

Determinants of factors affecting farmer's participation in exchange labour in Olamaboro Local Government Area of Kogi State, Nigeria

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Received 20th November 2023; Accepted 6th February 2024

ABSTRACT: The study examined the determinants of exchange labour participation in Olamaboro Local Government Area of Kogi State, Nigeria. A purposive and simple random sampling of the respondents was used with descriptive statistics such as frequency distribution, tables, percentages, mean and probit models as tools of analysis. Data for the study was collected from primary sources through the use of a well-structured questionnaire to elicit information from the respondents. The results on socio-economic characteristics revealed that the mean age of participants in exchange labour was 34 years and mostly males (60.83%). Most were of active age, married and mean household size of 4 persons, they had one form of education or the other (89.17%). They were small-scale farmers with a mean farm size of 2 hectares and mean exchange labour farming experience of 6 years. Access to extension contact is low and the farmers have an annual farm income of N137,837.5. The results of the probit model analysis revealed that access to credit and marital status were the significant variables that influence the probability of participation in exchange labour. These have coefficients that were significant at 5 and 10% level of probability respectively. The study concludes that exchange labour could be a means of increasing the probability of labour through adequate credit. It was recommended that exchange labour group members should create awareness to rural farmers for more membership, government support in the form of credit to boost production and farm income is important.

Keywords: Determinants, exchange labour, farmers, participation, probit.

INTRODUCTION

The Nigeria labour force like that of many countries in Africa is heavily concentrated in agriculture. The sector employs about 60 per cent of the labour force and contributes over 40 per cent to GDP (World Bank, 2017). Despite its importance, the agricultural sector in Nigeria is far from reaching its full potential. The agricultural sector has the highest poverty incidence in the country (Phillip *et al.*, 2019). Smallholder farmers in rural Nigeria face farm labour shortage and the need to find ways of dealing with this problem is therefore apt for food security and socioeconomic improvement (Edoka *et al.*, 2014).

Increasing agricultural productivity is crucial to food security and poverty reduction, especially in rural areas

and this can be achieved by using exchange labour. Communal labour assists in performing tasks that the basic production unit- the family labour, cannot perform alone in traditional agrarian communities (Bello, 2014). Gbemisola *et al.* (2014) identified labour as one of the factors related to increased productivity. Still low group participation has deprived rural farmers of the opportunity to achieve economies of large scale production and increased income which would result from the pooling of labour resources.

Farming requires a substantial amount of labour. Borjas (2015) asserted that labour is conventionally contrasted with other factors of production, such as land and capital.

The agricultural labour force is of four (4) categories, *viz*; own labour, family labour, hired labour and exchange labour. Own labour involves a farmer performing diversified functions as the labourer, capitalist and manager (decision maker and risk bearer). He singlehandedly contributes his efforts and resources to the production of crops. The second category which is the family labour consists of the farmer's spouse and children who work on the farm. It is the main labour force for smallholders. Smallholders, especially in Sub-Saharan Africa are characterized by operating on small land areas: globally around 80% of farms comprise less than 2 ha and in Sub-Saharan Africa farms of under 2 ha are the norm, despite some evidence that medium-sized farming is emerging (Jayne *et al.*, 2016; Lowder *et al.*, 2016).

When family labour is not sufficient to perform farm operations, hired labourers are engaged. Labour is a major limiting factor in some African smallholder farming systems (Silva *et al.*, 2019). The hired labour arrangements employed in such cases are usually casual and contract labour.

Exchange labour is the synergy of labour or effort among members of the community or the groups within them. Ideally, it is mutual in its operation because it involves reciprocity of the service rendered to each member involved.

Labour exchange has three basic principles in common: mutual assistance, exchange of an equal amount of labour and no use of money or hired labour (Bello, 2014). Exchange labour ensures the pooling of labour resources thereby generating greater output, an increase in the scale of production can further move rural agriculture from the subsistence to the commercial level enabling greater income generation.

Various findings reveal that promoting non-farm livelihoods, along with farm activities can offer pathways for economic growth and poverty alleviation in developing countries and the world over (Loison, 2015; Martin and Lorenzen, 2016; Oyinbo, 2016; World Bank, 2017). Bello (2014) stated that increasing domestic food security, and a transition from subsistence to commercial farming via higher agricultural productivity will lead to higher labour demand both on farms and in the processing sector. Thus, together with more income for the farmers themselves and subsequent higher overall rural cash flows, increased agricultural production becomes the motor for wider rural development.

In an exchange labour management, a person may request a neighbour to help in various farm or specific farm activities like weeding, harvesting, tilling and even processing which is in turn reciprocated.

According to Edeka (2015), labour exchange is a common phenomenon that can be observed in different peasant societies throughout the world. It is a way of exchanging one's labour without money. At the group level, exchange labour is more organised with a set of rules and regulations that members must abide by. It involves the selection of the head or group leader. The leader is usually the oldest

and most experienced of the farmers and directs all farming operations.

Studies by Edeka *et al.* (2014) focused on constraints to farmers' labour group productivity in Eastern Kogi State, Nigeria and Osabohien *et al.* (2021) on youth participation in agriculture and poverty reduction in Nigeria thereby creating a void on determinants of exchange labour participation which is the gap that was filled in this study. The study was guided by the following objectives: to describe the socio-economic characteristics of the participants in exchange labour and to determine the factors that influence their participation in exchange labour. Policymakers will benefit from this study as it will guide them to design appropriate programmes and implement policies with regard to exchange labour and poverty reduction which will in turn benefit farmers.

Theoretical framework

The study was based on social exchange theory. Social exchange theory proposes that social behaviour is the result of an exchange process. According to Redmond (2015), the exchange theorem envisages social behaviour as an exchange of activity, tangible or intangible, and more or less rewarding or costly, between at least two persons. The purpose of this exchange is to maximize benefits and minimize costs. People weigh the potential benefits and risks of social relationships. When the risks outweigh the rewards, people will terminate or abandon that relationship (Kendra, 2021). Many scholars have been involved in the development of social exchange theory, each emphasizing concepts that best fit their application. As such, social exchange theory has been applied to almost every type of social situation – organizational management, consumer buying decisions, television viewing, politics, marriage, and decisions to terminate romantic relationships (Redmond, 2015). The basis of social exchange theory is to explain social change and stability as a process of negotiating exchanges between parties (Antonucci *et al.*, 2014). The rural labour group which is based on a labour exchange arrangement among members to meet up their farm labour needs is vividly explained by exchange theory, as the rural labour group is based on reciprocity of human labour (Edeka, 2015).

MATERIALS AND METHODS

The study area

The study was carried out in Olamaboro Local Government Area of Kogi State, Nigeria. Olamaboro is one of the 21 Local Governments of Kogi State and has its headquarter at Okpo which is about 80 km from (Lokoja) the state capital. The LGA is made up of three districts; Imane, Okpo, and Ogugu and consists of ten (10) council wards with a population of 172,692 (projected from the

2006 census) and an area of 1,132km² (Edoka *et al.*, 2014). It is located in the South-East of Kogi State, bordering Enugu and Benue States. Olamaboro LGA lies between latitude 7°11'N and 7°34'E of the Greenwich Meridian. The area is predominantly occupied by the Igala people and the major socioeconomic activities are farming and trading. Two distinct seasons; dry and rainy seasons are experienced in the area. The dry season lasts from November to February and the rainy season lasts from March to October. The climate favours the cultivation of a wide range of crops including yam, oil palm, cashew, cassava, cocoyam, maize, millet, groundnut, beans, vegetables etc. The major cash crops produced in the area are oil palm and cashew (Kughur *et al.*, 2019). Soil type ranges from coarse gravel (in hilly areas) to sandy loam and clay. The topographical landform of Olamaboro Local Government Area varies from undulating hills to valleys and plain lands.

Sampling procedure

The population for the study consists of all exchange labour groups in Olamaboro. Due to the enormity of the population, 120 respondents were selected as sample size using purposive and random sampling techniques. In the first stage, three council wards (Olamaboro IV, Ogugu I, Ogugu II) noted for high exchange labour activities were purposively selected. In the second stage, two farming communities were randomly selected from each of the selected council wards to make up six communities. Twenty (20) respondents from each of the communities were selected purposively to sum up to 120 respondents for the study. Data were collected from primary sources with the use of a questionnaire based on the objectives of the study to elicit the needed information. The data collected were analysed with the use of descriptive statistics like frequency distribution, percentages, mean, tables and inferential statistics. The sex of the respondent was measured as either male = 1 or female = 0. Age was measured by indicating the respondent's biological existence in years. Marital status was measured by indicating the respondent's status as single = 0, married, divorced and widowed = 1. Level of education was measured by indicating respondents' level of education; no formal education = 0, First School Leaving Certificate (FSLC=1), Senior School Certificate Examination (SSCE=2), Tertiary Education=3. Farm size was measured in hectares; farming experience was measured by respondents' farming experience in years. Exchange labour experience was measured by respondents' number of years they participated in exchange labour, access to credit was indicated as; yes=1, no=0. Contact with the extension agent was indicated as; no of contact(s), and annual farm income was measured in naira. Participation in exchange labour was measured by indicating participation status as; participant = 1, non-participant = 0.

Model specification

The probit model was used in analyzing the factors influencing farmers' participation in exchange labour. It is implicitly stated as:

$$Z_i = \ln \frac{P_i}{1-P_i} = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i} + \beta_8 X_{8i} + \beta_9 X_{9i} + \beta_n X_{ni} + \mu_i$$

Where: Z = Participation in exchange labour (dependent variable), β_0 = Constant, β_s = Coefficients explaining the effects of changes in the independent variables (X_s) on the dependent variable (Y), μ_i = Error Term, X_1 = Sex, X_2 = Age (years), X_3 = Marital Status, X_4 = Educational Status, X_5 = Household Size, X_6 = Farm Size (hectares), X_7 = Farming Experience (years), X_8 = Annual Farm Income (naira), X_9 = Access to Credit. Frequency distribution (f), percentages (%), and mean (\bar{x}) were used as descriptive statistics.

RESULTS AND DISCUSSION

Socioeconomic characteristics of respondents

The result of socioeconomic characteristics of respondents is presented in Table 1. The result shows that 60.83% of the respondents in the study area were males while 39.17% were females. This implies that more males are involved in exchange labour. This agrees with the findings of Edoka *et al.* (2014) that the majority (75.00%) of farmers involved in exchange labour in Eastern Kogi State, Nigeria were males.

The result in Table 1 further shows that most of the exchange labour farmers fall within the age bracket of 31-40 years which constituted the highest percentage of 45.00%, this was followed by those between 21 and 30 years with a percentage of 30.00%, 16.67% were between 41 and 50 years, <20 were 5.00% and 51-60 constitute the least with the percentage of 3.33%. The study revealed the mean age of the respondents to be 34 indicating that most of the farmers are still in their active and productive capacity. This is in line with the findings of Edoka *et al.* (2014) that exchange labour farmers in Kogi State are in their productive age.

Table 1 also revealed that the majority (76.67%) of the respondents were married while 23.33% were single. The high proportion of the respondents are married which suggests that married people are more likely to participate in exchange labour, this is in tandem with the findings of Ibitoye (2019).

Furthermore, the result from Table 1 shows that 10.83% of the respondents had no formal education, 49.17% attained the first school leaving certificate, and 35.00% attained the SSCE, while 5.00% of the respondents had tertiary education. This indicates that the respondents in the study area are well educated. This corresponds with

Table 1. Distribution of respondents based on socioeconomic characteristics in the study area (n=120).

Variables	Frequency	Percentage (%)	Mean
Sex			
Female	47	39.17	
Male	73	60.83	
Age (years)			
<20	6	5.00	
21-30	36	30.00	
31-40	54	45.00	34
41-50	20	16.67	
51-60	4	3.33	
Marital status			
Single	28	23.33	
Married	92	76.67	
Educational status			
No Formal Education	13	10.83	
FSLC	59	49.17	
SSCE	42	35.00	
Tertiary Education	6	5.00	
Household size			
1-2	27	22.69	
3-4	59	49.58	4
>4	34	27.73	
Farm size (Hectares)			
1-3	110	91.67	
4-6	10	8.33	2
>6	0	0.00	
Farming exp. (Years)			
1-5	60	50.00	
6-10	56	46.67	
11-15	2	1.67	6
>15	2	1.67	
Exch. lab. exp. (Years)			
1-5	96	80.00	
6-10	23	19.17	4
11-15	1	0.83	
Access to credit			
No	60	50.00	
Yes	60	50.00	
Contact with ext. agent			
1-3	93	77.50	
>3	27	22.50	2

Table 1. Contd.

Annual farm income (Naira)			
51,000-100,000	24	20.00	
101,000-150,000	48	40.00	137,837.5
151,000-200,000	37	30.83	
201,000 and Above	11	9.17	

Source: Field Survey, 2022.

the findings of Edeka *et al.*, (2014) that exchange labour farmers in Eastern Kogi State have a high percentage literacy rate.

The result on household size in Table 1 revealed that the respondents have a mean household size of 4 persons; specifically, 22.69% have a household size of 1 and 2 persons, 49.58% have a household size of 3 and 4 persons, while 27.73% of the respondents have a household size of 4 and 5 persons. The small household size underscores the need for exchange labour.

The distribution of the farmers according to farm size as depicted in Table 1 shows that 91.67% of the respondents have 1-3 hectares of land under cultivation. Those with 4-6 hectares of land constitute 8.30%, and the mean farm size is 2 hectares. The distribution shows that the majority of the respondents cultivate below 4 hectares of land which suggests they are mostly small-scale farmers.

Most of the farmers (50%) as revealed in Table 1 have farming experience of 1-5 years, 46.67% have farming experience of 6-10 years, 1.67% of the respondents have 11-15 years of farming experience and 1.67% have >15 years of farming experience. The mean farming experience is 6 years which could be considered relatively low. Farming experience has been noted to have a negative relationship with participation in group farming as most of the entrants in exchange labour groups are farmers who are new to the profession. The result agrees with Oluwatusin and Shittu's (2014) findings that farmers with lower farming experience are more likely to participate in exchange labour. Participation in exchange labour has the benefit of skill acquisition for new farmers (Agarwal, 2018).

Table 1 result shows that the majority (80%) of the participants have 1-5 years of experience in exchange labour, 19.17% have 6-10 years of exchange labour experience and 0.83% have 11-15 years of participation experience. The mean experience is 4 years. This suggests that exchange labour is still growing in the study area and needs all support and mobilization from stakeholders to ensure that farmers understand the benefits that can accrue from group farming.

Table 1 shows that half (50%) of the respondents have access to credit while the remaining half (50%) have not. This could be that the exchange labour activities in the study area are relatively low and the group will have to be solidified and well-rooted before approaching financial institutions for credit. Access to credit is very essential for

every farmer as it is vital for the overall performance of a farm. Exchange labour can facilitate access to credit and provide farmers with more investible funds (Agarwal, 2018).

Table 1 further reveals that the majority (77.50%) of the respondents have 1-3 contacts with agricultural extension agents while 22.50% have >3 contacts. Group farming facilitates easier access to extension agents and faster diffusion of extension information (Agarwal, 2018).

In addition, Table 1 reveals that 20% of the respondents have an annual farm income of 51,000-100,000, 40% have an annual farm income of 101,000-150,000, 30.83% have 151,000-200,000 while 9.17% have an annual farm income of 201,000 and above. The mean annual farm income is 137,837.50 which implies that the respondents are small-scale farmers and low-income earners. The income generated by participants plays a vital role in the growth and development of exchange labour.

Factors influencing participation in exchange labour in the study area

The result of probit analysis is shown in Table 2. The Chi² value is 14.11 which depicts overall significance, and this implies that socioeconomic variables influence membership participation in exchange labour. As seen in Table 2, age, sex, education, household size, farm size, farming experience and farm income were insignificant in determining participation in exchange labour based on the results. Membership in exchange is usually premised on sex as this group is made up of men and women. The non-significant of sex here means that anyone can participate irrespective of your sex. Age is not significant and is not unlikely because memberships of the group in most cases are not of the same age group and there is always joy when they work together irrespective of their age differences. Education is not a factor in determining participation in exchange labour, the result indicates that the members have one form of education or the other. The most important issue that concerns them is availability when needed. These results are contrary to the findings of Akpan *et al.* (2023), who noted that age, educational attainment and sex increase the probability of using group labour in Akwa Ibom State, Nigeria. From the result, marital status and access to credit were the significant variables that influenced the probability of being a member

Table 2. Probit analysis result of factors influencing participation in exchange labour in the study area.

Variables	Coeff.	Std. Err.	Z	P> z	[95%Conf. Interval]	
Sex	0.1067792	0.4516304	0.24	0.813	-0.7784001	0.9919585
Age	-0.0026452	0.0460366	-0.06	0.954	-0.0928752	0.0875848
Marital Status	0.8192667	0.6714576 1	0.22	0.052**	-0.4967661	2.135299
Edu. Status	-0.1356037	0.2987588	-0.45	0.650	-0.7211601	0.4499528
Household Size	0.113356	0.1924978	0.59	0.556	-0.2639328	0.4906447
Farm Size	0.4629165	0.5628517	0.82	0.411	-0.6402524	1.566085
Farming Exp.	-0.132352	0.0961852	-1.38	0.169	-0.3208715	0.0561676
Access to Credit	-0.897968	0.4243328	-2.12	0.034*	-1.729645	0.0662909
Farm Income	-0.3539199	0.5736919	-0.62	0.537	-1.478335	0.7704957
Constant	1.2557351	0.287089	0.98	0.329	-1.266914	3.778383

* and ** Indicates coefficient significance at 5% and 10% level of probability respectively. LR chi² (9) = 14.11; Prob > chi² = 0.0021; Log likelihood = -72.82418; Pseudo R² = 0.2983 (Source: Field Survey, 2022).

of exchange labour. Marital status affects positively the probability of participation in exchange labour and is significant at 10%. This means that married persons are more likely to participate in exchange labour. Ibitoye and Saliu (2019) affirmed that marriage increases a farmer's concern for household welfare and food security which is therefore likely to have a positive effect on their decision to participate in agricultural and agro-allied group activities.

Access to credit affects the probability of participation in exchange labour negatively and is significant at the 5% level of probability. This indicates that individuals with access to credit are less likely to participate in exchange labour. This is an expected probability because access to credit is a notable benefit of farmers' labour groups. Farmers in groups can play an instrumental role in reducing the cost of financial services to small farmers, either by providing credit and loans themselves thereby offering financial insurance to members or linking farmers to the formal financial sector (SARD, 2021).

Conclusion and Recommendations

The study was on determinants of exchange labour participation in Olamaboro Local Government Area of Kogi State, Nigeria. The study found that the majority (60.83%) of the respondents in the study area were males in their active and productive age, had small household size, with considerable levels of education and relatively few years of farming and exchange labour experiences and were small scale farmers with little access to credit. Exchange labour is an important strategy for improving the productivity of farmers if harnessed. The study recommends that exchange labour groups should create awareness to rural farmers because the majority of the rural farmers are either unaware of these groups or are yet to grasp the full benefits exchange labour offers. The government should support members of exchange labour with credit to boost their production and consequently their

farm income. More married persons should be encouraged to participate in exchange labour for household food security and general welfare and exchange labour groups should organize training for their members to enable them to acquire improved skills.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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