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THE CONTRIBUTION OF YAM FARMING ACTIVITIES TO LIVELIHOOD OF FARMERS IN EKITI STATE, NIGERIA

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ABSTRACT

Innovative opportunity in agricultural entrepreneurship skills is an important factor for sustainable livelihood of farmers. Yam cultivation, processing, transporting and marketing are major strategies for livelihood among farmers in Nigeria. This study therefore assessed the impact of yam entrepreneurial activities in Ekiti state, Nigeria. The study was conducted in Ekiti State, Nigeria. A total of 580 yam farmers were sampled. An interview schedule was designed to collect primary data. Frequency count, percentage, mean score and ordered probit regression were used to analyse data collected. The study showed that personal savings was the main sources of capital (69.7%), only few were member of farmers' group (66.2%). Also, average farm workers was 3 persons and average hours devoted for yam farming activities per day was 5hours. Aside yam cultivation activity, farmers were mostly involved in yam marketing (mean=0.99), transporting (mean=0.94) and processing (mean=0.60). Findings show that farmers' participation in yam entrepreneurial activities had contributed significantly ($p \leq 0.5$) to financial, physical, social, human and natural assets of farmers in Ekiti State.

Keywords: Assets; Livelihood outcomes; Probit regression; Yam entrepreneurship.

INTRODUCTION

Agricultural entrepreneurship is repeatedly construed as an instrument for empowering the rural populace in their economically active age (Vik & McElwee, 2011). Engagement in agripreneurship is a sustainable approach to ensure economic self-sufficiency and self-reliance to both the entrepreneur and their community (Uche and Familusi, 2018; Adesiji *et al*., 2016). Agricultural entrepreneurs are those farmers who engaged in activities related to farm and agriculture as their major source of income on a part-time or full-time basis (Komolafe, 2018; Vik & McElwee, 2011). These activities include the crop/animal production activities, production and distribution of farm inputs, storage, processing, and distribution of farm products.

Agricultural entrepreneurship in crop production enterprise activities in Nigeria is the primary employers of labour and has become an important component of livelihood strategies among rural communities (Jibowo, 1992; Akangbe *et al*., 2015). Examples of crop production enterprises which are prominent in rural Nigeria are arable crops; maize, cassava, rice, yam, cowpea and cash crop; cocoa, oil palm banana/plantain, cashew, rubber, timber (Fawole & Oladele, 2007). Yam (Dioscorea spp) is one of the principal tuber crops produced in large quantities in Nigeria. According to Awoniyi & Omonona (2006), Ekiti state is a major contact centre for yam production and

marketing in south western Nigeria. Oluwasusi & Tijani (2013) noted that yam is the foremost and highly revered staple food when pounded among the people of Ekiti. Yam cultivation, processing and marketing enterprise activities is one of the major sources of livelihood to farmers in Ekiti.

This study decided to adopt the sustainable livelihood approach for a more practical lens. This approach is more appropriate for this research as it is capable of aiding in understanding the process of the set objectives of yam entrepreneurship in a developing country like Nigeria. A working definition of livelihoods by this study is stated as the activities, assets/capitals (financial, physical, social, human and natural), capability or competency and the access to these (mediated by institutions and social relations) that together determine the living gained by individual or household (modified of Department for International Development [DFID] 1999; Ellis 2000). DFID (1999) added that a livelihood is sustainable when it can cope with and recover from stresses and shocks, and maintain or enhance its capabilities and capitals, both now and in the future, while not undermining the natural resource base. Recent studies had indicated that farming livelihood had contributed to reduced poverty with improve standard of living (Barrett *et al*., 2017; Zhifei, Qianru & Hualin, 2018).

One of the greatest threats to mankind globally is lack of access to basic livelihood assets resulting to poverty. Access to essential livelihood assets is the most difficult challenge facing any country in the developing world where, on the average, most of the population is considered poor (Nnadi *et al*., 2013). The Nigeria Bureau of Statistics rated economy of Nigeria as the largest in Africa and the 26th largest in the world (NBS, 2012). The menace of poverty in Nigeria is undisputable information that upshots deprivation, lack of knowledge, underfeeding, disease, unemployment, and lack of access to credit facilities (Adebo & Ajiboye, 2014).

In spite of all the plans, policies, programmes and strategies carried out by past governments (at Federal, State and Local) and international/non-governmental agencies in Nigeria to increase access to livelihood assets, most Nigerians (Ekiti State indigenes inclusive) especially those that lived in the rural areas where crop farming was largely their occupation still recorded poor level of access to basic needs (NBS, 2012). The household assessment of livelihood by NBS precisely indicated Ekiti State as very poor in Southwestern Nigeria (NBS, 2012). A study in Ekiti had affirmed that rural farming households were poor and lack access to basic assets due to lack of management and entrepreneurial skills (Adebo & Ajiboye, 2014).

With the growing prominence to the empirical studies in agricultural entrepreneurship as a necessity to develop effective agricultural extension policy process that will translate to improved agricultural production enterprise and increase access to livelihood among farmers in the rural areas (Gibb, 2000), it is unfortunate that none of related studies (Ekumade & Osundare, 2014; Adisa *et al*., 2015) provides information on the impact of yam entrepreneurial activities to livelihood of farmers in Ekiti state which could constitute the cornerstone upon which agricultural extension programmes and policies can be drawn for increase access to livelihood assets of yam farmers in Ekiti State. Greater impact for increased access to livelihood is expected only when developmental programme is implemented among the workforce that constitutes majority of people in the society. Incidentally, yam entrepreneurial activities are some of the major means of livelihood for people in Ekiti state, hence, the need for quick research-based evidence in the area of yam entrepreneurial activities that will be useful to influence farmers' increased access to livelihood assets.

Several studies have asssessed farming activities and established that invovlvement in farming enterprises influence the standard of living of farmers. Related studies across the world had indicated that engagement in agricultural entrepreneurship can significantly contribute to reduced poverty and improved access to asset in countries. In Bangladesh (Kabir *et al*., 2012) found that farming entrepreneurship is significant and positively associated with financial capital, physical and social capital. In China, Naminse & Zhuang (2018) asked "Does farmer

entrepreneurship alleviate rural poverty in China. The study found that farmer entrepreneurship showed a positive significant impacts in reducing rural poverty. Another study conducted in South Africa by Khowa & Mukasi (2021) have showed that the development of agricultural processing businesses greatly influenced the standard of living and poverty reduction of farmers. In sub-Saharan Africa, the influence of agricultural enterprises on poverty showed that agriculture entrepreneurial growth impacted significantly on poverty and ensure sustainable livelihood of the farmers (Haggblade, 2011).

From the above, it appears there is a relationship between farming entrepreneurship and assets ownership and poverty reduction. Although, Udoh *et al*. (2020) in a study have shown that, farmers in Nigeria had considerable piles of physical, social and natural assets to assist in livelihood sustenance. However, no study has explored the relationship between farmer entrepreneurship and livelihood assets of farmers in Nigeria, which has a relatively high rural population of approximately 80% with most of the poor located in rural areas in Nigeria.

The main objective of this study was to determine the factors influencing the sustainable livelihood of yam entrepreneur farmers in Ekiti State, Nigeria. The specific objectives were to: (1) describe the characteristics of yam entrepreneurial activities of farmers; (2) examined farmers' livelihood outcome of yam entrepreneurial activities; and (3) assess the determinant factors influencing access to livelihood assets.

METHOD

This study was conducted in Ekiti State, Nigeria. Ekiti State is located in the tropics of the country between longitudes 40°51′ and 50°451′ East of the Greenwich meridian and latitudes 70°151′ and 80°51′ north of the Equator. The main occupation of people of in the state is Farming. Agriculture is means of livelihood for majority in the state. Agricultural produce in Ekiti state are: arable/food (Yam, cowpea, Rice, Cassava and Maize), Cash crops (Cocoa, Oil Palm, Kolanut, Plantain, Bananas, Timber, Cashew and Citrus).

Respondents were selected by two-stage random sampling procedure. Firstly, thirty two (32) farming communities were randomly selected. The second stage was a random selection of twenty (20) yam farmers in each of the farming communities selected. A total of 640 respondents were sampled. A questionnaire was designed to collect data to achieve the specific objectives. The questionnaire was validated by experts the department of Agricultural extension and rural development, University of Ilorin and approved by ethical review committee of the University. Only 580 questionnaires were analysed while others were rejected. The criterion for rejection of a questionnaire was based on its incompleteness.

Access to livelihood assets as contributed to yam entrepreneurial activities was measured on five point Likert-type rating scale was used to elicit information on respondents' opinion on the contributions of yam entrepreneurial activities to livelihood assets. The respondents were required to respond to carefully constructed livelihood assets (financial, physical, social, human and natural assets). The scales were measured as strongly agree, agree, undecided, disagree, strongly disagree and score of 2, 1, 0, -1 and -2 were assigned respectively. The mean score of the respondents was adopted as a measure of the contribution on livelihood assets. A mean score of 0.0 was considered as benchmark for the categorization of three levels of contribution thus:

1. High contribution (1.0 to 2.0 mean score) i.e mean score towards positive
2. Moderate contribution (0.0 mean score) i.e mean score < 1.00 but > -1.00
3. Low contribution (-1.0 to -2.0 mean score) i.e mean score towards negative

Frequency, percentage, mean and ordered probit regression were used to analyse data collected.

Ordered Probit Regression Analysis

An ordered regression model was used to identify the impact of yam entrepreneurial activities on farmers' access to livelihoods assets (hypothesis 1). This model was selected because the explained (or predicted) variable is polychotomous that is, the ordinal nature of contributions to sustainable livelihood categories (high contribution=2, medium contribution=1 and low contribution=0) makes this important variable suitable for ordered regression analysis**.** This study used the functional form of the probit regression model as similarly used by Kabir *et al*. (2012). The Ordered regression analysis is represented by the following equation:

$$Y^* = \beta' x_i + \varepsilon_i$$

Where: Y* (dependent variable) is the underlying latent variable that indexes the levels of yam entrepreneurial activities to sustainable livelihood categories in given characteristics of yam entrepreneurial activities.

X_i = Vector of explanatory variables to be estimated (characteristics of yam entrepreneurial activities) and that predict the level of yam entrepreneurial activities on sustainable livelihood categories, and ε_i = stochastic error term. The independent variables (X_i) were measured as participation in yam entrepreneurial activities (X_1) (1 for transporting, processing or marketing and 0 otherwise). Main sources of initial capital (X_2) (1 for bank credit, family and friends, cooperative or own savings and 0 otherwise). Main buyers of your products (X_3): measured as 1 if bought by (consumers, retailers, wholesalers, or government), otherwise 0 in case of own/family consumption. Membership of farmers' group(X_4): Yes=1, otherwise 0. Land area cultivated (X_5) measured in hectares of lands. Other sources of income (X_6)**:** Yes=1, otherwise 0. Numbers of workers(X_7): actual numbers of workers were taken in persons. Labour type (X_8): Hired=1, otherwise 0. Hours devoted per day (X_9): actual numbers of time were taken in hours. Main reason for involvement (X_{10}): measured as 1 if exclusively for the market purpose and 0 otherwise.

The latent variables exhibit itself ordinal categories, which could be coded as 0, 1 and 2 the responses of category k is thus observed when continuous responses fall in the k-th interval as:

$Y^* = 0$ (low contribution) if $Y^* \leq \sigma_0$

$Y^* = 1$ (moderate contribution) if $\sigma_0 < Y^* \leq \sigma_1$,

$Y^* = 2$ (high contibution) if $\sigma_1 < Y^* \leq \sigma_2$.

There are two distinct advantages to using the ordered probit model over another regression model. The first is that the heteroscedasticity problem that would typically arise when performing a regression on a discrete dependent variable is eliminated and second is the maximum likelihood estimates are asymptotically normal, asymptotically efficient, and consistent under general conditions.

Table 1. Characteristics of yam entrepreneurial activities of farmers

Variables	Frequency	Percentage
Main sources of initial capital		
Own savings	404	69.7
Family and Friends	99	17.1
Bank credit	10	1.7
Cooperative	67	11.6
Main buyers of yam products	(*)	-
Consumers	231	39.8
Retailers	281	48.4
Wholesalers	406	70.0
Government	0	0.0

Variables	Frequency	Percentage
Membership of farmers' group		
Yes	196	33.8
Yam farm size		
Average = **2.40 acre = 0.96 hectare**		
Number of time devoted per day		
Average= **5.43 hours**		
Labour type		
Family only	60	10.3
Hired only	89	15.3
Family and Hired	431	74.3
Numbers of workers		
Average = **3 persons**		
Main reason for involvement		
Exclusively for home consumption with rarely any surpluses produced	62	10.7
Mostly for home consumption, but with the intention of selling surpluses on the market	202	34.8
Partly for the market and partly for home consumption	277	47.7
Exclusively for the market	0	0.0
Other income generating activities		
Farming activities:		
Animal husbandry	132	22.8
Poultry farming	128	22.1
Fish farming	39	6.7
Snail farming	4	0.7
Hunting	78	13.4
Non-farm activities:		
Civil servant	76	13.1
Trading	158	27.2
Artisan	15	2.6
Participation in yam entrepreneurial activities	(*)	
Yam transporting	114	19.7
Yam marketing	250	43.1
Yam processing	73	12.6
Yam cultivation	580	100.0

Source: Field survey, 2016
Note: (*) implies multiple responses

Results shown in Table 1 indicated that majority of the respondents started their yam farming activity from own savings (69.7%), cultivate average farm size of 2.40 acres which is equivalent to 0.96 hectare, engaged both family and hired labour (74.3%) with total average of 3workers on the average of 5hours per day. A considerable percentage of the respondents (47.7%) produce partly for home consumption and partly for market and sell to wholesalers (70%). Only 33.8% of the respondents were member of farmers' group. Yam entrepreneurial activities engaged by respondents were yam cultivation (100%), marketing (43.1%), transporting (19.7), and processing (12.6%). Other income generating activities engaged by respondents were mostly animal husbandry (22.8%), trading (27.2%) and poultry farming (22.1%).

RESULT AND DISCUSSION

Farmers' access to livelihood assets as contributed by yam entrepreneurial activities

Results presented in Table 2 indicated that farmers' participation in yam entrepreneurial activities had moderately contributed to their overall livelihood status

(mean=0.44). However, impact of yam entrepreneurial activities were high in farmers' access to human assets (mean=0.75), social assets (mean=0.74), financial assets (mean=0.66) and physical assets (0.56) while contribution to natural assets was low (mean=0.08).

Table 2. Farmers' livelihood outcome of yam entrepreneurial activities

	Livelihood Assets	Mean score (Std. Dev.)	Mean rank	Level of Contribution
A.	**Financial Assets**			
	Income/saving able to meet basic needs	0.75 (.951)	1	High
	Credit loan	0.57 (1.178)	2	High
		0.66		
B.	**Physical Assets**			
	Clothes	1.40 (.701)	1	High
	Yam enterprises input resources	1.19 (1.003)	2	High
	Cemented and zinc roof house	1.05 (1.210)	3	High
	Farm tools and machinery	0.79 (.994)	4	High
	Mobile phone	0.75 (1.248)	5	High
	Radio	0.64 (1.117)	6	High
	Healthcare facilities	0.62 (1.132)	7	High
	Yam processing equipment	0.56 (1.025)	8	High
	House furniture	0.36 (1.044)	9	Medium
	Construction/maintenance of farm road	0.26 (.893)	10	Medium
	Television	0.26 (1.265)	10	Medium
	Car/motorcycle/tricycle/bicycle	0.07 (1.393)	12	Medium
	Power generator/ NEPA	0.03 (.913)	13	Medium
	Shop/land for sales of yam produce/ processed products	-0.14 (1.367)	14	Low
		0.56		
C.	**Social Assets**			
	Satisfaction as yam farmers entrepreneur	1.18 (1.056)	1	High
	Ability to networks and contact with other yam entrepreneurs and agricultural extension agents	1.00 (1.143)	2	High
	Participation in social gathering	0.76 (1.131)	3	High
	Decision making ability	0.75 (1.212)	4	High
	Ability to finance traditional weeding and payment of bride price	0.69 (1.313)	5	High
	Membership of yam related associations	0.07 (1.253)	6	Medium
		0.74		
D.	**Human Assets**			
	Farming knowledge and skill competency	1.02 (1.070)	1	High
	Health condition	0.70 (1.124)	2	High
	Formal educational attainment	0.52 (1.058)	3	High
		0.75		
E.	**Natural Assets**			
	Fertile land for yam cultivation	1.40 (1.072)	1	High
	Water for irrigation	0.34 (1.086)	2	Medium
	Water for processing food	0.02 (1.217)	3	Medium
	Safe drinking water	-0.41 (1.323)	4	Low
	Favourable weather variability	-0.93 (1.214)	5	Low
		0.08		
	Grand mean	**0.56**		

Source: Field survey, 2016

Related studies across the world had similarly indicated that engagement in agricultural entrepreneurship can significantly contribute to reduced poverty and improved access to livelihood asset in countries like Bangladesh (Kabir *et al*., 2012),

China (Naminse & Zhuang, 2018; Naminse, *et al*., 2019; Tang *et al*., 2013), Thailand (Yanya *et al*., 2013), and Pakistan (Mahmood *et al*., 2016).

Determinants factors influencing access to livelihood assets among yam farmers

1) Relationship between yam entrepreneurial activities and sustainable access to financial assets

The result of hypothesis between yam entrepreneurial activities and sustainable access to financial assets of respondents as presented in Table 3 shows that participation in yam entrepreneurial activities such as cultivation, transporting and marketing (z= 1.81; p=0.071), membership of cooperative group (z= 2.20; p=0.028) and hours devoted per day (z= 2.04; p=0.041) had positive significant contribution to access to financial assets of respondents. Here, the null hypothesis is rejected and alternative is accepted. This finding implies that yam entrepreneurial activities will contribute more to financial assets when there is increase in yam cultivation, membership of cooperative group, and number of hours devoted to yam entrepreneurial activities among farmers in rural areas of Ekiti State, Nigeria. Also, other sources of income (z= - 2.79; p=0.005) had inverse significant relationship with contribution of yam entrepreneurial activities to financial assets of respondents. The null hypothesis is also rejected and alternative is accepted. This finding implies that increase in the activities non-yam entrepreneurial activities will decrease yam entrepreneurial activities' contribution to sustainable livelihood assets of yam farmers in the study area.

Table 3. Ordered Probit Regression Estimation of Financial Assets

Financial Assets / Variables	Coefficient	Std. Error	Z - Statistic	P>|z|
Participation yam entrepreneurial activities	0.5738714*	0.3174675	1.81*	0.071
Other sources of income	-1.615023	0.5798491	-2.79***	0.005
Membership of cooperative group	0.2612842	0.1189669	2.20**	0.028
Main source of initial capital	-0.0244169	0.0405062	-0.60	0.547
Main buyer of yam produce	-0.2704569	0.2661801	-1.02	0.310
Number of workers	0.0466183	0.043611	1.07	0.285
Labour type	-0.0122143	0.07277	-0.17	0.867
Hours devoted per day	0.0935864	0.0458808	2.04**	0.041
Reason for involvement	0.0116273	0.0402842	0.29	0.773
Log likelihood = -564.09658				
LR chi2(18) = 35.11				
Prob > chi2 = 0.0092				
Pseudo R2 = 0.0302				

***, ** and * denotes significance at 1%, 5% and 10% respectively

2) Relationship between yam entrepreneurial activities of respondents and sustainable access to physical assets

The result of hypothesis between yam entrepreneurial activities and sustainable access to physical assets of respondents as presented in Table 4 shows that respondents' participation in activities of yam enterprises (z= 5.49; p=0.000), and hours devoted to yam enterprise (z= 2.01; p=0.041) had positive significant contribution to access to physical assets of respondents. Here, the null hypothesis is rejected and alternative is accepted. This finding implies that yam entrepreneurial activities will contribute more to physical assets when there is increase in involvement in activities of yam enterprises (such as marketing, processing and transporting) and number of hours devoted to yam entrepreneurial activities among farmers in Ekiti State, Nigeria.

Table 4. Ordered probit regression estimation of physical assets

Physical Assets / Variables	Coefficient	Std. Error	Z - Statistic	P>|z|
Participation in activities of yam enterprise	0.7045244	0.1282142	5.49***	0.000
Other sources of Income	1.629943	0.6773936	2.41**	0.016
Membership of cooperative group	0.120874	0.1410178	0.86	0.391
Main source of initial capital	-0.0485369	0.0494803	-0.98	0.327
Main buyer of yam produce	-0.089048	0.3188272	-0.28	0.780
Number of workers	-0.0641931	0.052337	-1.23	0.220
Labour type	0.0254901	0.0875973	0.29	0.771
Hours devoted per day	0.0935864	0.0458808	2.01**	0.041
Reason for involvement	-0.0433447	0.0489398	-0.89	0.376
Log likelihood = -332.86211				
LR chi2(18) = 95.85				
Prob > chi2 = 0.0000				
Pseudo R2 = 0.1259				

***, ** and * denotes significance at 1%, 5% and 10% respectively

3) Relationship between yam entrepreneurial activities of respondents and sustainable access to social assets

The result of hypothesis between characteristics of yam entrepreneurial activities and sustainable access to social assets of respondents as presented in Table 5 shows that respondents' involvement in activities of yam enterprise (z= 1.84; p=0.066), main source of initial capital (z= 2.08; p=0.037), number of workers (z= -1.68; p=0.094), hours devoted per day (z= 1.56; p=0.120) were positively significant with the contribution of yam entrepreneurial activities to sustainable social assets of respondents. This finding implies that, with increase in involvement in activities of yam enterprise (such as marketing, processing and transporting), main source of initial capital, number of workers, and hours devoted per day, there will be increase in contribution of yam entrepreneurial activities to sustainable social livelihood assets of yam farmers in the study area.

Table 5. Ordered probit regression estimation of social assets

Social Assets	Coefficient	Std. Error	Z - Statistic	P>|z|
Participation in activities of yam enterprise	0.2070398	0.1124591	1.84*	0.066
Other sources of income	-0.711517	0.6217616	-1.14	0.252
Membership of cooperative group	-0.1434711	0.1280223	-1.12	0.262
Main source of initial capital	0.0911522	0.043788	2.08**	0.037
Main buyer of yam produce	0.2687975	0.286233	0.94	0.348
Number of workers	0.0788089	0.0470203	1.68*	0.094
Labour type	0.0768969	0.0783366	0.98	0.326
Hours devoted per day	0.1598157	0.1026631	1.56*	0.120
Reason for involvement	0.0216267	0.0432915	0.50	0.617
Log likelihood = - 430.36752				
LR chi2(18) = 31.01				
Prob > chi^2 = 0.0287				
Pseudo R^2 = 0.0348				

***, ** and * denotes significance at 1%, 5% and 10% respectively.

4) Relationship between yam entrepreneurial activities and sustainable access to human assets of respondents

The result of hypothesis presented in Table 6 shows that respondents involvement in activities of yam enterprise (z= 1.82; p=0.069) and main source of initial capital (z= 1.68; p=0.092) were positively significant with the contribution of yam entrepreneurial activities to sustainable access to human assets of respondents. This

finding implies that, with increase in involvement in activities of yam enterprise (such as marketing, processing and transporting) and main source of initial capital, there will be increase in contribution of yam entrepreneurial activities to sustainable social livelihood assets of yam farmers in the study area. Also, only number of workers (z= -2.08; p=0.037) and hours devoted per day (z= -3.25; p = 0.001) were inversely related to contribution of yam entrepreneurial activities to sustainable human assets of respondents. This finding implies that decrease in number of workers and hours devoted per day will increase yam entrepreneurial activities' contribution to sustainable livelihood human assets of yam farmers in the study area.

Table 6. Ordered probit regression estimation of human assets

Human Assets	Coefficient	Std. Error	Z - Statistic	P>|z|
Participation in activities of yam enterprise	0.1910199	0.1049839	1.82*	0.069
Other sources of income	0.1299434	0.5798891	0.22	0.823
Membership of cooperative group	-0.0678795	0.1187133	-0.57	0.567
Main source of initial capital	0.0685601	0.0407137	1.68*	0.092
Main buyer of yam produce	0.3952365	0.2662748	1.48	0.138
Number of workers	-0.0906267	0.0435358	-2.08**	0.037
Labour type	-0.0404951	0.0730872	-0.55	0.580
Hours devoted per day	-0.0952877	0.0293376	-3.25***	0.001
Reason for involvement	0.0080623	0.0403272	0.20	0.842
Log likelihood = - 558.77114				
LR chi2(18) = 40.58				
Prob > chi^2 = 0.0017				
Pseudo R^2 = 0.0350				

***, ** and * denotes significance at 1%, 5% and 10% respectively.

5) Relationship between yam entrepreneurial activities of respondents and sustainable access to natural assets

Results in Table 7 showed that access to natural asset was favourably influenced by farmers' reasons for involvement which could be a motivation to engage in yam entrepreneurial activities (z= 1.99; p=0.047) while available alternative sources of income (z= -2.60; p=0.009) had negative influence and lost inspiration to access natural assets for yam entrepreneurial activities.

Table 7. Ordered probit regression estimation of natural assets

Natural Assets	Coefficient	Std. Error	Z - Statistic	P>|z|
Participation in activities of yam enterprise	-0.0176552	0.0430391	-0.41	0.682
Other sources of income	-0.0099643	0.0038333	-2.60***	0.009
Membership of group	0.0139734	0.0369174	0.38	0.705
Main source of initial capital	0.0495128	0.0431697	1.15	0.251
Main buyer of yam produce	0.0042246	0.2864893	0.01	0.988
Number of workers	-0.0115466	0.046502	-0.25	0.804
Labour type	-0.087301	0.0775068	-1.13	0.260
Hours devoted per day	-0.0171062	0.0315296	-0.54	0.587
Reason for involvement	0.2230185	0.1121706	1.99**	0.047
Log likelihood = - 446.95034				
LR chi2(18) = 28.38				
Prob > chi^2 = 0.0565				
Pseudo R^2 = 0.0308				

***, ** and * denotes significance at 1%, 5% and 10% respectively.

CONCLUSION

Based on findings in this study, the following conclusions were made that (i) farmers' participation in yam entrepreneurial activities contributed significantly to financial, physical, social, human and natural assets of yam entrepreneur farmers in Ekiti State, (ii) Own savings is the main sources of capitals, only few were member of farmers group, average of 2 to 3 persons were employed, family and friends were mostly used as workers and the main reasons for involvement were mostly for home consumption and market, wholesalers are the main buyers. Other income sources were mostly from animal husbandry and poultry farming activities among farmers in the study area and (iv) Farmers highly perceived that yam entrepreneurial activities played significant role in accessing livelihood assets.

To further sustain farmers' access to livelihood in the study area, the following recommendations were made: (i) as majority of the respondents were non-member of any crop related enterprise associations for was through personal savings, this study suggests that yam entrepreneur farmers in Ekiti state should come together as an association where not existing with the name affiliated to yam value chain enterprises. In this way, they can pool resources together and help each other. It will also make it easy to access loan and any other credit facilities as a group, (ii) finding indicated that respondents were smallholder yam farmers with average of 3 persons as number of workers and where production is partly for the market and partly for home consumption. This study recommended that agricultural extension organisations should include in their extension package programmes that will boast the interest of farmers, see themselves as entrepreneur and enhance venture in large scale farming and processing of yam, and (iii) findings in this study can be useful to both policy makers and policy implementers in Nigeria. Policy makers in Nigeria can use the findings to improve and reorient agricultural policies and programmes of empowerment to address its inadequacies. Policy makers can also devise informed empowerment strategies by applying knowledge gained from this study about factors that influence sustainable livelihood in the study country. Similarly to implementers of development interventions, findings in this study can be useful to them for planning empowerment interventions. The implementers can use findings of the factors influencing farmers' access to sustainable livelihood to broaden the scope of implementation.

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