Exploratory Analysis on Sources of Finance for Rural Women Farmers Empowerment in Northeastern Nigeria

Fidelis Freda Ijanada
Department of entrepreneurship and business studies school of innovative technology
Federal University of Technology
Email: fareeunique@gmail.com

&

Prof. M. M. Adeyeye
Department of entrepreneurship and business studies school of innovative technology
Federal University of Technology
Email: memoade4real@yahoo.com

Abstract

Rural women farmers in Northeastern Nigeria face significant challenges in accessing finance, which limits their capacity for economic empowerment and agricultural development. This study conducts an exploratory analysis of the various sources of finance available to these women, focusing on the accessibility, utilization, and impact of different financial options. The objective is to identify key financial sources contributing to the economic empowerment of rural women in the region, guided by Mayoux's Feminist Empowerment Theory. A quantitative design was utilized, with data collected through surveys using a five-point Likert scale questionnaire administered via the Kobo Collect tool. Descriptive and inferential statistics were applied to analyse the data, with model specifications conducted using Structural Equation Modelling (SEM) on AMOS. Control variables included respondents' age, years of experience, and education level. The study population consisted of 833,455 registered rural women farmers, with a sample size of 1,146 selected through a multi-stage cluster sampling technique. Results indicated that access to various financial sources significantly empowers rural women farmers, evidenced by a t-value of 0.785 and a standardized Beta (β) of 0.780. An R^2 value of 0.70 highlighted microfinance loans as a primary financial source. The findings demonstrate significant correlations between financial access and improvements in productivity, income, and decision-making autonomy among rural women. The study concludes with policy recommendations to enhance financial inclusion, focusing on expanding access to diverse financial services to support rural women farmers effectively.

Keywords: Agricultural productivity, empowerment, finance, financial inclusion, Rural women agripreneurs, Northeastern Nigeria.

Introduction

Rural women farmers in northeastern Nigeria are vital to the agricultural economy, but they confront major challenges, notably in obtaining and managing financial resources. Financial inclusion remains a significant barrier for these women, restricting their capacity to engage in and sustain agricultural operations. In contrast, certain G20 nations, such as Australia, Canada, France, Japan, and the United Kingdom, have made significant progress, attaining nearly 100 percent financial inclusion for women in specific areas such as account ownership and the usage of debit or credit cards (Kumar, 2023). For example, in India, the gender gap in financial inclusion was virtually bridged by 2021, with over 77 percent of women holding accounts with financial institutions, roughly equivalent to the percentage for males (Naima, 2024) Recent studies show that, as of 2022, there was still an 8.4 percent gender disparity in Nigeria's access to financial services, with 36% of women and 24 percent of men experiencing financial exclusion (Adeyemo, 2024). This implies that despite potential advancements, there are still significant gaps. However, like other agripreneurs, rural women farmers need to have access to a range of funding sources in order to maintain farming operations and enhance living conditions (Adefare et al., 2024).

Thus, Asusu and local contributions, microlending, cooperative societies, bank loans, financial institutions, government grants and subsidies for agriculture, non-governmental organizations (NGOs) and nonprofits, crowdfunding, peer-to-peer lending, value chain financing, and government agricultural grants and subsidies all contribute to the financial empowerment of women (Nkwocha, 2019). Women's enterprises are strengthened when they are empowered through financial inclusion, which improves family welfare, individual well-being, and general economic growth (Camila, 2021). Empowerment provides enabling resources including human resources (e.g., school attainment), economic resources (e.g., income or other assets) and social ones (e.g., membership in extra-familial networks), depending on the nation, region, and local economic situations, these sources' effectiveness and accessibility may differ (Anderson et al., 2021). Bello and Kofarmata (2017) posits that learning processes are at the core of entrepreneurship and SME development. They are essential for the formation of a new business, its survival and growth as well for the upgrading of existing SMEs. It is significant that tackling the distinct requirements and obstacles encountered by rural women farmers necessitates an all-encompassing strategy that blends monetary assistance with training, education, and market accessibility (Wabwire, 2020).

Furthermore, measures to strengthen financial inclusion, lower obstacles based on gender, and increase the economic empowerment of women in agripreneurship as a whole are critical for sustainable development (Shukla, & Kumari, 2023). The following are some typical funding sources for female farmers in rural areas: Asusu, local contribution, microfinance loans, grants, government subsidies, and commercial bank loans (Amusan et al., 2021).

The country needs targeted policies in place to address the existing gender gap in accessing finance like the microfinance Bank, through Agricultural Sector Strategy, places highest priority on financial empowerment, food security and poverty reduction through agricultural transformation, and works with its Resource Mobilization Coordinator and other partners to do so, tapping on farming (Umulisa, 2022). Microfinance has been perceived as the provision of financial services to low-income clients or solidarity lending groups including consumers and the self-employed, who traditionally lack access to banking and related services (Dangisso and Deyganto, 2020). Microfinance involves offering of financial services for people barred from the time-honored system because they cannot offer bank collateral (Rai and Shrivastava, 2021). Financial services generally include savings and credit; however, some microfinance organizations also provide training, insurance and payment services (Dang and Vu, 2020).

Microfinance bank is established to meet the microcredit needs of the poor people in the society or the nation, by providing cheap credit to create and maintain small businesses for the purpose of generating income to improve their wellbeing and the society at large (Aladejebi, 2019). Microfinance banks are intended to fill a definite gap in the financial market and the financial system respectively, to assist the financing requirements of some neglected groups like rural women dwellers, who may be unable to obtain finance from the formal financial system (Khan, 2020). Microfinance is the offering of micro finance services tailored to the needs of low-income individuals, such as micro entrepreneurs, including the granting of small loans, accepting of small savings deposits, and providing simple payment services required by micro entrepreneurs and other underprivileged individuals (Grubbauer, 2020).

The goal is to give financial services to the economically engaged poor who have previously been ignored by the major financial service providers. There are several economic theories and concepts associated with the relationship between access to various financial sources, like the asusu, local contribution, microfinance bank loans for rural women (Datta, & Sahu, 2022).However, Poverty Alleviation, Women's Empowerment Social Capital and Networks, Financial Inclusion, Risk Mitigation, Human Capital Investment, Gender Equality and Economic Development are some of the programmes that provides rural women with economic empowerment (Thathsarani *et al.,* 2021).

The purpose of this study is to conduct an exploratory analysis of rural women farmers' sources of finance and empowerment, investigates various financing options accessible to women and their influence on empowerment, with the goal of providing insights that may be used to guide policies and initiatives to assist their development. This study intends to fill a conceptual gap in the literature and contribute to the current knowledge by experimentally analyzing the relationship between financial sources and rural women's empowerment in Northeastern Nigeria, this involves attempting to answer research questions. What influence do different sources of financing have on rural women's empowerment in Northeastern Nigeria?

Literature Review

The literature review covers previous studies on women's empowerment in agriculture, the role of finance in rural development, and the specific challenges faced by women in Northeastern Nigeria. It highlights gaps in the current research and underscores the importance of targeted financial support.

Aninze, (2023) examined the role of microfinance in women's economic empowerment, the well-being of the family, and access to finance from commercial banks. The study aims to investigate the role of microfinance in enhancing women's economic empowerment, family well-being, and access to finance in Nigeria, particularly from commercial banks. It focuses on how microfinance interventions influence enterprise development among women in both rural and urban settings. A mixed-method approach was employed to gain a comprehensive understanding of the use of microfinance and its impact on borrowers.

The study utilized 305 questionnaires administered to women borrowers supported by microfinance institutions (MFIs). To validate these results, 43 interviews were conducted, and findings were triangulated to ensure reliability and depth of insight. Findings reveals that microfinance loans contributed to enterprise growth, as evidenced by increased sales, profit, and asset acquisition among women borrowers, despite these positive outcomes, women who borrowed from MFIs did not become more "bankable," and financial exclusion remained prevalent. The study also found that multiple borrowing from various MFIs was common due to the absence of a central database for monitoring borrowers, leading to a dependence on microfinance loans rather than sustainable financial independence. The study recommends creating a centralized database to monitor microfinance borrowers and prevent over-indebtedness. It also suggests that MFIs should focus more on fostering an entrepreneurial culture among women borrowers by providing not only financial support but also entrepreneurial training and capacity-building programs. Additionally, policy interventions are needed to enhance financial inclusion and ensure that microfinance effectively contributes to the economic empowerment of women in both rural and urban areas in Nigeria.

Shukla. and Kumari, (2023) examined the digital and financial inclusion of female farmers, entrepreneurs, and women-led agricultural businesses. "Improving Financial and Digital Literacy Among Women: Achieving Financial Inclusion" The study's goal is to look at the elements that influence women's financial literacy and inclusion, with a special emphasis on their awareness, knowledge, skills, attitudes, and behaviours that are required for healthy financial decisions. It also aims to identify impediments to digital literacy and provide ways for increasing women's involvement and confidence in financial and digital activities. The study incorporates an examination of financial literacy and inclusion statistics from various nations, with a specific emphasis on India in 2021. The approach includes analysing financial inclusion statistics and the digital literacy gap among women, as well as examining women's access to and use of financial tools such as bank accounts, credit/debit cards, PAN cards, ATM cards, and Aadhaar cards. Observational data is used to highlight existing gaps and areas needing improvement. Findings reveals that financial literacy involves a combination of financial awareness, knowledge, skills, attitudes, and behaviour that supports sound financial decision-making. the also shows that Digital literacy among women is hindered by a lack of access, awareness, exposure, and skill in using digital devices. Household decisions typically determine the purchase of digital devices, where women have little influence. The study further shows that Many women are not familiar with basic financial instruments, such as the difference between a PAN card and an ATM card, and often prefer to withdraw money using Aadhaar cards from Community Service Centers (CSCs) and Women who received training were found to be more knowledgeable about digital and financial inclusion. The study recommends providing hands-on training and skills development for women in digital and financial inclusion to boost their confidence and knowledge. Enhanced training initiatives would support their ability to access and effectively use digital tools and financial services, ultimately leading to improved financial decision-making and overall financial well-being.

Wabwire, (2020) researched on "Financial Inclusion Determinants and Their Effect on Utilisation of Formal Financial Services by Smallholder Farmers in Kenya" The study aims to address the low utilization of formal financial services by smallholder farmers in Kenya by identifying the suitable financial inclusion approaches that could increase their engagement with formal financial services and thereby enhance productivity in the agricultural sector. The variables used in the study include: Demographic Factors: Age group, marital status, and education levels, Socio-Economic Factors: Annual income, land size, and occupation., Institutional Factors: Product differentiation., Technological Factors: Usage of technology in accessing financial services. Moderating Variable: Financial literacy. Study adopted a descriptive cross-sectional survey research design. The target population was 3,666,294 smallholder farmers from Nakuru, Busia, and Kirinyaga counties in Kenya, with a sample size of 560 farmers selected through simple random sampling for counties and sub-counties and convenience sampling for smallholder farmers in each ward. Data was collected using structured and semi-structured questionnaires. Descriptive and inferential statistical techniques were used to analyse the data, employing SPSS software. Descriptive statistics included frequencies, percentages, and chi-square tests, while inferential statistics involved correlation, multinomial logistic regression, and multiple linear regression analyses. Findings revealed that demographic factors such as age, marital status, and education level significantly impacted the utilization of formal financial services by smallholder farmers, Socio-economic variables like annual income, land size, and occupation were crucial determinants of financial inclusion. Technological factors also significantly influenced the utilization of formal financial services. Also, financial literacy had a notable moderating effect, enhancing the utilization of formal financial services among smallholder farmers. The study recommends that policymakers should review and address demographic obstacles to financial inclusion to increase the utilization of formal financial services. Smallholder farmers should be encouraged to disclose their annual income to improve their chances of accessing formal financial services. Financial service providers and their technological intermediaries, such as mobile service providers, should revise their product strategies to encourage smallholder farmers' subscription. Investment in the digitalization of small-scale farming activities should be promoted to increase technology adoption. Financial institutions should develop more accessible and user-friendly products that integrate well with other financial services to enhance uptake among smallholder farmers.

Methodology

This study utilizes a cross-sectional survey approach to collect numerical and objective data from respondents, focusing on rural women farmers in Northeastern Nigeria. The survey technique, which takes a quantitative approach, is critical for identifying correlations between factors associated with financial resources and empowerment. To gather information from the target group, surveys and questionnaires were given using the Kobo Collect mobile application. The target population comprises registered rural women under the Small-Scale Women Farmers Organization of Nigeria (SWOFON) in the selected states of Adamawa, Bauchi, and Gombe. According to data from the respective Ministries of Agriculture and Rural Development and the Ministry of Women Affairs and Social Development, the total number of registered rural women in these three states is approximately 833,445: Adamawa (360,000), Bauchi (200,000), and Gombe (273,455). This represents about 23% of the total population in the region. The study used the Krejcie and Morgan algorithm (Kharuddin et al., 2020) to find a suitable sample size, which resulted in 1,146 individuals. A multistage cluster sampling approach was used to pick participants from distinct localities within each state. The sample included of 495 people from Adamawa, 275 from Bauchi, and 376 from Gombe State. Data collection focused on identifying the types of financial sources accessed by rural women farmers, their usage, and their perceived impact on empowerment. The indicators for financial sources included Asusu (traditional savings schemes), local contributions, microfinance loans, grants, government subsidies, and commercial bank loans. The study's theoretical framework is based on Mayoux's feminist empowerment theory, which views empowerment in two dimensions: social and economic. Both descriptive and inferential statistics were utilized to analyze the collected data. The model specifications included the use of regression model and Structural Equation Modeling (SEM) to establish relationships between the financial sources and the empowerment of rural women. Indicators and Variables**:** The indicators for financial sources in this study are: Asusu (traditional savings schemes), Local contributions, Microfinance loans, GrantsGovernment subsidies and Commercial bank loans. The study examines two dimensions of rural women's empowerment: Social empowerment and Economic empowerment the study provides a comprehensive framework to investigate the relationship between financial sources and the empowerment of rural women in Northeastern Nigeria, using quantitative data to draw inferences and extrapolate findings relevant to policy and practice.

Results

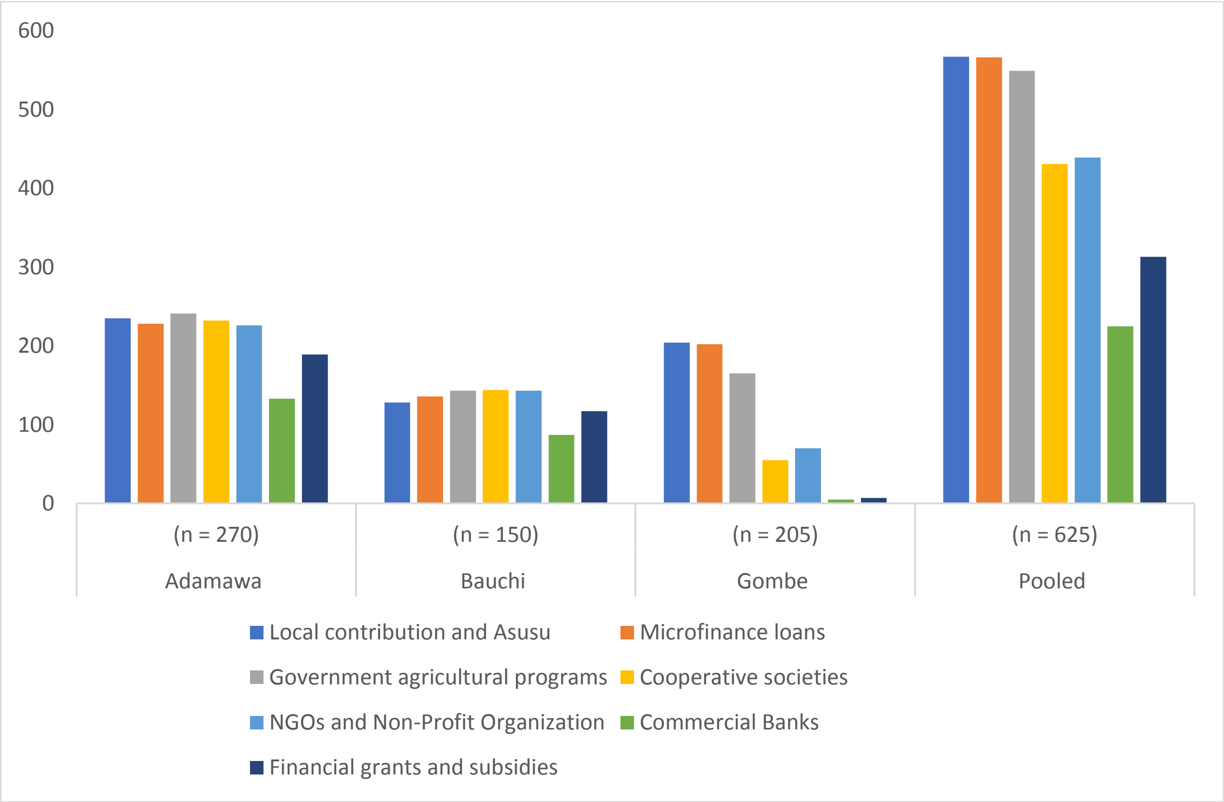

Figure 1: Distribution of the Respondents on Sources of Finance.
Source: Field Survey, 2024

Figure 1, Revealed that, local contribution and Asusu covers about 87% (235) of the source of finance for rural women farmers in Adamawa, about 85.3% (128) and 99.5% (204) for women farmers in Bauchi and Gombe respectively. The pooled result however, revealed that local contribution constitutes about 90.7%. The involvement of rural women farmers in local contribution and Asusu could influence their decision in farmer activities. This finding of rural women farmers' participation in local contribution and Asusu system, as it is currently done in the North eastern Nigeria, this supports Amponsah et al. (2023) claims, that farm productivity and income. Therefore, the study established that local contribution and Asusu is a source of financial empowerment.

Moreover, on Microfinance loans which covered about 228 (84.4) of the sources of finance for rural women farmers in Adamawa, while it covers for about 136 (90.7) and 202 (98.5) in Bauchi and Gombe respectively. The pooled result however, revealed that local contribution and Asusu constituted about 90.6%. The involvement of rural women farmers in Microfinance loans could influence their decision in farming. The finding of rural women farmers' participation in Microfinance loans system, in the North eastern Nigeria, because of the no collateral and easy to assess to help improve income for buying seeds and payment of Laboure's wage. This is in agreement with the work of Mohammed, et al. (2022) who reported that Microfinance institutions (MFIs) have been very instrumental in the provision of financial support to women agro-processors in the northern region of Ghana which bring a significant difference in the growth of enterprises of agro-processors who accessed microfinance support fully, and partially, and those who did not access microfinance support at all.

Furthermore, Government agricultural programs which covered about 241 (89.3) of the sources of finance for rural women farmers in Adamawa, while it covers for about 143 (95.3) and 165 (80.5) for women farmers in Bauchi and Gombe respectively. The pooled result however, revealed that local contribution constitutes about 87.8 percent The involvement of rural women farmers who participate in Government agricultural programs(scheme) launched rural women into farming activities that provide employment, income, social and economic development in their households, communities and the nation. This finding of rural women farmers' participation in Government agricultural programs(scheme), in the North eastern Nigeria, this supports the work of Baruah, (2021) who reported that the women farmers in North Eastern Region (NER) of India are actively involved in agricultural schemes in the country which revealed that lack of awareness of governmental agricultural schemes as a lacuna in the agricultural progress of women farmers in the NER.

Next is the Cooperative societies which covers about 232 (85.9) of the sources of finance for rural women farmers in Adamawa, while it covers for about 144 (96.0) and 55 (26.8) for women farmers in Bauchi and Gombe respectively. The pooled result however, revealed that local contribution constitutes about 69.0% The involvement of rural women farmers who participate in Cooperative societies influence their income levels and increase they purchasing, through the sales of their farm products and service. This finding of rural women farmers' participation in Cooperative societies, in the North eastern Nigeria. this is in agreement with the work of Waheed, et al. (2023) who reported that the role of cooperative societies in women empowerment in Kwara State, Nigeria. Has the potential to be an important instrument for women to carry out social transformation, especially in rural areas, by provision of advisory and advocacy services for women farmers that are actively involved in Cooperatives societies.

Moreover, on NGOs and Non-Profit Organization which covers about 226 (83.7) of the sources of finance for rural women farmers in Adamawa, while it covers for about 143 (95.3) and 70 (34.1) for women farmers in Bauchi and Gombe respectively. The pooled result however, revealed that local contribution constitutes about 70.2 percent The involvement of rural women farmers who participate in NGOs and Non-Profit Organization influences their decision in farming. This finding of rural women farmers' participation in NGOs and Non-Profit Organization in the North eastern Nigeria. This is in agreement with the work of Abiddin, et al. (2022) who reported the role of non-governmental organizations (NGOs) towards Sustainable Community Development in rural women empowerment and identify the challenges these women face, non-governmental organizations primary mission is to carry out development projects for underserved populations such as the poor, disabled, elderly, and oppressed.

In addition, the Commercial Banks loans which covered about 133 (49.3) of the sources of finance for rural women farmers in Adamawa, while it covers for about 87 (58.0) and 5 (2.4) for women farmers in Bauchi and Gombe respectively. The pooled result however, revealed that local contribution constitutes about 36.0 percent The involvement of rural women farmers who participate in Commercial Banks loans could influence their decision in farming. This finding of rural women farmers' participation in Commercial Banks loans as it is currently done in the North eastern Nigeria is in agreement with the work of Sandhu. (2021) who reported that commercial banks provide valuable insight into how banks make lending decisions and evaluates a complex matrix of relationships between women farmers and providers of debt finance in a developing economy such as India.

Lastly, financial grants and subsidies which covered about 189 (70.0) of the sources of finance for rural women farmers in Adamawa, while it covers for about 117 (78.0) and 7 (3.4) for women farmers in Bauchi and Gombe respectively. The pooled result however, revealed that local contribution constitutes about 50.1% The involvement of rural women farmers who participate in financial grants and subsidies influence rural women financial access and control over resources, as grants are given to women in form of free money to burst, they're farming activities. The study shows that rural women farmers who receive financial grants, subsidies, and other forms of financial intervention perform better when it comes to farming and animal production. This is because these forms of support encourage rural women to increase and improve productivity, which ultimately supports the findings of Kramer, and Trachtman, (2024) claims that the adoption of high-quality seeds of improved varieties persists in Sub-Saharan Africa, despite the implementation of various seed promotion interventions in Sub-Saharan Africa (including subsidies, financial services, quality certification schemes, and agricultural extension), and inquired as to whether these interventions benefit women farmers as much as men farmers.

Table 1: Reliability result for Access to finance.

Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
AS1	13.67	8.062	.241	.198	.658
LC2	14.17	7.693	.391	.281	.598
MF3	14.59	6.551	.508	.392	.536
GS4	14.46	5.989	.566	.412	.499
CB5	15.20	6.994	.313	.157	.640
Cronbach’s Alpha			0.785		
Cronbach’s Alpha based on standardized items			0.780		
Number of items			5		

Source: Field Survey, 2024

Table 13 above revealed that the result of reliability test for the access to funds variable (AF). Based on the result, the overall Cronbach's alpha (α) value 0.785 which is greater than the cut-off value of 0.70 (Mansor *et al.*, 2022), hence classified to be a fair degree of reliability. This implies that the source of finance construct (AF) data set is reliable and suitable for the SEM analysis. More so, it is also crucial to examine Cronbach's alpha (α) ‘‘if items deleted’’ given by standardize value of 0.780. since there are only 0.05 differences from the original overall and standardize Cronbach alpha (α), it is thus essential to retain all the measurements items in the construct

Discussion

The result of the hypotheses tested in this section by using the outputs of the structural equation model is presented in Table 40. From the SEM output, the explanatory power (R^2) of the proposed model is 0.54 implying that the variance in the rural women empowerment is explained by all significant predictors by about 54%. This R^2 value showed that the extended model had superior explanatory power as compared to the original model with R^2 value of 0.48 explaining only about 48% variance in firm-level innovation. Thus, the extended model had improved R^2 from 0.48 to 0.4. However, after the model fit and R^2 have been determined and compare with the original model, the reported SEM output was assessed based on the estimated path coefficient β value with the critical ratio (C.R. equivalent to t-value), and p-value to test for the hypotheses. Similarly, the standard decision rules (t-value greater than or equal to 1.96, and the p-value is ≤ .05) also apply in order to decide the significance of the path coefficient between the dependent variable and independent variables (Byrne, 2001).

Table 2: Estimates of hypotheses I, II, III, IV and V

Table 2: Estimates of hypotheses I, II, III, IV and V

Hypotheses	Pathways	Beta (β) Standardize	t–value	P-value	Decision
i.	Asusu	0.013	0.807	0.05	Not Supported
ii.	Local contributions	0.042	4.516*	0.05	Supported
iii.	Microfinance loans	0.052	3.527*	0.05	Supported
iv.	Grants/Government subsidies	0.058	6.757*	0.05	Supported
v.	Commercial bank loans	0.124	5.144*	0.05	Supported

Source: Field Survey, 2024
Note: * implies significance at p<0.05 probability level
AS = Asusu, LC = Local contributions, ML = Microfinance loans, GS = Grants/Government subsidies, CL = Commercial bank loans and RWE = Rural Women Empowerment.

The result of the hypothesis, which stated that, there is no significant relationship between access to funds and rural women empowerment in North Eastern Nigeria, is presented in Table 40. As revealed in the Table, the estimated coefficient (β = 0.013) was not significant at p-value of less than 0.05, but had positive relationship. Therefore, access to funds by the rural women had positive but no significant relationship with their empowerment. Thus, the null hypothesis was accepted and not supported as against the alternate hypothesis.

While the participants of rural women farmers on sources of finance were modest in size, compared to those working on the traditional agriculture. Participants had a greater need for finance in other to purchase hybrid seeds, farm tools (technology), fertilizer and labor, thus they were introduced to several financing options such as local contributions and village savings (Asusu), Then followed by microfinance loans, government programs (grants and subsidies), non-governmental organizations (NGOs), and commercial bank loans (Akuno, 2023). However, result revealed that local contribution and Asusu constituted about 90.6 percent. Asusu and local contributions enabled them to launch off-farm income-generating companies while also improving women farmers' agricultural productivity and revenue (Muhammad et al., 2021). Then followed by Microfinance loans, which are readily assessed and free of collateral, have been highly significant in providing financial support to rural women farmers (Khan et al., 2020). Microfinance and Credit Facility, establish and grow microfinance institutions and lending facilities designed exclusively for rural women farmers, including low-interest loans to assist women in managing and developing their agricultural enterprises (Abebe, and Kegne, 2023). Participants' involvement in cooperative societies is moderate because it influences their income levels and increases their purchasing power through the sale of their farmer products, services, and social transformation, particularly in rural areas, by providing advisory and advocacy services to women farmers in villages (Adeyanju, 2023).

Moreover, NGOs work toward Sustainable Community Development in rural women's empowerment and identifying the challenges these women face. Non-governmental organizations' primary mission is to carry out development projects for underserved populations such as the poor, disabled, elderly, and oppressed (Abiddin et al., 2022) Due to the high rate of insecurity activities, displaced women are assisted by NGOs with grants for food, clothing, medical services, seedlings, and fertilizer (Bamidele, and Pikirayi, 2023) Additionally, the majority of agricultural schemes in the nation discovered that a lack of knowledge about governmental agricultural schemes was a gap in the agricultural advancement of women farmers in Northeastern Nigeria. Participants are primarily beneficiaries of government agricultural programs (schemes) administered by the Central Bank of Nigeria (CBN), Small-Scale Women Farmers Organization in Nigeria (SWOFON), and other programs based on agricultural subsidies and incentives for women-led agripreneurship (Adeyeye, 2022). These programs serve to increase participation and lower initial financial barriers, grants, and financial literacy initiatives among rural women farmers (Adeyeye, 2022). Finally Having access to and control over access to funds can boost rural women farmers' autonomy, economic independence, and self-sufficiency, most importantly, access to funds enable women to invest in the commodities, technology, and infrastructure needed for successful farmer.

Conclusion.

This study investigated the effect of Sources of Finance for Rural Women Farmers Empowerment in Northeastern Nigeria. The study concludes with an overview of the significant results and their implications. It makes suggestions to governments, financial institutions, NGOs and development groups to increase financial inclusion and empower rural women farmers in Northeastern Nigeria. Women Farmers and non-participants had a greater need for financing in order to purchase hybrid seeds, farm tools (technology), fertilizer, and labor, so they were introduced to a variety of financing options, including local contributions and village savings (Asusu), micro loans, NGOs, government subsidies, and bank loans. Technological developments may considerably improve agricultural output and efficiency, but their adoption can be limited by high costs, a lack of technical know-how, and poor infrastructure in rural regions. The findings provide some practical implications for sources of finance for rural women's empowerment. The results of the study will benefit rural women farmers, practitioners, the government, and non-governmental organizations (NGOs), who could use this information to change their approach to accessing funds and economic growth. Asusu, local contributions, microfinance loans, grant/government subsidies, commercial bank loans and financial literacy are all critical components of rural women's financial empowerment.

Recommendations

Based on the findings of this study, the following recommendations among others were put forward: Microfinance organizations and other financial institutions should look into the insufficiency of loan facilities and design a strategy to address rural women's financial requirements in order to ensure a broad distribution of agricultural funding that would boost productivity, income, and social well-being

References

Abebe, A., & Kegne, M. (2023). The role of microfinance institutions on women’s entrepreneurship development. *Journal of Innovation and Entrepreneurship*, 12(1), 17.

Abiddin, N. Z., Ibrahim, I., & Abdul Aziz, S. A. (2022). Non-governmental organisations (NGOs) and their part towards sustainable community development. Sustainability, 14(8), 4386.

Adefare, T., Adeola, O., Mogaji, E., Nguyen, N. P., & Mogaji, S. A. (2024). Empowering women agriculture entrepreneurs: banks' role in achieving sustainable development goals. International Journal of Bank Marketing, 42(4), 692-724.

Adeyanju, D. F. (2023). Impact of Agribusiness Empowerment Interventions on Skills Development and Livelihood Outcomes: Evidence ` from the Enable Programme in Africa (Doctoral dissertation, University of Nairobi).

Adeyemo, T. A. (2024). Financial Inclusion for Women in Nigeria: Much Ado About Access. In *Women and Finance in Africa: Inclusion and Transformation* (pp. 91-103). Cham: Springer Nature Switzerland.

Adeyeye, A. D. (2022). Exploring the dynamics of innovation for inclusive development systems: a study of the Nigerian growth enhancement support scheme (Doctoral dissertation, Stellenbosch: Stellenbosch University).

Akuno, I. G. (2023). Influence of socio-economic factors on Women’s participation in rotating Savings and Credit Associations in Kabondo Kasipul Sub County, Homabay County (Doctoral dissertation, Egerton University).

Aladejebi, O. (2019). The impact of microfinance banks on the growth of small and medium enterprises in Lagos Metropolis. *European Journal of Sustainable Development*, *8*(3), 261-261.

Amponsah, D., Awunyo-Vitor, D., Wongnaa, C. A., Prah, S., Sunday, O. A., & Acheampong, P. P. (2023). The impact of women groundnut farmers' participation in Village Savings and Loans Association (VSLA) in Northern Ghana. Journal of Agriculture and Food Research, 11, 100481.

Amusan, L., Akokuwebe, M. E., & Odularu, G. (2021). Women development in agriculture as agency for fostering innovative agricultural financing in Nigeria. African Journal of Food, Agriculture, Nutrition and Development, 21(7), 18279-18299.

Anderson, C. L., Reynolds, T. W., Biscaye, P., Patwardhan, V., & Schmidt, C. (2021). Economic benefits of empowering women in agriculture: Assumptions and evidence. The Journal of Development Studies, 57(2), 193-208.

Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., & Cochran, J. J. (2016). Statistics for business & economics. Nelson Education

Aninze, F. (2023). Women empowerment through microfinance and enterprise: evidence from Nigeria (Doctoral dissertation, Birmingham City University).

Baruah, A. (2021). Women farmers' awareness of government agricultural schemes in the north eastern region of India. Journal of Extension Education, 33(1), 6558-6565.

Bello, M. A. & Kofarmata, B. A. (2017). Entrepreneurship Education and New Business Start- ups among Nigerian University Graduates. 5th University of the Western Cape International Entrepreneurship Conference, Cape Town. 28th – 29th of September, 2017 in Cape Town, South Africa.

Camila, E. M. (2021). Revisiting The Dynamics of Gender-Based Development: An Approach to Development Studies. EcceS: Economics Social and Development Studies, 8(1), 86-109.

Dang, T. T., & Vu, H. Q. (2020). Fintech in Microfinance: a new direction for Microfinance institutions in Vietnam. *Asian Journal of Business Environment*, *10*(3), 13-22.

Dangisso, M. Y., & Deyganto, K. O. (2020). Assessing the institutional outreach and sustainability of micro finance institutions in Ethiopia: evidence from omo microfinance institution hawassa branch. *American Journal of Theoretical and Applied Business*, *6*(1), 1-5.

Datta, S., & Sahu, T. N. (2022). How far is microfinance relevant for empowering rural women? An empirical investigation. Journal of Economic Issues, 56(1), 97-112.

Engida, Y. M. (2021). The three-dimensional role of education for women empowerment. Journal of Social Sciences, 17(1), 32-38.

Grubbauer, M. (2020). Assisted Self-help Housing in Mexico: Advocacy, (Micro) Finance and the Making of Markets. *International Journal of*

Urban and Regional Research, *44*(6), 947-966.

Khan, B. (2020). Microfinance banks and its impacts on small and medium scale enterprises in Nigeria. *World Scientific News*, (141), 115-131.

Khan, T. A., Khan, F. A., Violinda, Q., Aasir, I., & Jian, S. (2020). Microfinance facility for rural women entrepreneurs in Pakistan: An empirical analysis. Agriculture, 10(3), 54.

Kharuddin, F. A., Azid, N., Mustafa, Z., Kamari, N. M., Ibrahim, K. F., & Kharuddin, D. (2020). Determination of sample size in early childcare Centre (TASKA) service project in Malaysia: Classification and Analytical Approach. *Albukhary Social Business Journal*, *1*(2), 104-112.

Khorramfar, M. (2023). Securing federated learning model aggregation against poisoning attacks via credit-based client selection (Doctoral dissertation, University of Winnipeg).

Kramer, B., & Trachtman, C. (2024). Gender dynamics in seed systems: an integrative review of seed promotion interventions in Africa. Food Security, 16(1), 19-45.

Kumar, S. (2023). A Study on Role of Women Entrepreneurs in G20 Countries. *DME Journal of Management*, *4*(02), 18-37.

Mohammed, F., Boateng, S. D., & Freeman, C. (2022). Effect of Access to Microfinance Support on Growth of Women Agro-Processing Enterprises in the Northern Region of Ghana.

Naima, U. (2024). *Bridging the digital gender divide through digital financial inclusion: A case of low-income Bangladeshi Muslim women in South East Queensland* (Doctoral dissertation, Queensland University of Technology).

Nkwocha, O. U. (2019). Microfinance, women's entrepreneurial development and empowerment in Nigeria (Doctoral dissertation, Birmingham City University).

Rai, V., & Shrivastava, M. (2021). Microfinancial Drivers of Women Empowerment: Do Self-help Group Membership and Family Size Moderate the Relation. *The Indian Economic Journal*, *69*(1), 140-162.

Sandhu, N. (2021). Dynamics of banks' lending practices to farmers in India. Journal of Small Business and Enterprise Development, 28(1), 102-120.

Shukla, P., & Kumari, V. (2023). Assessment of Digital and Financial Inclusion of women farmers/entrepreneurs/women-led agri startups. Hyderabad: National Institute of Agricultural Extension Management (MANAGE).

Thathsarani, U. S., Wei, J., & Samaraweera, G. R. S. R. C. (2021). Financial inclusion's role in economic growth and human capital in South Asia: An econometric approach. *Sustainability*, *13*(8), 4303.

Umulisa, P. (2022). Impact of agricultural transformation policy on food security: Case study of selected smallholder farmers in Gicumbi District, Northern Province, Rwanda. *United Nations General assembly*. (2015).(A/ RES/70/1) CARDOC. Retrieved from New York.

Wabwire, J. (2020). Financial inclusion determinants and their effect on utilisation of formal financial services by smallholder farmers in Kenya (Doctoral dissertation, KABARAK UNIVERSITY). Retrieved from http://ir.kabarak.ac.ke/handle/123456789/1284

Waheed, K. O., Abiola, D. T., Daudu, A. K., & Siyanbola, I. F. (2023). Women Farmers Empowerment: The Role of Cooperative Societies in Kwara State, Nigeria. Al-Qadisiyah Journal For Agriculture Sciences, 13(2), 136-151.