

## Assessing the Factors influencing Access to land for Urban Agriculture in Southeast Nigeria

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### Introduction

Urban agriculture (UA) advocacy and its growing importance as a research and policy issue (Manganelli and Moulaert, 2019) reflects the need for sustainable food supplies within urban areas. As urbanization increases, ensuring food security, particularly for the urban poor is important. In 2000, urban population had more than doubled from 20% in 1970 to 43.3% (Onibokun and Faniran, 2013), and projected to be 52% in 2020 with an average annual rate of change at about 1% (UN World Urbanization Prospects, 2018). This puts pressure on urban food supplies and thereby enhances the importance of Urban Agriculture contributing to food availability, particularly for the urban population (Adeyemo et al., 2017).

UA is any form of economic activity that involves growing, processing, and distribution of food products through intensive crop cultivation and animal husbandry, using both human and material resources in and around cities (Mougeot, 2006). It includes horticultural practices (market gardens), farming at the city edge and small-scale urban farms (Lovell, 2010). Like every other agricultural system, UA requires land as an essential resource to carry out its production activities. However, access to land for urban agriculture remains a challenge, undermining the potentials of UA to contribute to food security and livelihood improvement.

The prevailing social, economic and institutional conditions under which urban farmers operate influence their land accessibility and thereby challenge the practice and sustainability of UA (Famakinwa et al., 2017; Hussein, 2017). In the Urban areas where competing demand for land for other uses such as housing and industry is more pronounced, income and

### Key Findings

- The majority (59.6%) of urban farmers face tenure insecurity, as they cultivate open spaces/ land.
- Access to land for urban agriculture was positively related to credit access and cooperative membership and negatively related to the age of the farmers and conflicting land use.
- Credit access, land tenure security and income of the farmers have positive effect on the size of land accessed by urban farmers.
- The age and gender of urban farmers negatively influenced the size of land accessed by the urban farmers.

financial endowment has long been a deciding factor in determining access to land. High-income earners are more likely to own or access land in the urban areas, given that they possess the financial resources required to acquire sufficient size of land and afford to fund other legal requirements involved in the land acquisition process (Hussein, 2017). Unfortunately, in the setting where the urban farmers lack the financial resources, they become disadvantaged and thus their access to land is undermined.

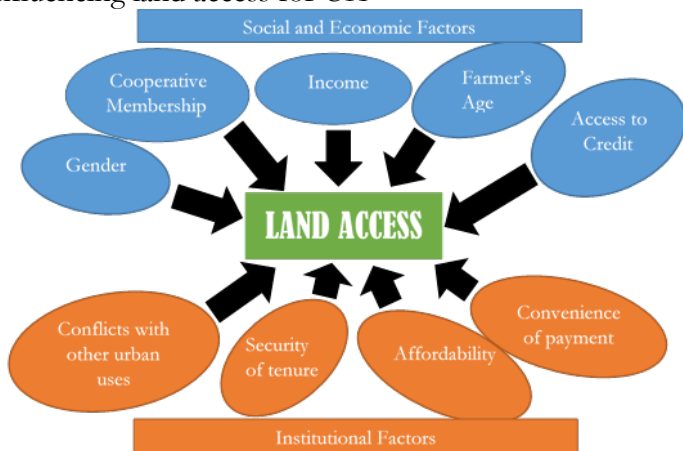
Institutional factors such as tenure security, bureaucracy in land acquisition, land use conflict, high cost of land, amongst others contribute to undermining urban farmers access to land (Namwata et al., 2015; Odudu, 2015a; Oladehinde et al., 2017). The near absence or limited consideration of city planners for urban farming impacts on planning processes including approvals for the establishment of urban farms (Odudu, 2015a). This promotes informal tenancy arrangements, which further fuels tenure insecurity. Urban farmers are known to practice



agriculture on land in urban areas without legal documentation and thereby in constant fear of ejection. (Vélez-Guerra, 2004). Worse, the urban farmers lack political leverage to secure access to land (Odudu, 2015b). These challenges are disincentives for land access for UA and deter investments necessary to improve farm sites and scale up production. Figure 1 shows the conceptual framework of the influence of social, economic and institutional factors on land access for UA.

Several studies on UA and its prospects in addressing food insecurity exist (Stewart et al., 2013; Poulsen et al., 2015; Yusuf et al., 2015), but there is a limited understanding of the factors that determine access to agricultural land for UA. Hence, the attempt to fill this knowledge gap. This brief examines the socio-economic and institutional factors that determines access to land for urban agriculture and the size of land accessed.

**Figure 1:** Conceptual Framework on the factors influencing land access for UA



Source: Authors' conceptualization

## Methodology

In the Southeast of Nigeria, a multi-stage sampling technique was adopted for sample selection. First, out of the five states in the Southeast of Nigeria, three states (Ebonyi, Enugu and Imo) were purposively selected. This was based on the availability of an up-to-date information on the urban contact farmers. This serves as a confirmation of their active involvement in urban agriculture. From each state's Agricultural Development Programme (ADP) and Fadama III offices, the lists of urban contact farmers were retrieved and used as the sampling frame. From the

provided sampling frames, the number of urban farming households in Ebonyi (202), Enugu (192) and Imo (537) states totaled 931. Proportionate sampling technique was used to select 280 urban farmers for the study. Farmers were randomly selected from urban areas using the sample size selection (Yamane cited in Anaeto, et. al., 2017).

$$n = \frac{N}{1 + N(e^2)} \quad \text{eqn (1)}$$

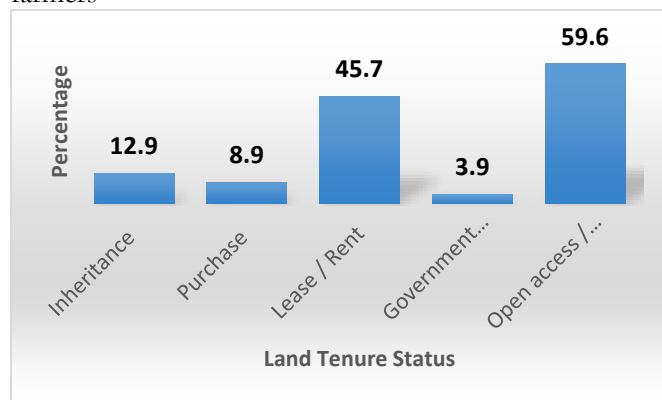
Where; n = sample size for the study, N = total sampling frame, and e = tolerable error level of 0.05.

The data collected were analyzed using descriptive statistics and Heckman selection model. Heckman selection model was employed because access to land and size of land accessed by urban farmers in the area are two distinct or independent decisions (Heckman, 1979).

## Results and Discussion

Figure 2 shows the means of land acquisition by the sampled urban farmers. The majority (59.6%) of urban farmers cultivate on open spaces (any idle or vacant land that has not yet been put to use).

**Figure 2:** Means of land acquisition of the sampled urban farmers



Source: Field Survey, 2018

This result is in line with the findings in literature of the high tenure insecurity faced by urban farmers (Odudu, 2015a). Open space urban crop cultivation exposes farmers to ejection without notice, considering that open areas of land are progressively developed due to urbanization. From Figure 2, we also see that 45.7% of the urban farmers acquired their farmland through lease/rent arrangement. This finding is similar to the results of other studies suggesting lease/rent of urban agricultural plot as a second common mode of land acquisition in urban areas (Rosen, Ruhf and Wagner, 2018). Furthermore, 12.9% and 8.9% of the urban farmers acquired their farmland through inheritance and purchases respectively. As expected, the least method of land ownership in the study area was government allotment (3.9%).

## Factors that Determine Access to and the Size of Land Utilized by Urban Farmers

The Heckman selection model was used to examine the factors that determine access to land and the size of land accessed by urban farmers. The first stage is the selection model which was whether yes (1) or not (0) a farmer has access to land. The second stage is the outcome model and was measured as the size of land (ha). In addition, the likelihood function of the Heckman selection model was highly significant (Wald chi2 = 24.93, with  $p < 0.01$ ) showing strong explanatory power of the model.

Table 1: Maximum Likelihood Estimates of Heckman Selection Model on the Factors that Determine Access to and the Size of Land Accessed by the Urban Farmers

Variable	Probability of access to land		Size of land accessed	
	Coefficient	P-value	Coefficient	P-value
Constant	-0.366	0.584	-0.309	0.652
Age	-0.2080**	0.039	-0.128**	0.039
Gender	-0.359	0.125	-0.290*	0.071
Credit access	2.958***	0.001	1.465***	0.004
Conflicting use	-0.678**	0.044	-0.332	0.106
Income	6.62 e-08	0.779	3.31e-07**	0.041
Tenure security	0.288	0.329	0.414**	0.047
Cooperative Membership	1.097***	0.001	0.366	0.884
Farm experience	-0.019	0.219		
<b>Diagnostic Statistics:</b>				
Total observation	280			
Censored	117			
Uncensored	163			
Mills lambda	4.94***			
Wald chi2	24.93***			
Prob > chi2	0.0008			

\*, \*\*, \*\*\* significant at 10%, 5% and 1% probability level respectively.

**Source:** Field Survey, 2018

As presented in Table 1, the regression results show that access to credit and cooperative membership positively and significantly influenced land access. Financially empowering farmers through credit, increases the likelihood of their access to land. This finding agrees with the study of Namwata et al. (2015), who indicated lack of

money to buy land and high price of land as the problems encountered in accessing land by urban farmers. Also, by being a member of a cooperative, is more likely to access land. This finding is in line with Olabisi et al., (2015) who opined that being a member of a cooperative helps farmers access agricultural inputs, innovations and market information. Table 1 further shows that the age of the farmers and conflicting land use significantly and negatively influenced urban farmers' access to land. By implication, the more elderly the farmer, the less likely their access to land in the area. Also, the more conflicting uses of land in the area, the less likely urban farmers access land for agriculture purposes. This finding is in line with the work of Namwata et al. (2015).

Now consider the factors impacting the size of land accessed by the urban farmers. The gender of the urban farmer was significant and negatively related to the size of land accessed. This suggests that female farmers are less likely to access a large amount of land for farming. This is in consonance with the views of Adekola (2013) who found the prevalence of gender inequalities in land access being in the favor of males. On the other hand, the variables that positively and significantly influenced size of land accessed include credit access, land tenure security and income of the farmers. By implication, the higher the income of the farmers, the larger the size of land accessed. High-income earning farming households have higher chances to own or access land. Also, the study findings suggest that tenure security, increases the probability for farmers to access more land. This finding is in line with the report of Oladehinde et al. (2017) who stated the usability of available and accessible land is determined by multiple factors including the security of tenure.

## Conclusion

Access to land remains a major constraining factor in urban farming systems. The study shows that urban farmers' age, credit access, cooperative membership and conflicting land-use significantly influenced access to land in the area. To improve land access for urban agriculture, efforts should be geared towards: financially empowering farmers through credit schemes and incorporating urban agriculture into urban planning design by establishing designated zones within the urban areas for farming and market garden areas to secure urban farmlands. Also, gendered barriers in agricultural land access needs to be removed. The land access challenge gives rise to the need to improve on the implementation of the Nigerian Land Use Act of 1978, to enhance equal opportunities for men and women farmers' access to agricultural land. Moreover, given the need to expand food production to meet the pace of sprawling urban population, sustainable intensification methods should be promoted among the urban farmers. Amidst the land access constraint, sustainable agricultural

intensification methods will help farmers to sustainably raise farm productivity on their existing cultivated farmlands.

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