AGRICULTURAL LAND AVAILABILITY AND RURAL FARMERS' OUTPUT IN ABIA STATE, NIGERIA

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Abstract

This study examined the effect of agricultural land availability on the performance of rural farmers in Abia State. The study showed that 55% of the respondents practiced inheritance as the prevalent land tenure system implying that majority of the farmers cultivated on lands owned by them or acquired from their fathers or kinsmen. The regression result shows an R² of 0.585 implying that 58.5% of changes in the availability of land were accounted for by changes in the variables included in the model while the remaining 41.5% was accounted for by error. Price of land and urbanization were negatively related to land availability at 5% significant level while age of farmers and distance to farm lands were also negatively related to land availability but at 10% significant level. The correlation result reveals a negative significant relationship between farm size and land market price. The correlation result also reveals a positive significant relationship between farm size and farm performance (proxied by net profit from farm produce sales). This implies that as farm size increases, performance also increases and vice versa. It was recommended that government intervene in the existent land hoarding challenge by rural dwellers and therefore make land available for willing farmers. Appropriate land planning programmes be promoted in a bid to reducing the fast run of urbanization with a consequent effect on land availability for agriculture.

Key words: agricultural, availability, land, urbanization

INTRODUCTION

The role of agriculture in developing countries like Nigeria is significantly and unarguably massive in not only contributing to the economic growth but in also in feeding her teeming population. Agriculture is therefore considered as the bedrock of the economy in Africa having employed about 70% of the workforce and generates, on average, 30 percent of the region's gross domestic product (GDP) [6]. There is a case of an untapped potential in the sector, that is, to increase individual farmers' yield per area of land cultivated consequently and ensure food self-sufficiency and security.

The inability to maximize the full capacity of this sector (albeit, providing food sufficient to meet the human daily dietary requirement) has been seriously linked to be the major cause of malnutrition. Malnutrition on the other has been reported to have serious human and economic consequences such that children's growth is grossly retarded creating an inability to reach their full mental and physical potentials. For adults engaged in farming activities, farm productivity is threatened.

Consequently, a link between nutrition, farm output and economic growth could be established. Infact, it has been shown that inadequate nutrition reduces the growth rate of GDP per capita in sub-Saharan Africa by between 0.16 and 4.0 percentage points (Arcand, 2000), cited in [5]. While the key factor in Africa's sub-standard nutrition can be attributed to poor feeding, agricultural underdevelopment characterized by low yield and low land utilization have also been linked thereto. Africa boasts about 25 percent of the world's arable land, yet its output is only about 10 percent of global agricultural output [9] thus showing a massive gap in yield. A similar study by World Bank/FAO [1] reports that of the 400 million acres that can be used for agriculture, less than 10 percent is currently cultivated. Thus, Africa is the largest underutilized land reserve in the world.

In Nigeria for instance, land is the most valued asset of many rural dwellers. Nigeria's land area measures 910,770 km² and harbours a growing population of 170,123,740 people, with more than 53 percent falling within the workforce bracket (2012 estimates). An estimated 71.2 million hectares of the land is considered suitable for agriculture, half of which is currently not under-utilization. The records of high rates of unemployment, poverty, and food importation [3, 4, 7, 10] coupled with land unavailability has thus led to sharp competition between individuals and between land users producing negative effects on the supply picture of land which is characterized by bidding and counter-bidding. The poor households may lack the financial ability to cope with this trend therefore recycling the food insecurity and low farm output dilemma.

In Abia State, like in most other population-stressed regions, land is getting more and more commercialized with the price increasing beyond the reach of many famers. There is difficulty in obtaining enough land for large scale farming by prospective farmers. Disputes over land titling are commonly found now between families and communities which at times results to loss of life and property.

Land resources often become a matter of economic significance whenever people begin to use them, compete with others for their uses and control, put a price or assume the costs associated with land development.

This means that those users of land offering higher prices get the land whereas the famers who lack adequate financing status are left with marginal land of poor fertility.

The implication will be a continuous decline in size and quality of land available and sufficient for agricultural activities with a suspected devastating effect on food production, malnutrition and food security.

From the ongoing, it is worthy to note that improving the status (availability) and productivity of rural land is crucial to achieving economic independence, food security and sustainable development not only at the micro level but also at the macro.

MATERIALS AND METHODS

Study Area

This research work was carried out in Abia State, Nigeria. The state lies between the latitude 5^{0} 03°N to 5^{0} 07° and longitude 7^{0} 17°E to 7^{0} 24°E and it is located in the tropical rainforest zone of Nigeria. The state covers a land area of 5,243.7 square kilometers. It has a total population of 2,845,380 comprising 1,430,298 males and 1,415,082 females (NPC, 2006). The inhabitants are predominantly Igbos and engage in farming activities (crop and livestock) at low and medium scale levels.

Sources of Data and Method of Collection

Data were generated with the use of well-structured questionnaire from 60 rural farmers in the study area such as social economic characteristics, farm level characteristics etc.

Method of Data Analysis

Data generated were analyzed with the use of simple descriptive statistics like means, frequencies and tables and other econometric tools like correlation and multiple regression.

Model Specification

Correlation model is specified to capture the effect of:

(i)land availability (size of land, hectare) on farm performance (₦) and;

(ii)land market price (₦) on farm size (hectare).

The model is specified as:

$$r = \frac{n \, \varepsilon xy - \varepsilon x \varepsilon y}{\sqrt{n \, (\varepsilon x)^2 - (\varepsilon x)^2 - (n \varepsilon xy^2 - (\varepsilon y)^2}}$$

where:

r = correlation coefficient

x_a = land availability (measured by area of land cultivated in hectares)

y_a = farm performance (₦)

x_b = land market price (₦)

y_b = farm size (hectare)

The multiple regression model for factors affecting the availability of land is specified as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon$$

where:

Y= Availability of land (Size of current land

under cultivation measured in Hectares)
X_1 = Price of land (₦)
X_2 = Urbanization (Size of land lost due to urbanization measured in hectares)
X_3 = Age of farmers (Years)
X_4 = Household size
X_5 = Cost of labour (₦)
X_6 = Distance to farm land (Km)
$\beta_1 - \beta_7$ = Regression coefficients,
ε = Random error

RESULTS AND DISCUSSIONS

Land Acquisition Practices and Access to Land

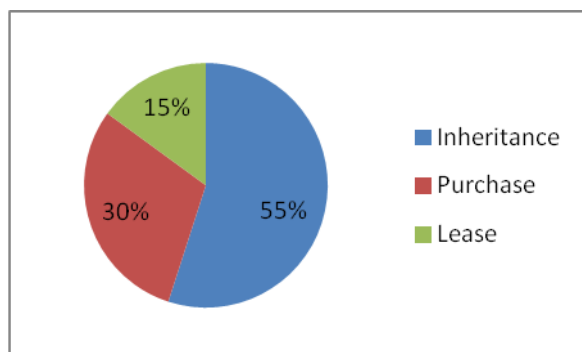The land acquisition practices in the study area are presented in Figure 1.

Fig. 1. Land Acquisition Practices and Access to Land
Source: Field Survey, 2016.

The study showed that 55% of the respondents practiced inheritance as the prevalent land tenure system. This could be due to level of developmental attainment. This implies that majority of the farmers cultivated on lands owned by them or acquired from their fathers or kinsmen. This was followed by 30% of the respondents who practiced the purchase lad system implying that they bought the land on which they farmed. The least was lease at 15%.

Factors Affecting Land Availability in the Study Area

A regression of Cobb-Douglas form was used to examine the influence of six (6) explanatory variables on the availability of agricultural land and the result is presented in Table 1.
The regression result above shows an R^2 of 0.585 implying that 58.5% of changes in the

availability of land were accounted for by changes in the variables included in the model while the remaining 41.5% was accounted for by error.

Table 1.Regression result for factors affecting land availability in the study area

Variables	Coefficients (B)	t	Sig
(Constant)	-6.253	-.934	.363
X_1 = Price of land (₦)	-.900	-2.342	.311**
X_2 = Urbanization	-.211	-2.911	.375**
X_3 = Age of farmers (Yrs)	-.988	-1.546	.140*
X_4 = Household size	-.461	-1.061	.303
X_5 = Labour cost (₦)	.241	.718	.482
X_6 = Distance (Km)	-1.048	-1.833	.083*
Adj. R^2	0.446		
R^2	0.585		
F-Ratio	4.224***		

Source: Field Survey Data, 2016.
(*** = 1%, ** = 5% and * = 10% level of significance respectively)

The F-ratio was significant at 1% showing a good fit of the regression line. Of the six (6) variables included in the model, price of land and urbanization were negatively related to land availability at 5% significant level while age of farmers and distance to farm lands were also negatively related to land availability but at 10% significant level.
Price of land was negatively to land availability at 5% level of significance implying that land will become less available to farmers as their prices increased and vice-versa. Farmers tend to reduce the area cultivated whenever the land price increases beyond the available fund.
Similarly, urbanization had a negative relationship on land availability at 5% level of significance indicating that as the area lost due to development (such as residential and industrial buildings) increases, there is a reduction in the size of land available for agricultural cultivation.
The age of farmers' coefficient was negatively signed at 10% significant level implying that

land area available to agriculture will reduce as the farmers advance in age. This could be explained by the phenomenal reduction of energy and s as age increases, thus the farmers may have less strength to cultivate more land.

The study also revealed that distance to farm lands negatively influenced land size cultivated at 10% significant level showing that as distance to farms increases, farmers may reduce the area of land cultivated probably due to the energy expended in trekking to the farms.

Analysis of the Relationship between Farm size and Land Market Price

To determine how land prices affect farm size availability, correlation analysis was performed and the result shown in Table 2.

Table 2. Summary of the Correlation Analysis between Farm size and Land Market Price

		Farm size	Land Market Price
Farm size	Pearson correlation	1	-.316
	Sig (2-tailed)		.014**
	N	60	60
Land market price	Pearson correlation	-.316	1
	Sig (2-tailed)	.014**	
	N	60	60

Source: Field Survey, 2016.
(** = 5% significant level)

The result above reveals a negative significant relationship between farm size and land market price. As farm size increases, farmers are forced to reduce the size of land they can purchase so as to meet up with other household expenses like healthcare, school fees, feeding etc. This condition is worsened by the prevalent high cost of land, limited farmland (evidenced from the study) caused by ever-growing population which has put land under pressure for construction of buildings, industrialization and food production. The need to intensify use land to meet the growing demand for food therefore becomes pertinent.

Analysis of the Relationship between Farm size and Performance

To examine the relationship and effect of farm size on performance of farm enterprises, a correlation analysis was performed and the result is presented in Table 3.

Table 3.Summary of the Correlation Analysis between Farm size and Performance

		Farm size	Performance
Farm size	Pearson correlation	1	.324
	Sig (2-tailed)		.085**
	N	60	60
Land market price	Pearson correlation	.324	1
	Sig (2-tailed)	.085**	
	N	60	60

Source: Field Survey, 2016.
(** = 5% significant level)

The Table 3 above reveals a positive significant relationship between farm size and farm performance (proxied by net profit from farm produce sales). This implies that as farm size increases, performance also increases and vice versa. This further reveals that farmers will get more returns when they have larger farms under cultivation, thus large farmlands that are cultivated will surely lead to higher gross and net returns. This result conforms to *a priori* expectations.

CONCLUSIONS

This study examined the effect of agricultural land availability on the performance of rural farmers in Abia State. The effect of land market prices on the land availability was also examined. Land availability from the study was affected by land market prices, urbanization, farmers' age and distance to farm. The study also showed that farm size positively affected farm performance i.e. the more farm size cultivated, the more income received. Based on the findings of this study, it was recommended that government intervene in the existent problem of land hoarding by rural dwellers thus making land available for willing farmers; efforts must be made to keep the price of land within the reach of the poor masses. Land prices should also be set at uniform levels to avoid price discriminations.

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