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ANALYSIS OF WELLBEING STATUS OF CONTRACT RICE FARMERS IN NIGER STATE OF NIGERIA

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ABSTRACT

This study analysed wellbeing status of contract rice farmers in Niger State of Nigeria. A sample size of one hundred and seventy rice farmers (170) were selected using multi-stage sampling method. Structured questionnaire complimented with interview scheduled were used for data collection. Data collected were analyzed using wellbeing status index, ordered logit regression and factor analysis. The findings revealed that rice farmers were satisfied with community connectedness ($\bar{X}$ =6.94), personal relationship ($\bar{X}$ =6.67), life achievement ($\bar{X}$ =6.26), spiritual/religious activities ($\bar{X}$ =6.23), standard of living ($\bar{X}$ =5.84) and future security ($\bar{X}$ =5.06). The coefficient of rice farm size (-1.295823), educational level (0.4637844), sources of labour (1.534896), training (0.2329947) and income after contract farming (4.23e-06) farmers' participation in contract farming. The most associated with farmer's participation in contract farming were breach of contract by the farmers (0.9522), diversion of inputs by contract farmers (0.9326) and political interference (0.9372). It is recommended that contract farmers should be properly monitored by the contracting firms in order to reduce diversion of input in the study area, contracting firms should abolish all forms of politicking associated with inputs distribution.

KEYWORDS: Wellbeing Status, Contract, Rice, Farmers

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INTRODUCTION

Contract farming is an agreement between a producer (farmer) and the integrator (agribusiness firm) which involves the lending of seeds, fertilizer, pesticides and many other inputs with specific marketing arrangements on price, quality, quantity, delivery requirements and remuneration for work done (Costales and Catelo, 2018). Minot (2013) views contract farming as an "agricultural production carried out according to a prior agreement in which the farmer commits to producing a given product in a given manner and the buyer commits to purchasing it". In fact, contract farming is the means by which risk is distributed between the out grower who takes the risk of production and the contractor who takes the risks of marketing. Contract farming is affected by factors such as poverty, health,

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political stability, infrastructure, access to markets, and natural hazards (Fasasi, 2017). Other factors that contribute to contract farming in the world include shift to more non-agricultural technology, environmental degradation, insecurity and high population growth (Kelly and Pemberton, 2016). However, improved and systematic organized contract farming is important for global reduction of hunger and poverty, for economic growth and for development of farmers' wellbeing especially in developing countries of the world which include Nigeria (Kagwiria and Gichuki, 2017).

The mode of interaction between farmers, buyers and other stakeholders involved in the contractual arrangement determines the efficacy of a contract scheme. Failure of contract farming is results of cases of poor coordination among parties, unfavourable terms and conditions as well as post determination of prices which are dictated by export markets (Da Silva, 2015). While contract farming is widespread in many developing countries of Africa, there are conflicting perceptions on its impact on the welfare of smallholder farmers. Spring, 2017; Fasasi, 2017 and Dubbert (2019) argued that contract farming is beneficial to the small holder farmers since it enables farmers to access ready production inputs, local markets and also to access global markets. On the other hand, there are contrary views that contract farming is a means of exploiting farmers by the large agribusiness firms due to the unequal bargaining power. Kagwiria and Gichuki, 2017; Da Silva, (2015) criticized contract farming on the basis that most of the contractual terms are too costly for smallholder farmers to comply with and that most large firms break the contractual terms at the expense of the smallholder due to unequal market power. Miyata (2017) reported that contract farming is only beneficial for large scale farmers and that it only serves to push smallholder farmers out of the market and could even lead to rural inequality and entrench poverty among the rural smallholder farmers.

This study tend to achieve these objectives;

i. examine the wellbeing status of contract rice farmers in the study area;
ii. determine the factors influencing rice farmers level of participation in contract farming in the study area; and
iii. examine the constraints associated with farmer's participation in contract farming in the study area.

MATERIAL AND METHODS

Niger State is located in the Guinea Savannah ecological zone of Nigeria. In terms of land mass, it has the largest land mass in Nigeria. It covers an estimated total land area of 74,224Km^2 (National Population commission (NPC) (2006) thus accounting for about eight percent of Nigeria's land area. About 85% of its land area is good for arable crop production. It is located within Longitude 3^o 30' and 7^o 20' East and Latitude 8^o 20' and 11^o 30' North, with an estimated human population of about 3,950,249 and base on the annual growth rate of 3.2%, the State has an estimated population of 5,586,000 as at 2017 Niger State Geographical information system (NIGIS) (2015). Niger State consists of twenty-five (25) Local Government Areas (LGAs) that are categorized into three Agricultural Zones: I, II and III with the zones having eight, nine and nine LGAs, respectively. Nupe, Gwagi and Hausa are the major ethnic groups in the State. The most predominant soil type is the ferruginous tropical soils. It is characterized with fertile soil and allows cultivation of most staple crops with enhanced opportunities for livestock grazing, fresh water fishing and

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forestry development. The State is endowed with numerous mineral resources such as gold, clay, silica, kyanite, marble, copper, iron, feldspars, lead, columbite, kaolin and tantalite (Niger State Ministry of Information, 2015). The State experience distinct dry and wet seasons with annual rainfall between 1,100mm in the northern part to 1,600mm in the Southern part. The average annual rainfall is about 1,400mm (Niger State Ministry of Information, 2015). The period of the rainy season is approximately 180days. The wet season often begins in April/May to October, while the dry season commence from November and terminates in March. Its maximum temperature usually never exceeds 35ºC, which records are taking between December and January. The mean average temperature is around 32ºC. Often Dry season commences in October (Nigerstateonline.com, 2013). Niger State is predominantly an agrarian society. Various crops grown in the State are are yam, cotton, maize, sorghum millet, cowpea, soybean, beans, rice and groundnut, while tree crops are mango, Shea butter, citrus, coconut, cashew, banana and pawpaw. The dwellers of the State also rear some livestock such as cattle, goats, sheep, and chicken among others. The Other non-agricultural activities engaged in by the people include basket weaving, blacksmithing, leather work and mat making trading. A multi-stage sampling technique was used for this study. The first stage involved the purposive selection of one (1) Local Government Areas from each of the agricultural zones of the state making a total number of three (3) LGAs. The purposive selection of these LGAs was due to availability of rice farmers in these selected LGAs and their participation in contract farming system. The second stage involved random selection of four (4) villages each from the selected LGAs making a total number of twelve (12) villages. The third stage involved the use of proportional sampling to select 10% of the respondents from the sampling frame, giving a total number of one hundred and seventy (170) respondents as shown in Table 1. Primary data was used for this study. Data collection was carried out by researchers assisted and by well-trained enumerators using structured questionnaire complemented with interview schedules.

Analytical techniques

Personal wellbeing index (PWI)

Objective I was (well-being status of contract farmers) was achieved using Personal Well-being Index (PWI). The international well-being group categories personal well-being index adult scale adopted from (Ajibola and Fatoki (2020). The scale was operationalized by a number continuum in linear scale that range between 1–10, that is 1+2+3+4+5+6+7+8+9+10=55 and then divided by 10 to obtain a mean score of 5.5. Any mean scores $\geq$5.5 was considered as satisfied, while mean scores <5.5 was considered not satisfied. The procedures that determine the well-being of contract farmers was based on eight (8) items (standard of living, personal health, life achievements, personal relationship, personal safety, community connectedness, future security and spiritual and religious activities). Each of the eight (8) domain scores was summed up to form an average score which represent subjected well-being.

Ordered logit regression model

Ordered Logit Regression model was used to achieve (objective ii) that is factors that influenced rice farmers' participation in contract farming. Both the implicit and the explicit models are specified below:

Level of rice farmers participation in contract farming (L) is a function of =f (K_1, K_2, K_3, K_4, K_5, K_6, K_7, K_8K_9 ,.... K_n)

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$L= b_o+b_1k_1 + b_2K_2 + b_3K_3 + b_4K_4 +b_5K_5+b_6K_6+b_7K_7+b_8K_8+b_9K_9 + b_nK_n+ U$

L= Level of rice farmers' participation in contract farming (low=1, moderate=2, high=3)

K_1= Size of rice farm (hectare)

K_2= Extension contact (number of extension visits)

K_3= Martial status (Married=1, Single=2, Divorced=3)

K_4= Educational level (Primary, Secondary or Tertiary)

K_5= Household size (Number of persons)

K_6= Farming Experience (Years)

K_7= Source of farm labour (Family=1, Hired=2, others=3)

K_8=Age (Years)

K_9= Training (Number)

K_{10}= Cooperative group of contract farmers (number of cooperatives)

K_{11}= Income after participating in contract farming (naira)

E= Error term.

Factor Analysis

Factor analysis procedure using factors with varimax rotation was used to achieve (objective iii). The constraints grouped using principal component analysis with iteration and varimax rotation method developed by Kaiser 1958. The cut-off point constraint loading is within the range of 0.3 - 0.5, variables that load in more than one constraint will be discarded. The Model is presented in equation … (1)

$Y_1= a_{11}X_1 + a_{12}X_2 + **********+a_{1n}X_n$

$Y_2= a_{21}X_1 + a_{22}X_2 + **********+a_{2n}X_n$

$Y_3= a_{31}X_1 + a_{32}X_2 + **********+a_{3n}X_n$ *

$Y_n= a_{n1}X_1 + a_{n2}X_2 + **********+a_{nm}X_n$

Where;

Y1, Y2 …… Y2 =Observed variable/ constraints to linkage / practice

a1-an =Constraints to correlation coefficients;

X1, X2, … Xn = Unobserved underlying factors constraining linkage practice.

RESULTS AND DISCUSSION

Table 2 showed that rice farmers were satisfied with the following well-being indicators community connectedness ($\bar{X}$ =6.94) ranked 1st. This signifies strong and unbreakable bond between people of the community. Also, personal relationship ($\bar{X}$ = 6.67) ranked 2nd, implying strong relationship between fellow farmers. This finding is in agreement with that of Ajibola and Fatoki (2020) who reported that rice farmers in Nasarawa State were satisfied with community connectedness and personal relationship. Other findings indicated that rice farmers in Niger State were satisfied with life achievement ($\bar{X}$ =6.26) ranked 3rd, implying that life achievement and accomplishment in the study area. This could be reflected in the aspect of assets acquisition and prestige and title holders. Spiritual/religious activities ($\bar{X}$ =6.23) ranked 4th, signifying participation in religious activities. Religious has been opium for the masses due to inability of government to provide good life for people thereby making rural households take sheltered and fully depend on Supreme Being. Standard of living ($\bar{X}$ =5.84) ranked 5th. This signifies that improved standard of living among contract

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rice farmers in the study area. However, respondents were not satisfied with future security ($\bar{X}$ =5.06), personal health ($\bar{X}$ =4.80) and personal safety ($\bar{X}$ =3.98). The implication of this result is that the rice farmers were not satisfied with their future security, personal health and security in their pursuit of satisfactory well-being status. The reoccurring security challenge in Niger State has worsened security situation being experienced by farmers mostly by bandits, land disputes, ethnic and pastoralist-farmers clashes have affected attainment of secured lives and properties. Rice farmers do not feel safe any longer going to farm for any farming activities geared towards attainment of better livelihood and well-being status thereby putting contract farmers into serious debt. This result agrees with the finding of Mercy Corps (2015) and International Crisis Group (2017) that violent conflicts involving farmers and herders from Northern Nigeria have become common occurrences and has escalated in recent years threatening the country's security and stability. Therefore, the more the farming communities become troubled due to violence, the more difficult it becomes for the rice farmers to achieve a sustainable and satisfactory well-being status.

Factors that influence rice farmers' participation in contract farming

Table 3 showed that size of rice farm (-1.295823) was negatively significant at 5% level of probability. This was contrary to *apriori* expectation, normally farmers who have large farms tend to have higher probability of participating in contract farming because they are able to allocate some portions of their fields. This finding is consistent with Vargas (2012) who stated that rice farmers with the smallest land size category expressed the highest willingness to adopt new practices. The coefficient of educational level (0.4637844) was positively significant at 5% level of probability, signifying that access to formal education tend to influence farmers participation in contract farming. This finding is in agreement with that of Namso and Gabriel (2015) who stated that access to formal education will influence participation in contract farming. The coefficient of sources of labour (1.534896) was positively significant at 1% level of probability. This implication is labour availability will influence rice farmers participation. The coefficient of training (0.2329947) was positively significant at 5% level of probability, implying that access to training will influence farmers' participation in contract farming. The coefficient of income after contract farming (4.23e-06) was positively significant at 1% level of probability, implying that increase in income will influence farmers' participation in contract farming. This finding is in line with that of Namso and Gabriel (2015) who reported increase in income will increase the determinant of contract fishing participation in Awka State of Nigeria.

Constraints Associated with Farmer's Participation in Contract Farming

The result of factor analysis in Table 4 indicated the extracted factors based on the constraints associated with farmer's participation in contract farming study State. The Kaiser-Meyer-Olkin (KMO) test which measures the degree of inter-correlation among the variables and the appropriateness of factor analysis has a calibration value of 0.887, showing that the inter-correlation and appropriateness of variables were good for factor analysis. The result of the principal component analysis using the varimax rotation method isolated 3 underlining or principal factors for each of the 17 constraints associated with farmer's participation in

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contract farming in Niger State. These three underlying factors explained 89.9% of the variation in the data. That is to say that the factors that meet the cut-off criterion with Eigen-values greater than 1 are generally considered satisfactory. The extracted factors and their respective factor loadings exclude those whose absolute loading value was less than 0.40 according to Kaiser's rule of thumb (Farinde and Alabi, 2015).

Economic/institutional

The first (economic/institutional) factor was loaded very high with an Eigen-value of 9.09362 and 54.0% variance of the militating factors. This factor includes diversion of inputs by contract farmers (0.9326), signifying a situation in which farmers' used the input provided for economic gain. Untimely delivery of inputs (0.8352) is another economic factor. Late delivery of inputs to farmers is a common practice in Nigeria. This is mostly blamed on lack of adequate preparation and poor logistics. Exploitation by the contracting firms (0.8012) is another economic factor. Taking advantages of farmers by the corrupt contracting firms in a bid to satisfy their selfish desires is very common in Nigeria.

Political/social

The second factor was loaded very high with an Eigen-value of 4.22451 and 25.1% variance of the militating factors. This factor includes political interference (0.9372). This involves the use of politicking and favoritism in the distribution of inputs to farmers. Wrong perception of information by the contract farmers (0.9206) is another factor, signifying lack of access to information on the rules and regulation binding the contract by farmers. Large number of disperse contract farmers (0.8629) is another political/social factor. The nature of settlement of most of the farmers in Nigeria make it difficult for proper monitoring and evaluation after inputs have been allocated to them. Domination by monopolies (0.8222), signifying a situation in which contracting firms have interest in some specific crops at the expense of farmers. Conflicting interest (0.7163) is one of the political/social factors, implying clash of interest among farmers and firms. This might be in the aspect of producing a specific crop whereas farmers on the other hand do not have interest in that crop. Poor coordination by the contracting firms (0.6785) is another political/social factor. This involves failure of contracting firms to put things into other and coordinate perfectly. Also, contract policy problem (0.6666) is one of the political/social factor. Lack of proper coordination by the contracting firms in discharging their duties and lack of proper policy is a constraint faced by farmers in the State.

Environmental factor

The third factor was loaded very high with an Eigen-value of 1.82019 and 10.8% variance of the militating factors. These factor include soil fertility (0.8585). Reduction in the nutrient capacity of the soil is a major effect of continuous cropping system and this is capable of causing reduction in output. Increase risk (0.6937) is another environmental factor. There risks associated with rice farming that mostly caused bridge of contract. Flood (0.6774). Flooding is another environmental factor faced by contract farmers in the study area. Flood is common is a common occurrences faced by farmer in Niger State and Nigeria at large. This finding is in consonance with that of Mohammed *et al.* (2019) who stated that flood is a major risk affecting farmers' productivity in Nigeria.

CONCLUSION AND RECOMMENDATIONS

Based on this finding it can be concluded that contract rice farmers were satisfied with community connectedness, personal relationship, life achievement and spiritual/religious activities. Also, the

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coefficient of rice farm, educational level, source of labour, training and income after contract farming influence rice farmers' participation in contract farming. The most constraints faced by contract rice farmers were breach of contract by the farmers. Diversion of inputs by contract farmers and Political interference.

It is recommended that contract farmers should be properly monitored by the contracting firms in order to reduce diversion of input in the study area, contracting firms should abolish all forms of politicking associated with inputs distribution.

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APPENDICES

Table 1: Showing sample distribution of the respondents in the study area

State	Agricultural Zones	LGAs	Villages	Sampling Frame	Sample Size (10%)
Niger State					
	Zone I	Katcha	Badeggi	260	26
			Katcha	220	22
			Kambari	108	11
			Kataeregi	88	9
	Zone II	Shiroro	Kuta	120	12
			Bussiri	96	10
			Galkogu	138	14
			Baga	102	10
	Zone III	Wushishi	Maito	202	20
			Makusidi	125	13
			Madagi	144	15
			Agwa	82	8
Sub-total	3	3	12	1685	170

Source: Niger State Agricultural Mechanization and Development Authority (NAMDA) (2016)

Table 2: Wellbeing status of contract rice farmers (n=170)

Variables	Mean($\bar{x}$)	Rank	Decision
Standard of living	5.84	5th	Satisfied
Personal health	4.80	7th	Not satisfied
Life achievement	6.26	3rd	Satisfied
Personal relationship	6.67	2nd	Satisfied
Personal safety	3.98	8th	Not satisfied
Community connectedness	6.94	1st	Satisfied
Future security	5.06	6th	Not satisfied
Spiritual/religious activities	6.23	4th	Satisfied

Sources: Field Survey, 2020

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Table 3: Factors that influence rice farmers' participation in contract farming (n=170)

Variables	Coefficient	Z-value
Size of rice farm	-1.295823	-2.24**
Extension	-.0178647	-0.58
Marital status	.6049646	0.36
Educational level	.4637844	2.26**
Household size	.0800039	0.94
Farming experience	.0335708	1.17
Source of labour	1.534896	3.31***
Age	-.0517858	-1.27
Training	0.2329947	2.41**
Cooperative	.087111	1.49
Income after contract farming	4.23e-06	4.01***
Log	-113.73167	
chi2	58.02***	
Pseudo R2	0.2032	

Sources: Field survey, 2020

*** Significant at 1% level of probability, **=Significant at 5% level of probability, *=Significant at 10% level of probability

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Table 4: Constraints associated with farmer's participation in contract farming (n=170)

Constraint	Economic/ institutional	Political /social	Environmental
Bridge of contract by the farmers	0.9522		
Diversion of inputs by contract farmers.	0.9326		
Untimely delivery of inputs	0.8352		
Exploitation by the contracting firms	0.8012		
Impromptu visit by extension agents	0.6325		
Delay in payment by the contracting firms	0.6452		
Political interference		0.9372	
Wrong perception of information by the contract farmers		0.9206	
Large number of disperse contract farmers.		0.8629	
Domination by monopolies		0.8222	
Corruption among farmers		0.8159	
Conflicting interest		0.7163	
Poor coordination by the contracting firms		0.6785	
Contract policy problem.		0.6666	
Soil fertility			0.8585
Increase risk			0.6937
Flood			0.6774
Chi2 (χ2	3959.19		
Eigen-value	9.09362	4.22451	1.82019
% of variance	54.0	25.1	10.8
Kaiser-Meyer-Olkin Test	0.887		
Bartlett's Test of Sphericity (χ2	3934.678		

Sources: Field survey, 2020