, respectively – and transactions costs, $\tau(Z,A,G,Y)$ that may depend on both public goods and services (e.g., radio broadcast of prices that affects search costs, extension service information on crop marketing strategies, distance to market) and household-specific characteristics (e.g., educational attainment, gender, age, that might affect search costs, negotiating skills, etc.), reflected in the vector Z, and its assets, A, and liquidity, Y. We can represent the household's choice problem as follows:

Max U (X, S)

Subject to a cash budget constraint and an asset allocation constraint

$A = AS + AC_1 + AC_2$ ..... (i)

Literature Review

Sustainability of urban agriculture is strongly related to its contributions to the development of a sustainable city. Sconnes, (2003) defined a livelihood as comprising the capabilities, assets (including both material and social resources) and activities required for a means of living. However, Ellis (2000) explains that poverty reduction efforts mediated by organizations should not focus only on financial capital accumulation but also other areas of deprivation of the poor such as physical, human, social and natural capital (assets included) for the livelihood to be sustainable. Households assets are stocks of resources that households accumulate and hold over time. They provide for future consumption and security against contingencies. Increased productivity taken as one of the livelihood outcomes (assets) generate returns in form of income that increases aggregate consumption (expenditure) and improve a household's well being over an extended time horizon (Beverly et al., 2008). Households assets have been found to shape a household's capacity to generate income through agricultural production and diversification.

Nwanza (2011) investigated factors of household capital/assets that are associated with income. This study used cross sectional data targeting households from Kabwe region of central Zambia. Empirical findings show that land owned and access to water that is available through out the year for irrigation as factors representing natural capital are positively associated with income. Access to credit as the only factor for financial capital in the study is also positively associated with income just as the productive assets that households own for physical capital. Distance to the nearest market is positively associated with income and statistically significant.

MATERIALS AND METHODS

Area of Study: This study was carried out in Ibadan city, the largest indigenous city in sub-saharan Africa. Ibadan, the capital of Oyo State is located between longitude 70 20' and 70 40' East of the Greenwich meridian and between latitude 30 55' and 40 10' North of the equator. The city lies in the equatorial rain forest belt and has a land area of 445 – 455km2. Ibadan land has 11 local governments made up of five within the metropolis and six at the periphery of the metropolis.

Ibadan is the largest indigenous city in West Africa and is located in the South Western part of Oyo State of Nigeria. It is the capital city of Oyo State and is located about 145 km north-east of Lagos, the federal capital of Nigeria. Its population is 2,550,593 according to 2006 census results, including 11 local government areas. The population of central Ibadan, including five LGAs, is 1, 338, 659 according to census results for 2006, covering an area of 128 km².

Majority of the soils ranged between typic and typic tropaquent. However, they are scattered all over the landscape of the Ibadan city and majority are not used at all for either agriculture or for any form of land use (Taiwo, 2007). The site is dominated by a range of hills in all directions. As the dominant urban centre in Oyo State, its administrative and commercial functions transcend beyond the city boundaries. Ibadan metropolitan area covers a total land area of 3,123km^2 of which the main city covers 463.33km. The site is dominated by a range of hills in all directions. As the dominant urban centre in Oyo State, its administrative and commercial functions transcend beyond the city boundaries. These include the banks of streams as well as isolated wetland areas that dot the city, which is enclosed by valleys and swamps. Eleven Local Government Areas make up Ibadan metropolitan area, Ibadan region or Ibadan land. The overall population density of Ibadan metropolitan area is 586 persons per km^2. The administrative and commercial importance of Ibadan has resulted in land being a key investment asset and a status symbol for the population.

Economic activities undertaken by people in Ibadan include trading, public service employment, and agriculture in decreasing order of importance. The volume and diversity of demand for food products stimulated the need for agricultural production within the vicinity of the city. Many people in the city engage in agriculture. The inability of rural farmers to cope with the food demand triggered the practices of UPA in Ibadan city. Moreover, economic needs and knowledge of residents have transformed the land left over by urbanization into gardens notable for their ecological richness and variety. The predominant crop produced in Ibadan is staple food- cassava, maize and vegetables such as Chinese spinach, okra, cucumber, tomatoes, pepper. Family land and leasehold accounts for the dominant part of land tenure systems of urban vegetable production. Farm sizes, which average below one hectare, as well as, the number of farm holdings by individual farmers are a factor of land tenure.

Data and Sampling Technique: Primary data were collected for the purpose of this study using structured questionnaire. The questionnaires were pretested to collect information based on individual and household characteristics. Some of the data include: socio economic and demographic characteristics, such as age, gender, household stock of assets, access to credit and extension services, proximity to road, output from high value horticultural crops, quantity consumed at home, quantity sold, inputs used, and expenditure on agricultural productive activities were collected.

Ibadan metropolis was randomly stratified into two: urban and peri-urban. The farming population used consists of the producers of high value crop. The next stage involved the random selection of two Local Government Areas (LGA) from the two strata used for the study. Respondents were selected from the two LGAs based on probability proportionate to the

number of producers of high value horticultural crops. The proportionality factor used in the selection of urban farmers is stated as:

$X_i = n/N*30$ ..... (ii)

Where X_i= number of urban farmers to be sampled from a local government

n = number of urban farmers in the particular local government area

N = total number of urban farmers in all the local government areas

The desired total number of urban farmers for the two stages is 200

In all, a total of two hundred (200) urban farmers were interviewed. However, only one hundred and ninety-eight had meaningful information for analysis. Table 1 shows the sampling procedure.

Table 1: Sampling Procedure for the Selection of Urban farmers

Ibadan metropolis	LGA	Population of Urban farming Household	No of Questionnaire Distributed	No of Questionnaire Retrieved and Completely Filled
Urban	Ibadan North	55	27	26
	Ibadan North East	35	16	16
Peri-Urban	Akinyele	216	101	101
	Egbeda	120	56	55
Total		426	200	198

Source: Field Survey 2011

Analytical Tools and Models

The tools include: Descriptive statistics and principal component analysis and tobit regression analysis.

Descriptive statistics: Descriptive statistics such as frequencies, mean and percentages were used for socio-economic and households' variables. Principal component analysis was used to compute the household asset.

Household Asset Index and Principal Component Analysis

The principal component analysis involves resolution of a set of variables into a new set of composite variables or principal components that are uncorrelated with one another. This is accomplished by the analysis of the correlation among the variables. The result of this is a yield of factors which convey all the essential information of the original set of variables.

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Principal component analysis (PCA) is a multivariate statistical technique that addresses itself to the study of interrelationships among a set of observed variables all the variables in PCA are considered as dependent variables that is a function of some underlying latent are supposed to be orthogonal that is, uncorrelated one therefore look for the best linear combination of these variables that account for more of the variance in the data as a whole than any other linear combination of variables (Mazlum, et al, 1999).

The first principal component may be viewed as the single best summary of linear relationships exhibited in the data. The second component is the next best linear combination of variables under the condition that the second component is orthogonal to the first components. The second one must account for the proportion of variance not accounted for by the first one. Subsequent components are similarly defined until all the data are exhausted. PC requires as many components as there are variables.

Principal component model may be compactly specified as

$$Zj = aj_iF_i + aj_2F_2 + aj_3F_3 + \ldots\ldots\ldots + aj_nF_n \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{(iii)}$$

Where each of the n observed variables is described linearly in terms of the new uncorrelated components $F_1, F_2, F_3, \ldots\ldots F_n$ each of which in turn is defined as a linear combination of the n original variables.

In this study, household asset index will be determined following Principal Component Analysis (PCA) approach by (Filmer and Pritchett 1998 cited in Prakonhsai 2006). Principle component analysis (PCA) is a statistical technique closely related to factor analysis. PCA can determine the weight as a factor score for each asset variable. It seeks a linear combination of variables such that the maximum variance is extracted from the variables. It then removes this variance and seeks a second linear combination which explains the maximum proportion of the remaining variance. The first principal component is the linear index of variables with the largest amount of information common to all of the variables. The asset index derived from PCA for each household asset can be written as follows:

$$Aj = \sum_{i=1}^{n} fi(aji - ai)/Si \qquad \text{(iv)}$$

Where

A_j is an asset index for each household (j =1,……,n)

f_i is the scoring factor for each durable asset of household (i =1,……,n)

a_{ji} is the i th asset of j th household (i ,j =1,……,n)

a_i is the mean of i th asset of household (i =1,……,n)

s_i is the standard deviation of i th asset of household (i =1,……,n)

Z is the standardized variables of each household

Derived from PCA, scoring factors of the first principal component (the efficient component) would be used for constructing the asset index of each household. Using the asset index computed by this formula, each household would be grouped into quintiles and deciles. The first quintile or deciles is the poorest, while the fifth quintile or the tenth deciles is the richest.

Tobit Regression Analysis: Tobit regression analysis was carried out to determine the effect of initial asset endowment on participation in urban farming. The model that was developed by Tobin (1958) is expressed below following McDonald and Moffit (1980).

$$q_i = P_i = \beta^T X_i + e_i \quad (v)$$

If $P_i > P_i^*$

$$q_i = 0 = \beta^T X_i + e_i$$

If $P_i \leq P_i^*$

$$i = 1,2,3^{*} \ldots\ldots\ldots\ldots n$$

Where:

q_i = Asset Index of Household is the dependent variable.

X_i = vector of explanatory variables/independent variables

β^T is a vector of parameters and e_i is error term

The independent variables, which are the socio-economic, demographic, and household demand variables are captured as

X_1 = Household size (no of household members)

X_2 = Gender of household head (1= male, 0 = otherwise)

X_3 = Age of household head (yrs)

X_4 = Dependency ratio (This is defined as the ratio of non-workers to workers in each household)

X_5 = Educational level of household heads (no of years of formal education)

X_6 = Member of an association (1=yes, 0 = Otherwise)

X_7 = Access to Credit (1=yes, 0 =otherwise)

X_8 = Distance to urban center (kilometer)

X_9 = Share of sales to total production

RESULTS AND DISCUSSIONS

Table 2 presents the socio economic characteristic of urban farmers. The result shows that majority of the respondents (33.8%) fell into age bracket 41-50years. This shows that vegetable production is carried out mostly by young men in their economically active years. The age groups less than 30-40years and greater than 60 years have 5.6%, 27.3% and 6.6% respectively. The mean age of urban farmer in the area was 46.5years. This result indicates that a higher proportion of

sampled urban farmers in Ibadan metropolis are in their active and productive years. It also has direct bearing with measured availability of able-bodied labour for primary production and ease of adoption of agricultural innovations.

The result also shows that 66.2% of respondents have household size of (4-8) persons, while 8.1% households have household size of greater than eight persons. The result revealed that average household size in the study area was about 6 individuals per household. In other hand, the result shows that majority (41.1%) of the households have dependency ratio of 0.01-0.99. Only 5.1% have dependency ratio zero while 23.2% and 30.3% of the urban farmers have one and greater than one respectively. However, average dependency ratio was 1.4. The implication of this is that whenever the number of the people generating income within the household is becoming smaller than those not earning, pressure is put on available resource, thereby reducing the level of person per capita expenditure and in effect worsening welfare of the members.
Gender of urban farming households' shows that majority (59.6%) of the farmers were male, whereas, the remaining were female. The reason for more male urban farmers might be because, the cost of acquiring land for farming in urban areas is high and it is only male that have assets to pledge for loan in the bank that could access land for farming.

Education is likely to increase households' opportunities for salary employment off farm, and may increase their ability to start up various non-farm activities (Barrett, et al. 2001; Deininger and Okidi 2001). Table 2 shows the educational level of urban farming household in the study area. The result indicates that majority of the respondents (48.5%) have no formal education and 27.8% are educated to primary school level. About 16.2% of the urban farmers had secondary school education while less than 10% had tertiary education (polytechnic, college of education or university education). The level of education determines the level of opportunities available to improve likelihood strategies. It also affects the level of exposure to new ideas and managerial capacity in production as well as the perception of the household members on how to adopt and integrate innovations.

Membership of an association of urban farming households indicates that only 34.9% of the urban farmers are members of association with majority of the farmers are not. The implication is that the economic gains and other benefits (such as credit facilities, access to improved production inputs and access to information) that could have accrued to the farmers are missing. These benefits that could have enhanced their production capacity are missing.

The result shows that majority (80.3%) of the urban farmers had no access to credit. However, a very few urban farming household were able to obtain credit. The reason for this might be lack of access to credit institutions especially the problem of bureaucratic delays. This might also have had negative implications for agricultural production in the study areas. Access to credit may enable farmers to purchase inputs or acquire physical assets, thus contributing to increased income. Credit may also promote increased production and marketing of high value crops or intensification of livestock production, and a reduction of subsistence food crop production. Credit availability may also enable households to invest in non-farm activities.

Hence, the impact of credit availability on income and asset is likely to be positive, provided households have profitable uses for it (Walusimbi and Nkonya, 2004).

Table 2: Socio economic characteristic of urban farmers

Age (years)	Frequency	%
< 30	11	5.6
30-40	54	27.3
41-50	67	33.8
51-60	53	26.8
>60	13	6.6
Total	198	100.0
Mean = 46.6, SD = 9.8		
Minimum = 24.0, Maximum = 70		
Household size	frequency	%
(1-3) persons	51	25.8
(4-8) persons	131	66.2
> 8 persons	16	8.0
Total	198	100.0
Mean = 5.7, SD = 1.9		
Minimum = 2, Maximum = 13		
Dependency ratio	frequency	%
0	10	5.1
0.01-0.99	82	41.4
1	46	23.2
>1	60	30.3
Total	198	100.0
Gender	Frequency	%
Male	118	59.6
Female	80	40.4
Total	198	100.0
Educational level	Frequency	%
No formal	96	48.5
Primary	55	27.8
Secondary	32	16.2
Tertiary	15	7.5
Total	198	100.0
Association membership	Frequency	%
Yes	69	34.9
No	129	65.1
Total	198	100.0
Access to credit facility	Frequency	%
Yes	39	19.7
No	159	80.3
Total	198	100.0

The profile of initial asset endowment of urban farmers is shown in Table 3. Assets such as lantern, telephone, radio, bed and mattresses and furniture are higher among urban farmers with over 80% of the household had. However, few urban farmers have their own means of transport such as car, motor bike and bicycle. Only 1% of urban farmers have land while 30.8%, 27.8%, 25.9% and 89.4% respectively had refrigerator, electric fan, electric generator and electric iron. The asset endowments of these farmers reveal that only six of these assets are used in their productive activities, these are land, telephone, water pump, refrigerator, car and bicycles.

Table 3: Profile of Urban Household Farmers Asset Endowment used in productive activities

Household Asset	Number (%)
Television	28 (14.1%)
Radio	186 (93.9%)
House	12 (6.1%)
Furniture and Fittings	168 (84.8%)
Refrigerator	61 (30.8%)
Electric iron	177 (89.4%)
Mobile phone	198 (100%)
Electric fan	55 (27.8%)
Bed and Mattresses	197 (99.5%)
Pump and Sprayer	5 (2.5%)
Bicycle	9 (4.5%)
Generator	50 (25.9%)
Motor cycle	13 (6.6%)
Lantern	197 (99.5%)
Motor car	5 (2.5%)
Land	2 (1.0%)
Total number of households	198

Source: Field Survey, 2011

Table 4 shows the effect of initial asset endowments of households on participation in urban farming. The result of Tobit regression model shows that sigma (δ) is 0.8847 with a t-value of 19.72, hence statistically significant. This indicates that the model has a good fit to the data. The result of showed that out of the nine explanatory variables included in the model, only five of are significant at different levels. These are household size (X_1), gender of household head (X_2) dependency ratio (X_4), access to credit (X_7) and distance to urban centre (X_8). A positive sign on a parameter indicates that the higher the value of the variables, the higher the likelihood of initial asset endowment of households participation in urban farming. Similarly, a negative value of coefficient implies the higher value of the variable the lower the likelihood of initial asset endowment of

household participation in urban farming. Household size decreases the initial asset endowment of household in participation in urban farming. The implication is that, as the number of member increases, more pressure is put in available household assets that can be put into urban agriculture, hence, tendency for household members to look for an alternative income generating activities. The gender of household head was negative and significant at 10% level. This implies being a male decreases the likelihood of committing your asset into urban agriculture rather using it for other activities that can bring in more money for the households. However, male headed household in the study area decreased his initial asset endowment committed into urban farming by 33.8%. In the case of dependency ratio, as the variable increases, initial asset endowment of the household on participation in urban farming decreased by 11.7%. This might be because dependency ratio shows that urban farming household will have many dependents to take care of, thus, increasing their household per capita expenditure and therefore reducing the amount of money that they can invest in agricultural activities.

In case of urban household access to credit, the variable was positive and statistically significant at 5% level. A unit increase in access to credit increased initial asset endowment of the household on urban farming in the study area. The implication is that availability of more capital that could be invested into farming is an impetus required by urban farmers to expand their participation in urban agricultural production.

Transport costs are potential constraints, particularly for urban farmers. Distance to the market significantly reduces the percentage of agricultural product sold in market. The result shows that the distance from farm to urban market was negative and significant at 1% level. A unit increase in the distance of the farmer from the farm to urban centre increased the initial asset endowment of household in urban farming by 53.8%. Given the substantial transaction costs of storing, transporting and marketing commodities, access to markets is critical for determining the comparative advantage of a given location, given its agricultural potential. For example, a community in an area of high agricultural potential may have an absolute advantage in producing perishable vegetables. Even if high value crops are profitable, farmers faced with high transport costs may need to produce low-value crops for their subsistence purposes rather than higher value cash crops (Omamo, 1998).

Table 4: Effect of initial asset endowments of households on participation in urban farming

Variable	Coefficient	Error term	t-value	dy/dx
Household size	-0.07748	-0.03788	-2.05**	-0.07748
Gender	-0.033793	0.17678	-1.91*	-0.033793
Age	0.01047	0.00732	1.43	0.01047
Dependency ratio	-0.16164	0.07280	-2.22**	-0.16164
Educational level	-0.00245	0.01390	-0.18	-0.00245
Membership of association	-0.15572	0.17297	-0.90	-0.15572
Access to credit	0.11663	0.0567	2.06**	0.11663
Distance to urban centre	-0.53788	0.16196	-3.32***	-0.53788
Share of sales to total production	-0.04199	0.15388	-0.27	-0.04199
Constant	0.18557	0.41682	0.45	
Sigma	0.8847	0.04485	19.72	
Log likelihood	-257.4306			

Source: Field survey, 2011

*** Significant at 1% level, ** significant at 5%, * significant at 10%

CONCLUSION AND RECOMMENDATIONS

The rational of this study is based on the nexus between household asset and profitability of urban farming in Ibadan metropolis of Oyo state. Based on the empirical evidence emanating from both descriptive and inferential statistics employed for this study, it could be concluded that initial household asset increased profitability of farmers. A few interesting discovery from this study shows that only six of assets are used by urban farmers in the area and are considered as important for their productive activities; these are land, telephone, water pump, refrigerator, car and bicycles. Also, results show that labour (family and hired labour) constituted largest (21.5%) of farmer's expenditure on farm. As average initial asset endowment of the household increases from the first quintile to the fourth quintile, profitability of farmers also increased. Household initial asset endowment influenced profitability of urban farming. This is revealed in the result of the Tobit regression that households' access to credit has the potential for enhancing participation in urban farming. The result further shows that if credit is a constraint in the farm, farmers who own more livestock, equipment, or other physical assets may be better able to finance the purchase of inputs or investments, either by liquidating assets or through better access to credit. Analysis suggests that policy makers interested in improving the living conditions of urban households may be advised to consider credit delivery and unrestricted access as one of the ways of channeling credit to farmers. This study has shown that labour

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constituted largest percentage of farmer's expenditure on farm, it is suggested that the children of urban farmers should be encouraged to assist their parents in farm in order reduce the amount spent on hired labour/child labour. Agriculture plays a pivotal role in improving the quality of life of urban farmers through income generation and poverty reduction where households aspire to invest more on their social and environmental capital which in return will result in a sustainable development. The challenge for urban and peri-urban agriculture is to become part of sustainable urban development and to be valued as a social, economic and environmental benefit rather than a liability.

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