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LAND TENURE INSECURITY AND AGRICULTURAL RECOVERY: EVIDENCE FROM DISPLACED FARMERS IN NORTH-CENTRAL NIGERIA

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Abstract

North-central Nigeria is facing a challenging dilemma as displaced farmers struggle to recover agricultural productivity due to land tenure insecurity. This study examines the effect of land rights violation on agricultural output among displaced returnees in the region using descriptive statistics and ordinary least square regression analysis from a sample of 854 respondents. Drawing from the data collected across the selected states affected by farmers-herders conflict in North-central Nigeria, the study reveals that unclear ownership and lack of formal land titles affect returnees' decision to invest in farm land. The results of this study show that when land rights are violated due to conflict or land intrusion, the income and overall productivity of returnees drop. The study also reveals that assistance given as interventions during the period of displacement is found not to significantly affect production and return to economic activities among displaced returnees. Based on these findings, this study suggests strengthening property rights policy on land and resources, especially in rural communities so as to promote agricultural recovery and food security conflict-affected areas like North-central Nigeria.

Keywords: *Land tenure insecurity, displaced farmers, agricultural productivity, Displaced returnees*
JEL Codes: *D23, J24, P14*.

1. Introduction

The debate over the right to resources and territory still remains crucial, particularly in conflict-prone areas like Nigeria, where land disputes are a major driver is common. Several studies linked rights to land as one of the main causes of conflict and displacement (Basley,1995; Fagen, Fernandez, Stepputat & Lobez, 2003; De Walque, 2006). Conflict in

Nigeria has resulted in the displacement of about 2.7 million people as of 2020, with farmers making up roughly 97 percent of this population (International Organisation Migration [IOM], 2021). Land scarcity, population pressure and illegal land grasp are identified as the main triggers (Apata, 2016; NBS, 2018; PLAC, 2019). While resettlement programs aim to improve IDP productivity, the crucial role of secure land rights in this process remains understudied. This study aims to address this gap by examining how land rights insecurity affect the agricultural productivity of displaced returnees in Nigeria.

Current research on displaced persons in Nigeria concentrated on conflict resolution and peacebuilding (Chukwuma, Aghedo, & Okah, 2018; Nwokolo, 2020; Kamta, Schilling & Scheffran, 2020; Johnson, 2023; Usman, Abdullahi & Musa, 2023) primarily focusing on social stability. However, achieving long term reintegration requires addressing the economic challenges faced by returnees. According to Platteau (2015) the nature of land rights directly influences investment and productivity in agriculture. Unfortunately, customary land tenure systems prevalent in rural Nigeria is weak in effectively resolving land conflict (Chigbo, 2013; Mugizi & Matsumoto, 2020). This is further exacerbated by contradiction within the Nigerian land law. For instance, the Land Use Act permits open grazing on farmland traditionally owned by communities (Nwocha, 2016). This creates a system with multiple, often conflicting users leading to free riding, land rights violations and violence between traditional owners and trespassers. This complex property ownership structure poses a significant challenge to displaced farmers in North-central Nigeria, significantly hindering agricultural activities and sustainability of the local economy. The lack of secure land rights discourages investment in farming activities, leading to lower crop yields and reduced overall productivity.

In the North-central states of Nigeria, the government have made effort to ensure that a significant number of returnees resettle and begin economic activities by providing security and other economic incentives (IOM, 2019). Although many of the displaced persons have returned to their place of origin, yet extensive discussions on the productivity of displaced returnees are scant in Nigeria due to a lack of empirical data. Evidence shows that a significant part of these returnees still faced economic hardship which could be linked to poor access to land and/or a sense of entitlement to land (Adekola, Azuh, Amoo, Brownell & Cirella, 2022; Nsemba, et al, 2022; IOM, 2021). This paper explores the conjectures that well-defined land rights is a precursor to integrating displaced returnees using the case of North-central Nigeria where the displaced persons started returning to their place of origin since 2018.

In this paper, we make two contributions. First, we quantify the extent land right violation affects the productivity of displaced returnees in the north-central states of Nigeria. Second, we examine the extent assistance given to displaced person help in integrating them into economic activities. Scholars have examined how land rights affects investment (Deininger, Ali, Holden & Zevenbergen, 2007; Besley & Ghatak, 2010; Mugizi & Matsumoto, 2020), land right and women's productivity (Meinzen-Dick, Quisumbing, Doss &Theis, 2019), land rights and yield in agriculture (Adelman & Peterman, 2014; Oparinde, 2021). We chose to focus on land rights and productivity of displaced returnees in Nigeria because since agriculture is the main source of livelihood in the rural areas of Nigeria, an understanding of the extent to which land rights violations affect the productivity of returnees has a spiral effect on the integrative effort of government and stakeholders in ensuring displaced persons return to their pre-displaced economy status. Thus, access and use of land are crucial to the survival of the rural population in Nigeria where displacements frequently occur.

We employ the ordinary least square robust regression in analysing the subject matter with emphasis on land right violations and crop yield of returnees in north-central Nigeria. The study is a survey research; data were solicited from three states that were severely affected by conflict using questionnaires. Our strategy makes use of farm output of households when land-right was not perceived violated and output of households when land rights is perceived violated. Land right is violated if respondents feel threatened or afraid to access their farms

due to an apparent threat to life. We assumed that conditional on state fixed effects, unobserved determinants of crop yields are on average the same for all households in the states. Our estimates confirm that land right has a significant effect on the productivity of displaced returnees, suggesting that policies toward integrating displaced persons in Nigeria may have ignored a potentially important factor in the integrative effort of displaced persons. The remainder of this paper is organised as follows: sections 2 is the review of empirical studies. This is followed by section 3 the method and data used in this study. The results from our survey are presented and discussed in section 4. Section 5 is the conclusion and policy recommendations.

2. Empirical Literature Review

Property rights have been widely associated with an increase in investment and productivity, especially in the free-market economy. According to Ostrom and Hess (2007) property rights refer to an enforceable authority that empowers an individual to control and use a particular resource. Like other property right, land rights is the right for people to own, access and use land for economic activities (Wickeri & Kalhan, 2010; Hanstad, 2010) it also includes the right of transferability (Libecap, 2002; Besley & Ghatak, 2010). The influence of land rights on individual willingness to invest is well-established. For instance, a Meta-analysis by Carter and Olinto (2003) found that tenure security is the main determinant of the quantity and composition of investment among rural farmers in Paraguay. Lawry et al (2014) also established a similar fact that countries with well-defined customary land rights experienced high investment in land and productivity per hectare.

The theoretical proposition on property rights posits that an economy rooted on a well-defined property right engenders investment and effective utilization of resources (Alchian & Demsetz, 1972; Delong & Shleifer, 1992; Barro, 1991; Basley, 1995). Basley (1995) opines a theoretical framework that gives credence to the security of property rights. He maintained that the security of property rights influences the incentives to invest and improve productivity among individuals, communities and ethnic groups in conflict-prone areas. Several empirical studies used this postulation to examine the effect of land right on productivity; Aragon (2015) observed that improved property rights reform had a positive effect on local government among Aboriginal communities in Canada. Carter and Olinto (2003) found tenure security as the main determinant of the quantity and composition of investment among rural farmers in Paraguay. Property rights serve as collateral securities that enable them to assess credit facilities. Lawry et al (2014) found that countries that allow farmers to have customary rights or land titling experienced high investment in land and tend to have high productivity. Farmers in such countries invest due to the sense of security of land ownership.

The increase in commercialization and population pressure is causing land rights to evolve from communal ownership to individual rights. Migot-Adhuilla, Hazell, Blareland Place (1991) argued that the indigenous land rights system in sub-Saharan Africa constitutes a constraint to productivity. Studies such as Firmin-Sellers and Sellers (1999) and Ali et al (2019) advocated for land titling in places where customary land rights exist. For instance, Ali et al (2019) found that having title to land is associated with greater transferability and security of property in Zambia. Such land titling, they argued is a vital incentive for land-attached investment linked to better productivity among farmers. Other studies however found weak or no relationship between land rights investments and productivity (Zuka, 2019; Nicholas, Jordan & Munguzwe, 2014). Agyei-Holmes, Buchan, Goldstein, Osei, Osei-Akolo and Udy (2020) observed that land registration does not translate into agricultural investment or increase credit taking in Ghana. Similar evidence is also noticed in Zambia, where Ali and Deininger (2018) affirmed that land rights do not affect the investment and productivity of farmers.

Research on the effect of property rights has supported the effect of property rights on investment in Zambia (Ali, Deininger, Hilhorst, Kakungu & Yi, 2019), Bangladesh (Rahman & Hossain, 2020), Ethiopia (Deininger, Ali, Holden & Zevenbergen, 2007). Using a pilot-fixed-effects approach, Newman, Tarp and van den Broeck (2015) found that relative to those without land rights, the yield of farmers with land rights increased by 13 percent in Vietnam. Land rights are found to strongly determine the bargaining power of farmers (Meinzen-Dick, Quisumbing, Doss & Theis, 2019). In Malawi, insecure land rights is associated with a 9 percent loss in productivity of female landowners and affect households' ability to take risk as it becomes difficult to give land as collateral for loans (Deininger, Xia & Holden, 2018; Deininger, Xia, Kalic & Moylan, 2019).

Cao, Bai and Zhang. (2020) conducted an investigation into the impact of farmland property rights security on investment in rural china. They found a positive correlation between land rights and farmers' willingness to invest with specific investment varying based on the type of property right at farmers' disposal. In a related study, Huntington and Shenoy (2021) employed a randomized controlled trial to test the effect of land tenure security on investment decisions. The study found that providing secure land titles significantly increases investment in agricultural particularly in the long term crops such as trees. Furthermore, Kugbega and Aboagye (2021) explores the influence of farmer-herders conflict and tenure insecurity on investment decisions in Ghana. They found that tenure insecurity caused by conflict discourages farmers from investing in their land.

There had been mixed evidence on the role of land rights on investment and productivity among scholars in Nigeria. In a study of the effects of land tenure, land fragmentation and property rights on agricultural productivity in Southern rural Nigeria, Apata (2016) found that about sixty percent of farmers have no emotional attachment to the land they cultivate as such make little investment in the improvement of the land and low productivity. Oparinde (2021) however, observed that the use and transfer rights is found to positively increase investment and productivity among Southwest farmers in Nigeria. Other studies however showed that the influence of land rights on productivity is relative to countries and types of land reforms. Using a systemic review search Meinzen-Dick, Quisumbing, Doss and Theis (2019) found a weak relationship between women's land rights and empowerment, consumption and food security. Similarly, Ali and Deininger (2018) found land rights to have no positive effect on productivity and investment in Zambia.

Adelman and Peterman (2014) estimated the effect of conflict-related displacement on land yield in northern Uganda. The study found that female-headed households are particularly disadvantaged in yield per hectare of land. Using logistic regression analysis, Mugizi and Matsumoto (2020) found that poor land rights policy negatively affects farmers' incentive to invest in post-war northern Uganda because of the uncertainty on return on investment. This lays credence to the fact that apart from being a political issue, the right to access and use land should be viewed as an economic problem (Grajales, 2020). Thus, post-conflict intervention should not be treated with levity as peace policies contribute to the economic security of affected communities.

Apart from the humanitarian disaster of conflict in Nigeria, conflict creates food shortage, disrupts he production process and reduced farm investment (Chikaire, Atoma, Oyem, & Akeni, 2020; Adelaja & George, 2019). However, whether productivity picked up in the post-conflict period remains an issue of concern. For instance, Ofuoku and Evwierhoma (2018) found that relative to the conflict period, production of arable crops increased after conflict resolution in Delta state, the South-South region of Nigeria.

Across these studies, there is consistent evidence that investment in land is determined by land rights. Productivity also largely increases because property rights provide a sense of security of land ownership and guaranteed return on investment. However, in places that have been affected by conflict due to land grabbing, the free market paradigm of property (land)

rights is no longer adequate for understanding how investments react to property rights but the sense of security of land ownership. Thus, we assess the effect of the feeling of sense of ownership of land on the productivity of displaced returnees in North-central Nigeria.

3. Methodology and Data

3.1 Data Collection and Sampling

The North-central region of Nigeria consists of six states and the Federal Capital Territory (FCT). The States are Benue, Nasarawa, Plateau, Niger, Kwara and Kogi. According to the last population census, the region has an estimated population of 23.5 million NBS (2020). Agriculture is the cornerstone of the region's economy, attracting nomadic herders due to its abundant pastures. However, this dynamic relationship has also fuelled frequent clashes between farmers and herders. This study focused on three of the States (Benue, Nasarawa and Plateau) most affected by conflicts and displacement in recent years. Apart from north-east Nigeria, these states witnessed the highest displacements figures within the region during the period of interest with most internally displaced persons (IDPs) returning to their communities as at 2018.

The data for this study was collected through a cross-sectional survey conducted between August to October 2022. The target population comprised IDPs who had returned to their places of origin or communities. Following the United Nations Statistics Division (2005)'s household sample size determination formula, a target of 864 households was established. The selection of respondents follows a multistage sampling technique. First, the selection of the three states was based on the incidence of farmers-herdsmen crises and inter-communal crises. Four local governments were randomly selected from each chosen state to achieve appropriate sample distribution of the affected areas. Next, the lists of villages with high concentration of returnees were obtained from State Emergency Management Agencies (SEMA) and key informants that are familiar with the region. This strategy mirrored that of International Organisation Migration [IOM] (2019) in northeast Nigeria. Three communities were randomly selected from each local government based on two criteria: (a) villages where all residents were displaced due to crises, and (b) villages where the crises have occurred within the past 6 years. These criteria ensured respondent were formerly displaced and could provide insights into the pre-and post-crisis economic impacts. Lastly, within each selected community, 24 households were chosen using systematic random sample, resulting to a total of 864 surveyed households.

Household heads or representatives from 15 years and above served as respondents. Semi-structured questionnaires guided by previous research on internally displaced persons (Bozzoli, Bruck & Muhumuza, 2012; Deininger &Yamano, 2005) were administered. Additionally, interviews with community leaders to explore their perspectives on land right violation and it impact on productivity and the community they oversee. This qualitative data obtained from the discussion further served to corroborate findings the quantitative analysis.

3.3 Model Specification

This study employs the ordinary least square (OLS) regression model adopted from the work of Basley (1995) and Deininger and Yamano (2005) to investigate the impact of land rights violation on the productivity of displaced returnees. Our model departs from Basley's (1995) broader definition of property rights by focusing specifically on land access rights of displaced returnees.

Given that households had experienced three different yields, taking into cognizing the potential for varying effects over time, we estimate separate regressions to isolate the influence

of land rights violation on productivity before, during and after conflict periods. Following Deininger and Yamano (2005), the OLS model is specified as follows:

$$PROD_{ij,before} = \beta_0 + \beta_1 OWNFL_{ij} + \beta_2 PLR_{ij} + \beta_4 Farmsize_{ijbefore} + \beta_5 Distfarm_{ij} + \beta_6 HC_{ij} + \zeta_j + \varepsilon_{ij} \quad (1)$$

$$PROD_{ijduring} = \beta_0 + \beta_1 OWNFL_{ij} + \beta_2 PLR_{ij} + \beta_4 Farmsize_{ijduring} + \beta_5 Distfarm_{ij} + \beta_6 HC_{ij} + \zeta_j + \varepsilon_{ij} \quad (2)$$

$$PROD_{ijafter} = \beta_0 + \beta_1 OWNFL_{ij} + \beta_2 PLR_{ij} + \beta_3 DURD_{ij} + \beta_4 Farmsize_{ijafter} + \beta_5 Distfarm_{ij} + \beta_6 HC_{ij} + \zeta_j + \varepsilon_{ij} \quad (3)$$

Where

$PROD_{ij}$= monetary value of crop yield produced by household i in state j. $OWNFL_{ij}$ = ownership of farmland by household i in state j. This is captured as yes if farmland belongs to household or no if farm land is rented or households those does not have farm land. The answers are coded yes for 1 and no for 0. PLR_{ij} = land right violation A dummy for land right-whether or not farmers suffer from land violation; (coded 1= violated, 0= not violated). $DURD_{ij}$ = length of time household i in state j stayed displaced. This is the total number of months without engaging in economic activities. $Farmsize_{ij}$ = Land size cultivated in hectares. $Distfarm_{ij}$= average walking distance of farm from the home. HC_{ij} = Household characteristics such as education, years of experience in farming and/or other economic activities, and gender of household heads for household i in state j.ζ_j account for basic state difference, ε_{ij} = the random term that includes other variables that are not included in the equation. ε_{ij} is assumed to be independently and identically distributed (iid) and normally distributed. βs = parameters to be estimated. By conducting separate regressions for pre-conflict, during conflict and post-conflict periods, we aim to capture how the impact of land rights violations on productivity might evolve overtime. This approach provides a better understanding of the complex relationship between land violations and agricultural output.

4. Results and Analysis

4.1 Preliminary Analysis

Having described the methodology employed in this study, we now examine the characteristics of the 854 surveyed households across the three states of North-central Nigeria. Table 1 provides a breakdown of the demographic and socioeconomic information of respondents by state.

Table1 shows the sociodemographic characteristics of the respondents surveyed. The sample distribution across the three states was relatively balanced, with Benue 282 (33.02 per cent), Nasarawa 298 (34.9 per cent) and Plateau 274 (32.08 per cent) represented proportionally. In terms of gender representation, male comprised the majority 623 (72.95 per cent) with female 231 (27.05 per cent), reflecting the patriarchal structure of the rural communities where men typically head households. In cases where females assume heads of household, it is either the male partner is dead or divorced. The primary livelihood among respondents was farming 702 (82.2 percent), with some engaging in additional economic pursuits. This data aligns with the predominantly agrarian nature of the region.

Table 1. Demographic and Socioeconomic Characteristics of Respondents

		Frequency			
Variable	Benue	Nasarawa	Plateau	Total	Percentage
Number of Respondents					
Respondents per State	282	298	274	854	-
Proportion of Respondents per State	33.02	34.9	32.08	100	-
Gender					
Male	186	235	202	623	72.95
Female	96	61	74	231	27.05
Age					
Age less than 19	1	3	0	4	0.47
Age 20 to 29	37	52	51	140	16.39
Age 30 to 39	93	107	76	276	32.21
Age 40 to 49	78	64	103	245	28.68
Age 50 to 59	61	67	35	163	19.09
Age 60 above	13	5	9	27	3.16
Marital Status					
Married	205	242	221	668	78.22
Single	19	23	9	51	5.98
Divorced	17	12	8	37	4.34
Widow	31	17	29	77	9.01
Widower	10	4	7	21	2.45
Level of Education					
No Education	83	97	44	224	26.24
Primary Education	52	76	65	193	22.59
Secondary Education	106	91	108	305	35.71
Tertiary Education	41	34	57	132	15.46
Occupation					
Farmer	257	235	210	702	82.20
Civil Servant/Farmer	13	27	21	61	7.14
Artisan/Farmer	7	6	4	17	1.99
Business/Farmer	5	30	39	74	8.67

Source: Field Work, 2022.

In regards to level of education, the majority of respondents reported having some level formal education, with 26.24 per cent not having formal education. Education level to a large extent is an important factor for interpreting and comprehending the content of the questionnaire as it is quite easy for those who achieved some form of formal education to understand the content of the questionnaire. For those who are not literate, our research assistant ensure that the questions were interpreted and the respondents understood the questions before the questionnaires were filled. Table 1 also presents the age distribution of respondents. The data indicates that the majority of the respondents are between the ages of 30 to 59. This aligns with the average age of active population of most household heads in rural communities in Nigeria.

Our data also show the nature of conflict in the region, the initial responses of respondents when the conflicts occurred and access to work place during and after conflict in Table 2.

Table 2. Descriptive Statistics: Respondents' Response to Conflicts

		Frequency		Combined	
Variable	Benue	Nasarawa	Plateau	Total	Percentage
Cause of Conflicts					
Farmers-Herders	235	247	274	756	88.52
Inter-Communal	47	51	0	98	11.48
Initial Response to Conflicts					
Stayed in Govt. Camp	53	126	33	212	24.82
Stayed in Comm. Camp	68	55	42	165	19.32
Stayed with Relative	158	87	194	439	51.41
Stay Other Places	3	30	5	38	4.45
Access to Workplace During conflicts					
Access to Work Place	67	80	34	181	21.19
No Access to work Place	215	218	240	673	78.81
Access to work place after conflicts					
Full access to Work Place	147	179	69	395	46.25
Partial Access to work Place	91	111	137	339	39.70
Yet to access Work Place	44	8	68	120	14.05

Source: Field Work, 2022.

Table 2 confirms farmer-herder clashes as the primary cause of displacement 756 (88.52 per cent), aligning with the National Bureau of Statistics [NBS] (2018) reports that the farmers-herders' conflicts constitute about 80 per cent of cases of displaced persons in the North-central region. Inter-Communal conflicts due to land encroachment were reported by small group of respondents 98 (11.48 per cent). Specific case in point Ekaida community and Adugbe Communities in Agatu Local Government Area of Benue State and Angwan-Sule in Obi LGA of Nasarawa State.

The data in Table 2 reveals that while government camps served as refuge for some displaced persons 212 (24.82 per cent), a significant portion sought shelter with relatives 439 (51.41 per cent) or rented accommodation 165 (19.32 per cent). This trend aligns with International Organization for Migration IOM (2019) reports highlighting poor facilities and inadequate care in IDP camps in Nigeria. Erong (2017) also reported similar findings among displaced persons due to Boko Haram insurgency in Northeast Nigeria. This potentially explains the preference for alternative arrangements among respondents.

Table 2 further shows that 673 (78.81 per cent) of respondents were unable to access their workplaces during the conflicts, while `181 (21.19 per cent) had access to their workplaces. Respondents who had access to their workplace are mostly those whose place of refuge may not be far from their workplace. However, upon return, most respondents 734 (86 percent) resumed economic activities either fully 395 (46.25 per cent) or partially 339 (39.7 per cent). Only 120 (14.05 per cent) are yet to start full-time economic activities. This implies that about more respondents have either return to economic activities or partially engaged in economic activities.

Next, in Table 3, we present a descriptive summary of variables used to analyze how property rights violation affect the productivity of returnees. Here we explore the hypothesis that undefined land rights negatively impact harvest yields beyond the displacement itself. We quantified pre-conflict, during conflict and post-conflict harvest values using average product prices.

Table 3. Descriptive Summary of Variables

Variables	Mean	Std. Dev.	Min.	Max.
Duration of displacement	18.55	19.71	1	108
Production before Conflicts ($PROD_1$)	525,199.1	537,650.6	200,000	4,500,000
Production during Conflicts ($PROD_2$)	47,166.29	186,897.6	0	1,200,000
Production after Conflicts ($PROD_3$)	203,955.5	270,408.1	0	2,000,000
Farmsize before conflict	4.17	2.19	0.5	18
Farmsize during conflict	0.90	1.57	0	10
Farmsize after conflict	2.63	1.69	0	12
Distance to farm (Distfarm)	1.96	1.06	0.5	6
Family size (NumFam)	11.49	7.92	1	34
Ownership of farmland (OWNFL)	0.98	0.15	0	1
Perceived land right violation (PLR)	0.56	0.49	0	1

Source: Field Work, 2022

Table 3 summarizes the duration of displacement of returnees. The average displacement period was 18.55 months, with a range of one month to 108 months. This signifies a potential los of a year's harvest for average displaced household. Prolong displacement translates to decrease agricultural workforce and lost productivity. The average household output before, during and after the conflicts were 525,199.1, 47,166.3 and 203,955.5 naira respectively. The outcome indicates that average productivity fell during conflicts and picked up after the conflicts. The reason that may accounted for this is the inability of respondents to access their farm or land during the conflicts, thus, resulting in low yield during conflicts. After conflicts, respondents started gaining access to land and farms, which explains why the average productivity increased after the conflicts, but productivity remains below pre-conflict levels.

Table 4. Pairwise Correlations

Variable	lcropy~t	OwnFL	GENC	Educ1	DistFarm	NumFam	YrsWrk	landsize	landsi~u	landsi~f	senselr
Lcropyaft	1.000										
OwnFL	0.061	1.000									
GENC	0.190	-0.013	1.000								
Educ1	-0.052	-0.027	0.224	1.000							
DistFarm	0.002	-0.038	0.088	-0.054	1.000						
NumFam	0.194	0.015	0.073	-0.230	0.149	1.000					
Yrsexp	0.231	0.139	-0.043	-0.295	0.100	0.413	1.000				
Landsize	0.339	0.016	0.108	0.080	0.100	0.155	0.169	1.000			
landsizeDu	0.168	-0.042	0.125	0.201	0.073	0.028	-0.060	0.287	1.000		
landsizeAf	0.587	0.031	0.136	0.070	-0.053	0.045	0.107	0.661	0.249	1.000	
Senselr	-0.046	0.003	0.185	0.118	-0.598	-0.220	-0.062	-0.094	-0.085	0.092	1.000

The pairwise correlations matrix is presented in Table 4. The highest value of correlation is 0.661 and it is between land size before conflict and land size after conflict. The correlation coefficient for all the variables shows that no correlation between the explanatory variables, suggesting that multicollinearity do not pose threat to the estimation.

Next, we report the regression results of the effect of land right violation on yield of respondents. As discussed earlier, we began by estimating the effect of land right on crop yield of respondents before conflict, then during conflict and after conflict. The OLS robust regression is used to estimate the impact of property right on the productivity of displaced returnees. Table 4 displays OLS results.

Table 5. Estimates of the Impact of Property Right on Productivity

VARIABLES	Dependent Variable: Crop yield ($PROD_i$)		
	$PROD_1$	$PROD_2$	$PROD_3$
	Before (1)	During (2)	After (3)
Own farm land	0.468*	0.121	0.253
	(1.922)	(0.187)	(0.782)
GENC (Male)	0.198**	0.403	0.287***
	(2.506)	(1.306)	(2.894)
EDUC	-0.0304	0.0638	-0.0303
	(-0.930)	(0.536)	(-0.728)
Distance to farm	-0.0173	0.0986	-0.0424
	(-0.388)	(0.564)	(-0.854)
Family size	0.00541	-0.0111	0.00497
	(1.331)	(-0.888)	(0.813)
Years of Experience	0.0184***	0.0236**	0.0112***
	(4.965)	(2.512)	(2.717)
Land size before Displacement	0.228***		
	(13.29)		
Land size during Displacement		0.376***	
		(4.614)	
Land size after Displacement			0.369***
			(13.50)
Perceived land right (PLR)	0.151*	-0.116	-0.342***
	(1.787)	(-0.438)	(-3.306)
Length of Displacement			0.0344
			(0.382)
Benue	0.141	0.552	0.310**
	(1.342)	(1.630)	(2.004)
Nasarawa	0.127	0.518	0.594***
	(1.152)	(1.535)	(3.683)
Constant	10.74***	9.205***	10.06***
	(39.24)	(10.41)	(26.22)
Observations	834	504	718
R-squared	0.689	0.516	0.444

Source: Field work, 2022. Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 5 shows the impact of property rights on the productivity of respondents before (column 1), during (Column 2) and after (3) conflict. As shown in Table 4, before conflict farm yield of respondents who are owners of farm land are 0.468% higher than those who rented land or did not own the land. However, during and after conflict ownership of land has no significant effect in determining output of respondents. The results also show that before conflict, crop yield increases by 0.151 if individual perceived right to land are not violated. This implies that before the conflict, land right increases the productivity of households among rural farmers. However, productivity decreases by 0.342% (column 3) when land right is

violated. Table 5 further shows gender, respondents' years of experience and land size significantly increase the productivity before and after conflict period. The result in column 3 shows that the coefficient of land rights is negative and significant. The implication is that productivity falls when there is conflict- a period when land right is not well defined.

Table 6. Estimates of the Effect of Land Right Violation on Investment

Dependent Variable: Investment						
	Before		During		After	
Variable	Coef	P-Value	Coef	P-Value	Coef	P-Value
GENC (Male)	0.165**	(0.030)	0.450	(0.159)	0.337**	(0.001)
Educ	0.097	(0.294)	0.241	(0.541)	-0.171	(0.139)
Family size	0.008*	(0.058)	-0.008	(0.586)	0.007	(0.230)
Years of Experience	0.019***	(0.000)	0.028**	(0.010)	0.011**	(0.013)
Distance to farm	0.004	(0.894)	0.052	(0.688)	-0.062	(0.231)
Perceived land right (PLR)	0.518**	(0.029)	-0.158*	(0.053)	-0.240**	(0.036)
Land size before Displacement	0.232***	(0.000)				
Land size during Displacement			0.343***	(0.000)		
Land size after Displacement					0.378***	(0.000)
Length of Displacement					0.002	(0.374)
Constant	10.31***	0.000	9.64***	0.000	10.61***	0.000
F-test	6121.1		121.1		235.1	
P-value	0.000		0.000		0.000	
Observations	757		457		731	
R-squared	0.81		0.56		0.76	

Source: Field work, 2022. Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Next, we further examine how land right violation affect displaced returnees' investment in agriculture. Table 6 shows the effect of land right violation on displaced farmers investment before displacement, during displacement and upon return to the community.

Table 6 presents the effect of land tenure security on agricultural investment decisions among displaced farmers. The outcome shows that there is positive and statistically significant effect of land right on investment prior to displacement. This suggests that that farmers are more likely to invest in their farms if they have a strong sense of secure land rights. This aligns with existing literature Cao, Bai and Zhang (2020), Huntington and Shenoy (2021) and Kugbega, and Aboagye (2021) that highlight the importance of secure land rights for agricultural investment especially in conflict prone areas. Farmers who feel they have secure access to their land are more likely to invest in activities that can improve their productivity, such as buying better seeds, fertilizers or equipment.

However, the impact of perceived land rights on investment appears to be negative both during displacement and upon return to place of origin. This finding suggests that land right

violation discourages farmers' willingness and ability to invest in farm, potentially due to reduced confidence in reaping the benefits of such investments. The result in Table 6 highlights the disruptive impact of displacement and land tenure insecurity on farmers' investment decisions potentially hindering their agricultural recovery efforts. The Table also suggest that experience and size of farm land play a role in investment decisions. This implies that experienced farmers with larger land size before displacement tend to invest more after returning. These findings highlight the importance of secure land rights for agricultural investment especially in conflict prone areas. Farmers who feel they have secure access to their land are more likely to invest in activities that can improve their productivity, such as buying better seeds, fertilizers or equipment.

4.2 Additional Analyses

We further our analyses by investigating factors that affect respondents' engagement in economic activities upon return to place of origin. A common characteristic among the selected states is that most of the displaced persons have returned to their place of origin with the governments claiming to play an important role in their return. We evaluate the effect of such interventions and assistance on return both to place of origin and economic activities of displaced returnees in Table 7. To serve this purpose, we solicit data on how long it took respondents to return to their places of origin. Then we ask how long it took them to start economic activities upon return to their place of origin. We then run a regression to examine the effect of assistance on return to economic activities and return to economic activities.

Column 1 to 4 of Table 7 depicts the results of the effect of intervention on return to economic activities. The t-values of the OLS result in column 1 shows that the perceived sense of security (PSEC), gender (being male) and education of household head (having a secondary certificate) significantly affect the return to economic activities of respondents. While years of experience of household head (EXP), education of household (with primary and tertiary education), acquired skill (SKILL), relief material/cash assistance received, the average distance of farm from home and family size are not significant in determining return to economic activities of displaced persons in North-central states of Nigeria.

The results of Table 7 (column 1) reveal that holding other variables constant, it took respondents 1.697 months (51 days) to return to economic activities even when the respondents perceive a sense of security in their places of origin. The result also shows that it took male respondents 1.368 months (40 days) to return to economic activities compared to female household heads. The combined result in column 1 further indicates that households with secondary school certificates return to economic activities faster by 1.625 months (48 days) than those with no education. Compared to the other two States, the result revealed that displaced persons from Benue State are more likely to stay without returning to economic activities for 2.518 months (75 days).

Running the regression model by the various States reveals how intervention affects return to economic activities in the respective States. The outcome of the OLS robust estimates are depicted in columns 2 to 4 of Table 7. Of the three States the effect of assistance received is only significant in Nasarawa State but not significant in Benue and Plateau States. Although the effect is infinitesimal, the significance of intervention in Nasarawa may probably be due to the extra effort by the state government to ensure returnees are integrated economically after returning to their places of origin – a component that may be lacking in the other two States. However, as a whole, the effect of cash received respondents do not significantly determine their return to economic activities across the state as a whole.

Table 7. Estimates of the Impact of Intervention on Return to Economic Activities

	Dependent Variable: Return to Economic Activities (RET)				Dependent Variable: Return to Place of Origin			
VARIABLES	All	Benue	Nasarawa	Plateau	All	Benue	Nasarawa	Plateau
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Security	1.697*	1.036	0.381	2.333	9.520***	11.74***	2.712*	-3.931
	(1.79)	(1.15)	(0.47)	(1.06)	(5.66)	(4.36)	(1.96)	(-1.29)
GEND(Male)	1.368*	0.555	1.701*	3.798*	-3.105	-5.988*	3.308**	4.960
	(1.70)	(0.49)	(1.66)	(1.70)	(-1.49)	(-1.87)	(2.25)	(1.22)
EXP	0.0413	-0.0178	0.104*	0.0534	0.221**	0.271	0.202**	-0.420*
	(1.29)	(-0.37)	(1.94)	(0.48)	(2.17)	(1.52)	(2.40)	(-1.73)
EDUC (PRI)	-0.673	1.225	-2.063	-0.319	-4.545**	-3.950	-1.887	-7.069
	(-0.70)	(0.76)	(-1.57)	(-0.12)	(-2.07)	(-1.10)	(-1.07)	(-1.52)
EDUC (SEC)	-1.625*	-1.231	-2.487**	1.502	-5.834***	-9.483***	-4.568**	-0.218
	(-1.88)	(-0.90)	(-2.11)	(0.59)	(-2.83)	(-2.80)	(-2.47)	(-0.04)
EDUC (TER)	-1.565	-2.915*	-0.654	2.806	-0.163	-2.470	-3.302	-0.223
	(-1.52)	(-1.80)	(-0.43)	(1.18)	(-0.05)	(-0.39)	(-1.27)	(-0.04)
SKILL	1.248	0.644	1.053	-2.383	-1.240	-0.841	1.782	6.513
	(1.26)	(0.33)	(0.94)	(-0.68)	(-0.57)	(-0.22)	(0.79)	(1.23)
Cash Assistance	-0.00001	-0.0000103	-0.000023**	0.000136	-0.000076**	-0.000266**	-0.000008	-0.00007
	(-0.56)	(-0.16)	(-2.09)	(1.32)	(-2.37)	(-2.41)	(-0.04)	(-0.52)
Distance to Farm	0.222	0.138	-0.537	2.245*	3.765***	5.531***	-0.376	2.124
	(0.66)	(0.29)	(-1.01)	(1.84)	(4.27)	(3.46)	(-0.65)	(1.26)
Family size	0.0604	0.240**	-0.0201	-0.451*	0.389***	0.687***	-0.00744	-0.282
	(1.08)	(2.38)	(-0.49)	(-1.85)	(3.73)	(3.555)	(-0.11)	(-0.79)
Benue	2.518*				7.259**			
	(1.89)				(2.16)			
Plateau	1.463				-0.988			
	(0.98)				(-0.26)			
Nasarawa	2.274				-0.394			
	(1.47)				(-0.11)			
Constant		2.642	4.730	-3.870		2.861	8.791***	15.49***
		(1.56)	(1.57)	(-1.19)		(0.55)	(3.14)	(2.71)
F-test	29.67	16.73	14.02	13.5	53.65	28.75	3.88	3.77
P-value	0.0000	0.0089	0.0001	0.0019	0.0000	0.0000	0.0001	0.0006
Observations	832	274	294	268	831	274	294	267
R-squared	0.515	0.312	0.285	0.294	0.730	0.549	0.293	0.384

Source: Field work 2022. Note: Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The results in columns 1, 2, 3 and 4 examine the effect of the independent variables on return to economic activities (the outcome of interest); while results in columns 5, 6, 7 and 8 examine the same effect on return to place of origin.

To further examine the effect of assistance received by displaced persons in the region, we run regression to evaluate whether intervention influence respondent's willingness to return to their place of origin (column 5 to 8). In column 5, in addition to security, distance to farm and other household characteristics, cash assistance significantly affects the willingness to return to place of origin. The disaggregated results for the states (column 6 to 8) indicate that the effect of cash assistance to respondent's willingness to return to place of origin is only significant in Benue. The significance of cash assistance in Benue may probably be due to the high number of non-governmental organisations such as charity organisations. In addition to government effort, some of the non-governmental organisations go the extra mile to ensure displaced persons return to their places of origin.

The outcome of the OLS result in Table 7 is intuitive. The results revealed in column 1 (the combined results) implies that providing security at the place of origin remains an important factor respondent consider before returning to place of origin and economic activities. However, the result indicates that even when there is relative security or peace, respondents do not immediately return to economic activities. The combined result further reveals that as a whole security plays a significant role in return to place of origin and economic activity, the results of the various three States show the contrary; the provision of security is insignificant in determining return to economic activities of displaced persons. One possible explanation for this contradiction is the over-centralization of security in Nigeria. The provision of security in remote areas particularly in farms that are far-flung from roads and residential areas is crucial in displaced persons return to economic activities. The structure of security service in Nigeria makes it difficult to provide security in remote places-especially in farms that are far from villages.

The analysis of this study shows that although interventions are necessary to meet the needs of IDPs, their return to economic activities is not significantly affected by intervention but instead affected by perceived sense of security, years of experience and gender of respondents. This is an indication that IDPs eventually return to economic activities even when there are no incentives to do so; they do so at least to reduce losses. For the case of Nasarawa State where the effect of intervention on return to economic activities is significant although small, the result suggests that returnees are indeed responsive to intervention but at an infinitesimal scale. Some returnees who are yet to start full economic activities cite poor security in farms.

5. Discussion and Implication for Displaced Returnees

This present research employs robust regression to estimate the extent land right violation affects agricultural yield of displaced returnees. Our analyses reveals that, respondents' crop yield increases when they feel they have right to land. However, violation land rights is found to have negative and significant effect on crop yield after the conflicts. Our analyses also show that that some of the respondents are yet to have access to their land and/or return to economic activities after conflict. The significant effect of land rights implies that not much investment will be carried out in the face of land rights violations. The result is consistent with other studies that demonstrate that property rights increase productivity and return on investment (Hartman, Blair & Battman, 2018; Besley & Ghatak 2010; Goldstein & Udry, 2008).

The outcome of this study is in tandem with the theoretical position of Basley (1995) who hypothesized that investment is a function of property rights, cost of investment and expected return on investment. Basley postulated that an individual will not invest if there is the possibility that profit from their investment will be appropriated by others. Thus, property right positively affects the investment and productivity of an individual. As the results in this study indicate, access to land positively and significantly affect the productivity of respondents before their displacement. However, when access to land is not guaranteed and there is uncertainty in appropriating harvest productivity falls. This is because owners of farmlands

feel they do not have the right to use and access their farmlands. Hence, their investment *pari passu* productivity drops. For instance, some of the respondents complained that parts of their farmlands are either being occupied or not accessible:

I cannot go to my farm because it is dangerous to do so. I am afraid I may lose my life; herdsmen can attack without notice (Iorza Community Head, Logo LGA of Benue State, In-depth, Interview, 2022).

The effect of security on return to economic activities was also evident in Plateau State. The response of one of the leaders shows that insecurity constitute delays in return to economic activities.

Some of the farmlands are still occupied. We have families that have not stepped in their communities for more than three months, some six months for fear of being attacked. People are still here with us, some in primary schools and some with their relatives. How do you expect such persons to farm or harvest? They mainly depend on donations from charity organisations (Lobirng Community Head, Basa LGA of Plateau State, In-depth Interview, 2022).

In Benue State, respondents whose farmlands are far away from home are scared of starting full-time activities.

I cannot access my farmland because it is far away from the village. I cannot farm a large expanse of land that I use to because the land I am cultivating now belongs to my mother. The land is not enough for me but I cannot go to my land because I may be attacked or killed on the farm (Respondents from Oweto community in Agatu LGA of Benue State).

The presence of insecurity and poor land rights affect the return on investment - as some of the respondents indicated that they are afraid of losing their harvests.

I cannot do much because even after you farm there is no guarantee that you can harvest your crop. Last time all my yams were eaten up by cattle. The herders can lead cattle into your farms at night and finish your harvest and when you confront the herders, they will either deny or start a fight (Respondents from Jimimi Community in Keana LGA of Nasarawa State).

The findings of this study corroborate the comments of these respondents. The outputs of farmers are hampered when they do not have rights to resources. As Farrell (2019) findings suggested, secured land ownership increases productivity, however, informally owned land decreases incentives to invest because there are vulnerable to property rights violation.

Sert (2010) in the study of the effect of property right on IDPs return to place of origin across different countries affected by conflicts in South America, established that return to place of origin of IDPs is high in countries with effective property right policies. The findings of this current study also suggest that the feeling of ownership to land increases owner's investment thus leading to increase productivity. Displacement erodes such feelings of land rights and thus affects the productivity of returnees. As evident in the results of this study, the effect of property rights on the productivity of respondents after the conflicts is insignificant - although the effect of land rights on the productivity of returnees might take some time to be significant.

As expected, education and gender play a crucial role in the productivity of returned IDPs. Gender difference in productivity calls for improvement farming method that limits manual labour in favour of mechanized farming. The effect of sense of security on the productivity of returned IDPs is insignificant through the period. Implying that the provision of security does not affect the productivity of the individual. The findings on the effect of property rights on productivity are consistent with the theoretical underpins based on the Demstzian theory of property rights in that households decreases investment when there are not sure of returns on investment. It is worth mentioning that humanitarian assistance that is not target at improving economic status of displaced persons is temporary and limited in its impact. As the findings of this empirical research shows, the effect of cash assistance and/or relief material on willing to return to place of origin and return to economic activities of displaced returnees is

infinitesimal. These findings have significant implication for stakeholders engage in humanitarian aids.

5. Conclusion and Policy Implications

Land rights in Nigeria as been a complex issue of national debate in Nigeria. State actors continue to critical role in ensuring social and economic integration of displaced returnees in Nigeria. Land right violation, the fear of being attacked and the consequence on the productivity of displaced returnees is a major concern to recovery effort in Nigeria. The study evaluates how perception of right to land affects productivity before displacement, during displacement and upon return to place of origin. The study finds that land rights violation significantly affects household productivity before conflicts. The result of the regression results further shows that the effect of property rights on productivity both during and after the conflicts is negative and insignificant effect; suggesting that productivity increases when respondents feel they have rights to land. The study also find that land rights violation have a negative (although insignificant) effect on productivity of returnees because of the reduced incentive to invest caused by poor land rights.

The outcome of our studies implies that the productivity of displaced returnees falls or remains low when land rights remains undefined. This could explain why despite the return of IDPs to their place of origin their living standard remained poor. Since land rights directly influence productivity, this paper recommends the need for a targeted policy intervention aimed at addressing land tenure insecurity among displaced farmers in North-Central Nigeria. Such policy should encourage proper land and resources demarcation among individuals, herdsmen and communities. Furthermore, land rights need to be strengthened especially in the rural areas to enable returnees to have access to land and appropriate the benefit of investments on farmland. This should involve strengthening local government and traditional institutions on dispute resolution and effective enforcement of land rights. Our study further shows the extent intervention affects displaced persons. The result indicts that intervention has no significant impact on the economic life of displaced persons when emphasis is placed on place of origin. Such emphasis rather are less effective in integrating displaced returning, thus, the need for government agencies to lay more emphasis on return to the economic activities of displaced returnees.

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