



RELATIVE EFFECTIVENESS OF FINANCIAL INCLUSION, TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING ON WOMEN ENTREPRENEURSHIP DEVELOPMENT IN SELECTED AFRICA COUNTRIES

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ABSTRACT

The relevance of financial inclusion (FI) and technical and vocational education and training (TVET) on women's entrepreneurship development, particularly in Africa, has never been doubted. This was because, with adequate financial inclusion and essential technical and vocational education and training, the capacity of the women to get access to funds and ideas needed to grow their businesses and reshape their business skills had been enhanced. Thus, this study examined the influence of financial inclusion and technical and vocational training on women's entrepreneurship development. To investigate the objective, a panel regression analysis with a random effect test was used. A purposive sampling technique of five African countries was used for the study. With the help of an ex-post facto research design, secondary sources of data were obtained for the study. The result of the panel regression showed that the financial inclusion variable of the financial institution account holders and technical and vocational education and training were significant and positively related to women's entrepreneurship development. The study concluded that financial inclusion and technical and vocational education and training contributed positively to women's entrepreneurship development in the selected African countries.

Keywords: Financial Inclusion, Technical, Vocational, Education Training, Entrepreneurship, Women

INTRODUCTION

Entrepreneurship is a key factor in promoting economic development, especially through the growth of new start-up businesses (Fan & Zhang, 2017; Dematiadesa & Rewilak, 2019). It drives innovation, structural formation, and competition and serves as an effective tool against poverty and unemployment, particularly benefiting youths and women passionate about entrepreneurship. This has been evident in sub-Saharan African countries, where entrepreneurship has created numerous jobs. However, these regions face high unemployment rates due to a lack of access to finance for sustaining and boosting businesses (AERC, 2014). To address this,

over 55 countries have committed to financial inclusion, with more than 60 developing national strategies. Financial inclusion can empower women entrepreneurs by providing them with financial products and services, enabling them to start and grow businesses, invest in education, and contribute to economic stability (Melecky, 2013). This study aims to examine the relationship between women's entrepreneurship development and financial inclusion in selected African countries.

Specifically, it explores how women entrepreneurs can improve their financial



literacy and access external finance for business growth. The hypothesis states there is no significant relationship between women's entrepreneurship development and financial inclusion in sub-Saharan Africa. Despite numerous studies on entrepreneurship and financial inclusion, few focus on women entrepreneurs in this region and their access to necessary funds.

LITERATURE REVIEW

Concept of Entrepreneurship

Entrepreneurship contributes significantly to economic growth and development through employment creation, innovation, competition, investment opportunities, and political stability (Khan, 2013). Originating in the 17th century and studied extensively by Schumpeter in 1934, entrepreneurship is crucial for long-term economic prosperity and sustainability (Huggins, Morgan, & Williams, 2015; Korsgaard, Anderson, & Gaddefors, 2016). Historically, it has driven creativity, innovation, risk-taking, and financial rewards (Popescu, 2013). Micro, small, and medium enterprises (MSMEs) significantly contribute to global economic growth, representing over 95% of enterprises and about 60% of the private sector workforce. Promoting entrepreneurship is essential to address population growth and rising unemployment in sub-Saharan Africa.

Botswana exemplifies proactive entrepreneurship development through policies and programs voluntarily implemented, ensuring a conducive environment with good governance and macro-economic policies (CEDA, 2012; Godfrey & Jairos, 2015). The Citizen Entrepreneurial Development Agency (CEDA) plays a pivotal role across all economic sectors (Grimm et al., 2013). Ghana, with 44% of MSMEs owned by women, highlights the significant role of women entrepreneurs in socio-economic development, necessitating further support.

Overview of TVET in Africa

Technical and vocational education and training (TVET) encompasses various educational processes involving the study of technologies, practical skills, and related sciences (UNESCO & ILO, 2002). Despite its importance, sub-Saharan Africa faces a significant gender gap in TVET enrollment, primarily due to the high cost of materials, a lack of role models, and societal perceptions of TVET as inferior (Abdul & Issah, 2023).

Concepts of Financial Inclusion

Financial inclusion ensures that individuals and businesses have access to affordable and useful financial services, fostering economic activity and stability (Ozili, 2020). Defined as the availability and equality of opportunities to access financial services, financial inclusion involves quality, appropriateness, timeliness, and affordability (Ongo Nkoa & Song, 2020).

Women entrepreneurs contribute significantly to the global GDP, and empowering them is crucial for an equitable and sustainable economic recovery. MasterCard's Index of Women Entrepreneurs (MIWE) ranks countries based on the advancement of women entrepreneurs. In Africa, Botswana leads, followed by South Africa and Ghana, among others (Mariam, 2022; MasterCard, 2023). Financial inclusion theories facilitate meaningful discussions, including public good theory, financial literacy theory, and others (Ozili, 2020). This study adapts public good and financial literacy theories to explore financial inclusion.

METHODOLOGY

In this research, an ex-post facto research design was utilized to collect data from secondary sources to examine cause-and-effect relationships. The study focuses on exploring whether the development of women's entrepreneurship is influenced by financial inclusion and technical and vocational education and training (TVET). Four African countries—Nigeria, Algeria, Rwanda, Zimbabwe, and Côte d'Ivoire—were

purposefully selected based on the availability of accurate data on women's entrepreneurship, TVET, and financial inclusion. The study period spans from 2013 to 2022. Purposive sampling was chosen to include countries that have not been previously studied but have sufficient data, while countries with insufficient data were excluded. The study used the percentage of women in entrepreneurship as a proxy for women's entrepreneurship development. Financial inclusion was measured using various indicators, such as the number of financial institution account holders, internet accessibility, access to loans and other financial services, and money deposits. TVET was measured by years of technical education. To investigate the study's objectives, panel regression analysis was employed, considering the multi-country nature of the research. The functional panel regression model is expressed as follows:

$$Y = f(FI, TVET),$$

Where,

Table 1: Unit Root Result

Variables	Level		1 st Difference		Order of Integration
	PP-Stat	P-value	PP-Stat	P-value	
WEDEV	-4.93780	0.0000	-	-	I(0)
FIAH	0.96431	0.8326	-5.02702	0.0000	I(1)
IA	-0.64314	0.2601	-3.36678	0.0004	I(1)
BORR	-1.67780	0.0645	-9.78341	0.0000	I(1)
TVET	-0.00767	0.4969	-8.59162	0.0000	I(1)

Source: Researcher's Computation, 2023

Table 1 presents the results of the unit root test computed for the variables of the study. Looking at the result from the table, it might be asserted that all the variables of the study were free from the unit root problem at their first difference except women's entrepreneurship development, which was freed from the unit root at a level. The implication of this was that financial institution account holders, internet access, access to borrowing or access to loans and

Y represents Women's Entrepreneurship Development (WEDEV),

FI represents financial inclusion, and

TVET represents technical and vocational education and training.

The mathematical representation of the model is defined as

$$WEDEV = \beta_0 + \beta_1 FI + \beta_2 TVET + \mu.$$

Substituting the proxy of FI into the equation, we have

$$WEDEV = \beta_0 + \beta_1 FIAH + \beta_2 IA + \beta_3 ATLA + \beta_4 TVET + \mu,$$

Where,

β_0 represents the constant or intercept, and

β_1 to β_4 represent the regression parameters to be estimated, along with other identified variables.

The a priori expectation for this model is that β_1 , β_2 , β_3 , and β_4 are greater than zero.

RESULTS AND DISCUSSION

The result obtained for the study are presented and discussed in this section.

advances, and technical and vocational education and training were stationary at their first difference. This showed that the variables were free from the problem of unit root at the integration of order one (I). This inference was based on the fact that the p-values of the Philip-Perron computation for the variable at their first difference were less than the critical value of 5%. Moreover, it was found that women entrepreneurs were stationary at level I (0).



Table 2 Panel Results (Pooled Random Effect Test)

Dependent variable= Women Entrepreneurship Development (WEDEV)

Variable	Coefficient	Standard Error	T-calculated	P-value
C	-0.969092	1.278176	-0.758184	0.4495
FIAH	0.983082	0.267393	3.676539	0.0003
IA	4.655083	4.595770	1.012906	0.4640
BORR	0.962669	0.931964	1.032947	0.4530
TVET	0.893931	0.152464	5.863227	0.0000
OTHER TEST STATISTICS				
R-squared	0.893423		Mean dependent var	4.485125
Adjusted R-squared	0.881260		S.D. dependent var	4.006819
S.E. of regression	7.098767		Akaike info criterion	5.466528
Sum squared resid	214.895		Schwarz criterion	5.581847
Log likelihood	-31.34216		Hannan-Quinn criter.	5.513355
F-statistic	77.428828		Durbin-Watson stat	1.708009
Prob(F-statistic)	0.000000			

Source: Researcher's Computation, 2023 (E-view 10)

Table 2 presents the result of the panel regression analysis computed for the variables of the study. Looking critically at the pooled random effect result, it was found that the relationship between financial institution account holders and women's entrepreneurship development was positive and significant. This inference was premised on the fact that the regression coefficient computed for the variable FIAH of 0.98 was positive with a significant t-statistics value of 3.68. The implication of this was that a 1% increase in the number of women who had accounts with financial institutions might cause a 0.98% increase in women's entrepreneurship in African countries. The relevance of women having accounts in deposit money banks to women's entrepreneurship development could not be underestimated. This was because women were given the opportunity and better access to be able to get funds at relatively low interest for their business growth and development. With an increasing number of women having one or two accounts with financial institutions, the chance of women enjoying low-interest government loans to enhance their businesses may improve.

Also, it was discovered that there was a positive relationship between internet access and women's entrepreneurship development in Africa, but it was not significant. This assertion was based on the fact that the regression coefficient calculated for the variable IA of 4.66 was positive with an insignificant t-statistics value of 1.01. The economic relevance of this was that a 1% increase in women's access to the internet can improve women's entrepreneurship development by 1.01%. Therefore, a 1% increase in women's entrepreneurship access to loans and advances from the banks might cause a 0.96% improvement in the development of women's entrepreneurship in the selected African countries. The sign of the variable BORR was in tandem with a priori expectations; thus, borrowing might not be considered a measure of financial inclusion that contributes positively to women's entrepreneurship. The p-value of the t-statistic calculated for BORR of 0.4530 was greater than the critical value of 5%. This showed that the null hypothesis, which stated that borrowing was not significant for women's entrepreneurship development in the selected countries in Africa, was accepted.

As a result of this, the unavailability of loans and advances for women's entrepreneurship development in Africa has been the clog that has hindered Africa from growing its women's entrepreneurship base. Alawode (2020) supported the view by revealing that the capacity of women in entrepreneurship to leverage economic opportunities around them had been seriously limited by a lack of access to correct funding from formal and informal financial institutions. Akilo (2021) alluded to this by saying that over 76% of women entrepreneurs had shut down in Africa as a result of inadequate access to financial assistance from financial institutions. This discouraged many women from holding accounts with banks since having them did not guarantee financial assistance. This greatly reduced the level of financial inclusion among women in entrepreneurship in Africa. In addition, the result in the table also showed that the relationship between technical and vocational education and training and women's entrepreneurship development was positive and significant. This inference was a result of the fact that the regression coefficient obtained for the test variable of

TVET of 0.89 was positive with a significant t-statistics value of 5.86.

The economic importance of this was that a 1% increase in technical and vocational education and training for women's entrepreneurship in Africa could cause a 0.89% improvement in the development of women's entrepreneurship. The sign of the variable 'TVET' conformed to the A priori sign for the variable; hence, 'TVET' was a determinant of financial inclusion that boosted women's entrepreneurship development. The result of the information criteria showed that financial inclusion and technical and vocational education and training gave better information on women's entrepreneurship development. All deviations from the test were within the acceptable limit. The Durbin-Watson result computed for the variables of 1.708009 showed that the test items were freed from the problem of autocorrelation. As a result of this, financial inclusion and technical and vocational training exerted great influence on women's entrepreneurship development.

Table 3 Cross Section (Random Effect) Test

Variable	Nigeria	Algeria	Rwanda	Zimbabwe	Cote'devior
FAIH	0.231412 (0.05643) [4.10087]**	0.764523 (0.03467) [22.0514]**	0.675235 (0.15432) [4.37555]**	1.670892 (0.342567) [4.87756]**	0.786544 (0.04326) [18.1818]**
IA	0.054321 (0.21345) [0.254491]	0.9874512 (0.12563) [7.86002]**	0.234567 (1.45823) [0.16086]	0.056412 (0.10453) [0.53967]	1.056452 (0.34560) [3.05686]**
BORR	0.05678 (0.067453) [0.84177]	1.076545 (0.23405) [4.59964]**	0.987612 (1.675480) [0.58945]	0.038671 (0.27654) [0.13984]	0.298674 (0.03456) [8.64219]**
TVET	0.856442 (0.063260)** [13.5384]	0.023676 (0.01035) [2.28754]**	0.231678 (0.03427) [6.76037]**	0.201456 (0.02046) [9.84633]**	3.456766 (1.12678) [3.06783]**

Source: Researcher's Computation, 2023 (E-view 10)

* () standard error of the variable

*[] T-calculated

** Significant at critical level of 5% = 1.96

Table 3 presents the result of the cross-sectional test. From the table, it was found that financial institution accounting holders and technical and vocational education and

training were positive and significant for women's entrepreneurship in Nigeria, while borrower and internet access were positive but not significant for women's entrepreneurship development in Nigeria.



The implication of this was that FIAH and IA, as components of financial inclusion, affected women's entrepreneurship in Nigeria positively and significantly. The economic interpretation of this was that in Nigeria, women's entrepreneurship development might be traced to the influence of FIAH and TVET; thus, the variables were good determinants of women's entrepreneurship development. Also, in Algeria, the cross-sectional result revealed that all the variables of financial inclusion and TVET were significant and positive for women's entrepreneurship development.

More so, in Rwanda, it was noted that financial institution account holders and TVET were positive and significant for women's entrepreneurship development, while internet access and borrowing were found to be. The result of the cross-sectional random effect test obtained for Zimbabwe showed that financial institution account holders and TVET were positive and significant on women's entrepreneurship development, while IA and BORR had not significantly improved women's entrepreneurship development in the country, even though the variables were positive. This assertion was premised on the fact that the regression coefficients obtained for the variables FIAH and TVET of 1.67 and 0.20 were positive with significant t-0 statistics values of 4.88 and 9.85, respectively. The implication of this was that a 1% increase in FIAH and TVET in Zimbabwe might cause a 1.67% and 0.20% increase in women's entrepreneurship development in the country. This was similar to what was obtained in Nigeria. Thus, FIAH and TVET were good determinants for women's entrepreneurship in Zimbabwe. The result further indicated that in Cote-Devour, all the variables of financial inclusion and TVET were positive and significant for women's entrepreneurship development. This showed that the country had enhanced both financial inclusion and TVET to greatly boost women's entrepreneurship development. This result was similar to what was obtained in Algeria. Thus, the cross-sectional result showed that

the need for African countries to engage through mutual partnership might be the only way women's entrepreneurship can be developed on the continent.

CONCLUSION AND POLICY RECOMMENDATIONS

This study showed that financial inclusion boosted women's entrepreneurship development significantly. Therefore, it might be concluded that the variable of financial institution account holders as a component of financial inclusion enhanced women's entrepreneurship development. Internet access and borrowing, although positive, did not significantly contribute to women's entrepreneurship development in the selected African countries. The technical and vocational education and training were positive and could significantly improve women's entrepreneurship development in Africa. The following recommendations are made:

1. The selected African countries must continue to encourage their women to hold accounts with financial institutions to gain access to financial assistance through loans and advances. This is necessary for improvement in women's entrepreneurship development.
2. There is a need for financial institutions in Africa to make loans and advances available for women entrepreneurs to improve women's entrepreneurship development. This is the only way women in entrepreneurship can grow their businesses.
3. Government and private organizations that are well-to-do must, as a matter of urgency, make internet access available to women in entrepreneurship to increase their access to information and trends that can encourage and improve women's entrepreneurship development.
4. Technical and vocational training, although significant and positively related to women's entrepreneurship in these countries, can be improved upon by the government through the establishment of



free TVET. This will further enhance women's development in entrepreneurship.

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