DETERMINANTS OF WOMEN ENTREPRENEURS' EMPOWERMENT IN NANO, MICRO AND SMALL ENTERPRISES IN BAUCHI STATE, NIGERIA

Aliyu B.
Department of Accounting and Finance
Faculty of Management Sciences,
Abubakar Tafawa Balewa University, PMB 0248, Bauchi, Nigeria

Rabiu I.D.
Department of Accounting and Finance
Faculty of Management Sciences,
Abubakar Tafawa Balewa University, PMB 0248, Bauchi, Nigeria

Aliyu S.A.
Department of Accounting and Finance
Faculty of Management Sciences,
Abubakar Tafawa Balewa University, PMB 0248, Bauchi, Nigeria

Corresponding Author: baliyu@atbu.edu.ng
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Abstract
This study is motivated by concerns about women-owned Nano, Micro and Small Enterprises (NMSEs). Social theory, institutional theory and resource-based theory argue that enterprises can grow if financial, social, and institutional resources are utilized effectively. To this end, this paper examines the effect of access to finance, perceived entrepreneurial barriers, Institutional policy support, and digital skills on women entrepreneurship in Bauchi state, Nigeria. A cross-sectional survey design was adopted, and data were collected using a 7-likert scale questionnaires administered on a sample of 400 from the study population. Descriptive, exploratory factor analysis (EFA), correlation and multiple regression analysis was carried out on the data. The multiple regression results reveal positive and significant effect of access to finance ($\beta = 0.26$, $p < .001$), Institutional Policy Support ($\beta = 0.085$, $p = .006$) and digital skills ($\beta = 0.15$, $p = .001$) on women entrepreneurship, while Perceived Entrepreneurial Barriers indicates a negative and significant effect on women entrepreneurship with ($\beta = -0.085$, $p = .006$). This implies increased access to finance, more Institutional Policy Support and improved digital skills enhances women entrepreneurship. In contrast to that Perceived Entrepreneurial Barriers reduces the ability of women-owned enterprises to grow and sustain their businesses. This study recommends the need to strengthen access to finance, Institutional Policy Support, and digital skills as well as reducing entrepreneurial barriers among women entrepreneurs in Bauchi state, Nigeria.

Keywords: Women entrepreneurship; Entrepreneur; Access to finance, Perceived Entrepreneurial Barriers, Institutional Policy Support, Digital skills.

1.0 Introduction

Women-owned nano, micro and small enterprises (NMSEs) are important to household livelihoods, employment and local economic activity. Their continuity and development depend on resources within the enterprise as well as on the social and institutional environment in which they operate. The resource-based view (RBV) argues that resources and capabilities can support sustained performance when they are valuable and effectively deployed (Wernerfelt, 1984; Barney, 1991). For women entrepreneurs, relevant resources may include financial capital, knowledge and digital capabilities, while family and community

networks can help entrepreneurs' access information, referrals and practical assistance. Government programmes and regulations can either enable or constrain access to these resources.

Although studies in Nigeria and other countries have examined finance, social networks, policy support or digital capabilities separately, these evidences do not establish how these four factors jointly relate to the sustainability of women-owned NMSEs in Bauchi State. Much of the cited Nigerian evidence is drawn from other settings, including Kano, Abuja and Lagos, whose infrastructure, market access and institutional conditions may differ from those in Bauchi state. The empirical gap is therefore geographical and integrative: locally grounded evidence on the combined associations of finance, perceived entrepreneurial barriers, institutional policy support and digital skills with women's entrepreneurship remains limited.

This study addresses that gap by examining four explanatory factors in one model using survey responses from women-owned NMSEs in selected local government areas of Bauchi State. Its contribution is not a claim that these factors have never been studied, but an assessment of their joint relationships in a comparatively underrepresented setting, alongside a transparent evaluation of the measurement limitations encountered. Furthermore, evidences from the World Bank (2021) cross-country survey assessment of women's entrepreneurship using data from more than 120 countries (covering 17 high-income economies and 110 low- and middle-income economies) found women remain underrepresented in business-ownership. At the moment, Nigeria ranked 128th out of 153 countries in the world and 27th out of 53 African countries (World Economic Forum, 2025). This implies that the country is far behind in achieving the sustainable development goal of gender equality (SDG 5), and equal representation for women. In addition, statistical report from the National Gender Policy (2021-2026), indicate that Nigeria still ranked 123 out of 146 countries (with a score of 0.0639). This low ranking indicates wide gender disparity.

Similarly, report from the Small and Medium Enterprises Development Agency of Nigeria [SMEDAN], 2021) shows that out of the 39.9 million Nano and micro businesses in Nigeria, 32.9 million are owned by women. This indicates that women have a high level of interest in becoming entrepreneurs but face challenges related to the business and regulatory environment, including access to financial and business development services critical to formalizing and growing their businesses (Muhammed et al. 2025), (Kutlu & Ngoasong, 2024).

Researches on women entrepreneurship in emerging economies (Ahmetaj et al. 2023), (Kutlu and Ngoasong, 2024), (Johnson et al. 2024) have found inadequate access to finance, perceived entrepreneurial barriers and institutional policy support to be factors affecting women entrepreneurship. The extent to which women entrepreneurs can have access to adequate micro financing will expand their businesses and create opportunity for innovative technology. Finance is one very crucial factor in business. Women entrepreneurs are faced with challenges on access to finance. Existing studies (Janshal, 2025), (Ogbari et al. 2024), (Johnson et al. 2024) and others have all shown that micro finances are necessary for women entrepreneurship. However, they women are faced with factors like collateral, rent savings, decision making, training and mentoring services, development of critical soft skills which inhibit their chances of getting micro credits to boast their businesses.

Perceived entrepreneurial barriers as well as institutional policy support have all been found to have significant influence on women entrepreneurship, and this varies from one culture to another. Household responsibilities, unpaid care work, and gender stereotypes reduce women's time, mobility, and ability to expand businesses. These constraints are particularly severe in low-income countries like Nigeria. Digital platforms, mobile banking, and online markets improve women's access to customers, financial services, and business information, but unequal digital access remains an enormous challenge (World Bank, 2021).

The study is relevant to Sustainable Development Goals 5 (gender equality), 8 (decent work and economic growth) and 10 (reduced inequalities). The paper reviews related literature and theory, explains the methodology, presents and discusses the results, and concludes with implications and limitations.

2.0 Literature Review

A review of empirical studies provides evidence that women entrepreneurship has become an important driver of economic growth in developing countries like Nigeria. Khan et al. (2022) examined the role of microfinance in improving the socio-economic conditions of women in Quetta City, Balochistan, Pakistan. Using convenience sampling, the study administered questionnaire on a sample of 351 females. Findings from the study show that microfinance enables women to establish small businesses such as tailoring, handicrafts, food processing, etc. The study is focused primarily on access to finance without considering digital skills, institutional policy support as well as perceived entrepreneurial barriers.

In Indonesia, Lestari et al. (2025) conducted a survey on the effect of access to finance on sustainability of women-owned micro and small enterprises (MSEs) in Indonesia. The study was cross-sectional with questionnaire administered on a sample of 542 respondents. Data analysis was done using Partial Least Squares Structural Equation Modelling (PLS-SEM). Findings from analysis indicates that access to finance positively influence women entrepreneurial sustainability. However, this study may not be generalized to Nigeria because it focused only on Indonesia cultural, economic, and institutional differences. In addition, the study did not consider other determinants of business sustainability, such as institutional policy support.

Simba et al. (2023) examined the impact of group-based financing on women entrepreneurs. Data was sourced through primary- qualitative by interviewing 75 women entrepreneurs in Nigeria's using purposive sampling techniques. The study found that community financing schemes such as Ajo provide an important alternative source of capital for women entrepreneurs. However, a sample size of 75 respondents is small to allow generalizability to the entire country.

Adetiloye et al. (2020) examined access to finance among female entrepreneurs in Nigeria's MSMEs sector using survey data and Ordinary Least Squares (OLS) regression. The study found that flexible loans conditions, reduced compulsory savings requirements, business registration, and active banking relationships significantly improve sustainable access to finance and business among women entrepreneurs. Despite the wide perspective of the study, respondents were drawn primarily from women already connected with microfinance institutions. In addition, the study did not consider other important determinants of women's entrepreneurship. There was no theory(s) to support findings.

Bashir and Danlami (2022) studied access to credit among 376 women entrepreneurs in Kano metropolis using multi stage random sampling technique. The logit regression analysis carried out on the data found that high interest rates, collateral requirements, and religious consideration significantly restrict women access to finance. Despite the large sample size, the outcome of the study may be not be generalized to other parts of Nigeria with different economic, cultural, and financial environment. Also, other important determinants such as digital financial literacy, perceived entrepreneurial barriers as well as institutional policy support were neglected.

Afolabi and Akinlolu (2021) evaluated women's access to bank credit Nigeria using cross-sectional survey. The target population consisted of 51 women entrepreneurs who had applied for or sought building credit from commercial banks in Nigeria. The study found that stringent lending conditions, collateral demands, and inadequate documentation requirements limit women's access to finance, thereby reducing business growth and sustainability. A major limitation of the study is that data were sourced primarily from bank employees rather than women entrepreneurs. The study cannot be generalized to entire Nigeria banking

sector because the study only surveyed 51 bank employees. Socio-cultural and institutional influences were not considered in the study.

In the capital city of Albania, Ahmetaj et al. (2023) assessed the challenges of women entrepreneurship. Data was collected using a questionnaire administered on a sample of 47 female entrepreneurs. Study found positive significant effect of social support on women entrepreneurship. However, the study surveyed only 36 women entrepreneurs, which is too small to adequately represent women in Albania. This limits the statistical power and reliability of the findings. Digital literacy, institutional policy support are not considered in the study.

Dewitt et al. (2022) examined the effect of family dynamics and decision-making on female entrepreneurship. The study adopted a qualitative approach using interview on 15 Chinese female entrepreneurs. The study found significance of family support on women entrepreneurship. However, the reliance on a small of 15 participants limit generalizability of the findings to the wider population of women entrepreneurs. Consequently, the findings may not be directly applicable to countries with different socio-cultural environments, such as Nigeria.

Arvind and Ranjith (2023) conducted an exploratory quantitative research on the effect of funding and government support on women entrepreneurship. Data was collected through convenience sampling of women entrepreneurs in Bengaluni. 100 questionnaires were administered and analysis was carried out through SPSS. Analysis carried out from the study indicate that access to finance and government support have significant influence on women entrepreneurship. The study relies primarily on descriptive analysis.

Abubakar et al. (2025) examined the effect of government policies and financial support programmes on the success of women-owned small and medium enterprises (SMEs) in the Federal Capital Territory (FCT), Abuja. The study adopted mixed-methods approach. Quantitative data were collected through questionnaire administered on 185 women entrepreneurs across six business sectors in the FCT, while qualitative data was sourced from in-depth interviews and focus group discussions. Quantitative data were analyzed using descriptive statistics and multiple regression, whereas qualitative data were analyzed thematically. The study found government policy support had a significant positive effect on business success. However, the study was limited to the Federal Capital Territory, reducing the generalizability of the findings to other regions of Nigeria with different socio-economic conditions. Also, the sample size of 185 respondents was inadequate for the analysis, and may not have fully represented the diversity of women entrepreneurs across Nigeria.

Folarori (2024) examined the influence of digital infrastructure on women entrepreneurship in Lagos State, Nigeria. Using a survey research design, data were collected from 200 women entrepreneurs and analyzed using simple regression. The findings revealed that digital skills training significantly improved entrepreneurial performance, innovation, and business sustainability. However, this study was conducted only in Agege, Oshodi-Isolo, and Ikeja in Lagos state. Sample of 200 may not constitute a robust representation of the study, considering the density and diverse nature of Lagos population. The use of a simple regression analysis on the data may not provide broad view into the study objective, an alternate analysis like multiple regression, SEM, may yield a better result.

Aladejebi and Amao-Taiwo (2025) investigated whether digital skills reshape women entrepreneurship in Lagos markets. Using survey data from 895 women entrepreneurs across women entrepreneurs across different sectors, the study found that digital literacy and effective use of social media significantly increased customer reach, business visibility, sales and competitiveness. This study was conducted only in Lagos state. Consequently, the findings may not reflect experiences of women entrepreneurs in rural

arrears or other parts of Nigeria where internet access and digital infrastructure are weaker. Other determinants of women entrepreneurship were not considered.

In China, Huang et al. (2025) examined whether digital financial inclusion promotes female entrepreneurship using national survey data (secondary data). Data was obtained from the China Family Panel Studies (CFPS), as well as the Peking University Digital Financial Inclusion Index, which measures the level of digital financial development across Chinese provinces. The findings showed that digital capabilities and digital financial services significantly increased women's entrepreneurial participation by reducing financing and information constraints and improving work flexibility. However, this research cannot be generalized to Nigeria, because it is based on China, where digital infrastructure, financial system, and institutional environment are more advanced than Nigeria. Other important factors such as digital literacy, perceived entrepreneurial barriers, institutional policy support was not fully incorporated into the model of the study.

Conceptualisation of The Study Variables

Dependent Variable: Women's Entrepreneurship

A female entrepreneur is an individual who initiates a business and operates it on her own. She takes all the risk, and challenges with a strong will to succeed. Dangi et al. (2024) defined entrepreneurship as a process which include creativity and innovation in all areas of social and business endeavors. It also includes industry, agriculture, education, social work and others. Women entrepreneurship refers to women's active participation in identifying business opportunities, mobilizing resources, and establishing and managing enterprises for economic and social value creation (Kutlu & Ngoasong, 2024; Janshal, 2025). In Nigeria, women entrepreneurs dominate the micro and small business sector, particularly in trade, agribusiness, services and informal manufacturing. They create employment, improve household income, promote inclusive growth, and reduce poverty. However, Women-owned NMSEs are characterized by low entry barriers, informal operations, dependence on personal savings, and vulnerability to environmental and economic shocks (Franzke et al., 2022; Haylemariam et al., 2024).

A systematic literature review by Franzke et al. (2022) highlights the importance of examining women's entrepreneurial experiences within their particular cultural and institutional contexts rather than assuming that women entrepreneurs face identical conditions across countries. In the Nigerian context, women entrepreneurship is also connected to networking, collaboration and access to complementary resources. Anyanwu et al. (2023) found that strategic alliances can help women-owned enterprises overcome resource limitations and strengthen their innovation capabilities. Their findings demonstrate that women's entrepreneurial activities should be examined not only in terms of individual business ownership but also through the relationships and resources that support enterprise development.

Based on these perspectives, this study conceptualizes women entrepreneurship as the process through which women identify and exploit business opportunities, mobilize resources, and establish and manage enterprises to generate income, create value and contribute to economic development. This definition is particularly relevant to women-owned nano, micro and small enterprises in Bauchi State, where the development of entrepreneurial activities may depend on access to finance, perceived entrepreneurial barriers, Institutional support policy, and digital skills.

Independent Variables

Access to Finance:

This is one of the most important constraints in women entrepreneurship. Access to finance simply means the ability of individuals and businesses to obtain full and affordable financial products and services that

meet their needs (World Bank, 2022) (Alene, 2020). Adequate finance enhances productivity and moves an enterprise on a going concern, as well as creating avenues for new markets and business opportunities.

Garg et al. (2024) defined access to finance as the ability of individuals or businesses to obtain financial services such as credit, savings, insurance, and payment systems in a timely and affordable manner. It refers to women's ability to secure financial resources needed to start, sustain, and expand their businesses. Again, access to finance for women entrepreneurs is the availability and use of appropriate financial products and services - including loans, grants, equity financing, and digital financial services that enable women-owned businesses to grow and compete effectively.

Perceived Entrepreneurial Barriers:
Perceived entrepreneurial barriers refer to individuals' subjective assessments of the difficulties and constraints that may hinder the establishment, management, growth, and sustainability of entrepreneurial ventures. Unlike actual barriers, which represent objectively existing constraints, perceived barriers reflect individuals' beliefs about the severity of obstacles and their ability to overcome them (Hatala, 2005). These barriers may influence entrepreneurial intentions, business decisions, and the willingness of entrepreneurs to pursue growth opportunities (Singh & Mookerjee, 2023).

Perceived entrepreneurial barriers can be categorized into financial barriers, such as inadequate capital and limited access to credit; personal barriers, including insufficient entrepreneurial knowledge, skills, and fear of failure; sociocultural barriers, such as restrictive gender norms and inadequate family support; and institutional and environmental barriers, including unfavorable government policies, regulatory difficulties, poor infrastructure, and market competition (Panda, 2018). These constraints may be particularly significant for women entrepreneurs in developing economies, where gender-related challenges, limited resources, and work–family responsibilities can restrict entrepreneurial development.

In the context of women-owned micro and small enterprises in Bauchi State, Nigeria, perceived entrepreneurial barriers can be conceptualized as the extent to which women entrepreneurs believe that financial, personal, sociocultural, institutional, and market-related constraints limit their ability to establish, manage, expand, and sustain their businesses. Understanding these perceptions is important for identifying the challenges that may undermine women's entrepreneurship performance.

Institutional policy support:
Institutional policy support refers to respondents' perceptions of public programmes, subsidies, regulation and the wider administrative and cost environment affecting women-owned enterprises. Supportive training, credit programmes and fair regulation may help businesses acquire resources; conversely, weak implementation, limited subsidy access, high compliance costs and regulatory obstacles may be perceived as constraints. Some of these challenges such as limited access to credit, lack of business training, gender discrimination, poor infrastructure, regulatory complexities as well as limited access to markets can be tackled by government when appropriate supportive government interventions are implemented (Johnson et al. 2024) (Mohammed et al. 2025).

Digital skills:
According to (Yadav et al. 2023) (Folarori, 2024), digital skills refers to the ability to effectively use digital technologies, devices, applications, and online platforms to access, manage, create, communicate, and share information for personal, professional, and business purposes. It encompasses a wide range of competencies, including computer literacy, internet use, digital communication, online marketing, data management, e-commerce, and the use of digital financial services. In relation to women entrepreneurship, digital skills refer to women's ability to use digital technologies and online tools to establish, manage,

market, and expand their businesses. Such skills facilitate access to information, customers, suppliers, financial services, and entrepreneurial network (Huang et al. 2025) (Rizvi et al. 2025).

Components of digital skills in women entrepreneurship include basic digital literacy, digital communication skills, digital marketing skills, e-commerce skills, digital financial skills, data and information management skills. Basic digital literacy involves the ability to use computers, smartphones, tablets, and internet enabled devices effectively. Digital communication skills involve the ability to communicate and interact using online platforms and digital technologies. Examples are email communication, social media engagement, video conferencing, online customer service and virtual networking. These skills enable women entrepreneurs to maintain relationships with customers, suppliers, investors, and business partners regardless of geographical location.

Theoretical Framework and Hypotheses Development

The study is primarily guided by the resource-based view (RBV) (Wernerfelt, 1984; Barney, 1991). RBV explains how resources and capabilities can support sustained performance when they are valuable and effectively mobilized. Financial resources can fund inventory, equipment and working capital; digital skills can improve communication, marketing and access to customers; and social relationships can provide information, referrals and practical assistance. These mechanisms motivate possible relationships for access to finance, perceived entrepreneurial barriers, institutional policy support and digital skills. RBV does not, by itself, predict that every government-policy measure will have a positive association. An enabling institutional environment can improve access to resources, whereas burdensome or poorly implemented rules can constrain them. Barney (1991) define a firm's resources as all assets, capabilities, organizational processes, knowledge, information, skills, and other attributes that enable it to conceive and implement strategies that improve efficiency and effectiveness. RBV argues since organization do not have direct control over the external environment in which they operate, superior performance is possible when they possess unique resources and capabilities that competitors lack.RBT classifies organizational resources into three categories such as physical, human, and organizational resources.

Access to finance is a potentially valuable resource that helps entrepreneurs purchase inputs, manage cash flow and invest in business development. When financing is accessible and affordable, women-owned NMSEs should be better positioned to continue operations and respond to opportunities. This is represented in the first hypothesis of the study as:

H_{01}: Access to finance has no significant influence on women entrepreneurship of NMSEs in Bauchi State, Nigeria.

Perceived entrepreneurial barriers can be categorized into financial barriers, such as inadequate capital and limited access to credit; personal barriers, including insufficient entrepreneurial knowledge, skills, and fear of failure; sociocultural barriers, such as restrictive gender norms and inadequate family support; and institutional and environmental barriers, including unfavorable government policies, regulatory difficulties, poor infrastructure, and market competition (Panda, 2018). These constraints may be particularly significant for women entrepreneurs in developing economies, where gender-related challenges, limited resources, and work–family responsibilities can restrict entrepreneurial development. This is represented in the second hypothesis of the study as:

H_{02}: Perceived entrepreneurial barriers has no significant influence on women entrepreneurship of NMSEs in Bauchi State, Nigeria.

Institutional policy support can shape entrepreneurs' access to credit, training, infrastructure, markets and business-development services. An enabling policy environment is expected to facilitate women entrepreneurship while policies experienced as barriers may instead be negatively associated with the outcome. This is represented in the third hypothesis of the study as:

H_{03}: Institutional policy support has no significant influence on women entrepreneurship of NMSEs in Bauchi State, Nigeria.

Digital skills are a human capability that can help women entrepreneurs' market products, communicate with customers. It is also used in digital financial services and access to business information. These capabilities can lower transaction costs and expand market reach, supporting business continuity and development. This is represented in the fourth hypothesis of the study as:

H_{04}: Digital skills has no significant influence on women entrepreneurship of NMSEs in Bauchi State, Nigeria.

The hypotheses are represented in the following multiple-regression model.
$WES_i = \alpha + \beta_1 ACF_i + \beta_2 SS_i + \beta_3 GPC_i + \beta_4 DS_i + \varepsilon_i$
Where:
α = Intercept
B_1–β_4 = regression coefficients
ACF= Access to Finance
PEB = Perceived Entrepreneurial Barriers
IPS = Institutional Policy Support.
DGS= Digital Skill

3.0 Methodology

The target population comprised women-owned or women-managed NMSEs in Bauchi State. The study planned to obtain 400 responses using Yamane's (1967) sample-size formula. A multistage procedure selected one local government area from each senatorial zone; systematic sampling was used to identify enterprises within the selected areas, followed by purposive screening to ensure that respondents met the inclusion criteria. A total of 352 usable questionnaires were analyzed. The sampling frame was constrained by the absence of a comprehensive register of women-owned NMSEs, and only three of the state's 20 local government areas were covered.

Data were collected using a structured questionnaire with seven response categories ranging from 1 (strongly disagree) to 7 (strongly agree). The instrument covered respondent and business characteristics, the outcome measure, access to finance, Perceived Entrepreneurial Barriers, Institutional Policy Support and digital skills. The questionnaire was translated into Hausa to support comprehension.

Measurement of Variables

The study measured one dependent variable and four independent variables using a structured 7-point Likert scale questionnaire, ranging from strongly disagree (1) to strongly agree (7). The measurement items were adapted from validated instruments in previous studies to ensure reliability and validity. The dependent variable, women entrepreneurship was measured using 11 items adapted from Martinez et al. (2023). The items assessed combine business growth, community impact and income sufficiency.

For the independent variables, access to finance was measured with 8 items adapted from Martinez et al. (2023). It assesses the extent to which women entrepreneurs can obtain adequate, timely, and affordable

financial resources from formal and informal sources. Perceived Entrepreneurial Barriers was measured with 11 items adapted from Ahmetaj et al. (2023). It examines the emotional, informational, financial, and practical support received from family, friends, communities, mentors, and business networks. Institutional Policy Support was measured with 4 items, adapted from Martinez (2023), it evaluates respondents' perceptions of government policies, programmes, regulations, and institutional support that facilitates women entrepreneurship. Digital skills was measured with 6 items, adapted from Yadav et al. (2025). It assesses women's ability to utilize digital technologies, and other digital tools to improve business performance.

Pre and Post Estimate Tests

The test of linearity of the relationship between the dependent variable and the independent variables which was performed via the Normal P-P plot of the standard residual plot indicated that the assumption of linearity had been fairly met. Similarly, the shape of the residual scatter plot showed even dispersion across all variables, this indicates that the homoscedasticity assumption was fairly satisfied. At the same time, skewness and kurtosis statistics of all the variables of the study were within the benchmark of ±1.96 (skewness) and ±3.00 (kurtosis) as recommended by Hair et al. (2020). This indicates the variables are normally distributed. Finally, the result revealed that all the variables have low VIF. This implies that there is no presence of multicollinearity in the study since VIF of all variables is below 10 as Tolerance values are all less than 1 as recommended by Hair et al. (2020).

The EFA used KMO, Bartlett's test, item loadings, communalities and variance explained. Although the KMO values and Bartlett tests supported factorability, the variance explained was 66.58% for access to finance, 64.61% for the items labelled Perceived Entrepreneurial Barriers and 67.41% for Institutional Policy Support.

Table 1:
Normality Test

Variable	Skewness	Standard error	Kurtosis	Standard error
WEP	-1.46	0.130	2.16	0.259
ACF	0.017	0.130	-0.46	0.259
PEB	0.20	0.130	-0.93	0.259
IPS	-0.33	0.130	-0.18	0.259
DGS	-0.92	0.130	0.75	0.259

Source: SPSS Output, 2026.

Table 2:
Multicollinearity Test

Variables	VIF	Tolerance value
ACF	1.13	0.87
PEB	1.32	0.75
IPS	1.09	0.92
DGS	1.27	0.78

Source: SPSS Output, 2026.

4.0 Results and Discussion

The socio demographic characteristics of respondents was analyzed using age, number of dependents, marital status, educational qualification, commencement of business and nature of business. Table 1 shows the profile of the respondents. As indicated earlier, a total of 352 cases were used for the survey. As shown in the table, the majority of the respondents (36.6%) were between ages 20 and 30, and this represents the

largest in the study. Specifically, 27.3% were aged between 30 and 40, 14.2% were aged between 41 and 50, 7.4% were aged between 51 and 60 while the lowest group (2%) represents age above 60. In terms of marital status, the majority of the respondents (59.1%) were married, 28.4% were single, and 7.7% were widowed, while 4.8% were divorced.

Regarding the level of education, the largest group (38.9%) was a Diploma/NCE, 25.6% were senior secondary certificate holders, 13.6% were junior secondary certificate holders, 7.7% were Masters/ PHD, 7.4 % was primary school leavers while 6.5% had no formal education.

Table 3:
Profile of Respondents

Socio demographic	Frequency (N=352)	Percentage(100)
Age:		
Less than 20	44	12.5
20-30	129	36.6
31-40	96	27.3
41-50	50	14.2
51-60	26	7.4
Above 60	07	2.0
Number of Dependents:		
1	70	19.9
2	60	17.1
3	61	17.4
4	61	17.4
5	99	28.2
Marital Status:		
Single	100	28.4
Married	208	59.1
Divorce	17	4.8
Widow	27	7.7
Commencement of Business:		
From scratch	195	55.4
Purchased	80	22.7
Inherited	33	9.4
Joint	43	12.2
Others	01	03
Educational Qualification:		
Primary	26	7.4
Junior Secondary	48	13.6
Senior Secondary	90	25.6
Diploma/NCE	137	38.9
Masters/PhD	27	7.7
No formal education	23	6.5
Others	01	03
Nature Of Business:		
Food & Beverage	92	26.1
Fabric & Garment	47	13.4
Retail Shop	29	8.2
Beauty Shop	26	7.4
Pharmacy	11	3.1
Jewelry & Flowers	16	4.5
Poultry	53	15.1
Others	78	22.2

Age of Business:		
Less than 1	56	15.9
1-5	128	36.4
6-10	79	22.4
11-15	46	13.1
16-20	24	6.8
Above 20	19	5.4
Previous job:		
House wife	153	43.5
Public sector	69	19.6
Private sector	55	15.6
Never worked before	75	21.3
Motivation for Business:		
Dissatisfaction with previous job	42	11.9
Support from family	99	28.1
Support from government	12	3.4
Interest in Business	160	45.5
Family Business	39	11.1

Source: Field Survey, 2026.

Descriptive Statistics

Table 4 explains descriptive statistics on the individual variables of the study. It includes mean value, standard deviation, minimum value, and maximum value, for the dependent and independent variables of the study.

Table 4:
Descriptive Statistics

Variable	N	Mean	Minimum	Maximum	Stand Dev.
Women Entrepreneurship	352	5.29	1.18	7.00	1.05
Access to Finance	352	5.78	1.38	7.00	0.96
PEB	352	4.91	2.36	7.00	1.58
IPS	352	3.76	1.00	7.00	1.09
Digital skills	352	4.93	1.17	7.00	1.07

Source: SPSS Output, 2026

Correlation Analysis

Correlation analysis was carried out to ascertain the association among the variables. Table 5 shows the inter-correlation between the variables of the study. In deciding the correlation among variables of a study, the relationship between the dependent and independent variable should be above 0.3 (Pallant, 2007). However, Hair et.al, (2020) recommends that the correlation among variables should be less than 0.7. This therefore explains that all the variables of the study can be retained.

Table 5:
Correlation Analysis

Variable	WEP	ACF	PEB	IPS	DGS
WEP	1				
ACF	0.42	1			

PEB	0.51	0.33	1		
IPS	-0.13	-0.08	-0.68	1	
DGS	0.3	0.17	0.38	0.22	1

Source: SPSS Output, 2026

Reliability Analysis Of Instruments

Reliability test was carried out on the research instruments before and after data cleaning using IBM SPSS V.20; the result shows that all the variables met the requirement of Cronbach's Alpha of not below 0.7, that at least 0.7 coefficients (Hair et al. 2020). Table 6 shows the values of Women Entrepreneurship (WEP) = 0.853, Access to Finance (ACF) = 0.743, Perceived entrepreneurial barriers (PEB) = 0.720, institutional policy support (IPS) = 0.705 and Digital Skills (DGS) = 0.898 after the data cleaning.

Table 6:
Reliability Test Result (Cronbach's Alpha)

Variable	Before EFA	After EFA	
	Items Results	Items	Results
Women entrepreneurship	11 0.871	4	0.853
Access to Finance	8 0.743	4	0.743
Perceived entrepreneurial barrier	11 0.664	4	0.720
Institutional policy support	4 0.605	4	0.705
Digital skills	6 0.898	6	0.898

Source: Extracted from SPSS IBM output, 2026

Factor Analysis

Construct validity of the instrument was measured with the use of Exploratory Factor Analysis (EFA). The EFA results in this study were evaluated according to the rules of thumb given by Hairs et al. (2010). The rules of thumb provide that KMO> 0.60, Measure of Sampling Adequacy, Bartlett's Test of sphericity P<05, Anti-image correlations >.50, communalities>.50, percentage of total variance explained at least 60% and Factor Loading ±.30 to ± .40.

Table 7:
Women Entrepreneurship Factor

Factor	**Code**	**Load**	**Communal**	**Anti-image**	**Tota Vari**
To grow and employ others	WEP8	0.798	0.636	0.830	69.6
To build a successful business empire	WEP9	0.882	0.778	0.768	82.4
To make meaningful impact in my community	WEP10	0.834	0.696	0.826	92.4
To earn sufficient income to sustain myself and my family	WEP11	0.820	0.673	0.832	100.

KMO: 0.811 Total variance explained: 69.59%

Bartlett's test of sphericity: 0.00 Significance

Note 1: Load = Factor loading, communal = communality, anti-image = anti-image correlation.
2. Items WEP 1, WEP 2, WEP 3, WEP 4, WEP 5, WEP 6, and WEP 7 were deleted in analysis.

Table 8:
Access to Finance Factor

Factor	Code	Load	Communal	Anti-image	Total Variance (%)
I have enough saving to access micro loans	ACF2	0.832	0.692	0.636	56.58
I can get loan from family members to grow my business	ACF3	0.737	0.540	0.620	79.32
My source of capital is inheritance	ACF4	0.727	0.524	0.703	91.58
It is easy for me to get loans from my banks	ACF5	0.707	0.500	0.705	100.00

KMO: 0.659 Total variance explained: 66.6%

Bartlett's test of sphericity: 0.00 Significance

Note 1: Load = Factor loading, communal = communality, anti-image = anti-image correlation.
2. Items ACF 1, ACF 6, ACF 7, ACF 8 were deleted in analysis.

Table 9:
Perceived Entrepreneurial Barriers Factor

Factor	Code	Load	Communal	Anti-image	Total Variance (%)
Being a woman, i do not have equal opportunity in entrepreneurship training like the men	SST 1	0.692	0.478	0.762	54.62
Being a business woman, I face a lot of discrimination from the society	SST 2	0.666	0.444	0.769	78.83
I do not have confidence in my ability to lead and manage business	SST 3	0.813	0.660	0.654	90.16
I do not have access to information and technology to grow my business	SST 4	0.776	0.602	0.658	100.00

KMO: 0.698 Total variance explained: 64.61%

Bartlett's test of sphericity: 0.00 Significance

Note 1: Load = Factor loading, communal = communality, anti-image = anti-image correlation.
2. Items SST 5 was deleted in analysis.

Table 10:
Institutional Policy SupportFactor

Factor	Code	Load	Communal	Anti-image	Total Variance (%)
There is no subsidy from government to encourage women businesses	GPO 1	0.711	0.505	0.686	57.40
Cost of goods and services are too high	GPO 2	0.788	0.620	0.618	88.81
Legal and environmental barriers create problems for women entrepreneurs	GPO 3	0.772	0.597	0.628	100.0
KMO: 0.639		Total variance explained: 67.41%			
Bartlett's test of sphericity: 0.00 Significance					

Note 1: Load = Factor loading, communal = communality, anti-image = anti-image correlation.
2. Items GPO 4 was deleted in analysis.

Table 11:
Digital Skills Factor

Factor	Code	Load	Communal	Anti-image	Total Variance (%)
I have good knowledge of doing business on whatsapp, instagram etc.	DGS1	0.738	0.544	0.885	66.74
I market and sell my products through digital technology	DGS2	0.843	0.710	0.889	77.23
I learn new ways of doing my business through digital platforms	DGS3	0.858	0.736	0.866	85.34
I feel highly motivated with my business because of digitalization	DGS4	0.814	0.662	0.864	90.84
I belong to online platforms who are in my line of business	DGS5	0.787	0.619	0.902	95.84
Digitalization technology has increased my sales and profitability	DGS6	0.856	0.734	0.894	100.0
KMO: 0.883		Total variance explained: 66.73%			
Bartlett's test of sphericity: 0.00 Significance					

Note 1: Load = Factor loading, communal = communality, anti-image = anti-image correlation.
2. All 6 Items were retained in analysis.

Regression Result

From the table 12, F-statistics and its probability shows that the regression equation is well formulated in explaining that the relationship between the independent variables and dependent variable are statistically significant (F-statistics = 48.6; F-probability =0.000). Similarly, the R^2 (coefficient of determination) of 0.359 and adjusted R^2 of 0.352 shows that the variables combined together contributes about 36% and 35% to women entrepreneurship among NMSEs. The result suggests that the combined effect of Access to Finance, Perceived Entrepreneurial Barriers, Institutional Policy Support and Digital Skills all have

significant influence on women entrepreneurship because it has a p-value of 0.000, which is lesser than 0.05.

On the individual variable, access to finance shows a positive and significant effect, this finding is consistent with the study of Khan et al. (2022), Lestari et al. (2025), Simba et al. (2023) and others. Based on this, the study fails to accept the null hypothesis that states that access to finance has no significant effect on women entrepreneurship. Institutional Policy Support has a positive and significant influence on women entrepreneurship. This finding is consistent with the study of Abubakar et al. (2025). So, the study fails to accept the null hypothesis that Institutional Policy Support has no significance on women entrepreneurship. Similarly, digital skill has a positive and significant effect on women entrepreneurship. This is consistent with the findings of Ahmetaj et al. (2023), Folarori (2024), Aladejebi and Amao-Taiwo (2025). The null hypothesis of the study that states that digital skills has no significant influence on women entrepreneurship is rejected.

In contrast, Perceived Entrepreneurial Barriers has a negative and significant influence on women entrepreneurship. This finding is consistent with the study of Dewitt et al. (2022), Chen & Klyver (2023). Based on this, the null hypothesis of the study that states that Perceived Entrepreneurial Barriers has no significant effect on women entrepreneurship is rejected.

Table 12:
Regression Results (N=352)

Variable	Coefficient	Standard error	t-statistics	Prob. Value
Constant	1.36	0.34	3.97	0.000
ACF	0.26	0.04	5.62	0.000*
PEB	-0.400	0.05	7.28	0.000*
IPS	0.085	0.03	-2.78	0.006*
DGS	0.15	0.04	3.23	0.001*
R	0.599			
R-square	0.359			
Adjusted R- square	0.352			
F-statistics	48.6			
Sig. F. change	0.000			
Dubin-watson	1.75			

*1% significance level, **5%significance level, ***10% significance level
Source: SPSS Output, 2026

5.0 Conclusion

The overall regression result shows that the combined effect of all the factors which are access to finance, Perceived Entrepreneurial Barriers, Institutional Policy Support and digital skills all contribute to women entrepreneurship.

Access to finance has positive and significant relationship with women entrepreneurship. This means that as women's access to financial resources improves, their entrepreneurial activities also improve. The significance of this finding is based on the fact that finance is one crucial resources required for starting, operating, and expanding a business.

Perceived Entrepreneurial Barriers has negative and significant effect on women entrepreneurship. This means that entrepreneurial barriers reduces women's confidence, motivation, and willingness to take entrepreneurial risks.

Institutional Policy Support has positive and significant influence on women entrepreneurship. This finding indicates that Institutional Policy Support enhances the growth of women-owned businesses.

Lastly, the analysis of this study reveals that digital skills has a positive and significant effect on women entrepreneurship. This implies that women entrepreneurs who possess adequate digital skills are more likely to establish, manage, and grow successful businesses.

Recommendations

On the basis of the findings of this study, the following are hereby recommended:
The study proposes that improving women's access to finance, reducing Entrepreneurial Barriers, strengthening Institutional Policy Support, and enhancing digital skills will significantly improve women entrepreneurship in Bauchi state, Nigeria.

Limitations of The Study

In the course of this study, one major challenge encountered was on the research instruments. Many of the nano, micro and small entrepreneurs were bias and not consistent in completing the questionnaire, this to some extend affected outcome of the study. However, this challenge was overcome by translating the instrument into Hausa.

Secondly, the selection of only three out of twenty local government areas in Bauchi state. Although the sample was drawn from women-owned NMSEs in Bauchi state, the absence of comprehensive records of all women-owned businesses may have limited the representatives of the sample despite efforts to apply appropriate sampling techniques.

Areas for Further Studies

Researchers could extend the scope of this study to cover north eastern region or the four regions in Nigeria, because perception differ. Additional variables like entrepreneurial orientation, financial literacy, innovation capacity, business networks, infrastructure, market access, institutional quality, and cultural norms can be considered in future studies.

Future studies should combine quantitative and qualitative approaches, such as surveys, interviews, and focus group discussions, to obtain a more comprehensive understanding of the experiences and challenges faced by women entrepreneurs.

Lastly, future research should investigate whether variables such as entrepreneurial resilience, innovation capacity, financial literacy, or business experience mediate or moderate the relationship between access to finance, perceived entrepreneurial barriers, institutional support policy, digital skills, and women entrepreneurship.

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