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# LAND ACQUISITION STRATEGIES AND RICE PRODUCTIVITY IN SELECTED LOCAL GOVERNMENT AREAS OF NIGER STATE, NIGERIA

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## ABSTRACT

*The study examined the effect of land acquisition strategies on rice productivity in selected Local Government Areas (LGA) of Niger State, Nigeria. The specific objective were to: identify the determinants of farmers' choice of land acquisition strategy; ascertain the levels of rice productivities under various land acquisition strategies; and determine the effect of land acquisition strategies on rice productivity in the study area. Multi-stage sampling technique was used for the selection of 120 respondents from the study areas, namely; Agaie, Katcha and Lavun Local Government Areas. Descriptive statistics, t-test of significance, multinomial logit model, productivity index and multiple regression analysis were used to achieve the objectives of the study. Estimates from the multinomial logit model revealed that the cost of land and ease of access to land were significant determinants of the choice of land acquisition strategy at 1% level of significance; implying that the probability of choosing either the rented or purchased land acquisition strategies will depend on the cost and ease of land acquisition, even though, the inelastic nature of the ease of access to land which ranged from - 0.14 to - 0.34, suggested that classification of farmers into any of the groups is not determined by this variable. The regression model further revealed that land acquisition strategies were a weak significant determinant of rice productivity at 10% probability level. Estimation of rice productivities under the three (3) land acquisition strategies showed differing productivity levels, which ranged from 2,036 kg/ha under the land purchase option to 2,447 kg/ha under rented land acquisition strategy, with no significant differences among the three categories.*

***Key words:*** *Land acquisition strategies, Rice productivity*

## INTRODUCTION

Land has remained a considerably important factor of production since the creation of man. It has an essential role to play 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 (Guogong and Yahayah, 2009). According to Food and Agriculture Organization (2012), land tenure problems are often an important contributor to food insecurity, restricted livelihood opportunities, and therefore to poverty. It hinted that secure access to land should thus be considered when designing solutions to specific rural development or food insecurity situations. This requires recognizing and tackling land tenure related problems even in the earliest stages of a rural development project. In a related development, Meybec and Place (2014) noted that natural resources in sub-Saharan Africa (SSA) continue to deteriorate due to increasing population pressure on limited land. Natural forests and communal grazing areas were also observed to be declining and converted to crop fields.

Land ownership rights and land tenure security are known to be major determinants of land use, investments in the land improvement, and intensification of farming (Otsuka and Place, 2001). Where individualized rights are established on agricultural land, farmers invest in longer-term improvements, including tree planting, crop rotations, manuring, and soil conservation (Holden *et al.*; Deininger and Castagnini 2006; Deininger and Ali (2007).

The land tenure system in Nigeria is based on the Land Use Decree of 1978, which is used to administer and control land use in the country (Fabiyi, 1984). This decree reflects the idea that it is in the public interest that the rights of all Nigerians to the land of Nigeria be asserted and preserved by law. The objectives of the decree are to enhance rapid economic and social transformation of the country through a rationalization of land use, to enable state governments bring about proper control and administration of land for the benefit of their people, to remove a main cause of social and economic inequality, and to provide an incentive to development by providing easy access to land for the state and the people. Indeed, land is less available to the ordinary farmer today than it was prior to the decree, thereby relegating most farming households to an inevitable state of perpetual tenancy. Land assumable constitutes a principal factor in agricultural production all over the world and provides a basis for crop production in Nigeria and sub-Saharan Africa. According to Chikezie (2008), land is a gift of nature which includes the soil, rivers, forest and so on.

Rice is an increasingly important crop in Nigeria. It is relatively easy to produce and is grown for sale and for home consumption.

In some areas, there is a long tradition of rice growing, but for many, rice has been considered a luxury food for special occasions only. However, Onuk *et al.*, (2010) observed that rice, in recent times, has emerged as a major household food item moving from ceremonial to a staple food in many Nigerian homes within the last two decades, such that some families cannot do without rice in a day. With the increased availability of rice, it has become part of the everyday diet of many in Nigeria. There are many varieties of rice grown in Nigeria. Some of these are considered 'traditional' varieties whereas others have been introduced within the last twenty years. Rice is cultivated in virtually all the agro-ecological zones in Nigeria. Despite this, the area cultivated to rice still appears small. In 2000, out of about 25 million hectares of land cultivated to various food crops, only about 6.37% was to rice, giving an average national yield of 1.47 tons per hectare (World Bank, 1991). Nwanchukwu *et al.*, (2008) reported that as a staple food in Nigeria, rice accounts for 40% of the diet of the country population but production has been growing at a slow rate relative to consumptions within the last years.

In order to grow rice, farmers need a number of resources, most basically land, especially those seeking to increase their production. Access to productive resources, services and inputs is essential for rural households if farmers are to be raised out of poverty and enabled to contribute to sustainable development. Access to land could be a critical factor in improving the situation of rural farmers as it is a resource of food production and for engaging in market oriented activities. Land ownership is also critical for raising the social status of farmers, and for facilitating their access to benefits and services such as credit and extension (San, 1999). Youssef (1995) stated that land tenure systems were undergoing the stresses of modernization that too often further restricts farmers' access to land. Although some rice farmers in the study area have access to land for agricultural activities, however, their farm sizes may be small and less fertile to allow for large scale farm production. This implies that access to farm land does not only constitute a problem but also the quality of land obtained.

Rice farmers are faced with several problems just like every other farmer in various agricultural enterprises that exist. Some of these problems include land fragmentation, excessive land ownership, land litigation, land arrangement, and land use. According to Oladele and Wakatsuki (2009), land tenure related problems seem to be the major constraint faced by rice farmers in Nigeria. Secure access and rights to land are fundamental to the achievement of productivity, food security and sustainable rural development. Insecure and limited access to land has contributed to poverty, which in turn has provided the ideal circumstances for conflict (Huggins and Pottier, 2011).

Therefore, understanding the dynamics associated with different types of land rights and tenure is crucial to any agricultural development effort, particularly, the attainment of economic growth and food security through rice production. Lack of assurance of land rights for a long period of time and unequal land distribution hamper agricultural development by limiting land access to many needy Africans, relegating them to the status of land tenants and therefore opening the door to conflicts. Kolawole (2011) also reported that the traditional land tenure system negatively affected rice production due to excessive fragmentation, thus leaving farmers with several uneconomic small sizes of land holding scattered over an area and therefore, hindering mechanization. Against this background, there is the need to ascertain the productivity of rice under the various land acquisition patterns with a view to improving rice production in Niger State, Nigeria. Makoto *et al.*, (2009) further stated that since most farmers in developing countries can hardly cope with the stress of modernization that too often further restricts their access to community land; they are left with small pieces and less fertile land. These developments therefore necessitated ascertaining the effect of land acquisition strategies on rice productivity in the study area. The broad objective of this study was to ascertain the effect of farmers' choice of land acquisition pattern on rice productivity in Niger State, Nigeria. The specific objectives were to: (i) ascertain the determinants of farmers' choice of land acquisition strategy; (ii) establish the level of rice productivity under the various land acquisition strategy; and (iii) determine the effects of land acquisition strategy on rice productivity. The justification for this study stems from the need to redress the current land related challenges while not compromising productivity. The study also stands to benefit the country in her drive to ensuring self sufficiency in rice production and ensuring accessibility to land for rice roduction, as it identifies those issues that require urgent attention of the various stakeholders in the rice industry and land administration institutions

The hypothesis put forward under this study was that land acquisition strategies were not significant determinants of rice productivity in the study area.

## METHODOLOGY

### Study Area

The study was conducted in Agaie, Katcha and Lavun Local Government Areas of Niger State. Niger State is located between Latitude 8°22′N and 11°30′N and Longitude 3°30′N and 7°20′E and covers a land area of about 74,244 sq.km, or about 8% of Nigeria's total land area. The area making up Niger State today comprised the old Nupe and Kontangora Kingdoms, Abuja (Suleja) with links to the famous Kingdom of Zauzau and host of other political entities. Niger State was excised from the defunct North - Western State and made a full - fledged State in the Federation in April 1976.

The State is bordered to the North by Zamfara State, to the Northwest by Kebbi State, to the south by Kogi State, to Southwest by Kwara State; while Kaduna State and Federal Capital territory borders the state to Northeast and Southeast respectively (Figure 1).

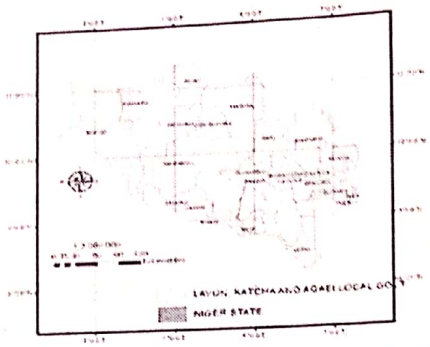


Figure 1: Map of Niger State Showing the Study Areas

Maximum temperature is between March and June, while the minimum is usually between December and January. The rainy season lasts for about 150 days in the northern parts of about 120 days in the southern parts of the State, the dry season lasts for about six months of the year from November to April making it favorable for agro-processing. The average minimum temperature is about 26 °C while the average maximum temperature is about 36°C. The mean relative humidity ranges between 60% (January to February) and 80% (June to September). Generally, the climate soil and hydrology of the State permits the cultivation of most of Nigeria's staple crops and still allows sufficient opportunities for grazing, fresh water fishing and forestry development. However, agriculture in Niger State is predominantly in the hands of rural people who farm small holdings. It has been estimated that there are over 724,292 farm families in the State (National Programme for Food Security, 2014). The major crops grown in the region are rice, sugar cane, maize, millet, melon, yam, groundnut, sorghum and cowpea (Niger State Agriculture and Mechanization Development Agency, 2013).

## Sampling Technique

The target population for the study was the rice producing households in Zone 1, comprising 8 Local Government Areas of Niger State. The selection of rice farm households was done on the basis of the dominant rice ecologies. A multi-stage sampling procedure was employed for the study. The first stage involved the simple random selection of three (3) major rice producing Local Government Areas (LGA) from Zone 1 of the State. The second stage covers a random selection of 4 villages from each LGA. In each village, simple random sampling technique was used to select 10 rice farming families, giving a total of 120 rice farmers. This technique had been used by previous studies on rice production in the study area.

## Data Analysis and Analytical Techniques

Primary data were used for this study. Data were collected using structured survey questionnaires. The questionnaires were administered by well trained Enumerators. The data collected covered farmers production variables, farmers' choice of land acquisition strategies, among others.

Multinomial Logit Model was used to achieve objective 1 of the study, productivity index and t-test of significance were employed to achieve objective 2 while multiple regression model was deployed to actualize objective 3.

**Model Specification**

The Multinomial Logit Model (MLM) was used to ascertain the determinants of farmers' choice of land tenure strategies (Objective 3). To generalize the Logit model to several explanatory variables, a linear predictor was used, that is, a function of several regressors. The multinomial logit permits the analysis of decisions across more than two categories, allowing the determination of choice probabilities for different categories of land tenure arrangements. This approach is more appropriate than the probit or logit models that have been conventionally used. The choice of the method was based on the fact that the choice of land acquisition strategies (dependent variable) is a categorical variable which can take three (3) levels of classification namely:

i. Respondents who used inherited land for their rice production;
ii. Respondents who purchased land for rice production; and
iii. Respondents who relied on rented farm land.

The Multinomial Logit was used to analyze factors that determine the choice of land acquisition strategies, which are unordered qualitative variables. It deals with truly nominal and mutually exclusive categories. Suppose a dependent variable (DV), y, has m categories that is, y = 1, 2 ...m with $P_1$, $P_2$...$P_m$ as associated probabilities, such that $P_1+P_2+...+P_m = 1$.

The usual thing is to designate one as the reference category. The probability of being in the other categories is then compared to the probability of membership in the reference category.

Consequently, a DV with M categories requires the calculation of m-1 equations, one for each category relative to the reference category, to describe the relationship between the DV and the independent variables (IVs). The choice of the reference category is theoretically motivated. The generalized form of probabilities for an outcome variable with m categories is:

$$\Pr(Y_i = m \mid X_i) = Pim \frac{\exp(xi|\beta m)}{1+\sum_{m=2}^{m} \exp(xi|\beta m)}$$

For m>1

$$Pr(Yi = 1|Xi) = Pi1 = 1/\sum_{m=2}^{m} \exp(xi|\beta m)$$

For K covariates, a total of (K+1)* (M-1) parameters will be estimated.

The odds and odds-ratios for a variable with M categories and baseline, M=1

$$\frac{P_{i=m}}{P_{i=1}} = \frac{\eta_{i=m}}{\eta_{i=1}} = \exp(Xi|\beta) \rightarrow log\ \frac{P_{i=m}}{P_{i=1}} = Xi|\beta m$$

$$\frac{log(Pm|Xk=1)|(P1|Xk=1)}{(Pm|Xk=1)|(P1|Xk=0)}$$

$$\frac{log(Pm|Xk0=Xk0+1)|(P1|Xk=Xk0+1)}{(Pm|Xk=Xk0)|(P1|Xk=Xk0)}$$

In the MLM specified, the dependent variable takes the value of 0, 1, and 2. Where I = 1, 2...n variables k = 0, 1..j groups and β = a vector of parameters that relates X to the probability of being in group j, where there are j+1 groups. The independent variables included in the final model are as follows:

$X_1$ = Income (₦)
$X_2$ = Cost of Land (₦)
$X_3$ = Membership of Cooperative Societies (Yes=1; No=0)
$X_4$ = Easy Access to Land (Yes=1;No-0)

To estimate the model, the coefficients of the base outcome are normalized to zero (0). This is because the probabilities for all the choices must sum up to the unity.

The marginal effects of explanatory variable on the propensity to choose each of the different methods were calculated using:

$$\frac{\partial \Pr(\beta xi)}{\partial xki} = \frac{\partial F(\beta xi)}{\partial xki} = f(\beta xi)\beta k$$

The estimated coefficients for each choice therefore reflect the effects of Xi on the likelihood of the farmers choosing that alternative relative to the base outcome. The estimation was done using STATA statistical analytical software. The final estimates were selected based on the variables that converged during iteration. The coefficients of the base outcome were then recovered in line with Nmadu *et al.*, (2012). In addition, the partial derivatives or marginal effects and quasi-elasticity of the model were obtained from the software.

Rice Productivity Index:

$$\text{Rice Productive index} = \frac{\text{Rice output or production (kg)}}{\text{Land Area (Ha)}}$$

**Multiple Regression Model:**

This was used to ascertain the effect of land acquisition strategies on rice productivity in the study area. This was used to analyze objective 2 of this study

Hence, the model was specified as:

The implicit form of the model is expressed as:

$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, e_i)$

Where:

Y = Rice Productivity (kg/Ha)

$X_1$ = Land Acquisition strategies (Inherited =1; Purchased =2; Rented =3,)

$X_2$ = Fertilizer (kg)

$X_3$ = Age (Years)

$X_4$ = Land size (Ha)

$X_5$ = Seed (kg)

$X_6$ = Agrochemicals (Litres)

$X_7$ = Labour (Man-days)

$X_8$ = Cooperative Society (Yes=1, No=0)

$X_9$ = Production (Naira)

$e_i$ = Random Error Terms

The explicit forms of the model are specified as follows:
Linear Functional Form:

$$Y=bo+b_1X_1+b_2X_2+b_3X_3+b_4X_4+b_5X_5+b_6X_6+b_7X_7+b_8X_8+b_9X_9+e$$

Double Log (Cob Douglas) Functional Form:

$$LnY=bo+b_1LnX_1+b_2LnX_2+b_3LnX_3+b_4LnX_4+b_5LnX_5+b_6LnX_6+b_7LnX_7+b_8LnX_8+b_9LnX_9+e$$

Semi-log Functional Form:

$$Y=bo+b_1LnX_1+b_2LnX_2+b_3LnX_3+b_4LnX_4+b_5LnX_5+b_6LnX_6+b_7LnX_7+b_8LnX_8+b_9LnX_9+e$$

Exponential:

$$Lny=bo+b_1X_1+b_2X_2+b_3X_3+b_4X_4+b_5X_5+b_6X_6+b_7X_7+b_8X_8+b_9X_9+e$$

Where $bo-b_9$= Regression coefficients.

e=Error term.

## RESULTS AND DISCUSSION

### Determinants of Farmer's Choice of Land Acquisition Strategies in the Study Area

The farmer's choice of land acquisition strategies in the study area was determined using the Multinomial Logit Model. The results are as detailed in Table 1:

**Table 1: Results of the Estimated Multinomial Logit Model for the Determinants of Farmers' Choice of Land Acquisition Strategies in the Study Area**

| Variables | Purchased | Rented | Inherited |
|---|---|---|---|
| Income | -9.45E-08 | 4.78E-06 | 4.87E-06 |
| | (-0.02)NS | (1.59)NS | |
| Cost of land | -0.0002247 | 0.0004362 | 0.0006609 |
| | (-0.85)NS | (4.29)*** | |
| Cooperative society | -0.9745539 | 0.3648103 | 1.3393642 |
| | (-1.33)NS | (0,47)NS | |
| Easy access to land | -1.654757 | -0.4146383 | 1.2401187 |
| | (-2.51)*** | (-0.64)NS | |
| Constant | 0.0996124 | -3.599359 | -3.6989714 |
| | (0.07)NS | (-2.65)*** | |
| Log likelihood | -78.14904 | | |
| LRchi2 | 44.69 | | |
| Prob>chi2 | 0.0000 | | |
| PseudoR$^2$ | 0.2223 | | |

Source: Field Data Analysis, 2014, *** Significant at 1%, NS Not significant

The results of the estimated equations are discussed in terms of significance and signs of the parameters. The result, as detailed in Table 1 shows that the coefficients of cost and easy access to land were significant determinants of farmers' choice of land acquisition strategies. However, while the coefficient of cost of land was positive, coefficient of easy access to land was negative. The positive sign indicate that cost of land is associated with the classification of the rented land acquisition strategy relative to the reference group. This implies that the probability of choosing the rented land acquisition strategy increases with the cost of land contrary to a priori expectations. On the other hand, the negative sign of the coefficient of easy access to land indicate that the ease of access to land is negatively associated with the classification of the purchased land acquisition strategy relative to the reference group. This connotes that the probability of choosing the purchased land acquisition strategy decreases with the ease of land access

**.Table 2: Estimates of Marginal Effects and Partial Elasticities**

| Variables | *Purchased (Group 1) | *Rented (Group 2) | * Inherited (Reference Group) |
|---|---|---|---|
| Easy Access to Land | -1.089973 | -0.0269619 | 1.741962 |
| | (-0.1375667) | (-0.3430642) | (-0.2210768) |

Source: Data Analysis, 2014, * = Marginal effects are above while partial Elasticities are in parentheses

Table 2 details the value of estimated marginal effects and partial elasticities calculated for the significant variables. The result showed that the partial elasticity of easy access to land which was the only variable for which the marginal effects and partial elasticities was generated returned inelastic. It thus implies that the probability of classifying the rice farmers into any of the land acquisition strategy is not greatly affected by the marginal changes in this variable, as a one percent change in the variable leads to a less than proportionate change in the probability of classification into the purchased and rented acquisition strategies, relative to the inherited strategy (reference group) This implies that one percent change in this explanatory variable leads to a less than proportionate change in the probability of classification into the two groups relative to the reference group.

**Estimation of Rice Productivity under the Various Land Acquisition Strategies**

The productivities of rice under the various land acquisition strategies, comprising inherited, purchased and rented options are detailed in Table 3 below:

**Table 3: Estimation of Rice Productivities under Various Land Acquisition Strategies**

| Acquisition Strategies | Production (Kg) | Area (Ha) | Productivity (Kg/Ha) |
|---|---|---|---|
| Inherited | 380,410 | 161.5 | 2,355.48 |
| Purchased | 126,254 | 62 | 2,036.35 |
| Rented | 86,854 | 35.5 | 2,446.59 |

Source: Field Survey, 2014

The results on Table 3 showed that rice productivity varied under the various land acquisition strategies. Thus, productivity ranged from 2,036.35 kg/ha under the land purchased acquisition strategy to 2,446.59 kg/ha under the rented land acquisition strategy. The tests of significance undertaken using the t-test statistics (Table 3), showed that there were no significant differences between the three rice productivity values, implying that the difference observed may have been due to chance.

Table 4: T-test of Significance Results

| Variables | Inherited | Purchased | Inherited | Rented | Purchased | Rented |
|---|---|---|---|---|---|---|
| Mean | 2416.7254 | 1962.3433 | 2416.73 | 2264.5 | 1952.34 | 2264.5 |
| Variance | 116994.1 | 150163.82 | 118994 | 77313.4 | 150164 | 77313.4 |
| Observations | 71 | 12 | 71 | 37 | 12 | 37 |
| Hypothesized Mean Difference | 0 | | 0 | | 0 | |
| Df | 14 | | 87 | | 15 | |
| t-stat | 3.8182755 | | 2.48999 | | -2.5004 | |
| P(T<=t) one-tail | 0.0009408 | | 0.00734 | | 0.01224 | |
| t-critical one-tail | 1.7613101 | | 1.66256 | | 1.75305 | |
| P(T<=t) two-tail | 0.0018817 | | 0.01468 | | 0.02449 | |
| t-critical two-tail | 2.1447867 | | 1.98761 | | 2.13145 | |

Source: Analyzed Output of Field Survey Data, 2014

**Effect of Land Acquisition Strategies on Rice Productivity**

The effect of land acquisition strategies on rice productivity in this study area was ascertained using multiple-regression analysis. The estimates from the model are presented on Table 5 below:

**Table 5: Regression Result Estimates –Effect of Land Acquisition on Farm Productivity**

| Variables | Linear | Exponential | Semi-log | Double log |
|---|---|---|---|---|
| Constant | 2576.2 | 7.8677 | 771.26 | 7.2595 |
| | (19.25) | (127.21) | (0.27) | (4.8) |
| Land acquisition | -21.157 | -0.0088 | 9.0081 | 0.0201 |
| | (-1.8)* | $(-1.62)^{NS}$ | $(0.08)^{NS}$ | $(0.36)^{NS}$ |
| Fertilizer | 0.0107 | 5.07E-06 | 3.48E+02 | 0.1802 |
| | (2.57)** | (2.63)*** | (1.91)* | (1.95)* |
| Age | 4.1809 | 0.0017 | 17.518 | -0.0573 |
| | (1.61)* | $(1.43)^{NS}$ | $(0.05)^{NS}$ | $(-0.31)^{NS}$ |
| Land size | -243.29 | -0.1127 | -736.35 | -0.3519 |
| | (-3.98)*** | (-3.99)*** | (-2.2)** | (-2.07)** |
| Seed | -0.0354 | -0.0162 | 25.965 | 0.0018 |
| | (-5.38)*** | (-5.33)*** | $(0.22)^{NS}$ | $(0.03)^{NS}$ |
| Agrochemicals | -0.0063 | -3.26E-06 | -1.1E+02 | -0.0588 |
| | (-1.72)* | (-1.92)* | $(-1.11)^{NS}$ | $(-1.16)^{NS}$ |
| Labour | 0.0016 | 5.31E-07 | -1.00E+02 | -0.0541 |
| | (1.91)* | $(1.34)^{NS}$ | $(-1.54)^{NS}$ | $(-1.6)^{NS}$ |
| Cooperative society | -24.756 | -0.0148 | -13.909 | -0.0171 |
| | $(-0.51)^{NS}$ | $(-0.67)^{NS}$ | $(-0.16)^{NS}$ | $(-0.36)^{NS}$ |
| Production | 0.0084 | 5.54E-07 | 2.71E-03 | 1.84E-06 |
| | $(0.42)^{NS}$ | $(0.6)^{NS}$ | $(0.73)^{NS}$ | $(0.93)^{NS}$ |
| R Squared | 0.7465 | 0.7385 | 0.6964 | 0.6861 |
| Adjusted R- | 0.7258 | 0.7171 | 0.6053 | 0.5779 |
| *F-ratio* | *0.0000* | *0.0000* | *0.0000* | *0.0000* |

*Source:* Computed from Survey Data, 2014, ***Statistically significant at 1% level of probability, **Statistically significant at 5% level of probability, *Statistically significant at 10% level of probability, NS is Not significant, Figures in parenthesis are t-values.

The regression model in Table 5 was significant, given the F value. The linear functional form was chosen as the lead equation out of the four functional forms tried, based on the values of the $R^2$ and adjusted $R^2$, the number and signs of the significant variables. The R-square ($R^2$) value of 0.7465 shows that 74.65% of variation in rice productivity of the farmer is accounted for by variation in the independent variables put together. This implies that the independent variables explained the behavior of the dependent variable at 75% confidence level. The estimated F-value was found to be 35.99, indicating the overall significance of the model. The results from the regression indicated that land acquisition strategy, which was the prime variable was significant at 10%, but negatively signed. The implication of this result is that acquisition patterns constitute a determinant of rice productivity, without prejudice to the sign.

The far reaching implication is that the nature of land acquisition patterns in the study area has a negative effect on rice productivity. Other significant variables included; fertilizer used, age of the respondents, land size, seeds used, agrochemicals used and labour employed. For the coefficients of labour, fertilizer and age that were significant, it thus implies that as these variables are increased by one unit, rice productivity in the study area will increase by 0.0016, 0.0107 and 4.18 respectively. On the other hand, a unit increase in acreage cultivated, seeds and agrochemicals may not affect rice productivity. Results from the regression model goes to accept the null hypothesis of this study that land acquisition strategies were significant determinants of rice productivity in the study area.

## CONCLUSION AND RECOMMENDATIONS

The study concluded that the cost and choice of land acquisition strategy were determinants of rice productivity in the study area. Following the outcome of the study, it was recommended that the: (i) Federal Government of Nigeria, through its Presidential Committee on Land Reforms should as part of its mandate, come up with effective approach to easing the cost of land acquisition and facilitating access of rice farmers to favourable land acquisition strategies with a view to enhancing rice productivity in the study area; (ii) recurring challenges on land acquisition and tenure arrangements also calls for increased focus on rice intensification technologies by the Niger State Agricultural and Mechanization Agency (NAMDA) and the relevant Local Government Councils, with the view to enhancing productivity, increasing food security and alleviating poverty in the study area.

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