



**FACTORS INFLUENCING LIVELIHOOD DIVERSIFICATION STRATEGIES
AMONG WOMEN CROP FARMERS IN GOMBE STATE, NIGERIA**

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ABSTRACT

The study assessed the livelihood diversification activities among women crop farmers in Gombe State, Nigeria. A multi-stage sampling procedure was used to select 416 respondents. Data were collected using structured questionnaire and analyzed using descriptive statistics. The major sources of livelihood diversification information were peer group/co farmers and extension agent constituting 75.7% and 72.8% of the respondents, respectively. The result also show that majority (72.8%) of the respondents had access to extension agents and 35.7% were frequently visited monthly. Furthermore the result revealed that marital status ($P<0.01$), years of membership ($P<0.01$), access to credit ($P<0.05$), land ($P<0.05$), household head ($P<0.10$) and household size ($P<0.10$) were the significant factors influencing livelihood diversification in the study area. The result of propensity score matching of the livelihood diversification index on income showed ($P<0.05$) between the treatment and the control. The study concluded that marital status, years of membership, access to credit, and household size were the major factors influencing livelihood diversification in the study area. It is recommended that women should be encouraged to diversify and participate more in extension programs for exposure to communication information and embrace more diversification opportunities.

Keyword: Agents, Diversification, Extension, Factors and Livelihood

INTRODUCTION

Livelihood is a process whereby people make use of the resources that provide them the capability of building a satisfactory means of living (Food and Agricultural organization, FAO, 2017). Diversification is defined as the series of economic activities an individual gets involved in with shares in the overall economic activity (Olajide *et al.*, 2022). Livelihood diversification is therefore a process of combining both agricultural and non-agricultural activities to survive and improve the standard of living (Martin and Lorenzen, 2016; Pritchard *et al.*, 2019). Livelihood diversification plays a crucial role in promoting economic growth and reducing rural poverty in developing countries (Loison, 2019). The substantial and increasing share of non-agricultural income in total household income, as reported by several studies (Haggblade *et al.*, 2017), show the importance of women in improving household welfare and the economy at large (Lanjouw and Murgai, 2018). A report by Food and Agricultural Organization (FAO, 2017) submitted that women globally could raise the yields on their farms by 20-30 percent, thereby increasing incomes and alleviating poverty if granted the same access to productive resources as men.

Department for International Development (DFID, 2020) noted that ensuring the income of rural women is an essential precondition for boosting rural development and making meaningful contribution to family income through combination of conventional farming and wage labor. Moreso, increase in income generation will boost saving rate, thereby raising investment level, which translates to development. Farming households get their income from farm produce which is not enough to meet their basic needs due to various factors like diseases and natural disasters (Adeomi *et al.*, 2022). These consequences of unpredicted natural

disasters and shocks in agriculture drives farming households to diversify their means of livelihood (Olajide *et al.*, 2022). Households across the developing countries are trying to diversify their livelihood activities to secure them from risks and cope with economic and environmental shocks (Baird and Hartter, 2017). Rural economies of developing countries are high dependent on agriculture which is prone to shocks such as weather and natural disasters and financial risks (Reddy, 2015). In the event of a shock to the agricultural sector, livelihoods of agriculture-dependent communities are severely affected (Abid *et al.*, 2016; Imran *et al.*, 2018). Despite the significant roles of women in building the economy, most development literature has neglected their perception on livelihood diversification strategies. From the studies already carried out by some researchers on livelihood there is none with particular interest on the analysis of livelihood diversification strategies among women crop farmers especially in Gombe State. The broad objective of the study was to analyze the livelihood diversification strategies amongst women crop farmers in Gombe State, Nigeria. The specific objectives were to:

- i. identify the sources of information on livelihood diversification as perceived by women crop farmers;
- ii. determine the factors influencing livelihood diversification of women crop farmers; and

MATERIAL AND METHODS

The Study Area

The study was conducted in Gombe State, Nigeria. The State is located in North-East Nigeria. It lies between latitude 9° 3'N and 12° N and longitude 8° 45'E and 9° 3'E (Gombe State Government, GMSG, 2016). It covers a land area of about 20,365 square kilometers. It has a projected population of 4,225,779 in 2022 using 3.3% annual growth rate as reported by National Bureau of Statistics, NBS, (2022). 2,198,508 are female while 2,027,271 are male, National Population Commission, NPC, (2006). Major crops grown are maize, guinea corn, millet, cotton, groundnut and cassava, Gombe State Government, GMSG (2016). Livestock rearing include poultry, sheep, goat cattle among others, GMSG, (2016). Major agricultural business activities include fruits and vegetable selling, oil milling, farming, petty trading, tailoring among others. The climate is characterized by wet and dry seasons. The wet season starts from April / May and ends in November. The average rainfall of the study area is 850mm, GMSG (2016). The city averages a yearly temperature of 30.54 °C (86.97 F). Gombe is endowed with both human and natural resources, most of its inhabitants are commercially oriented. Ethnic groups comprises of Fulani, Hausa, Tangle, Tera, Waja, Cham, Dadiya, Tula, Jara, Kamo, Kanuri, Pero people.

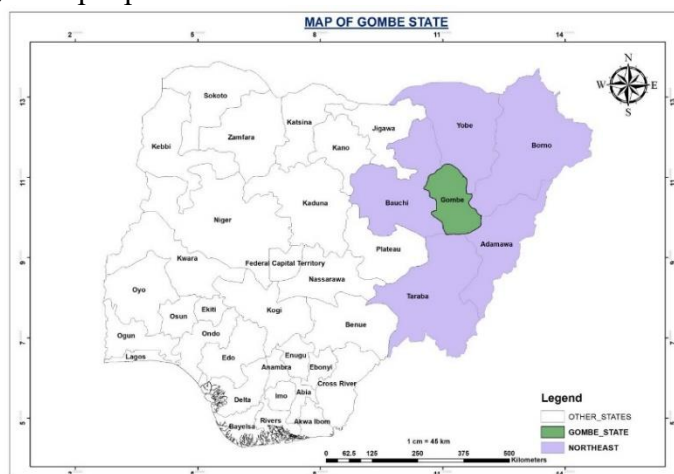


Figure 1: Map of Nigeria Showing Gombe State.



Sampling Technique and Sample Size

A multi-stage sampling procedure was used for the study. In the first stage, two wards from the 11 Local Government Areas in Gombe State were selected based on agrarian communities of women crop farmers. In the Second stage, two groups of women crop farmers were randomly selected from each of the selected LGA making a total of 22 groups and in the final stage, 70% respondents each from the selected 22 groups of women crop farmers were randomly selected to make a total of 416 respondents as sample size.

Data Collection

Primary data was used for the study. Data collected were through the administration of structured questionnaires administered to the respondents drawn from the study.

Method of Data Analysis

Both descriptive and inferential statistics was used to analyze the data. Descriptive statistics such as frequency distribution, percentage and mean were used to achieve objective i and Tobit regression model was used as the inferential statistics to achieve objective ii.

Descriptive Statistics

Frequency distribution: It recorded the number of responses for the particular variable during the period of this study.

Percentage: this was calculated by dividing the frequency of that particular value by the total number of respondents interviewed multiplied by hundred during the period of this study.

Mean: this was simply calculated by the adding up the number of responses and divide by the number of observations. It is also known as the average value.

Tobit regression Model: the variables influencing livelihood diversification were evaluated using Tobit model. The models assume a threshold value of zero, assigned to respondents that are not diversified and with no savings that is for the remaining respondents, the variables take a wide range of values above the limit.

The model is explicitly specified as:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + e_i \quad \dots(3)$$

where;

Y = Livelihood diversification

X₁ = Age (Years)

X₂ = Years of Membership of association (< 5 years= 1, >5 years= 0)

X₃ = Household head (Yes= 1, No= 0)

X₄ = Access to credit (1= Yes, 0=No)

X₅ = Years of Education (Number)

X₆ = Access to electricity (Yes= 1, No= 0)

X₇ = Farm size (Hectares)

X₈ = Household size (No of persons)

X₉ = Access to good road network (Yes= 1, No= 0)

X₁₀ = Access to land (Yes =1, N0 =0)

X₁₁ = Income (Naira)

X₁₂ = Extension agent contacts (1= if there is contact, 0= if no contacts)

X₁₃ = Marital Status (1=Single, 2= Married, 3= Divorced, 4=Widowed)

X₁₄ = Distance to market(km)

U= error term

RESULTS AND DISCUSSIONS

Sources of Livelihood Diversification Information

The result of the source of livelihood diversification information as depicted in Table 2 revealed that majority (75.7%) of the respondents received information from peer group/co-

farmers while 72.8%, 69.2%, 67.5% and 67.1% received information from extension agents, internet, television and radio, respectively. This implies that there is sound information system between farmers as they are closely within the same age group and living within the same communities/ locations as regards to livelihood diversification in the study area. This is similarly reported by Saleh and Lasisi (2011) who revealed that there are basically five sources through which the rural women satisfy their information needs namely government and its agents, elite groups, relatives and friends (also referring to peer group/ co-farmers), market women, and non-governmental organizations (NGOs). This implies that, information on livelihood diversification activities flows effectively among the women crop farmers and their family members who could be co-farmers. The results also conform with Abubakar and Magaji (2019), which examined the information sources utilized by small farmers in Katsina state, Nigeria, where they found that the majority of respondents concur that friends and family are used as information sources.

Table 2: Distribution of respondents according to source of livelihood diversification information

Sources (n= 416)	Frequency	Percentage*
Extension agent	303	72.8
Radio	279	67.1
Television	281	67.5
Internet	288	69.2
Peer group/ co-farmers	315	75.7

Source: Field Survey, 2023

*Multiple Responses

Respondents access to Extension Agents and Frequency of Visits

The result from Table 3 showed that majority (72.8%) of the respondents had access to extension, while 27.2% of the respondents had no access to extension in the study area. This implies that most of the respondents that had access to extension easily adopted technologies that helped in improving farmers’ productivity levels and livelihood diversification activities in the study area. The result further depicted that 35.6% of the respondent had contact with extension on monthly basis while 31.4%, 22.4%, 4.9%, 4.6% and 0.9% of the respondents had extension contacts fortnightly, weekly, semi-annually, annually and quarterly respectively. This shows that there is year-round, sound and robust extension system in the study area as respondents were reached adequately within a year. This is in line with a study by the World Bank (2012) showing evidence that women are the targets of extension services, both women and their children benefits, as women invest more portion of their income in the family.

Table 3: Distribution of the respondents based on access to extension agent and frequency of extension visit

Variable	Frequency	Percentage
Access to extension agents(n=416)		
Have access	303	72.8
No access	113	27.2
Frequency of extension visit(n=303)		
Weekly	68	22.4
Fortnightly	95	31.4
Monthly	108	35.6
Quarterly	3	.9
Semi- annually	15	4.9
Annually	14	4.6

Source: Field Survey, 2023

Factors Influencing Livelihood Diversification among Women Farmers

The result from Table 4 depicts the determinants of livelihood diversification among the respondents in the study area. Marital status and years of cooperative membership were all



found to be positive and significant factors at ($P < 0.01$) determining livelihood diversification which implies that married respondents have more family responsibility and tends to diversify their income sources to meet their needs, also, as years of membership of association increases, income diversification also tends to increase. This could be attributed to the fact that awareness level increases and ideas, innovations and knowledge also increases among respondents on better ways of improving their living standards. The result further shows access to credit and land were statistically significant and positive $P < 0.05$ influencing livelihood diversification in the study area. This implies that increase in access to credit and land have a positive and significant influence on livelihood diversification as credit will be available for the respondents to venture into another business and also increase in land access will help the respondents in increasing the production capacity of their farms. The result further shows that household head and household size were statistically significant and positive $P < 0.10$. which implies that increase in size of the household will also increase the diversification by the respondents in the study area. The finding conformed with the apriori and was not consistent with Oluwatayo (2019) who deduced that farm households with formal education (especially those educated up to tertiary level) are engaged in better and well-paid salaried jobs than those with no formal education hence they have lower likelihood of combining two or more jobs (multiple job holding). This is because education enhances the potential of respondents and makes them grab available opportunities with little or no stress. The result again is not in conformity with the findings of Ibekwe *et al.* (2010) who individually noted that where the educational status of farm household workers is higher, they are reluctant to work in the farm sector as they have better prospects elsewhere. The result is in line with the findings of Kassie *et al.* (2017) who reported that institutional factors including land ownership and being a member of a cooperative was found to influence farm households' decision into livelihood diversification. Also, Ayantoye *et al.* (2017) also studied the factors that influenced rural farm households' livelihood diversification in Nigeria; basic occupation, sex, being married, poverty status, and membership of an association were found to be driving farm households 'decision into livelihood diversification.

Table 4: Factors Influencing Livelihood Diversification among Women Farmers

Variable	Coef.	St. Err	t-value	p-value
Age	.003	.009	0.33	.743
Years of membership	-.039	.014	-2.73	.001***
Household head	.269	.146	1.84	.065*
Access to credit	.347	.142	2.43	.015**
Years of Education	-.026	.07	-0.37	.714
Access to electricity	-.023	.364	-0.06	.95
Farm Size	.051	.031	1.61	.107
Household size	.051	.027	1.89	.051*
Access to good road	.223	.255	0.88	.381
Access to land	.712	.299	2.38	.017**
Extension contact	-.142	.254	-0.56	.576
Marital Status	.398	.123	3.25	.001***
Distance to market	-.018	.015	-1.19	.234
Constant	.212	.928	0.23	.819

Source: Field Survey, 2023

*** $P \leq 0.01$, ** $P \leq 0.05$, * $P \leq 0.1$

CONCLUSION AND RECOMMENDATIONS

The study concluded that major sources of livelihood diversification information to the respondents were peer group/co-farmers and extension agents visits on monthly basis. Also, marital status, years of membership, access to credit, and household size were the major factors influencing livelihood diversification. It is recommended that women should be encouraged to



diversify and participate more in extension programs for exposure to information and embrace more diversification opportunities.

REFERENCES

- Abid, M., Schilling, J., Scheffran, J., Zulfiqar, F. (2016) Climate change vulnerability, adaptation and risk perceptions at farm level in Punjab, Pakistan. *Science Total Environ* 547:447–460.
- Abubakar, M. K. and Magaji, A. (2019). Information sources and needs of small-scale farmers in Katsina State, Nigeria. *Samaru Journal of Information Studies*, **19**(2):48-62.
- Adeomi, D. T., Fadju, D. T., Oseni, R. O. and Ogunya, L. (2022). Socio-Economic Factors Influencing Livelihood Diversification Among Rural Farming Households in Southwest Nigeria: A Fractional Response Model Approach. *Scientific Papers Series Management, Economic Engineering in Agricultural and Rural Development*. **22**(4):21-30.
- Ayantoye, K., Amao, J. O. and Fanifosi G. E. (2017). Determinants of livelihood diversification among rural households in Kwara State, Nigeria. *International Journal of Advance Agricultural Research*, **5**(3):82-88.
- Baird, T. D. and Hartter, J. (2017). Livelihood diversification, mobile phones and information diversity in Northern Tanzania. *Land Use Policy*, **67**: 460–471.
- Department for International Development (DFID) (2020) Poverty Elimination and the Empowerment of Women: Strategies for Achieving the International Development Targets. Department for International Development, London.
- Food Agricultural Organisation (2017) Women and Food Security, FAO Programme.
- Gombe State Government Diary (GMSG, 2016). Gombe State Government Official Diary, Ministry of information, Gombe state, Nigeria. Pp3.
- Haggblade, S., Hazell, P. and Reardon, T. (2017). The Rural Non-Farm Economy: Prospects for Growth and Poverty Reduction. *World Development*, **38**: 1429–1441.
- Ibekwe, U. C., Eze, C. C., Ohajianya, D. O., Orebiyi, J. S. Onyemauwa, C. S. and Korie, O. C. (2016). Determinants of nonfarm income among farm households in South East Nigeria. *Academic Applied Research International*, **2**(8):29-33.
- Imran, M., Ali, A., Ashfaq, M., Hassan, S., Culas, R. and Ma, C. (2018). Impact of Climate Smart Agriculture (CSA) Practices on Cotton Production and Livelihood of Farmers in Punjab, Pakistan. *Journal of Sustainability*, **10**(6):201-211
- Kassie, S. K. and Fellizarjr, F. P. (2017). Determinant factors of livelihood diversification: evidence from Ethiopia. *Cogent Social Sciences*, **3**(1):1–16.
- Lanjouw, P. and R. Murgai (2018). Poverty decline, agricultural wages and non-farm employment in rural India, 1983-2004. Washington, DC: The World Bank Policy Research Working paper, p. 4858.
- Loison, S. (2015). Rural livelihood diversification in sub-Saharan Africa: A literature review. *Journal of Developmental Studies*, **51**(9):1125–1138.
- Martin, S. M. and Lorenzen, K. (2016). Livelihood Diversification in Rural Laos. *World Development* **83**: 231-243.
- National Bureau of Statistics (2022). Statistical report on women and men in Nigeria.
- NPC (2006). National population commission census report. Abuja: National Population Commission.
- Olajide, B. R. and Ogundele, E. O. (2022). Contribution of livelihood diversification to Household Food Security among Rural Dwellers in Osun State. *Nigerian Journal of Rural Sociology*, **22**(1):22-27.
- Oluwatayo, I. B. (2019). Poverty and Income Diversification among Households in Rural Nigeria: A Gender Analysis of Livelihood Patterns."Paper presented at the 2nd Institute deEstudos Sociais de Economicos (IESE) conference on dynamics of poverty and patterns of economic accumulation, Mozambique, April 22-23, 2005, 1-21.
- Pritchard, B., Rammohan, A. and Vicol, M. (2019). The importance of non-farm livelihoods for household food security and dietary diversity in rural Myanmar. *Journal of Rural Studies*, **67**: 89–100.
- Reddy, K. E. (2015). Some agricultural risks in India. *International Organization Scientific Research. Journal of Humanities and Social Science*, **2**(1):45–48.
- Saleh, A. G. and Lasisi, F. I. (2011). Information Needs and Information Seeking Behavior of Rural Women in Borno State, Nigeria. *Library Philosophy and Practice*, **625**.
- World Bank (2012). World Development Report 2012: Gender equality and development. <https://openknowledge.worldbank.org/handle/10986/4391>