Full Length Research Paper

Socio-economic characteristics influencing farm household participation in gandu system in Charanchi Local Government Area of Katsina State, Nigeria

Yusuf, H. A.*, Omokore, D. F. , Akinola, M. O. and Omolehin, R. A.

Department of Agricultural Economics and Rural Sociology, P.M.B. 1044, Ahmadu Bello University, Zaria, Kaduna State, Nigeria.

The study aims at determining the socio-economic characteristics influencing farm household participation in *gandu* system. The data for this study were obtained by the use of structured interview schedule. A total sample size of 140 households was interviewed consisting of 70 *gandu* and 70 non-*gandu* participants. Descriptive statistics and logit regression model were used to analyse the data collected. The results of the study indicated that household size (X_2) and extension contact (X_6) significantly influence participation in *gandu* system at 1% level of probability while age of household head (X_1) significantly influence it at 5% level of probability and migration (X_5) was significant at 10% level of probability. Hence, it is recommended that extension contact should be targeted towards the *gandu* heads who are usually traditionally bound. It is also suggested that, adult literacy classes should be organised for the farmers by the local government so as to improve their literacy level and enable them to understand technical recommendations made by extension agents. In order to discourage migration of youth to urban areas, infrastructural facilities and social amenities such as water, electricity, roads, schools and hospitals should be provided.

Key words: *Gandu*, participation, socio-economic characteristics, Katsina State.

INTRODUCTION

Gandu is a Hausa word referring to family farming unit, in other words, it is a household production unit that is understood to be a socio-economic unit in which two or more married males are ranked in different positions of authority with a view to the allocation of time, energy and scarce resources to derive an income. It is a family farming unit whereby members of a kinship group combine their farming operations under a common leadership and organization, to form the basis for a common unit of domestic economy (Buntjer, 1973). He further stated that the system is divided into composite unit (two or more families) which is made up of one head of *gandu* and other members known as subordinates, and the simple unit (one family) which comprises of one married male forming a socio-economic unit.

Gandu as a household organization comprises of the head of the family and his son coming together to work on the family farm (*gonar gandu*) and the head of the family is also the head of the family farm (*Baban gandu*). The *gandu* head provides the seeds and tools used by the units, pays tax, marriage and child-birth expenses of his members. He also feeds the family and provides the male members with personal plots of land (*Gayauna*) on which they are allowed to work at specific times, at least two days in a week and to dispose off the produce as they wish (Goddard, 1973; Becker, 1996; Cooper, 1997).

Hill (1972) in her study concluded that in Katsina, poverty was undermining *gandu* because the institution provides welfare, marriage expenses and other responsibilities to sons in return for labour, thus sons of poor farmers, lack the necessary incentives for remaining in *gandu.* Similarly inadequate fertile land make family members to go for off-farm activities and this was confirmed by Goddard (1973) in his study where he stated that farmers faced with shortage of land, relied

---

*Corresponding author. E-mail: turai74@yahoo.co.uk. Tel: +234 805 7033 234.

upon off-farm activities as a source of income.

Moller (1998) argued that monetization of the rural economy has affected the structure of socio-economic authority and decision making of Hausa society. He further stated that monetization of the rural economy has given room for family members to go for wage labour rather than working on family farms thus, with the increased possibilities of obtaining income outside the family farm, young men are becoming still more economically independent of their fathers. Most studies note that this has caused a fragmentation of the *gandu*-principle as well as the start of diminution of the large families. Berry (1993) in her studies of Hausaland in Nigeria reveals that "farmers' ability to mobilize labour through customary social institutions has declined" due to the commercialization of agriculture and the diversification of economic activity. In order to improve on the *gandu* system, this study intends to determine the socio-economic factors influencing farm household participation in *gandu* system in Charanchi Local Government Area of Katsina State.

RESEARCH METHODOLOGY

Study area

The study was carried out in Charanchi Local Government Area of Katsina State. The Local Government Area comprises of two districts, namely Charanchi and Kuraye districts. Charachi Local Government Area is bounded by Rimi Local Government to the north, Kankia and Matazu Local Government Areas are found in the southern part of the state, Bindawa Local Government Area from the East and Kurfi and Dutsinma Local Government Areas are found in the west. Charanchi Local Government Area has a population of 137,613 based on 2006 census figure (National Population Commission, 2006). Farming is the major occupation of the people and over 90% of the population are Muslims and the predominant ethnic groups are Hausa and Fulani (Charanchi Local Government Headquarters, 2006).

Sampling procedure and sample size

Purposive sampling was used to select three villages each from the two districts of the Local Government Area based on their active participation in *gandu* farming system. The villages were Mazaga, Kereriya and Sake from Charanchi district and Kuki, Yan albasa and Yana from Kuraye district. The study identified a sample frame of 176 households for *gandu* participants (constituting 35 from Mazaga and Kuki respectively, 31 from Kereriya, 25 from Sake, 26 from Yan albasa and 24 from Yana) and 175 households for non-*gandu* participants (constituting 25 from Mazaga, 30 from Kereriya, 35 from Sake and Yan albasa and 25 from Kuki and Yana respectively). A total of 140 households were selected randomly which included 70 *gandu* and non-*gandu* households respectively and these represented 40% of the sample frame each for *gandu* and non-*gandu* participants.

Primary data were used for this study. The data were collected using structured interview schedule. The household head was the sampling unit because he is the head of the *gandu*. Data for this study were analyzed using descriptive statistics. The logit model was used to determine the socio-economic factors influencing farm household participation in *gandu* system and to test hypothesis that

there is no significant influence made by socio-economic characteristics of the farmers and their participation in gandu system. Gandu and non-gandu participants were compared in this study in order to determine whether the socio-economic characteristics have influence on participation.

The logit regression model is a technique that is used in estimating the probability of an event that can take one or two values. In other words, it is a predictive model that can be used when the target variable is a categorical variable with two categories (binary or dichotomous variable), for example yes or no (http://www.dtreg.com/index.htm). The logit model is based on the cumulative logistic distribution function as expressed by Gujarati (1995). The formula is expressed as follows:

$$Y = \alpha + B_1 X_1 + B_2 X_2 + \ldots\ldots\ldots\ldots B_6 X_6 \qquad \text{Where,}$$

Y is a dependent variable from the equation above and it stands for participation in gandu. Since Y is a dichotomous variable, it takes the value of 0 and 1. Hence,

Y = 1 if the respondent is gandu participant.
Y = 0 if the respondent is non-gandu participant

The variables X1-X6 are the socio-economic characteristics influencing participation in *gandu* and they are the independent variables that were generated from the field.
Where:

X_1 = Age of household heads (in years)
X_2 = Household size (number)
X_3 = Level of education (in years)
X_4 = Off-farm employment (number)
X_5 = Migration (numbers)
X_6 = Extension contact (1 = Yes, 0 = No)
B_1- B_6 =Coefficients
α = Constant

Hypothesis

There is no significant influence made by socio-economic characteristics of the farmers and their participation in *Gandu* system.

RESULTS AND DISCUSSION

Socio-economic characteristics influencing farm household participation in *gandu* system

The result in Table 1 shows the logit estimate of participation in *gandu* with some selected socio-economic variables. The socio-economic variables were age (X_1), household size (X_2), level of education (X_3), Off-farm employment (X_4), migration (X_5) and extension contact (X_6). The result of the logit regression model (Table 1) shows that household size (X_2) and extension contact (X_6) significantly influence participation in *gandu* system at 1% level of probability while age of household head (X_1) significantly influence it at 5% level of probability and Migration (X_5) was significant at 10% level of probability. From Table 1, age (X_1) is positively related to participation in *gandu* and it significantly influence to participation in *gandu.* Thus, as the age of the farmer increases, the tendency to participate in *gandu* also

Table 1. Logit estimate of participation in *gandu* with some selected socio-economic variables.

Variable	Coefficients	Standard error	t-value	P- value
Age (X_1)	0.1010	0.3162	3.193	0.0014**
Household size (X_2)	0.3529	0.9484	3.721	0.0002***
Level of education (X_3)	-0.2590	0.4155	-0.623	0.5332
Off-farm employment (X_4)	0.1474	0.2457	0.600	0.5485
Migration (X_5)	-1.0279	0.5318	-1.933	0.0533*
Extension contact (X_6)	-4.0879	0.7975	-5.126	0.0001***
Sample size	= 140			
Log likelihood function	= -48.281			
Chi-squared value	= 97.5***			
Degrees of freedom	= 7			
Percentage predicted correct	=50			

* Significant at 10% level of probability. ** Significant at 5% level of probability.*** Significant at 1% level of probability.

increases and vise-versa. The household size (X_2) also shows direct relationship with *gandu* and it significantly influence participation in *gandu*. This implies that as household size increases, the likelihood of participating in *gandu* also increases. This may be as a result of demand for family labour in *gandu* system. Thus, the larger the household size, the more family labour is utilized. Extension contact (X_6) is inversely related to participation in *gandu,* meaning that as extension contact (X_6) increases, participation in *gandu* is likely to decrease. This is because the system is traditionally bound, therefore, as improved technologies are introduced, less people will be involved in *gandu*. Similarly, migration (X_5) is inversely related to participation in *gandu*, implying that as migration increases, participation in *gandu* is likely to decrease because less number of people will be left to participate in *gandu* system.

The finding therefore implies that age (X_1), household size (X_2), migration (X_5) and extension contact (X_6) were the significant variables influencing participation in *gandu.* The chi- squared value was 97.5% and it was significant at 1% level of probability. This implies that the model as a whole fits significantly with the data. The percentage of accurate prediction was 50% and the log likelihood function indicated that about 48% of the total variation in participation was explained by selected socio-economic characteristics of the respondents. From the result stated above, four variables were significant therefore, the null hypothesis that there is no significant influence made by socio-economic characteristics of the farmers to their participation in *gandu*, was rejected and the alternative was accepted.

Conclusion

Data analysis indicated that socio-economic characteristics

such as the age of household head and household size directly and significantly influence participation in *gandu* system, while migration and extension contact inversely but significantly influence participation in *gandu* system. However, the inverse influence of extension contact on participation in *gandu* does not indicate that extension has a negative role but demonstrate that the *gandu* farmers have not been able to benefit from the use of improved technologies in order to enter into the modernization process. Hence, their production methods have been by preference directed towards activities of self consumption or with low saleable surpluses.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made so as to improve on the system:

(1) It was discovered in this study that extension contact has a negative influence on participation in *gandu*. Hence, extension contact should be targeted towards the *gandu* heads and extension agents should be properly trained such that they would be able to persuade the *gandu* heads who are usually traditionally bound to adopt improved technologies. This will help to improve their agricultural production and the system as well. This is important because if the *gandu* heads adopt the improved technologies, other members will also adopt the technologies since he has control and authority over family farm matters.
(2) The study showed that the farmers lack higher formal education. This could hinder the adoption of improved technologies as it will not be easy for the respondents to comprehend the technicalities of improved technologies. It is therefore suggested that, adult literacy classes

should be organised for the farmers by the local government. This can improve their literacy level and enable them to understand technical recommendations made by extension agents.

(3) The inverse influence of migration on participation in *gandu* as shown by this study indicates that increase in migration leads to decrease in participation in *gandu.* In order to discourage migration of youth to urban areas, infrastructural facilities and social amenities such as water, electricity, roads, schools and hospitals should be provided. This will discourage the youths from migrating to urban areas because they would have been availed with all the facilities that serves as pull factors to urban areas.

REFERENCES

Becker LC (1996). "Access to Labour in Rural Mali," Human Organization, 55(3): 279-288.

Berry S (1993). No Condition Is Permanent. The Social Dynamics of Agrarian Change in Sub-Saharan Africa. Wisconsin, US: Wisconsin Press.

Buntjer BJ (1973). Rural society in the Zaria area: The changing structure of *gandu*. Samaru Res. Bull., 180.

Cooper B (1997). Marriage in Maradi: Gender and Culture in Hausa Society in Nigeria. Social History of African Series. Portsmouth, New Hampshire: Heinemann.

Goddard AD (1973). "Changing Family Structures among the Rural Hausa. Samaru Res. Bull., 196. Institute of Agricultural Research, Zaria.

Gujarati DN (1995). Basic Econometrics. McGraw-Hill, New York, pp. 220-221.

Hill P (1972). Rural Hausa: A village and a setting. Cambridge University Press.

http://www.dtreg.com/index.htm. Accessed, 10th February.

Moller MR (1998). The changing Roles of Rural Non-Agricultural Activities in the Livelihoods of Nigerian Peasants. Danish Institute for International Studies. Center Dev. Res. Work. Pap., 98: 9.

National Population Commission (NPC) (2006). Federal Republic of Nigeria Official Gazette, 94: 24.