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ANALYSIS OF HOUSEHOLD ASSETS ON LIVELIHOOD STRATEGIES OF SMALLHOLDER CROP FARMERS IN FEDERAL CAPITAL TERRITORY, ABUJA, NIGERIA

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ABSTRACT

The study analyzed the effects of household assets on livelihood strategies of smallholder food crop farmers in the Federal Capital Territory, Abuja, Nigeria. Multistage sampling technique was employed to select 68 smallholder crop farmers from three Area Councils in the Territory using questionnaire to solicit for primary data from the respondents.

Introduction

The capacity to pursue different livelihood choices is dependent on the availability of household assets, social assets such as human connections, recognition and unacknowledged assets. From an economic standpoint, such livelihood resources may be thought of as "capital" from which different productive methods and livelihoods might be generated. According to the Department for International Development (DFID), capital is divided into five groups (Social capital, Human capital, Physical capital, Financial capital and Natural capital). Success is linked to one's choice of profession. Households may, for example, select agricultural output or off-farm work as a source of income. Poor families select their livelihoods via a variety of activities in order to

Descriptive statistics and multinomial logit analysis were used to analyze the data. Results of the analysis reveals that smallholder crop farmers were within the age range of (41-50%). They were mostly males (77.94%) and married {98.53%}. Their level of education was primary school education (38.24%) with farming experience of (21-30years). They were mostly (6-10) members/household. Farmers in FCT carried out L_{S1} (17.5%), L_{S2} (26.47%), L_{S23} (19.22%) and L_{S4} (36.76%). Results of household assets on livelihood strategies shows that distance from home to all season road was significant on L_{S1} at 5% level of significance (1.97)** as well as L_{S2} at 10% (2.01)** respectively. Income was significant at 1% (-3.03)***. It was therefore recommended that more household assets should be utilized among smallholder crop farmers.

Key Word; Household Assets, Livelihood Strategies, Smallholder Crop Farmers, FCT.

avoid risky situations and achieve a long-term revenue source (Samatar, 2015; Misganaw, 2019).

The availability of household assets is an essential element in livelihood practice. Households select activities that fit into their livelihood plans, and the rate utilized in each activity is based on the household's available assets. Changes in policy may impact the asset base, which ties assets together and influences lifestyle choices. The goal of a better asset is to utilize better livelihoods activities to offer better living conditions and long-term growth for families while minimizing their risk exposure (DFID, 1999 ; Yakubu, 2014).

Diversification of farm and off-farm livelihoods by food crop producers may relief stress on productive agricultural region and decrease degradation. This could also restore the natural environment's quality and offer greater well-being. This is due to the fact that when off-farm activities that are part of livelihood strategies are carried out, cultivation of land is decreased which serve as relief on land from degradation induced problems. Furthermore, various livelihood options that enable farmers to invest in sustainability measures to manage land degradation as a measure against economic and environmental inefficiencies may produce more revenue. It may also result in increased productivity and revitalize the natural environment. Efficiency in production is achieved when additional income

generated from livelihood diversification is invested into sustainable land management practices. Given the present problem of land degradation, farmers must do more farm and non-farm activities to improve their production. Farmers may easily fulfill their daily requirements from livelihood activities. This also offer the means to engage in productive activities such as sustainability techniques on the farm, which could result in renewal of natural environment resulting in increased production and revenue.

Sustainable livelihood, like most of the problems confronting people living in poverty, are the outcome of failed policies; inappropriate regulatory frameworks and administrative procedures; dysfunctional land markets, unresponsive financial systems, bad governance, corruption and a fundamental lack of political will. Each of these failures compounds the problems faced by urban poor communities and denies them the opportunity to optimize the benefits of urbanization, and also constrains the substantial potential for human development presented by urban life and the achievement of sustainable livelihood (Scoones, 2016).

Sustainable Livelihoods answer questions of what are sustainable livelihoods and how can they be achieved, ideally and practically, can be drawn from several approaches. But while sustainable livelihoods may mean many things to many people, what is common between the various approaches is a call to reduce the complexity and uncertainty that gives rise to demands for sustainable livelihoods in the first place. Sustainable livelihoods can thus be seen as a way of thinking about the objectives, scope and priorities for development, in order to enhance progress in poverty elimination. Most development agencies adopt the Conrad *et al.* (2016) definition of livelihoods (or some slight variation on this) which holds that: A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the long and short term. A number of modifications to the assets categories that underpin sustainable livelihood theory however proposes the addition of two new assets: institutional knowledge and governance. The operational framework of the SL approach brings together various actors, including local government and municipal authorities and local communities in decision-making, and policy formulation and implementation. The sustainable livelihood concept and methodology seeks to bridge the gap between

macro policies and micro realities (and vice versa). By employing both participatory and policy (cross- sectoral) tools, the SL approach underlines the inter-linkages between livelihood systems at the micro level and the macro policies which impact on these livelihoods (World Bank, 2012). The adoption of the Sustainable Livelihoods Framework for the Regulatory Guidelines for Urban Upgrading project was made explicit in the initial proposal and at the subsequent project planning workshop.

Many early reports on home studies, village studies, and agricultural techniques, such as Lipton (2003) informed and impacted studies of development and household assets as determinants of livelihood strategies among individuals. Until the 1970s, the phrase "sustainable livelihoods" was not used in development. In 20 years, increased acceptance of livelihood definitions came from increased attention to poverty reduction and a focus on people. Political sustainability elements and theory of development, as well as practice, resulted in wider adoption of livelihood definitions (Scoones, 2009). Many concepts and programs were intertwined in the process of transforming the political system into the emergence of livelihood. First, a people-centered approach to development arose in reaction to the perceived inadequacies of top-down development thought in the 1950s and 1970s (Chambers and Conway, 2012; Abubakar, 2014; Scoones, 2016). Scoones (2009) demonstrated how the theoretical basis of livelihood ideas shifted the focus away from the traditional practice of community development and toward modernization from the people's own viewpoint. Scoones (2009) goes on to say that in the 1990s and 2000s, poverty reduction became the rationale for and the main emphasis of international development plans.

The Department For International Development (DFID), (1999) definition of livelihoods is the most often used combination of livelihood which is made up of skills, assets (both social and material), and commitments required for survival. According to Scoones (2016), livelihood encompasses more than simply the economic elements of people's lives. It encompasses the whole process of how individuals earn a living and plan for their future in a certain environment. Women who have less opportunities to diversify their livelihoods due to specific talents, such as skills that demand energy, were also categorized as poor. The commitment of ideologies to eliminate poverty and people-driven methods to development are all aimed at different types of livelihoods (Conrad *et al.,* 2016). Access to capital assets, livelihood strategies, policies and institutions to decrease poverty among communities and families, manage life's problems, and improve

one's wellbeing are the major points in the conclusion. The local environment's sustainability is an important element of not taking future generations' livelihoods for granted.

Land deterioration may be slowed by diversifying livelihood activities and adopting sustainable farming methods that allow farmers to produce at a high degree of efficiency. When livelihood activities are varied, it provides individuals with additional income that may be spent in sustainable practices to prevent deterioration and ensure efficient production. Furthermore, when livelihood activities are carried out, it provides relief on land by reducing agricultural operations, allowing land to refill from degradation and ensuring natural environment regeneration. As a result, food crop farmers must devote immediate attention to implementing sustainable methods on endangered and expensive cultivable land. The objectives to address in this study is to analyze the socio-economic characteristics of small holder farmers in the study area and to ascertain the effects of household assets on livelihood strategies among the respondents.

The findings of this study suggested a variety of livelihood strategies used by farmers, as well as suitable combinations of livelihood strategies to help farmers meet their daily needs and more sustainability practices to combat the devastating problem of land degradation. The degraded natural environment may be restored by following the recommendations of this study on choice of combination of livelihood strategies through usage of household assets to increase Food sufficiency and nutritional requirements may be fulfilled in the Nation.

METHODOLOGY

The study area; The study was carried out in the Federal Capital Territory (FCT), Abuja, Nigeria. The Federal Capital Territory Abuja is located between the latitudes of 80° 23' and 90° 20' N and the longitudes of 60° 45' and 70° 39' E. According to the United Nations Population Commission (UNDP), Federal Capital Territory have six Area Councils with a population of 6,832,035 people by 2020 (*Tsue et al.,* 2014). Gbagyi is the largest indigenous group. The Territory is surrounded by Nasarawa State and Niger State in the west, Kaduna in the North and Kogi State in the East. It has a land mass of around 7,315 km^2 of which 273.3 km^2 is occupied by the actual city. It is located in the Guinea Savanna area which has a mild climate. Marble, tin, clay, mica, and tantalite are some of the natural resources found in the region (Tsue *et al.,* 2014). The crops grown are maize, rice, yam, cassava, tomato, and Okra farming as well as animal rearing such as cattle fattening, sheep and goat.

The off-farm activities include tailoring, petty trading and commercial motor circle driver as well as wage and salary earning jobs among the livelihood activities undertaken among the inhabitants. Agricultural production activities are improved by using land management methods (structural and mechanical erosion control measures, agronomic practices, soil management procedures and cultivation practices) by farming families (Federal Department of Agricultural Land Resources (FDALR), 2012). Some of the families' off-farm income-generating activities include trading, agricultural processing, carpentry, bricklaying, tailoring, crafts manufacture, driving, sawmilling, gathering, vulcanizing and vehicle maintenance (Tsue *et al.*, 2014). Wages and salaries livelihoods include civil service, private sector and the public sector jobs.

Sampling Procedure and Sample Size

In the Federal Capital Territory, a multistage sampling method was also employed. The first stage consisted random sample of 50% of Area Councils which gave a sample of three Area Councils. This was due to the fact that ten percent and twenty percent only gave one Area council, thirty percent and forty percent gave two. Therefore, fifty percent was sampled. The second step included obtaining 20% of Extension Blocks from chosen Area Councils which gave three Extension Blocks, that is, one from each Area Council. The third step consisted 20% Extension Cells in each chosen Extension Block, resulting in three Cells. The fourth step was 10% Sub-Cells from each Cell to obtain three Sub-Cells, one Sub-Cell under each Cell. A total of 68 respondents were selected from FCT, Abuja. Using Proportionate Allocation Technique. The proportionate Allocation Technique is shown in Equation 24 (Ogaji, 2019):

$$S_h = \frac{n \times Nh}{NT} \quad (1)$$

Where S_h =Number of household heads to be selected,
n= Total number of household heads for the survey,
N_h= Farming households in each selected Sub-Cells, and
N_T= Sum of the farming households in the selected sub-Cells.

Method of Data Collection

Primary data were collected from the respondents by the use of questionnaire through the assistance of trained enumerators. The sampling units were the farming households in the FCT, Nigeria. Household heads were visited at farms and

homes as well as multiple visits were carried out to the success of data collection for the study.

Analytical Tools

The descriptive statistics such as frequency, percentages and mean as well as inferential statistics such as multinomial logit regression model were used following (Rodriquez, 2003; Ayinde *et al.,* 2012; and Samuel, 2021)). The model's implicit form is provided in Equation 2

$$Log\left[\frac{prob\ (y=z)}{prob\ (y\neq Z)}\right] = \sum_{k=1} \beta_{zk} X_k \quad (2)$$

The explicit form of multinomial logit is given as Equation 26:

$$Y= B_0 +B_1S_1+\ldots +B_4S_4+B_5H_1+\ldots +B_9H_5+B_{12}P_1+\ldots +B_{12}P_3+B_{13}F_1+\ldots +B_{17}F_3+B_{18}N_1 +\ldots B_{21}N_{21} \quad (3)$$

Where dependent variables are;

Y= Livelihood strategies (LS_1, LS_2, LS_3 and LS_4). The staple crops in this study were cereals, tubers and legumes

Y_1=1 for LS_1 (staple crop, off-farm income)

Y_2=2 for LS_2 (staple crop, wages and salary)

Y_3=3 for LS_3 (staple, fruit and vegetables crops, livestock production and off-farm income)

Y_4=4 for LS_4 (staple, fruit vegetables and tree crops, livestock production and off-farm income)

β_o= intercepts,

β_1 - β_{21} = coefficients, and

X = value of explanatory or independent variables for the i^{th} individual.

Where:

Si = Social capital variables;

S_1 = Farmers' participation in government agricultural programme (number);

S_2= Sources of information (number);

S_3= Access to adult education programmes (1 for access 0 otherwise),

S_4= Association membership of the respondent (1 for association membership, 0 otherwise),

Hi = Human capital variables

H_1 = Education of the household head (years),

H_2 = Age of farmer (years),
H_3= Health status (1 for good health status, 0 otherwise),
H_4= Farming experience (years), and
H_5 =Family labour (Number of mandays).

Pi =Physical capital variables
P_1=Value of Physical assets (₦),
P_2= Access to good road (yes=1, No=0), and
P_3=Distance to nearest market (km).

Fi= Financial capital variables
Fi = Amount of credit/annum(₦),
F_2= Savings/annum (₦),
F_3 = Amount of pension /month/ (₦),
F_4 =Income/annum (₦), and
F_5 =Access to insurance (yes=1, No=0)

N_i = Natural capital variables
N_1 = Size of farm land (ha),
N_2 =Access to wildlife (1 for access, 0 otherwise),
N_3=Rain fall Sufficiency (1 for sufficient, 0 otherwise), and
N_4=Soil fertility adequacy for crop production (1 for adequate, 0 otherwise).

RESULTS AND DISCUSSION

Socio-economic Characteristics: The descriptive statistic was used to analyze first objective. Result in Table 1 shows that most smallholder food crop farmers were within the age group of (41-50years) signifying that they were within the age bracket that allows them carry out active production activities and also accept new farm innovation. They were also males (77.94%) and married (98.53%) with mostly primary level of education (38.24%) which assist in understanding complexities associated with certain new farm innovations. They were also experienced in farming having attained years of experience of (11-20years) with small to medium household size of (6-10members)/household which contributes in carrying farm production activities as division of labor practiced in traditional African farming families. The result on farming experience agrees with the findings of Nurudeen (2012) who reported that rural dwellers who are basically small scale

farmers have one form of experience to another which guides them in decision making in during choice of new methods of production.

Multinomial logit regression model for determinants of livelihood strategies among 68 respondents in FCT who participated in four livelihood strategies is shown in Table 2. The results show that 17.65% undertook staple crop production, off-farm income which is livelihood strategy one. The food crop farmers 26.47% participated in livelihood strategy two which is staple crops, wages and salaries. The food crop farmers 19.12% carried out staple crops, fruits and vegetable crops, livestock production and off-farm income which is livelihood strategy three, while 36.76% undertook staple crops production, fruits and vegetable crops, livestock production, tree crops, and off-farm income as category four. Livelihood category four therefore was super-imposed as the reference category for discussion. The staple crops in consideration are cereals, legumes and tubers. Results on livelihood category one shows that the significant variables as the determinants of livelihood strategies in FCT were membership of the farmers' association, family labor which were significant at 10% each and different from the stated *a priori* expectation. It implies that farmer's likelihood to move for Long distance from home to the nearest market serves as a barrier to carry out certain livelihood means especially production of perishable food crops such as fruits and vegetables.

Coefficient for family labor was significant at 10% which agrees with *a priori* expectation. The implication is that more family labor could increase the likelihood of carrying out livelihood strategy two considering reference category. This is because availability of labor contributes to carrying out farming activities by farmers. This agrees with findings of Ojo (2013) who reported that large family size assist farm families as source of labor when labor intensive techniques is required. Distance from home of farmers to all season road was significant at 5% in line with the stated *a priori* expectation. It signifies that increase in distance from home stead to all season road will increase the likelihood of the respondents to remain in participation of livelihood strategy one. Coefficient for income was also significant at 10% which differs from the *a priori* expectation. A unit increase in income of food crop farmer will reduce his likelihood to remain carrying out livelihood strategy one. This is because when one's income increases, choice of livelihood activities could diversify from one livelihood to another due to increase in level of income. This agrees with the findings of Ndem, (2019) who reported that level of income of farmers determine choice of activities among small holder

farmers. Results for livelihood category two on the other hand shows that participation in government agricultural programmes, days unable to go to work or farm, family labor, distance between home and all season road, income as well as farm size of the farmer were significant. Participation in government agricultural programme was significant at 10%. It implies that as farmers have more access to government agricultural programmes, the likelihood to remain participatory in livelihood strategy two increases with cognizance to the reference category. This is possibly due to the fact that access to government agricultural programme by farmers is a means to acquire added skills that can be used to secure wages and salaries means of livelihood.

The coefficient for days unable to go to work or farm was significant at 10%. The indication is that as days an individual is unable to go to work or farm increases may decrease the likelihood to remain participatory in livelihood strategy two given the reference category. This is based on the fact that good health status of an individual contributes positively to production. As a result good health status could reduce the number of days an individual is unable to go to work or farm. Level of significance for family labor was 10% in line with *a priori* expectation. With respect to reference category four, increase in family labor will increase the likelihood of the farmer to carry out staple crops/wages and salary livelihood strategy. Distance between home of the farmer and all season road was significant at 5% and the same with *a priori* expectation. It indicates that if the distance from home of the farmer is more, the more the likelihood of such farmer to carry out livelihood strategy two with respect to reference category four. The result of the above findings agrees with the report of Tariko (2019) who reported in Ethiopia that distance from home to market, and all season road, credit, family labor as well as participation in farm training influence farmer's choice of both livelihood means and sustainability measures. Income was significant at 1% level and negatively signed which is different from stated *a priori* expectation. It shows that a unit increase in income of farmer could reduce the likelihood to invest in staple crops and off-farm income generating activity. The level of significance for farm size of food crop producer was 10% in concurred with stated *a priori* expectation. The implication is that as farm size of farmer increases the level of participation in livelihood strategy two will reduce considering reference category. This is attributable to the fact that large farm size could require more days by farmer to work on farm at the expense of participation in wages and salaries as a livelihood activity. Multinomial logit result for category three shows that determinants of

livelihood strategies which were significant at 10% are years spent in school, distance from home to the nearest market, and access to wildlife as natural capital. They all vary from the expected *a priori* expectation. For years spent in school, it shows that when farmers spend more years in school, the less the likelihood of such food crop producer to remain in carrying out livelihood category three with respect to reference category four. Wild life access indicates that increase in access to wildlife by farmers will decrease the likelihood to carryout livelihood strategy three with respect to reference category four. This is because wildlife serves as a means of food and income to farmers which also take over their attention as livelihood activity. Such wildlife includes wild plants and animals on which individuals depend on for living.

Table 1: Distribution of respondents according to socio-economic characteristics

Variables	Frequency/Percentage
Age (Years)	
>31	6 (8.82)
31-40	18 (26.47)
41-50	23(33.82)
51-60	19(27.94)
>60	2(2.95)
Total	68(100.00)
Mean	45
Gender	53(77.94)
Male	15(22.06)
Female	68(100.00)
Total	
Marital Status	67(98.53)
Married	1(1.47)
Single	-
Widower	-
Separated	-
Total	68(100)

Level of Education	
Quranic	10(14.70)
Primary	26(38.24)
Secondary	12(17.65)
Tertiary	2(2.94)
Adult Educa.	16(23.53)
None of the Above	68(100.00)
Total	
Farming Experience (Years)	
<11	12(17.65)
11-20	19(27.94)
21-30	21(30.88)
31-40	14(20.59)
>41	2(2.94)
Total	68(100.00)
Mean	23
Household Size	
<6	
6-10	14(20.29)
11-15	34(50.00)
16-20	16(23.53)
>20	2(2.94)
Total	2(2.94)68(100.00)
Mean	9

Field survey, 2022

Table 2: Effects of household assets on farmer' livelihood strategies

Livelihood strategies	LS_1 Coeff. / (Z-value)	LS_2 Coeff. / (Z-value)	LS_3 Coeff. / (Z-value)	LS_4 Coeff.
Participation in gov't Agric program	1.8671(1.22)	2.6949(1.69)*	1.6876(1.42)	-6.2497
Source of information	-1.2370(-0.97)	1.1306(0.81)	-0.7521(-1.00)	0.8585
Access to adult education program	-6.1869(-1.38)	-5.3269(-1.221)	-1.9471(-0.75)	1.0872

Membership of farmer's association	-5.7006(-1.92)*	-3.8296(-1.35)	-0.8589(-0.35)	1.01203
Years spent in school	-0.3168(-1.38)	0.1388(0.58)	-0.3691(-1.91)*	-0.5397
Age	-0.1135(-0.73)	-0.2361(-1.60)	-0.1480(-1.22)	-0.2706
Days unable to go to work or farm	0.0121(0.22)	-0.0842(1.69)*	0.0413(1.25)	0.1135
Years of farming experience	0.0901(0.71)	0.0551(0.42)	0.0693(0.66)	-0.7114
Total family labour	0.0336(1.74)*	0.036(1.72)*	0.0077(0.47)	-0.0782
Physical assets	-0.0000(-0.73)	0.0000(0.57)	5.16e-05(-0.10)	0.0000
Distance from home to all season road	1.9534(1.97)**	1.7879(2.01)**	1.0492(1.60)	-1.2147
Distance from home to nearest market	0.3240(0.50)	-0.3720(-0.75)	0.42114(-1.73)*	-1.1174
Amount of credit	0.0008(1.39)	-0.0000(-0.69)	4.74e-05(0.81)	-0.0001
Savings	-0.0008(-0.02)	-0.0001(-0.00)	-2.56e-05(-0.05)	0.0007
Income	-0.0000(-1.75)*	-0.0002(-3.03)***	6.96e-06(-0.14)	-0.0000
Access to insurance	15.1272(0.00)	-4.8089(-0.00)	15.9612(0.00)	-3.9749
Farm size	0.3024(0.62)	-0.8873(-1.70)*	0.3512(1.03)	-0.8385
Access to wildlife	-1.7453(0.70)	1.4208(0.58)	4.8131(-1.87)*	19.1271
Sufficiency of rainfall	-3.4639(-1.39)	3.9546(1.01)	-1.4608(-0.66)	5.9576
Adequacy of soil nutrient	-1.9466(-0.75)	4.0411(1.27)	-3.0979(-1.31)	2.8897
Constant	-1.2541(-0.15)	-6.5370(-0.79)	5.9907(1.02)	3.7820

Source: Field survey (2018). ***= 1% level of significance. ** = 5%level of significance, * =10% level of significance. LS_1=livelihood strategy one, LS_2=Livelihood strategy two, LS_3=Livelihood strategy three, LS_4=Livelihood strategy four.

CONCLUSION AND RECOMMENDATIONS

The study revealed that smallholder crop farmers were mostly males, married with medium family size. They had one form of education to another with diverse farming experience. The results further reveals that variables of participation in government agricultural programmes, membership of farmers' association, years spent in school, family labor, distance from home to all season road, distance to nearest market, income, farm size and access to wildlife as available household assets had significant influence on choice of livelihood strategies carried out among the respondents. Thus, the study recommended that small holder farmers

should maximize the usage of available household assets to enable them carryout different livelihood strategies as means of generating more income to meet both family and production needs.

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