Urbanisation, land market and livelihood among farming households in peri-urban Ibadan, Oyo State, Southwest Nigeria

Alawode, O. O. and Olayemi, I. O.
Department of Agricultural Economics, University of Ibadan, Nigeria
Correspondence contact details: busolaferanmi@gmail.com; oo.alawode@ui.edu.ng

ABSTRACT

This study examined the relationship between urbanization, land market participation and livelihood income of farming households in peri-urban Ibadan, Oyo state, southwest Nigeria. Multistage sampling procedure was used in selecting 202 respondents. Primary data were obtained from farming households through the use of structured questionnaire. Descriptive statistics, Principal Component Analysis, Land Market Index (LMI), Tobit regression model and multiple Regression model at p-0.05 were used in data analysis. The average urbanicity index was 0.48 showing that the area was truly peri-urban with 36.1% of the households highly urbanized and 26.7% semi-urbanized. Majority (72.8%) of the respondents were males with 45.6% in the high urban category and 70.9% of the females in low urban category. Majority (86.6%) were married, with 39.6% in the high urban category, while 80% of the widowed respondents were in the low urban category. The mean household size was 7(±3.34) persons. Majority (75.7%) had formal education with 69.4% of those without formal education in the low urban category. While all respondents were involved in crop farming, some combined it with livestock farming (3.5%), marketing (1.0%), petty goods trading (3.0%) and artisanship (5.9%). The mean livelihood income was ₦32,602.72 (±₦30,888.81). An average LMI of 0.41 indicates that 41% of the total land holdings were acquired through land market. Nativity status (-0.567), total land size (0.391), and urbanicity index (-0.549) had significant effects on households' participation in land market. Also, participation in non-farm activities (0.070), livestock farming (0.191), total land size (0.106) and LMI (-0.092) had significant effects on households' livelihood income. The extent of land market participation influenced livelihood income negatively showing the implicit effect of urbanization such that households now see other non-land based livelihood activities as more economically rewarding. Also, a positive coefficient means with time, urbanization can be a variable significantly affecting livelihood income, though not presently significant on household livelihood income, is definitely one to look out for. Policy effort aimed at making native and non-native farmers to acquire land with ease will be a potent tool in increasing farm size, which in turn should help increase households' livelihood income.

Keywords: Urbanicity index, Land market index, Livelihood income, Peri-urban.

INTRODUCTION

Agriculture, especially as practiced in developing countries such as Nigeria, has always been dependent on land. According to Lasun (2006), land is an important asset to farmers and to any nation seeking to achieve self-sufficiency in food, as well as physical development, improvement of living standards of its citizens, the manufacture of goods, and the establishment of institutions to support the basic needs of modern communities. As pointed out by Ukaejiofo (2009), land is the key factor for economic growth and development of every nation; the source for shelter in the urban areas and livelihood in the rural areas.

Kobe *et al.* (2017) explained that land is an indisputable source of wealth and employment even though land ownership and urbanization (given the continually increasing population) make it difficult to really access the full potential of this asset. It was reported by World Bank (2016) that agricultural land in Nigeria covers 531,765sq.km in the early 1960s, and stands at 708,000 sq. km in 2013, and this is increasingly less sufficient to meet up demand for it. Therefore, research has focused on the issues of land reform, land policies, and land market participation.

Land has been conventionally considered as one of the three basic factors of production (with labour and capital). This implies that in an exchange economy, land must be capable of being "traded", that is, bought and sold, rented, and used as collateral for obtaining capital. Based on this, Shearer *et al.* (1991) submitted that there is a "market" for land as for the other two factors of production (labour and capital), and the value of land in the market should be determined by the combination of relative scarcity and monetary productivity. Therefore, any land transfer process that is done on transaction basis or in which money is exchanged can be referred to as land market. According to Mahoney *et al.* (2007), land markets are regulated through land tenure and systems of land administration. The basic role of any land market is to allow for permanent or temporary transfers of land between potential land users.

As a global phenomenon, urbanization cuts across countries even though there are differences in factors which led to settlements acquiring urban status in different countries (Kline *et al.,* 2004). Urbanization, as described by Sada (1999), is the process by which a population and the development of infrastructure become concentrated in cities. Also, Bryan (2002) explained that urbanization entails more specialization in labour, increased food supply and city industrial specialization. As the cities grow, their structure becomes complex and their functions become diversified. City functions include commercial, administrative and manufacturing, and other functions that have been relegated to the background in developing countries.

One of these relegated functions is agricultural function. According to Hammond (2002), agriculture is still active in cities of developing countries; the cities are described as agro-villas. Although, the greater proportion of city dwellers engage in non-agricultural activities, the people at outskirts of cities (the peri-urban interface) practice much agriculture. The development and growth of modern urban centres in Nigeria during the colonial era were based on administrative and commercial motives. During this era, the greater proportion of Nigerian population was dependent on agriculture. The development and enlargement of urban centres in Nigeria have been tremendous since her independence in 1960; followed by the oil boom in the 1970s. In the history of Nigeria, this period was that of great industrial and infrastructural development (Anene, 2008).

As defined by Orum (2005), urbanization is a process whereby large number of people congregates and settles in an area; which leads to developing social institutions such as government and business to support the people. Also, Saiyangoku (2011) explained that urbanization can be a result of industrial revolution leading to large manufacturing centres which bring about job opportunities, with ease of transportation and migration. Urbanization brings about positive effects such as reduction in transport costs, better distribution of natural resources, better exchange of ideas, better opportunities to urban dwellers in terms of social amenities (which are lacking in the countryside), access to education to facilitate the disappearing of social and obnoxious taboos and sanctions, and to eradicate social evils through the diffusion of urban culture to rural areas.

On the other hand, urbanization can cause environmental pollution (land, water and air), easy spread of communicable diseases, overcrowding, which can lead to unemployment and under-employment, and severe shortage of housing and transportation leading to commuting problems. McGranaham *et al.* (2010) considered urbanization as often having negative effects on agriculture due to loss of agricultural land to urban expansion. Also, instead of youths to be gainfully employed on farms, they roam the streets, towns and cities in search of white-collar jobs.

The rate of urbanization in Nigeria is increasing, with her population projected to be 190.9 million in 2017; 49.3% of this being urban population at 4.82% annual rate of urbanization (United Nations, 2017). Peri-urban areas in Nigeria, like in other parts of developing world, are large settlements at the fringe of urban areas which are often not considered as part of overall urban development plans. They are often characterized by poor infrastructural development such as poor road network, limited access to water supply, poor electricity supply and inadequate access to improved sanitation facilities, among others. The areas are usually densely populated with the inhabitants engaging in different activities as means of livelihood.

Livelihood, in its simple sense, is the means by which households meet their basic needs; food and non-food (shelter, health and clothing). Livelihoods involve the capabilities and activities of people to earn a living as well as food, income and assets (Chambers and Conway, 1992). Assets are not only natural or biological assets (land, livestock and other common property resources), but also include social assets (social networks, empowerment, family ties and participation). Chambers (1997) identified three aspects to understanding livelihoods; the first being people and their livelihood capabilities, referring to basic functions that households can perform in order to generate livelihoods. An example might be growing and harvesting crops or producing certain goods to earn income so as to buy food. The second aspect is where assets refer to goods or commodities commanded by the households to secure the food or to attain livelihoods. Thirdly, assets can be further categorized into tangible and intangible assets; tangible assets refer to those assets that households can see such as cash savings, land, water, and farm equipment. Intangible assets include those assets which provide material and social means for a household to earn a living (Chambers, 1997).

Land is a very important asset for livelihood, therefore, having access to land is very crucial in order to eradicate poverty and food insecurity among rural households. Inadequate rights and insecure access to land often result in unending poverty, and are significant barriers to rural development and the alleviation of food poverty. Secure access to land is often a safe source of shelter, food and income in times of hardship, and a

family land may be the last resort in the instance of disaster (FAO, 2006), thereby reducing vulnerability to shocks.

Ibadan, historically acknowledged as a traditional city, which is the largest in sub-Saharan Africa, has grown rapidly from a modest population of 70,000 inhabitants in 1856 to a cosmopolitan and densely populated city (Gbadegesin, 1991). According to Adelekan (2010), the rapid development and spatial expansion of the city became pronounced in the wake of Nigeria's oil boom period of the 1970s. The influx of large population of migrants associated with the period resulted in the transformation of the predominantly indigenous city to a multi-cultural and multi-ethnic urban settlement. Ibadan is among West African cities that are increasing by more than 100,000 inhabitants annually, a reflection of the combined effects of natural increase and net-migration (United Nations, 2014). The 2006 National Population Census estimated the metropolis to be inhabited by 1.34 million people while the total population of greater Ibadan (Urban and Peri-Urban) was 2.55 million. The rapid rate of urbanization and the attendant socioeconomic problems has resulted in the proliferation of diverse risks within the urban environment.

Urban growth is largely associated with the process of peri-urbanization. The peri-urban developments were principally residential zones. During the period 1991 to 2006, on the average, population growth rate per year in the Ibadan metropolis was 0.5 percent while the growth rate for the peri-urban areas was an average of 4.8 percent a year, over the same period (Adelekan *et al.*, 2014). According to them, the national economic development of the 1970s had significant influence in the urbanization of the city. Since then, Ibadan has become large, sprawling with no discernible pattern of development. Unplanned urban expansion and development of peripheral informal settlements developed mainly along major transportation routes (Fourchard, 2003). This includes the rapidly expanding areas of the city, extending eastwards from the suburbs (largely occupied by immigrants) to the west and north of the core area which have developed with the slum characteristic of the core areas (Chokor, 1986).

The continuous increase in population, coupled with non-agricultural uses competing for land use, has a resultant effect of reducing the returns to land in terms of output; this would further expose the rural households in the country to even poorer economic conditions thereby impacting on the living standard and a change in livelihood strategies (Bamire and Fabiyi, 2002). The end result is a wide gap in resource availability among the poor households which culminates into a worsening livelihood and welfare situation as farms, which are most times the singular source of income, are converted to residential areas or are even abandoned due to the migration of capable farmhands to the cities.

This study examined the relationship between urbanization, land market participation and livelihood income of farming households in peri-urban Ibadan, southwest Nigeria. To achieve this, the following questions are answered in this study:

i. What is the present state of urbanization in the area?
ii. What types of livelihood activities are found among farming households?
iii. What levels of livelihood income are obtained by the farming households?
iv. What is the level of land market participation among the farming households?
v. What factors determine land market participation among the farming households?
vi. Is there relationship between urbanization, land market participation and livelihood of farming households in the area?

METHODOLOGY

The study was conducted in peri-urban Ibadan, Oyo state, southwest Nigeria. Ibadan is the capital city of Oyo state. It has a total population of 2,550,593 while the average population density was 828 persons per km^2 (National Population Commission, 2006). It has 11 local government areas (LGAs); five of the LGAs are within the metopolis; Ibadan North, Ibadan North East, Ibadan North West, Ibadan South, Ibadan South East, while the remaining six are at the peri-urban interface; Akinyele, Lagelu, Egbeda, Ona Ara, Oluyole, and Ido local governments. Ibadan's total land area is 3123 km, of which about 15 percent is urban and the remaining 85 percent is classified as peri-urban.

Primary data were collected through a cross section survey. Structured questionnaire was used to obtain information on socioeconomic characteristics of the farming households, land ownership, land acquisition methods and land market participation characteristics, urban function characteristics (adapted from Okoruwa and Ikudayisi, 2018), and livelihood activities.

Multi-stage sampling procedure was used to select respondents. The first stage was the random selection of 3 local governments out of the 6 peri-urban local governments around Ibadan: Akinyele, Egbeda and Lagelu. The second stage was the

purposive selection of agricultural settlements or villages where large numbers of farmers reside. Seventy copies of questionnaire were administered in 7 villages in each selected local governments, making a total of 210 respondents. However, due to invalid and incomplete responses, only 202 copies were adequate for the analysis.

Data were analyzed using descriptive statistics, Principal Component Analysis, Land market index (LMI) and econometric tools; ordinary least square regression and Tobit regression model.

Descriptive statistics such as frequencies, percentages and means were used to analyze the socio-economic characteristics of the farmers, livelihood income, types of land acquisition and plots involved in land market, and the results were presented using frequency distribution tables**.**

Principal Component Analysis for Urbanicity Index

Principal component analysis (PCA) was used to construct urbanicity index for the farmers in the study area. The index also describes the extent to which the farmers' communities are urbanized (Liao *et al.*, 2016; Zhou and Awokuse, 2014). Due to the multifaceted nature of urbanization, the aspects of urbanization used in this study are those that affect livelihood which include economy, infrastructure, education, health and social services.

The PCA creates non-correlated linear combinations of the variables with maximal variance. The development of the index enables easy handling of several highly correlated urban characteristics variables and improves statistical efficiency. Using several single and disaggregated measures separately to reflect a single underlying concept such as urbanicity index introduces the risk of collinearity which PCA overcomes and improves statistical efficiency.

For a set of p correlated variables, Principal Component Analysis creates uncorrelated components where each component is a linear weighted combination of the initial variables as expressed in equation 1, with X_1, X_2, … X_p, representing the urban Indicators

$$PC_1 = a_{11}X_1 + a_{12}X_2 + \ldots + a_{1p}X_p \quad \ldots.\ 1$$

Where a_{11} represents the weight for the X_1 principal component. The coefficient of the first principal component a_{11}, a_{12}, a_{1p} are chosen in such a way that the variance of PC_1 is maximized subject to the constraint that the sum of factor loadings must sum up to one as expressed in the equation 2.

$$a_{11}^2 + a_{12}^2 + a_{1p}^2 = 1 \quad \ldots.\ 2$$

The first principal component generated from the extracted factor scores gives the index which was further reclassified into three categories of urbanization: low, medium and high urban areas. The PCA is structured by a set of equations where the urban indicators are related to a set of latent factors expressed as:

$$a1x = b11 \times A1x + b12 \times A2x + \cdots + b1N \times ANx$$
$$x = 1, \ldots X$$

$$aNx - bN1 \times A1x + vN2 \times A2x + \cdots + bNN \times ANx$$

Where, the set of N variables, a*1x to a*Nx, represents the access to *N* urban indicators by each household *x*. These variables are normalized by its mean and standard deviation, where the *A*s are the components and the *b*s are the weights on each component for each variable. These selected variables are expressed as linear combinations of a set of underlying components for each household *x* with maximum variance. The final set of estimates is produced by scaling the *bn*s so the sum of their squares sums to the total variance, with the scoring factor from the model recovered by inverting the system from equation (1), and this yields a set of estimates for each of the N principal components given by:

$$A1j = b11a1x + b12a2x + \ldots + b1NaNx$$

$$x = 1, \ldots X$$

$$ANj = bN1a1x + bN2a2x + \ldots + bNNaNx$$

The first principal component, expressed in terms of the original (unnormalized) variables, is therefore an index for each household based on the expression

$$A1j = b11 \times (a*1x - a*1)/(s*1) + \ldots$$
$$\ldots + b1N \times (a*Nx - a*N)/(s*N$$

The index so developed was used to disaggregate household urbanization level within peri-urban settings that is being location specific as opined by Cockx *et al.* (2017).

Land Market Index

Land market index (LMI) was used to assess the extent to which the farmers participated in land

market. The index reveals the proportion of farm plots acquired through land market to the total farm size cultivated by the farming households and it is defined as;

LMI_i =

Area of land obtained through land market by household *I* / Total area of land held by the household *i*

The LMI ranges from 0 to 1 ($0 \leq LMI \leq 1$)

Where LMI = 1 if all plots of land held by the farmer are acquired through transaction-based method

LMI = 0 if none of the plots of land is acquired through transaction-based method.

Tobit Regression Model for Determinants of Land Market participation

Identification of factors determining the extent of land market participation among farming households was estimated through the Tobit regression model. The model assumes a threshold value of zero, that is, the value assigned for non-participants in land transactions. For the remaining respondents, the variable takes on a wide range of values above the limit.

The fitted model was specified as follows:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \cdots \beta_{12} X_{12} + ui$$

Where dependent variable Y_i = land market participation index ($0 \leq LMI \leq 1$)

X_1 = Sex (Male =1, Female = 0)

X_2 = Nativity Status (Native = 1, Non-native = 0)

X_3 = Age of household head (years)

X_4 = Household size (number)

X_5 = Marital Status (1= Married, otherwise =0)

X_6 = Years of formal education

X_7 = Non-farm work (Yes = 1, No= 0)

X_8 = Household monthly income (Naira)

X_9 = Urbanicity index ($0 \leq UI \leq 1$)

X_{10} = Total farm size (hectares)

X_{11} = Number of Farm plots

X_{12} = Access to credit (Yes = 1, No = 0)

u_i = Error term

Ordinary Least Square Model

Ordinary Least Squares (OLS) regression was used to determine the effect of land market participation and urbanization on livelihood income of the households.

The model is given as:

$$Y = \beta_0 + \sum_{i=1}^{0} \beta_i X_i + \varepsilon_i$$

Where Y represents the dependent variable (livelihood income),

β_0 represents the intercept,

β_i represents the coefficients of the independent variables,

X_{is} are the independent variables, and

ε_i is the error term.

The fitted model was therefore specified as follows:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \cdots \beta_{12} X_{12} + u_i$$

$X_1 - X_{12}$ are the independent variables

Dependent variable:

Y_i= Monthly income (in Naira)

Independent variables:

X_1= Sex of respondent. (1=male, otherwise=0)

X_2= Nativity status (1=native, 0= non-native)

X_3= Age (years)

X_4= Household size (number of persons)

X_5= Years of formal education

X_6= Non-farm activities (Yes = 1, otherwise=0)

X_7= Access to credit (Yes = 1, otherwise=0)

X_8= Livestock farming (Yes = 1, otherwise=0)

X_9= Number of farm plots

X_{10}= Total farm size (hectares)

X_{11} = Land Market Index ($0 \leq LMI \leq 1$)

X_{12} = Urbanicity Index ($0 \leq UI \leq 1$)

u_i= Error term

RESULTS AND DISCUSSIONS

State of Urbanisation in Farming Households

In estimating an index that would best describe the state of urbanization of households in the study area, domains that could affect the urbanization process such as public services, society and lifestyle were broken down and variables drawn from them. The selection and classification were guided by the results of the Eigen values as shown in Table 1. The rule of thumb is that components

with Eigen values above 1 are to be considered in the components analysis. As shown in Table 1, out of 18 components, 6 had values above 1. Therefore, the urban function characteristics were grouped under the 6 components or domains.

Table 1: Table of Eigen Values

Components	Eigenvalue	Difference	Proportion	Cumulative
Component 1	5.401	3.290	0.300	0.300
Component 2	2.112	0.391	0.117	0.417
Component 3	1.720	0.475	0.096	0.513
Component 4	1.245	0.172	0.069	0.582
Component 5	1.073	0.036	0.060	0.642
Component 6	1.037	0.179	0.058	0.699
Component 7	0.858	0.033	0.048	0.747
Component 8	0.825	0.030	0.046	0.793
Component 9	0.795	0.150	0.044	0.837
Component 10	0.645	0.064	0.036	0.873
Component 11	0.582	0.132	0.032	0.905
Component 12	0.449	0.114	0.025	0.930
Component 13	0.335	0.023	0.019	0.949
Component 14	0.313	0.087	0.017	0.966
Component 15	0.226	0.057	0.013	0.979
Component 16	0.169	0.055	0.009	0.988
Component 17	0.114	0.012	0.006	0.994
Component 18	0.102	.	0.006	1.000

Source: Data Analysis, 2019

Description of urban function characteristics used in the estimation of Urbanicity Index

The description of the indicators of urban function characteristics used in the estimation of the extent of urbanization are shown in Table 2.

Communication

Access to media services such as owning a television, a radio set, a mobile phone and/or having access to internet services constituted the communication component. From the results, it was seen that majority (96.5%) of the respondents owned mobile telecommunication device showing a high level of that technology adoption in the area and presence of mobile telecommunication networks. Also, majority (83.2%) owned radio set showing the need for contact with the happenings in the society and more than half (61.9%) had television set. Meanwhile, less than one-quarter (22.8%) of the respondents had access to internet services which shows that the presence of internet enabled device is relatively low compared to fully urbanized areas.

Health

Availability and accessibility of healthcare facilities to the households are important because healthcare is a social and public service which usually is available in urban areas as compared to its paucity in rural areas. Majority (87.5%) of the respondents claimed to have access to healthcare facilities while only 53.5% claimed a proximity of less than 5 kilometers to their place of abode. Healthcare facilities should be close enough so as to cater for emergencies and other health related contingencies.

Housing

The housing component had more variables compared to other components, since the index deals with what each household possesses and not just the locational characteristics of the study area as concerning urbanization. Of the 9 variables suggested for the analysis, 8 were used for the PCA with the exception of the respondents' response to usage of firewood as a cooking energy source. Access to potable water, having a water closet, using liquefied petroleum gas as cooking energy and having electricity supply of at least 12 hours daily should usually characterize a household as being urbanized. In the results, less than one-quarter (23.3%, 24.8%, 23.8% and 19.8%) of the respondents gave positive responses to these questions respectively. Majority (92.1%) of the households still utilized firewood as source of energy, obviously in conjunction with other sources such as kerosene (69.6%). In terms of disposal of human waste, 54.5% and 40.1% of the respondents said they used pit latrines and bush disposal respectively with just about one-quarter (24.8%) using water closets.

Education

The variable used to represent this indicator was the proximity of basic education structures (schools) to the households at a distance of not more than 5 kilometers. More than half (58.4%) had schools close to their homes.

Markets

Just above one-quarter (27.7%) of the respondents had open markets, retail shops, supermarkets, shopping malls or fast-food outlets close to their homes.

Transportation

Type of road and means of transportation constituted the transportation component with less than half (44.6%) agreeing that there were good motorable roads close to their houses, 14.9% owned cars, 10.4% owned bicycles while 31.7% claimed to own motorcycles. All the 4 variables were found to be useful in the factor analysis.

Table 2: Description of urban Function Characteristics Used in the Estimation of Urbanicity Index

Urban indicators	Variables Used	Frequency (n=202)
Communication	Do you own a Radio set	168 (83.2)
	Do you have a Television	125 (61.9)
	Do you own a mobile phone?	195 (96.5)
	Do you have access to internet services	46 (22.8)
Health	Are there healthcare facilities close to your house?	108 (53.5)
	Do you have access to healthcare facilities?	177 (87.5)
Housing	Do you have access to potable water?	47 (23.3)
	Do you have a water closet?	50 (24.8)
	Do you use a pit latrine?	110 (54.5)
	Do you do bush disposal?	81 (40.1)
	Do you have access to cooking energy Firewood?	186 (92.1)
	Cooking gas	48 (23.8)
	Kerosene	141 (69.8)
	Do you have access to electricity?	96 (47.5)
	Is the supply very good?	40 (19.8)
Education	Are there schools close to your house?	118 (58.4)
Markets	Are there open markets, retail shops, supermarkets, shopping malls or fast food outlets close to you?	56 (27.7)
Transportation	Are there good motorable roads close to your house	90 (44.6)
	Do you own a car?	30 (14.9)
	Bicycle?	21 (10.4)
	Motorcycle?	64 (31.7)

Source: Field Survey, 2019
Figures in parentheses are percentages

Extent of urbanization of Households

Using the urbanicity index generated by the Principal Component Analysis (PCA), the households were categorized and the results are presented in Table 3. The results show that the mean urbanicity index was 0.48 (±0.28). This is in line with the results of Okoruwa and Ikudayisi (2018), who in their study found an average urbanicity index of 0.46 in households in southwestern Nigeria. This shows that the area under study can be classified generally as a Peri-Urban region, since the index ranges from 0 (completely rural) to 1 (completely urban). The urbanicity index was further broken down into terciles and classified as; low (0 – 0.33), medium (0.33 – 0.66) and high (0.66 – 1) urban categories. This was in line with Mehaina *et al.* (2016) who used the comprehensive urban level index to classify settlements in Egypt. Invariably, this classification can be generalized and labelled as rural, semi-urban and urban categories. The grouping shows that a higher percentage (37.1%) of households were in the low urban or rural category, 26.8% of the households were semi-urbanized while 36.1% were found to be highly urbanized.

The test for robustness for PCA as an index construction method revealed a Kaiser-Meyer-Olkin (KMO) value of 0.8006 which was significant at 1% and shows that the variables selected were adequate in explaining urbanicity index (the rule of thumb is that the value should be greater than 0.6). The Factor Analysis Explained Variance (FAEV) value of 0.6993 implies that the selected indicators described almost 70% of the urbanicity level in the study area, and the Cronbach alpha value of 0.8372 shows the reliability of variables in index construction (reliability

coefficient of 0.70 or higher is considered acceptable as the rule of thumb). Also, the Bartlett's test of sphericity using a 95% level of significance ($\alpha = 0.05$) shows a p-value of 0.000 which is obviously less than 0.05 implying that the PCA was valid. Therefore, at $p < \alpha$, we do not reject the alternate hypothesis that there may be statistically significant interrelationship between variables. This test of robustness was adapted from the works of Mehaina *et al.* (2016) who reported the use of this test for comprehensive Urbanization Level Index (CULI). The test results show that the PCA was reliable in developing the index.

Table 3: Extent of Urbanization of Households

Urban Category	Frequency	Percentage
Low	75	37.1
Medium	54	26.8
High	73	36.1
Total	202	100.0
Mean Urbanicity Index	0.48 ± 0.278	
KMO	0.8006***	
Bartlett test	1754.251***	
Df = 153	Sig = 0.000	
FAEV	0.6993	
Cronbach Alpha	0.8372	

Source: Data Analysis, 2019
*** *Significant at 1%*

Socioeconomic distribution of respondents by Urbanicity Index categories

Table 4 shows the distribution of the respondents' socioeconomic characteristics by their urban categories. From the results, 72.8% of the respondents were males. This agrees with the findings of Otitoju (2018) who found that majority of crop farmers in Southern Nigeria are male. When further classified into the various urban categories, 45.6% of the males were found to be in the high urban category while the largest percentage (70.9%) of females were found to be in the low urban category. The reason for this might be that male farmers are generally known to be fast adopters of innovations and in the case, urban lifestyles, as compared to their female counterparts. Also, some rural farmers, while in the urban areas in search of inputs to use on their farms, tend to be exposed to some urban lifestyles and therefore adopt some of those key variables that constitute a high household urbanicity index.

More than half (53%) of the respondents were between the age range of 51 and 70 years. Also, 40.6% of the respondents were between the age of 31 and 50 years while 5.0% of the respondents were found to be 30 years and below. The mean age of 52.5±12.4 shows that respondents in the study were in their middle age and of the working class (independent). Also from the results, it was seen that respondents between the age of 51 and 70 years were found more (41.1%) in the rural category while those between the age of 31 and 50 years were found more (47.6%) in the high urban category. The reason for this might be because most respondents between the age of 51 and 70 years tend to be indifferent about acquiring some of these key variables affecting the urbanicity index, while those between the age of 31 and 50 years who are still in their active years are more exposed to these innovations and are therefore more inclined to possess these indicators.

Majority (86.6%) of the respondents were married with 39.4% in the high urban category. The respondents who were not married (1.0%) were in the medium urban category. Majority (80%) of widowed respondents were found in the low urban category. This may be due to their relocation back to the hinterlands after the passing away of their partners (usually the household head who is a male). The high percentage of married respondents might, asides the cultural reasons, be because of the labour source mainly found in most rural areas which is either family labour or both family and hired labour. They will therefore prefer to get married rather than remain single as this would mean having more hands on the farm. However, the more the household size, the more vulnerable they are to poverty. Results show that there were more married people in the rural and urban categories.

Half (50.0%) of the respondents had household sizes between the range of 6 and 10 with 39.6% in the high urban category, while respondents with household size less than 5 were 37.6% with more than half (56.6%) of this proportion in the low urban categories, respectively. Also, 12.5% of the respondents had household sizes ranging between 11 and 15 persons. The mean household size of 6.7

±3.3 persons shows that most of the respondents had large household sizes, which is one of the characteristics of rural and peri-urban areas. This is in line with the result obtained by Elisha *et al.* (2017) in which majority of the cocoa farmers sampled by them had household sizes between 5 and 10. thus indicating a large family in the study area and also meaning that the farmers had cheap source of labour from their large household sizes. This will however increase the per capita expenditure of the household making investment in properties a bit more difficult. Meanwhile, households with less than 5 members were found to be more in the rural areas while those that are between 6 and 10 were found to be more in the urban categories.

The largest proportion (35.1%) of the respondents, as shown by the results, are those with secondary education, while those who had primary school education were 30.7%. Respondents with no formal education were 22.5% while those with tertiary education were 9.9%. Most (69.4%) of those without formal education were in the low urban category while 45.0% of those with tertiary education were in the high urban category. Since most of the respondents had one form of education or the other, education should propel economic motivation and also widen their social and economic horizon which will make them have greater receptivity to new ideas. This also explains the highest proportion of those without formal education in the low urban category. Also, 36.6% of the respondents sampled were migrants with 39.2% in the low urban category. The greater proportion (63.4%) of the respondents were natives with 39.8% in the high urban categories.

Only 32.2% of the respondents claimed to have access to formal sources of credit. This agrees with the work of Tsue *et al.* (2014), who found that credit access is a major constraint to farmers. Credit is considered as an important source of investment and helps to improve livelihood strategies of households. Households who have better access to credit can have better investment in preferred livelihood strategies. When disaggregated against the urban categories of the respondents, it was shown that 48.2% of respondents without access to credit were in the low urban category, while 56.9% of those respondents with access to credit were found in the high urban category. The reason for this might be because there are more institutions that provides credit for the farmers in urban areas when compared to the rural areas. It might also be because collateral is usually demanded from people who want to borrow money from credit institutions. Such collaterals might be easier to get by the respondents in the high urban category, because of this, they will have more access to credit facilities when compared to their counterparts in the low urban/rural category.

Table 4: Socioeconomic Distribution of Households by Urban Categories

Variables	Low urban category	Medium urban category	High urban category	Total (n=202)
Sex				
Female	39(70.9)	10(18.2)	6(10.9)	55(27.2)
Male	36(24.5)	44(29.9)	67(45.6)	147(72.8)
Age (Years)				
≤30	0(0.0)	9(90.0)	1(10.0)	10(5.0)
31 – 50	28(34.1)	15(18.3)	39(47.6)	82(40.6)
51 – 70	44(41.1)	30(28.0)	33(30.8)	107(53.0)
>70	3(1.5)	0(0.0)	0(0.0)	3(1.5)
Mean 52.5(±12.4)				
Marital Status				
Never Married	0(0.0)	2(100.0)	0(0.0)	2(1.0)
Married	55(31.4)	51(29.1)	69(39.4)	175(86.6)
Widowed	20(80.0)	1(4.0)	4(16.0)	25(12.4)
Household Size				
≤5	43(56.6)	13(17.1)	20(26.3)	76(37.6)
6-10	29(28.7)	32(31.7)	40(39.6)	101(50.0)
11-15	3(12.0)	9(36.0)	13(52.0)	25(12.4)
Mean 6.7 (±3.3)				
Educational Status				
Primary	23(37.1)	16(25.8)	23(37.1)	62(30.7)
Secondary	14(19.7)	22(31.0)	35(49.3)	71(35.1)
Tertiary	4(20.0)	7(35.0)	9(45.0)	20(9.9)
Non-formal Education	34(69.4)	9(18.4)	6(12.2)	49(24.3)
Nativity Status				
Non-Native	29(39.2)	23(31.1)	22(29.7)	74(36.6)

Variables	Low urban category	Medium urban category	High urban category	Total (n=202)
Native	46(35.9)	31(24.2)	51(39.8)	128(63.4)
Access To Credit				
No	66(48.2)	35(25.5)	36(26.3)	137(67.8)
Yes	9(13.8)	19(29.2)	37(56.9)	65(32.2)
Total	**75(37.1)**	**54(26.7)**	**73(36.1)**	**202(100.0)**

Source: Field Survey, 2019

Figures in parentheses are percentages

Livelihood activities and income generation by farming households

The results of the various livelihood activities engaged in by respondents in the study area are presented in Table 5. All the respondents were involved in one form of crop farming or the other with some combining crop cultivation with other activities such as rearing of livestock and commercial activities such as petty goods trading, marketing and artisanship. The descriptive analysis shows that 85.6% of the respondents cultivated crops only while 5.9% combined crop farming with one form of artisanship such as carpentry, masonry and general repairs, and 3.5% reared livestock in conjunction with cultivating crops, 3.0% engaged in petty trading while still raising crops, 1.0% combined marketing activities with crop farming and 1.0% combined crop farming with livestock farming and marketing. The results may suggest that the farmers understood the increase in market demand for crop produce.

Table 5: Livelihood activities among respondents

Variables	Frequency n=202	%
Crop Farming only	173	85.6
Crop combined with;		
Livestock farming	7	3.5
Marketing	2	1.0
Trading	6	3.0
Artisanship	12	5.9
Livestock farming and Marketing	2	1.0

Source: Field Survey, 2019

The total monthly incomes generated by the farming households from the various livelihood activities are presented in Table 6. From the results, 41.1% of the respondents generated between ₦10,000 and ₦30,000 monthly, and 30.2% generated between ₦30,000 and ₦50,000. This is in line with the results of Agboola (2017), who in her study found that 48.5% of farming households in Oyo State generated monthly income between ₦10,000 and ₦50,000.

However, 8.4%, 2.5% and 2.0% of the total respondents generated ₦50,000-₦70,000, ₦110,000-₦130,000 and ₦90,000-₦110,000 monthly, respectively. The remaining 15.3% and 0.5% of the respondents earned less than ₦10,000 and more than ₦130,000 monthly, respectively.

Table 6: Income generated by Respondents from Livelihood Activities

Livelihood income (₦/Month)	Frequency	Percent
<10,000	31	15.3
10,000 – 30,000	83	41.1
30,001 – 50,000	61	30.2
50,001 – 70,000	17	8.4
70,001 – 90,000	0	0.0
90,001 - 110,000	4	2.0
110,001 - 130,000	5	2.5
>130,000	1	0.5
Total	202	100.0
Minimum = 3,333.3		
Maximum = 291,666.7		
Mean Income = 32,602.72 (±30888.81)		

Source: Field Survey, 2019

When the livelihood income of the respondents was plotted against the urban categories, results in Table 7 show that very high proportion (74.2%) of respondents having income below ₦10,000 were found in the low urban category while the single respondent with an income above ₦130,000 was found in the high urban category. The results show that income differential is key in defining the urban category of a household, as indicated by the distribution. As income range increases, higher proportions of respondents fall in the semi and highly urbanized categories. This follows *a priori* expectations since monetary resource availability is important in the acquisition of those key variables determining urbanization of households (Table 2).

Table 7: Distribution of respondents' livelihood income by urban category

Livelihood Income (₦/Month)	Low Urban Category	Medium Urban Category	High Urban Category	Total
<10,000	23(74.2)	8(25.8)	0(0.0)	31(15.3)
10,000 - 30,000	38(45.8)	25(30.1)	20(24.1)	83(41.1)
30,001 - 50,000	7(11.5)	12(19.7)	42(68.9)	61(30.2)
50,001 - 70,000	4(23.5)	4(23.5)	9(52.9)	17(8.4)
70,001 – 90,000	0(0.0)	0(0.0)	0(0.0)	0(0.0)
90,001 - 110,000	1(25.0)	2(50.0)	1(25.0)	4(2.0)
110,001 - 130,000	2(40.0)	3(60.0)	0(0.0)	5(2.5)
>130,000	0(0.0)	0(0.0)	1(100.0)	1(100.0)
Total	75(37.1)	54(26.7)	73(36.1)	202(100.0)

Source: Field Survey, 2019
Figures in parentheses are percentages

Participation of households in Land Market and determinants of their participation

Extent of participation of farming households in Land Market

The land market indices of households in the study area are presented in Table 8. The results show that 54.0% of the households had an index of 0.00 implying that none of their landholdings was acquired through land market processes such as purchase, lease or rent. On the other hand, 5.4% had an index ranging between 0.251 and 0.50 meaning about a quarter to half of their land holdings was acquired through land market. However, 33.2% acquired their entire land holding through land market. The average land market index of the study area was 0.41(±0.461), meaning 41.0% of the total land held by the respondents were acquired through land market, showing that land market is very active in the peri-urban area.

Table 8: Land Market Index of Respondents

Land Market index	Frequency (n=202)	Percent
0.00	109	54.0
0.01-0.25	0	0.0
0.251-0.50	11	5.4
0.501- 0.75	13	6.4
0.751-0.99	2	1.0
1.00	67	33.2
Total	202	100
Mean	0.41(±0.461)	

Source: Data Analysis, 2019

When land market index was further classified into the different urban categories as shown in Table 9, of the total number of respondents who did not participate in market-based transactions, 41.3% were found in the low urban category, while 77.6% of those that acquired all their land holdings through transactional means were in the medium and high urban categories. This may indicate that these respondents have the financial clout to actually offer money in exchange for their land ownership or holdings as shown by their positive responses to those key variables that determined urbanisation outlined in Table 2.

Table 9: Distribution of Land Market Index by Urban category

Land Market Index	Low urban category	Medium urban category	High urban category	Total
0.00	45(41.3)	23(21.1)	41(37.6)	109(54.0)
0.01-0.25	0(0.0)	0(0.0)	0(0.0)	0(0.0)
0.26-0.50	9(81.8)	1(9.1)	1(9.1)	11(5.4)
0.51- 0.75	5(38.5)	4(30.8)	4(30.8)	13(6.4)
0.76-0.99	1(50.0)	0(0.0)	1(50.0)	2(1.0)
1.00	15(22.4)	26(38.8)	26(38.8)	67(33.2)
Total	75(37.1)	54(26.7)	73(36.1)	202(100.0)

Source: Data Analysis, 2019

Figures in parentheses are percentages

Factors determining participation of farmers in Land Market

The Tobit regression analysis results on factors determining participation of farmers in land market are presented in Table 10. To determine the factors affecting the participation of farmers in land market, 12 variables were used; sex, nativity status, age, household size, marital status, years of formal education, off-farm work, number of plots, monthly income, total farm size, urbanicity index and access to credit. Eight variables were however found to be significant; nativity status, household size, marital status, years of formal education, non-farm work, monthly income, total farm size, and the urbanicity index. The significant variables were found to either have positive or negative effect on the participation of farmers in land market among the households.

Nativity status

The nativity status of the respondents had a significant negative effect on land market participation with a marginal value of 0.5673 at 1% level. This indicates that being a native of a particular area reduces the extent of such individual's participation in land market since most indigenes tend to inherit their lands, hence, there is hardly any need to rent, lease or purchase land.

Household size

The effect of household size on participating in land market was found to be positive and significant at 1% level. This implies that an increase in household size would lead to an increase in the extent of land market participation among households by 7.5%. A larger household size symbolizes greater endowments in family labour available for land cultivation. Large family size is an indicator for availability of labour, provided that the majority of the family members are within the age range of active labour force. Availability of family labour might therefore propel the household head (whether native or non-native) to acquire more land (especially by transaction) due to the size of his household.

Marital status

Marital status was found to be significant at 10% and had a positive relationship with participation in land market. This means that being married will lead to a 0.135 increase in land market participation. The reason for this might be because being a married man or woman increases responsibilities. The responsibilities of being married will therefore increase the likelihood of participating more in land market.

Years of formal education

Results show positive significant relationship between the years of formal education of farmers and their participation in land market at 1% level. This implies that as the level of education of a farmer increases, there is a greater likelihood (4.75%) for such farmer to participate in land market. Bizimana (2011) however opined that the effect of education on land market remains ambiguous, revealing that as a farm household acquires more education, the propensity to rent out may increase due to increased opportunity cost of farming, thus, the effect of education can be positive on the decision to rent out land in such an environment. On the other hand, where the knowledge obtained enhances the farmers' ability to obtain, process and utilize new information, he may choose to rent out less of his land and work on his farm efficiently.

Off-farm work

Engaging in off-farm work was found to have a negative relationship with land market participation at 5% significance level. This means that a unit increase in those farmers' off-farm work reduces the likelihood of participation in land market by

0.236. The reason for this might be because as the famers get more income from their off-farm works, they will prefer to keep channelling their resources and income into such businesses rather than acquiring more land for farming. Also, rather than acquiring more land for farming, they may prefer to rent out their land.

Monthly income

The household income was found to have significant negative effect (though negligible) on household land market participation at 5% level. The reason might be their involvement in non-farm activities which generate more income for them than the farm activities.

Urbanicity index

The urbanicity index of households had negative relationship with their land market participation which was significant at 5% level. This means the more urbanized the household is, the less their participation in land market. This relationship could be due to steady urbanization which causes increase in the value of land in the area, which might make households to be reluctant to let go of their land holdings therefore holding on to what they presently own. Likewise, the increase in land prices would mean less and less households would be able to acquire more land.

Total Land size

There exists a positive significant relationship between the total land size and households' participation in land market at 1% level. This intuitively implies that households with larger landholdings who understand the need for expansion and have the required resources are likely to participate in land market. Also, the households with large land holdings would likely participate in land market in the aspects of rent outs or sales, since the region is one where urbanization is creeping upon. With the attendant increase in the value of land holdings, household with large land endowments would be willing to exchange ownership for cash.

Table 10: Tobit results on the factors determining participation of farmers in land market

Land Market Index	Coefficient	Standard Error	P Value	Marginal effect
Sex	-0.1391376	0.1736259	0.424	-0.1391
Nativity Status	-0.5673446	0.1228379	0.000	-0.5673***
Age	-0.0089919	0.0066374	0.177	-0.009
Household Size	0.0748033	0.0206186	0.000	0.0748***
Marital Status	0.1349597	0.0716368	0.061	0.1352*
Years of Formal Education	0.0474648	0.0123387	0.000	0.0475***
Non-farm Work	-0.2359424	0.0985287	0.018	-0.2359**
Monthly Income	-6.47E-06	2.72E-06	0.018	-0.0001**
Urbanicity Index	-0.5493973	0.2259946	0.016	-0.5494**
Total Land Size	0.3907461	0.0583788	0.000	0.3907***
Number Of Farm Plots	0.0786641	0.081562	0.336	0.0787
Access To Credit	0.0940469	0.1355285	0.489	0.0943
Constant	0.1239615	0.397513	0.756	0.1243
Sigma	0.5510212	0.0387832		
Number of observations = 202	F (12, 190) = 14.13		Prob > F = 0.0000	
Log pseudo likelihood = -140.34561	Pseudo R^2 = 0.3435			

Source: Data Analysis, 2019

Note: the symbols ***, **, * represent significance at 1%, 5% and 10% respectively

Effects of Land Market Participation and Urbanization on Livelihood Income of Respondents

Ordinary Least Square method was used to analyze the effect of land market participation and urbanization on livelihood income of the respondents. An R-square value of 0.5614 showed that 56% of the variations observed in the dependent variable can be explained by the explanatory variables in the model. Also, 12 variables were used for the analysis of this objective but 6 variables were found to either have positive or negative significant relationship with the livelihood income of the respondents. Results are presented in Table 11.

Land market index

This was found to have negative significant effect (at 1% level) on livelihood income of the households in the study area, implying that households that do not participate in land market tend to have more income than non-participants. This is contrary to the results of Edriss and Garedow (2014) who established that participation in land rent significantly improved the productivity of land poor and/or landless households. This may

be due to the implicit effect of urbanization such that households now see other non-land based livelihood activities as more economically rewarding than engaging in farming which is still primarily land based.

Urbanicity index

Urbanicity index, though not significant, had positive relationship with the livelihood income of the households. This might be because as the respondent's area keep getting urbanized, there will be a unit increase in the livelihood income of the farmers. This may be due to an increase in commercial activities in the area, especially the commercial transportation and petty retail goods business. Tapping into such opportunities might be reflected in form of improved livelihood income among them.

Other socio-economic characteristics

Sex

The sex of respondents was found to be significant at 1%. This means that being a male will increase livelihood income by 13.2% when compared to being a female. The reason for this might be because of the necessity of the male in making sure that he caters for his household members and meet up with his responsibilities.

Household size

Another significant variable was the respondents' household size. It was significant at 1%. The positive coefficient shows that a unit increase in the household size of the respondents will increase the livelihood income of the respondent by 1.6%. The reason for this result might be because there are some people in the household that might be supporting the household head to help contribute to the income of the family.

Non-farm work

Respondent's involvement in non-farm activities had a positive relationship on his livelihood income by a factor of 0.0697 which was significant at 5%. This follows *a-priori* expectation that a person's involvement in diverse livelihood activities should significantly improve his/her livelihood income since he is getting income not only from farming, but also from other means.

Livestock farming

Livestock farming had positive relationship on the livelihood income of the respondents and this was significant at 5%. This suggests that households that were involved in livestock activities were able to generate more money that improved their monthly income. In addition to crop production, engagement in livestock farming increases livelihood income by 19.1% as compared to those who were not engaged in it.

Total land size

The total land size of household had a positive effect on respondent's livelihood income. This was significant at 1%. As respondent's land size increases, livelihood income increases by 10.6%. This is in line with *a priori* expectation as increase in land size cultivated should translate to higher level of production which will go a long way in enhancing the income of the farming households.

Table 11: Multiple regression result showing the effect of land market participation and urbanization on livelihood income of the respondents

Livelihood	Coefficient	Standard Error	P Value	Marginal Effect
Land Market Index	-0.092275	0.04309	0.034	-0.092**
Urbanicity Index	0.040243	0.07156	0.575	0.040
Sex	0.132015	0.04580	0.004	0.132***
Nativity Status	-0.015532	0.03970	0.696	-0.016
Age	-0.002171	0.00167	0.194	-0.002
Household Size	0.016084	0.00555	0.004	0.016***
Years of Formal Education	0.002321	0.00383	0.545	0.002
Non-farm Work	0.069690	0.03166	0.029	0.070**
Access to Credit	-0.034671	0.04233	0.414	-0.035
Livestock Farming	0.190982	0.08830	0.032	0.191**
Number of Farm Plots	-0.033602	0.02262	0.139	-0.034
Total Land Size	0.106011	0.01118	0.000	0.106***
Constant	0.113382	0.10946	0.302	0.113

Number of observations = 202
F (12, 189) = 20.16
Prob > F = 0.0000
R-squared = 0.5614
Root MSE = 0.21096
Source: Data Analysis, 2019
*Note: the symbols ***, **, * represent significance at 1%, 5% and 10% respectively*

CONCLUSION AND RECOMMENDATION

The socio-economic characteristics of households in the peri-urban area differ across the three urban categories; low urban, semi-urban and high urban. Non-market based land transaction is still prominent among households in the low-urban category while land market participation is more among households in the semi urban and high urban categories. Urbanization influences land market participation negatively due to urban functions which are able to increase land values. Also, land market participation affects the livelihood income of households negatively due to the implicit effect of urbanization such that households now see other non-land based livelihood activities as more economically rewarding than engaging in farming which is still primarily land based. However, positive urbanization effect on livelihood income through non-farm work brought about by urban functions, though not presently significant on household livelihood income, is definitely one to look out for.

Urbanicity index significantly influences household participation in land markets negatively. Policy effort aimed at making native and non-native farmers to acquire land with ease will be a potent tool in increasing farm size, which in turn should help increase households' livelihood income. This, however, calls for a more in-depth integration between the various arms of government and the ministries involved. Reforms aimed at increasing tenure security would necessarily impact on the functioning of land markets as this will assist in productive land distribution.

Engagement in livestock farming has a significant positive relationship with farming households' livelihood income. Therefore, with the continued shortage in the supply of animal protein in the country, crop farming households in these peri-urban areas should be encouraged to participate more in this aspect of agriculture. Incentives and extension services should help improve this area.

Engagement in other non-farm livelihood activities has a significant positive relationship with farming households' livelihood income. Therefore, farming households in these peri-urban areas should be encouraged and educated to participate more in viable non-farm activities to increase their livelihood income

REFERENCES

Adelekan, I. O. (2010). Urbanization and Extreme Weather: Vulnerability of indigenous populations to windstorms in Ibadan, Nigeria. Department of Geography, University of Ibadan, Nigeria. 65pp

Adelekan, I., Olajide-Taiwo, L., Ayorinde, A., Ajayi, D. and Babajide, S. (2014). Building Urban resilience: Assessing Urban and Peri-urban Agriculture in Ibadan, Nigeria. [*Padgham, J. and J. Jabbour (eds.)]*. United Nations Environment Programme (UNEP), Nairobi, Kenya.

Agboola, O. M. (2017). Rural Land Market, Livelihood and Welfare among Households in Oyo State. *An Unpublished MSc. Thesis* submitted To the Department of Agricultural Economics, University Of Ibadan. Pp 31-33.

Anene, J. O. (2008) "The Establishment and Consolidation of Imperial Government in Nigerian cities", Paper presented at the conference organized by Nigerian Institute for Social and Economic Research (NISER) Ibadan.

Bamire, A. S. and Fabiyi Y. L. (2002). Adoption pattern of fertilizer technology among farmers in the ecological zones of South-Western Nigeria: A Tobit analysis. *Australian Journal of Agricultural Research*. 53:901-910.

Bizimana, C. (2011): "Determinants of land rental markets: Theory and econometric evidence from rural Rwanda" *Journal of Development and Agricultural Economics.* 3(4): 183-189.

Bryan, R. (2002) Cities of Peasants, Edward Arnold, London, Pp. 9.

Chambers, R. (1997). Whose Reality Counts: Putting the First the Last. Immediate Technology Publications, Southampton, London, UK.

Chambers, R. and Conway, G. R. (1992). Sustainable Rural Livelihoods. Practical Concepts for the 21st Century, Discussion Paper. Institute of Development Studies

Chokor, B. A. (1986). "City profile – Ibadan", Cities 3, pp 106-116

Cockx, L., Colen, L. and De Weerdta, J. (2017). From Corn to Popcorn? Urbanization and

Food Consumption in sub-Saharan Africa: Evidence from Rural-Urban Migrants in Tanzania.

Food and Agricultural Organization, FAO (2006). The State of Food Insecurity in the World. Food and Agriculture Organization of the United Nations. Viale delle Terme di Caracalla, 00153 Rome, Italy.

Fourchard, L. (2003). Urban slums reports: The case of Ibadan, Nigeria. *IFRA. University of Ibadan, Ibadan, Nigeria*.

Gbadegesin, A. S. (1991), Farming in the Urban Environment of a Developing Nation: A Case Study from Ibadan in Nigeria. *The Environmentalist,* 11(2): 102-111.

Hammond, S. V. (2002). Can city and farm coexist? The agricultural buffer experience in California. Great Valley Center Agricultural Transactions Program. Available on-line at: http://66.42.64.231/publications/agpubs/buffer study.pdf.

Kline, J. D., Alig, R. J., Lichtenstein, M. (2004). Urbanization on the US landscape: looking ahead in the 21st century. *Landscape Urban Plann*ing, 69: 219–234.

Kobe, I., Ojediran, O., Fakayode, B., Ajibade, B., Belewu, Y. and Daudu, K. (2017). Economic Assessment of Agricultural Land Market in Rural Nigeria: Pattern and Drivers. *Journal of Land and Rural Studies* 6(1) 50–66

Lasun, M. O. (2006). Land reform-experience from Nigeria: Promoting land administration and good governance: 5th FIG Regional Conference. Accra, Ghana.

Liao, C., Tan, Y., Wu, C., Wang, S., Yu, C., and Cao, W. (2016). City Level of Income and Urbanization and Availability of Food Stores and Food Service Places in China. Plos ONE 11(3): e0148745. Doi: 10.1371/journal.pone.0148745

Mahoney, A., Eicken, H. and Shapiro, L. (2007). Determinants of Land markets: Why are they required and how will they develop? *Journal of Development and Agricultural Economics* 3(4):183-189.

McGranaham, G., Satterthwaite, D., and Tacoli, C. (2010). Urbanization and Its Implication for Food and Farming. *Journals of philosophical transactions B.* United States national library of medicine, national institution of health. Retrieved from www.ncbi.nlm.nih.gov/pmc/articles/pmc2935117/

Mehaina, M., El-Bastawissi, L. and Ayad, H. (2016). The comprehensive urbanization level index (CULI) as a new approach to reclassifying urban and rural settlements in Egypt. *WIT Transactions on Ecology and The Environment*, 204, WIT Press. doi:10.2495/SC160261.

National Population Commission, 2006. Report of Nigeria's National Population Commission on the 2006 Census. Population and Development Review, 33(1): 206-210.

Okoruwa, V. O. and Ikudayisi, A. (2018). Urbanization and Food Security: Empirical Evidence from Households in Urban Southwest Nigeria. 2018 Conference, July 28-August 2, 2018, Vancouver, British Columbia 277053, International Association of Agricultural Economists.

Orum, A. (2005). Urbanization. In Ritzer G. (Ed.), E*ncyclopedia of social theory*. Pp.853-859. Thousand Oaks, CA: *SAGE publications*, Inc. https://doi.org/10.4135/9781412952552.n318

Sada, P. U. (1999) "The rural urban fringe of Lagos: population and Landuse. Southern Nigeria, 1891 – 1904", London, Pp.305 – 6 *The Nigerian Journal of Economics and special studies*, 12: 225- 41.

Saiyangoku, A. I. (2011). Five effects of urbanization. Retrieved on 20th February 2019 from https//www.slideshare.net/saiyangoku/5effects-of-urbanization.

Shearer, E., Lastarria-Cornhiel, S. and Mesbah, D. (1991). The Reform of Rural Land Markets in Latin America and the Caribbean: Research, Theory, and Policy Implications. LTC Paper 141, Land Tenure Center, University of Wisconsin–Madison.

Ukaejiofo, A. N. (2009). Identifying appropriate tools for land governance in Nigeria. Spatial data serving people: Land governance and the environment-building the capacity. Hanoi, Vietnam

United Nations, (2014) World Urbanization Prospects: The 2014 Revision (United Nations, Department of Economic and Social Affairs, Population Division, New York) Available at www.un.org/en/development/desa/publications/2014-revision-worldurbanization-prospects.html

United Nations (2017). Department of Economic Research and Social Affairs, Population Division. World Urbanization Prospects: The 2017 Revision.

World Bank (2016). Data report on agricultural land. Retrieved from http://data.worldbank.org/indicator/AG.LND.AGRI.K2

Zhou, S. and Awokuse, T. O. (2014). Urbanisation, nutrition transition and obesity: evidence from china. Selected paper prepared for presentation at the Agricultural and Applied Economic Association's AAEA annual meeting, Minneapolis, July 27-29, 2014