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Effects of Land Market on Food Security Status among Farming Households in Kogi State, Nigeria

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Abstract:

The study analysed the effects of land market on food security status among farming households in Kogi State, Nigeria. Findings from the study revealed that 95% of the farming household heads were males with an average age of 54.3years among the farming household heads. The mean household size was 5 members and average schooling years of 11.7years. The respondents had been farming over an average of 26.7years on a mean farm size of 3.4hectares and a mean farm income of ₦69,855.31. Logistic estimates on determinants of food security status among the farming households showed that the probability of a farming household being food secured increases with access to credit ($\beta=0.955$), involvement in off farm work ($\beta=1.765$), and household income ($\beta=0.000$) at $P<0.01$, while plots rent out ($\beta=-2.005$) decreases the likelihood of being food secured (hence, food insecure) at 5% level of significance.

Keywords: Farming, Households, Food, Secured, Insecured, Logit.

1. Introduction

The demand for agricultural produce in Nigeria is continuously rising due to geometric rise in population; this has resulted in the intensification of cultivable land in an attempt to increase agricultural productivity (Akinbile and Adekunle, 2000). Nigeria like most developing countries is an agrarian society where vast percentage of the population is involved in several agricultural activities. The rural population in the country represents a strong and virile productive force in subsistence agriculture. They play an important role in the management of land, agricultural forestry and water resources (Ifaturoti, 1996). Efficient land utilization and management practices ensure achievement of farm level objectives in terms of food security and risk aversion. (Pinstrup *et al.*, 1995; Kruseme *et al.*, 1996 and Udoh *et al.*, 2002).

Nigerian agricultural production is dominated by small scale farmers with large concentration in the rural areas in which land in these rural areas is mainly for agricultural production. Thus, availability of adequate land resources is highly essential for a productive agricultural sector. More so, land is highly essential for man's sustenance and existence as it is an important source of raw material required in the satisfaction of human basic material needs. This implies that the use to which land is put is highly crucial for livelihood, income generation, food production and survival, as no significant agricultural production can take place without land and in many cases, large areas of land are needed for the cultivation of crops and rearing of animals (Oyekale, 2012).

With the ever-increasing Nigeria's population, the pressure on land has become so prominent that land which was initially regarded as a free-gift of nature tends to be the most highly priced factor of production (Gomez, 1996). Land as a factor of production is a critical input in agricultural production. The criticality is imposed by its availability, accessibility, quality and quantity. In Nigeria's agriculture, the quality factor stands out as the major determinant of land productivity (Gomez, 1996). Land plays an essential role in increasing as well as sustaining agricultural production. The extent to which this role is performed is determined in part by methods of land acquisition and arrangements for the ownership and use of land. Rights in rural land can be acquired or transferred through inheritance, gift, purchase, loan, pledge and allocation (by family head, local chief or any land custodian) (Alawode, 2013). Although, land tenure system and the extent of competition by non-agricultural land uses are major factors determining the accessibility of most agricultural lands especially in the North-central part of the country (Udoh, 2000). Land transactions and markets have developed within the customary tenure system which led to transfer of use rights in long term leases (about 40 years), and permanent transfer of use rights as in land sales (Idowu *et al.*, 2007).

Land is a fundamental factor of production in the agricultural sector. It plays an essential role in increasing as well as sustaining agricultural production. The extent to which this role is performed is determined in part by methods of land acquisition and arrangements for the ownership and use of land. Rights in rural land can be acquired or transferred through inheritance, gift, purchase, loan, pledge and allocation (by family head, local chief or any land custodian) (Alawode, 2013). In Nigeria, acquisition of interest in land is mainly by inheritance. Land tenure system and the extent of competition by non-agricultural land uses remain a major factor determining the accessibility to most agricultural lands especially in the North-central part of the country (Udoh, 2000). Land transactions and markets have resultantly developed within the customary tenure system thereby leading to transfer of use rights in long term leases (about 40 years), and permanent transfer of use rights as in land sales (Idowu *et al.*, 2007).

Land market is defined as the framework in which those seeking land and those owning and controlling land are brought into transaction in order to affect access to land by land seekers (Rust, 2005). The land market is not homogenous; actors are diverse and may have conflicting agenda. A distinctive feature of land market is that the ease of entry or exit is affected by local and national governments. A well-functioning land market should have ease of entry and ease of performing transactions. This depends on adequate land information, secure tenure arrangements, and an appropriate registration and recording mechanism. Land market exists when and where it is possible to exchange rights in land for agreed amounts of money or services rendered (Kironde, 2000). Nigeria operate three types of land market; a market for allocations of certificates of occupancy from the government- "formal market"; a market for the transfer of land rights documented by certificates of occupancy- "formal and informal markets"; and the market for land that has no certificate of occupancy- "informal market" (land use Act, 2004) while according to Mabogunje (1990), a feature of land market in Nigeria is that it operates almost outside the realm of public authorities.

Land markets exist when and wherever it is possible to exchange rights in land, usually for agreed amounts of money. An efficient land market underpins the capacity of banks and other financial organizations to lend money and for landowners to invest. The development and maintenance of land markets involves the interaction of complex political, economic, social and cultural issues, legal frameworks, fiscal policies and environmental controls. Their impact on society and the local economy varies from nation to nation and depends much upon what is happening in other parts of the national and global economies (Peter *et al.*, 2007).

Due to the key role that the land plays, access to this resource through land market is closely related to household food security and household poverty status. Food security has been defined as the situation where all people, at all times have physical and economic access to sufficient, safe and nutritious food needed to maintain healthy and active life (FAO, 1996). This definition implies that food security is a broad concept that is more than food production and food accessibility. In reality, it revolves round four pillars namely, food availability, food accessibility, nutritional factors and stability of food supply (Gross *et al.*, 1999). The implication of this definition is that, achieving food security requires that the aggregate availability of physical supplies of food is sufficient, the households have access to food supplies through their own production, through the market (given sufficient purchasing power) or through other sources and the utilization of those food supplies is appropriate to meet the specific dietary needs of individual households or individuals in the household.

Food security has been described as an important aspect in any consideration of the sustainability of the wealth of a nation. This is in view of its role as a critical factor in economic development, peace and stability (Akanji, 1993; World Food Summit, 1996; Onyido, 1997; Osundare, 1999; Adegboye, 2004). Food is of high importance in matters of human wellbeing and economic productivity. Hence, the need for food in Nigeria, like other parts of the world, has become a policy issue. Besides, the nutrients contained in food are necessary for proper body functions (Olayide, 1999). To be food secure, sufficient resources are usually required to produce or purchase adequate food. However, this does not guarantee good nutrition and health as we can see from the diet-related health problems among even more affluent population groups. Findings from the analysis of (IFPRI, 2013) further revealed that most households in all regions and at all wealth levels purchase food, but rural households and poorer households (by wealth and livelihood) also rely heavily on own food production. Households in the poorest quintiles in both rural and urban areas rely on own production (32 percent rural and 24 percent urban). Wealthier urban households rely mostly on purchases, whereas own production is common at varying levels across all wealth levels for rural households

Nigerians generally consume starchy diet, but wealthier households can afford more nutrient-rich foods (including animal-based proteins) than poorer households. For instance, the wealthier households consume meat, fish, and egg an average of four days a week compared with only two days for the poorest households (Kuku-Shittu *et al.*, 2013). Most households protect vulnerable household members in terms of food allocations (women and children), but that may not hold in the poorest households where some difficult allocation decisions may have to be made. Poorer households are more likely to engage in extreme coping strategies (like going a whole day without food) to deal with food shortages (Kuku-Shittu *et al.*, 2013). In view of the above stated background, the study seeks to analyze the effects of land market on food security status among farming households in Kogi State, Nigeria.

2. Materials and Method

This study was carried out in Kogi State, Nigeria. Kogi State which is situated in the North Central Nigeria was created on the 27th August, 1991. The administrative headquarters is in Lokoja. It is structured into twenty-one (21) Local Government Areas and comprises of three major ethnic groups namely: Igala, Ebira and Okun (Yoruba). The smaller ethnic groups include Bassakomu, BassaNge, Nupe, Oworo, Kankada, Gwari, Ogori-magongo, Kupa, among others. Kogi state is fondly referred to as the confluence state. It has a favorable weather condition for tropical crops and animals, as well as able men and women who have the interest to work. Their major occupation is farming and they are well known for rearing of goats and sheep (www.kogistate.org).

The vegetation of the state consists of a mixture guinea savannah and swampy areas. Wide expanse of fadama in the river basin and long stretches of tropical forest in the Western and Southern belts of the state. Kogi state has a total land area of 28,313.53 square

kilometers and a projected population of 3.3 million people. It lies between latitude $7^{\circ} 14' N$ and $7^{\circ} 49' N$ and longitude $6^{\circ} 45' E$ and $6^{\circ} 69' E$ with a geological feature depicting young sedimentary rocks and alluvium along the riverbeds, which promotes agricultural activities. (www.kogistate.org).

A three-staged sampling technique was used in selecting the representative farming households that was used for this study. The first stage of the sampling procedure was a random selection of two out of four agricultural zones in the state. The two zones that were selected are Kotonkarfe and Anyigba. The next stage involves the random selection of five villages from each of the zones selected to give a total of ten villages. The list of farming households from the villages selected were obtained from state's Agricultural Development Projects (ADPs). The third stage was a random selection of twenty representative farming households from each of the ten villages. Thus: making a total of 200 households that was used for the study.

2.1. Model Specification

2.1.1. Logit Model Estimation for Effect of Land Market on Food Security Status

A Logit Regression Model was used to identify the effects of land market on food security among the respondents with a household likelihood of being food secure as specified below: -

$$\text{Model } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_8 X_8 + e$$

Where;

Y = Households food security status, 1 = Food secure, 0 = Food insecure (measured by DEC)

β_0 = Constant

X_1 to X_8 = independent variables as defined below:

X_1 = household land use (1 = agricultural purpose; 0 = otherwise)

X_2 = land improvement techniques (1 = use of fertilizer; 0 = otherwise)

X_3 = membership of farmers association (yes = 1; 0 = no)

X_4 = rental on land (Naira)

X_5 = cropping pattern (mixed = 1; mono = 0)

X_6 = access to extension service (yes = 1, no = 0)

X_7 = involvement in off farm work (yes = 1; no = 0)

X_8 = number of plots (number)

3. Results and Discussion

3.1. Socio- Economic Characteristics of Farming Households

Socioeconomic Variables	Frequency	Percentage	Mean
Age (years)			
31 – 40	5	2.5	54.3 years
41 – 50	43	21.5	
51 – 60	147	73.5	
Above 60	5	2.5	
Household size			
1 – 2	7	3.5	5 members
3 – 4	103	51.5	
5 – 6	55	27.5	
7 and above	35	17.5	
Educational Status (years)			
No formal education (0 year)	13	6.5	11.7 years (Secondary education)
Primary education (1 – 6 years)	11	5.5	
Secondary education (7 – 12 years)	100	50.0	
Tertiary education (Above 12 years)	76	38.0	
Farming Experience			
1 – 10	1	0.5	26.7 years
11 – 20	23	11.5	
21 – 30	122	61.0	
Above 30	54	27.0	
Farm size (hectares)			
0.1 – 1	9	4.5	3.4 hectares
1.1 – 2	31	15.5	
2.1 – 3	121	60.5	
Above 3	39	19.5	

Access to Extension			
Yes	53	26.5	
No	147	73.5	
Access to Credit			
Yes	38	19.0	
No	162	81.0	
Household Income (Naira)			
50,000 and below	91	45.5	
50001 – 100,000	88	44.0	
100001 – 150,000	6	3.0	
Above 150,000	15	7.5	69, 855.31

Table 1: Distribution of Respondents According to Socioeconomic Characteristics

Source: Field Survey, 2017

3.1.1. Age

The distribution of the respondents by age shows that majority of the respondents were in their active period. The mean age (54.3 years) agreed with the findings of Amusa *et al.*, (2011) where it was reported that the mean age of farmers in Nigeria was between 54 years with majority of them (about 70%) being males.

3.1.2. Household size

The household size means the number of people in the house, which includes wives, children and dependents who reside within the family and eat from the “same pot”. In subsistence agriculture as practiced in the study area, household size is very important as it determines to a large extent the supply of labour to the farm. As shown in Table 1, 51.5% of the respondents had household sizes ranging between 3 - 4 persons. This was the predominant range of the family sizes. Of course, this could mean higher family and cheap labour contributing to the farm family economy.

3.1.3. Level of Education

Education in agricultural production would assist farmers to test and accept innovations available to them. It would enhance their abilities to make informed and accurate decisions on the management of the farm. This also could be a source of additional income. These are all positive factors to the household food economy. It was found that 6.5% of farmers had no formal education. About 5.5% had primary education, 50.0% had secondary education and 38.0% had tertiary education with a mean of 11.7 years (See **Table 1**).

3.1.4. Access to Extension

The result on access to extension services presented in Table 1 indicated that majority (76.5%) of the respondents do not have access to extension services, while 26.5% had access to extension.

3.1.5. Household Income

The Income from farming is a major determinant of per capital household expenditure and food security status. Majority of the respondents (45.5%) had farm income less than N50,000:00 per year (Table 1). The reason for this relatively low income could be due to the fact that farm household usually satisfy their food needs before excess are sold in the market.

Variables	Coeff.	Std. Error	t-value
Membership of farmers assoc.	-0.302	0.732	0.170
Access to credit	-0.955	0.546	3.061***
Off farm work	1.765	0.534	10.913***
Access to extension services	0.864	0.702	1.515*
Household income	0.000	0.000	3.984***
Amount paid on land	0.000	0.000	0.386
Number of plots cultivated	-0.074	0.233	0.101
Plots rent out	-2.005	1.160	2.989**
Farm sold	-24.487	40192.970	0.000
Constant	0.081	0.895	0.008
Log likelihood	125.161		
χ^2	33.430***		

Table 3: Logistic Regression Analysis on Food Security Status

Source: Computed from Field Survey, 2017 ***, ** & * = Sig. @ 1%, 5% & 10% respectively

Analysis of the data revealed that 5 out of 9 variables included in the model were significant in explaining the likelihood of being in food secured among households in the study area. The significant and positive variables were access to credit, off farm work,

household income, and extension services, while plots rent out was significant but negatively related to food security status. The coefficient of variables in the model were significant at 1% ($P < 0.01$), 5% ($P < 0.05$) and 10% ($P < 0.10$) levels. The summary of the significant determinants from the logit regression analysis are discussed as follows:

3.1.6. Access to Credit

As expected, the coefficient for access to credit by the sampled household was positive and also significant at 1% level suggesting that access to credit tended to positively influence the food security level of households. Farm households who had access to credit were more likely to be food secured compared to households that do not. Credit is an important means of investment and households who have access to credit can invest in preferred businesses and earned more income resulting in increased financial capacity and purchasing power of households, thus increasing the per capita expenditure/income and reducing the risk of food insecurity.

3.1.7. Off Farm Work

As expected, the coefficient for off farm work was positive and significant at 1% level indicating that the food security status of households increased with involvement in off farm activities. This agrees with the report of Amaza *et al.* (2008). It is expected that as the level of involvement increases, the probability of being food secure increases. Involvement in off farm activities could be associated with the educational levels of the respondents. The level of formal education could impact positively on household production and nutrition decision thereby reducing food insecurity.

3.1.8. Household Income

The coefficient of household income was found to exert significant influence (1% level) and shows a positive relationship on household food security status. This indicates that the higher the household income, the higher the probability that the household would be food secure. It is imperative therefore that increase in household income, other things being equal means increased access to food and is a sure way of combating food insecurity. This finding agrees with the views of Omotesho *et al.* (2006) and Babatunde *et al.* (2007).

3.1.9. Access to Extension Services

The coefficient of extension contacts as expected *a priori* was positive and significant at 10% level among the farming households. The regression result suggests that extension agent contact is important in the adoption of modern farm practices that ultimately influences the level of farm output and income earning capacity of households, hence food security in the study area. This agrees with the report of Ahmed *et al.*, (2015).

3.1.10. Plots Rent Out

The coefficient of plots rent out was negatively related to food security status and significant at 5%. This implies that farming households who do not rent their farm land out were likely to be food secured that the farming households that do rent their plots out. As the quantity of plots rent out increases, there is every probability that less and lesser plots of land will be available for agricultural activities, hence, increasing the risk of food security in such households.

3.1.11. Food Security Status of the Respondents

The food security status of farming households in the study area is presented in Table 4. Farming households in the study area were profiled into food secure and food insecure groups based on their per capita food expenditure. The food insecurity line is defined as two-third of the mean per capita food expenditure of the total households studied. The food insecurity line as defined is shown in Table 4.

Variables	Food Secure	Food Insecure	Total
Number of Households	31	169	200
Percentage of Households	15.5	84.5	100
Head Count ratio (H)	0.15	0.85	-

Table 4: Distribution of Respondents According to their Food Security Status

Source: Field Survey, 2017

The result of this analysis indicates that, households whose per capita food expenditure (PCE) falls below the mean PCE were designated food insecure, while households whose per capita food expenditure equals or is greater than the mean PCE were food secure. It was observed from the result that only 15.5% of the households were food secure while majority (84.5%) were food insecure. In other words, based on the headcount ratio, only 15% had their per capita food expenditure equals or above the mean PCE, while 85% had their per capita food expenditure below the mean PCE.

4. Conclusion

This study analysed the effects of land market on food security status among farming households in Kogi State, Nigeria. Aged farming household heads were found to participate more in land markets. Farming households who had access to credit, involved in off farm work with high household income were likely to be more food secured than farming households who do not.

5. Recommendations

Based on findings of this study, the following recommendations are made:

1. The finding showed that most farming households in the State are food insecure. Achieving sustainable food security means ensuring continuous access to food both quantity and quality. There is therefore, the need for intensive promotion of research which will help to increase food production, environment friendliness as well as policy change in order to achieve sustainable food security.
2. Government policy makers must as a matter of importance, see food as a major component of farming households' welfare and as such develop sufficient political will to achieve increased food production.
3. Considering their low-income base, farming households need to be educated on the nutritional implication of the various food items. This is necessary for the food insecure households to be able to make appropriate choices in matters of food consumption.
4. Considering the relevance of credit access in improving the food security status of farming households, farmers should be assisted with agricultural credit and encouraged to embark on all year-round farming. This is to guarantee that the necessary food items are made available for the farming households at reasonable prices all year round.
5. Number of plots was also an important determinant of food security status in the area. Hence, participation of farming households in land market may be necessary for them to be able to acquire the necessary funds required. Importantly, relevant agencies of government should organize training to farming households on small scale enterprises.

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