Land encroachment and coping strategies of smallholder crop farmers in Ilorin east local government area of Kwara state, Nigeria

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ABSTRACT

Over the years, a noticeable decline in land availability for agricultural purposes has unfolded, driven by factors such as urbanisation, population growth and industrial development. This study examined the land encroachment and coping strategies of smallholder crop farmers in Ilorin East Local Government Area (LGA) of Kwara State, Nigeria. A total of 139 smallholder crop farmers were selected for this study. The data was obtained with a structured interview schedule. The data collected were analysed using frequency count, percentages, mean, standard deviation and paired sample t-test. The findings show that about 46.0% of the farmers had moderate extent of land encroachment, 63.3% of farmers had high livelihood status, and there was a significant reduction in the size of farmland in hectares following encroachment in crops like Yam from a mean size 0.54 to 0.26 (ha), Maize 0.84 to 0.45 (ha), Sorghum 0.48 to 0.23 (ha), Rice 0.54 to 0.27 (ha), and Cassava 0.70 to 0.40 (ha). Land encroachment has effects (p=0.000) on the size of land cultivated for different crops. The study also shows that the key coping strategies employed by the farmers were participating in value-adding activities and advocacy campaigns (91.4%) and engaging in off-farm employment (89.2%). The study concluded that there is a substantial decrease in farm size after land encroachment. The study therefore recommended that farmers should engage in value-adding initiatives in their farming practices in order to earn more income to reduce the effects of land encroachment.

Keywords: Smallholder, Crop Farmers, Coping Strategies, Land Encroachment, Livelihoods.

INTRODUCTION

The agricultural sector plays a vital role in Nigeria's economy by providing food, industrial raw materials, employment opportunities, and foreign exchange earnings (Ifabiyi, Adisa, Komolafe & Awarun 2023; Abdulrahman, Adebayo, Ogunlade, Bello, Oyediran & Olowolayemo, 2023). Agriculture in Nigeria has numerous unexploited capacities for development in the availability of land, water, labour and a large population. However, low productivity, conflicts between farmers and herders, and disputes over agricultural land and resources are major issues affecting the Nigerian agricultural sector (Abdulrahman, Yusuf, Komolafe, Abdulrahman & Ukpi, 2025; Ifabiyi, et al., 2023; IITA, 2017).

Land serves as the most critical resource for food production. Access to and control over land is increasingly threatened by land encroachment, which is gradually becoming a major constraint to sustainable agricultural development and smallholder farmers' livelihoods (Owusu & Agyei, 2007). Land encroachment refers to the unauthorized or illegal occupation, use or misuse of a piece of land that often leads to conflicts, displacement and reduced land holdings. Adisa (2012) identified migration, overpopulation, agricultural commercialisation and urbanisation as some of the factors causing land disputes in Nigeria.

According to Jimoh et al. (2020), residential buildings and industrial development initiatives are intruding into lands that are originally meant for farming activities at an alarming rate annually. Coping strategies are the steps people take to handle stressful or challenging situations (Ifabiyi and Banjoko, 2018). Folkman (1984) theorised two comprehensive steps for people facing stress: emotion-focused coping and problem-focused coping. Problem-focused coping is more applicable as Ifabiyi & Adisa (2022) stated that personal belief in one's ability will help a person to overcome difficult situations. According to Abegunde et al. (2020), land matters are the main reason for conflict in Nigeria. The encroachment of agricultural land for non-agricultural purposes limits food production (Appiah et al., 2019), and continuous encroachment would decrease the productivity of farmers (Zaky, 2019).

There is a paucity of information on smallholder farmers' coping strategies against land encroachment in the study area. This study aims to provide evidence-based recommendations that would guide policy makers and community leaders in addressing land encroachment and safeguard farmers' livelihoods. The specific objectives were to:

i. describe the socio-economic characteristics of farmers in the study area;
ii. determine the land size and crops grown before and after encroachment;
iii. examine the effects of land encroachment on crop production; and
iv. assess coping strategies against agricultural land encroachment.

METHODOLOGY

The study was carried out in Ilorin East LGA of Kwara State, Nigeria, situated between Latitudes 8.57111 and Longitudes 4.72833. Oke-oyi is the headquarters with

an area of 486 km2 and a population of 204,310 people at the 2006 census (NPC, 2006). The population for this study consists of all farmers whose farmlands were encroached.

The sampling procedure involved two stages. The first stage involved a purposive selection of five affected communities: Oke-oyi, Oke-ose, Agbede, Ile-Apa and Lajolo. The second stage involved the proportionate random selection of 139 respondents (Oke-oyi=39, Oke-ose=30, Agbede=30, Ile-Apa=30 and Lajolo=10).

To determine coping strategies, a 4-point Likert scale was used: high extent = 4, moderate extent = 3, low extent = 2 and no extent = 1. A Yes/No scale (Yes = 2, No = 1) was used to determine coping strategies employed. Paired sample t-test was used to determine the effects of land encroachment on availability of agricultural land.

Data were collected with a well-structured questionnaire. Descriptive statistics such as frequency counts, percentages, means and paired sample t-test were used to analyse the findings of the study.

RESULTS AND DISCUSSION

Socioeconomic characteristics of the farmers

Table 1 shows that about 70.5% of the farmers were males while 29.5% were females. The mean age was 50.1 +/- 6.4 years, indicating the sampled farmers were within the economically active age bracket. Almost all (97.1%) were married. About 38.8% had primary education, 40.3% secondary education and 17.3% tertiary education, meaning almost all (96.4%) were literate. The mean farm size was 1.2 +/- 0.4 hectares, with 16.2 +/- 6.8 years of farming experience. Findings further reveal land had been encroached for an average of 9 +/- 2.5 years, and 46.0% experienced moderate extent of encroachment.

Table 1: Distribution of respondents based on their socio-economic characteristics

Variables	Frequency (n=139)	Percentage (%)	Mean (SD)
Sex			
Male	98	70.5	
Female	41	29.5	
Age (Years)			50.1+/-6.4 yrs
<= 40	8	5.8	
41-50	70	50.4	
51-60	46	33.1	
> 61	15	10.8	
Marital Status			
Single	4	2.9	
Married	135	97.1	
Educational Level			
No Formal Education	5	3.6	
Primary Education	54	38.8	
Secondary Education	56	40.3	
Tertiary Education	24	17.3	
Secondary Occupation			
Self Employed	5	3.6	
Trading	48	34.5	
Retired	4	2.9	
Farming	34	24.5	
Artisan	46	33.1	
Students	2	1.4	
Farm Size (ha)			1.2+/-0.4 ha
0-1	59	42.4	
1-5	59	42.4	
> 5	21	15.1	
Years of Experience			16.2+/-6.8 yrs
<= 10	40	28.8	
11-20	72	51.8	
21-30	20	14.4	
> 31	7	5.0	
Years Since Encroachment			9.2+/-2.5 yrs
1-5	8	5.8	
6-10	96	69.1	
> 11	35	25.2	

Extent of Encroachment		
High	36	25.9
Moderate	64	46.0
Little	36	25.9
None	0	0.0

Source: Field survey, 2024

Size of farmland cultivated before and after encroachment

Table 2 shows that there was a reduction in the size of farmland after encroachment. Crops like yam dropped from an average of 0.54 to 0.26 (ha) and maize from 0.84 to 0.45 (ha). Land encroachment significantly reduces the quantity of land available for crop cultivation, thus reducing overall output and income. This result agrees with Owusu & Agyei (2007), who reported that several agricultural lands have been converted to non-agricultural purposes.

Table 2: Distribution of respondents based on land sizes and crops grown before and after encroachment

Crops	Before (ha) x (SD)	After (ha) x (SD)
Yam	0.54 +/- 0.32	0.26 +/- 0.19
Maize	0.84 +/- 0.36	0.45 +/- 0.22
Sorghum	0.48 +/- 0.24	0.23 +/- 0.14
Rice	0.54 +/- 0.43	0.27 +/- 0.27
Cassava	0.70 +/- 0.24	0.40 +/- 0.14
Cashew	0.72 +/- 0.28	0.29 +/- 0.11
Groundnut	0.20 +/- 0.00	0.10 +/- 0.00
Melon	0.26 +/- 0.12	0.11 +/- 0.09
Others	0.89 +/- 0.14	0.44 +/- 0.18

Source: Field survey, 2024

Effects of land encroachment

The results in Table 3 reveal significant differences ($p<=0.05$) between the quantity of land cultivated before and after land encroachment for all crops. Since the p-value was less than 0.05, the differences in the sizes of the land before and after encroachment were significant, confirming that land encroachment influences the size of cultivated agricultural land and would reduce the quantity of output. This result is in agreement with Temesgen, Tebarek and Amsalu (2024), who reported that dispossession of peoples' land leads to loss of livelihoods.

Table 3: Paired sample t-test of differences of size of farmland before and after encroachment

Pair	Mean Diff.	Std. Dev.	Std. Err.	95% CI Lower	95% CI Upper	T	df	Sig.
Yam	0.273	0.191	0.020	0.234	0.313	13.897*	93	0.000
Maize	0.398	0.239	0.021	0.357	0.439	19.202*	132	0.000
Sorghum	0.246	0.147	0.015	0.217	0.277	16.260*	93	0.000
Rice	0.268	0.196	0.042	0.181	0.355	6.414*	21	0.000
Cassava	0.305	0.166	0.016	0.274	0.336	19.235*	109	0.000
Cashew	0.430	0.211	0.041	0.346	0.516	10.399*	25	0.000
Groundnut	0.157	0.128	0.034	0.083	0.231	4.580*	13	0.001
Melon	0.442	0.113	0.043	0.338	0.548	10.333*	6	0.000

Source: Field survey, 2024. *Significant at 1% level

Coping strategies to land encroachment

The findings in Table 4 show that 91.4% of farmers took part in value-adding activities and advocacy campaigns, and 89.2% engage in off-farm employment as an alternative source of income. Furthermore, 84.9% used climate-smart agricultural practices and 54.0% relied on community collaboration. Value addition, advocacy campaigns and off-farm employment were the main coping strategies. This corroborates the findings of Chibundu et al. (2022), who reported that off-farm employment and diversification of farm enterprises were the main

coping strategies to land-related conflicts in Imo State, Nigeria.

Table 4: Distribution of respondents based on coping strategies employed to mitigate the effect of land encroachment

Coping Strategies	Frequency	Percentage (%)
Land title verification	49	35.3
Legal action	50	36.0
Dialogue with encroachers	67	48.2
Community collaboration	76	54.7
Fencing and boundary making	69	49.6
Guarding and surveillance	82	59.0
Diversifying crops	94	67.6
Intensifying crops	95	68.3
Agroforestry practices	103	74.1
Soil conservation	112	80.6
Efficient irrigation	111	79.9
Rainwater harvest	32	23.0
Crop resilience	33	23.7
Climate-smart agricultural practices	118	84.9
Off-farm employment	124	89.2
Value-adding activities	127	91.4
Training programs	113	81.3
Accessing information	117	84.2
Advocacy campaigns	127	91.4
Support networks	112	80.6

Source: Field survey, 2024

CONCLUSION AND RECOMMENDATIONS

The study concluded that land encroachment has significant effects on the size of agricultural land, leading to a substantial decrease in farm sizes. The reduction in available farmland has implications on crop yields, incomes, and food insecurity among farming households. Value addition initiatives, advocacy campaigns and off-farm employment were the main coping mechanisms adopted by the respondents. Farmers should be encouraged to engage in value-adding initiatives such as training in food processing, packaging, and marketing. There is also a need for stronger efforts by all stakeholders to address agricultural land encroachment, and for provision of training on smart farming practices such as sack and bucket farming.

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