

## An Empirical Assessment of Profitability of Women Entrepreneurs' Economic Activities in Rural North-Western Nigeria

Bello Malam Sa'idu<sup>1</sup> and Abdul-Razaq Rilwan Itari

Department of Economics and Development Studies, Faculty of Arts and Social Sciences, Federal University Dutse, Jigawa State, Nigeria.

### Abstract

*This paper examines the profitability level of women entrepreneurs' economic activities in North-Western Nigeria. The data used for the research is derived from questionnaire survey of 450 sample women entrepreneurs in three different locations using the multivariate regression model. Consequently, result reveals that, the major determinants of profitability of the income generating activities of women entrepreneurs are; daily turnover (TVER), which is positive and statistically significant at 1% and employment capacity (EMPc) which is positive and statistically significant at 5% level. The positive relationships that exist between these variables can be attributed to the fact that their businesses were able to generate profits which might enhance and promote economic growth. Additionally, the study found that 72% of the respondents earned, each a daily profit of about N500 or N15,000 monthly or N180,000 annually. Therefore, the paper recommends that Government and Non-Governmental Organizations should endeavor to provide soft-loans or credit schemes at a lower interest rate to enable women entrepreneurs improve their businesses. This would help to provide a large working capital for the women and thus yield more profit to them. If more profit is generated, there are higher chances of women being economically empowered, not only in their homes but in their societies as well and this will lead to more job creation.*

**Keywords:** Women, Entrepreneurs, Profitability, Economic Activities, Purposive Sampling  
**JEL Code:** L26, B54, R29

### Contribution/Originality:

This study is one of the very few studies that have investigated the determinants of profitability of women enterprises in rural North-Western Nigeria. Thus, it has contributed in terms of development discourse on profitability of rural women enterprises.

### 1.0 Introduction

There has been doubt on whether women entrepreneurs make profits in the economic activities they are engaged-in, especially in North-Western Nigeria and what is the magnitude of such profits? The economic activities they engage-in includes: tailoring, hair dressing, groundnut cake and oil, foods and local snacks, grains, cosmetics, sales of firewood, charcoal, among others (for details, see "Code of Type of Business" in Appendix II).

Womenfolk in rural communities work long hours to earn higher profit and many of their activities are not defined as "economically active employment" in national accounts but are essential to the well-

<sup>1</sup> Corresponding Author's Email and Phone Number: [bellomalamali@gmail.com](mailto:bellomalamali@gmail.com); +234 (0) 705 4952 675.

being of their households [Federal Agricultural Organization (FAO, 2017)]. They also constitute a significant proportion of the labor on their family farms – whether producing for household consumption or for enterprise or both (Chen, Vanek, Lund, Heintz, Jhabvala & Bonner, 2005). A major issue of female gender research is to understand how the women use their domestic spaces for income generation and how they accommodate such activities, in-so-far as space is very limited in the low-income settlements (Shihabuddin, 2003). It has been argued by scholars such as Rahman (1999) and Mahmud (2001) that if tenure security is achieved, then low-income female households will transform their domestic spaces for economic activities more than their male counterparts, and more than any other factors which generates profits to them. For the last two decades, a boom in the garment industries has been experienced by many Third World cities, and a major portion of the women from low-income localities have found jobs in such manufacturing activities.

It is not a new thing that more women are getting involved in businesses across the North-Western region of Nigerian. In the ancient days, women were not allowed to do business in this region, but at the present time, more women invest their meager capital into business activities, such as food and local snacks selling, tailoring, provision stores, sales of cold drinks, *fura da nono*, among many others. Rural women even go to the extent of hawking their products from place to place to get it sold and make sure it gets to the final consumer within their locality. These activities are important especially in the chain of production where goods and services produced have to reach those who desire them both in rural and urban centres.

This paper, therefore, studies the women entrepreneurs' economic activities in North-Western Nigeria and how their businesses have impact on their growth, survival and profitability. The paper has five sections, the first part is a brief introduction, and section two is the literature review, while the third section deals with the methodology, section four discusses the empirical findings and section five which is the last, concludes the paper and proffered recommendations.

## **2.0 Literature Review**

Many rural women around the world are involved in the production of produce and value-added goods traded in local markets either as farmers, wage workers or as processors or vendors along different value chains. According to Ayogu and Agu (2015), women play essential and dynamic roles in economic life, they adapt easily to change and are very creative. As agents of development in all societies women play tremendous roles through creativity and innovations both in the formal and informal sector although, highly prevalent in the informal sector.

Also, Shane (1992) describes entrepreneurship as a process that involves seven different stages which are: existence of opportunity, discovery of opportunity, decision to exploit opportunity, resource acquisition, entrepreneurial strategy, organizing process, performance. Although, Schumpeter (1934) viewed entrepreneurship as a progression of change where innovation is the most very important

function of the entrepreneur. Similarly, Khaleque (2018) wrote that conceptually, the term “entrepreneur” refers to a person who starts, organizes and manages any enterprise usually with considerable initiative and risk for profit motives whereas entrepreneurship refers to the process of designing, launching and running the business. Women entrepreneur or women entrepreneurship, therefore, simply refers to the gender dimension of ownership and managing the enterprise.

Moreover, Mohammed and Obeleagu-Nzelibe (2014) focused their work on issues of resource acquisition strategies and challenges militating against prosperity and profitability of small and medium enterprises (SMEs) in Nigeria. They used simple t-test and survey methodology through questionnaire (administered) to a stratified random sample of 250 owners and employees of SMEs in major industrial cities in Nigeria. Their result revealed that entrepreneurial skill, proper record keeping, access to financing, concessional taxation, longer-period of operation and consistent policies were found to be significant factors required for business success and profitability in Nigeria.

Furthermore, Yusuf (2017) revealed in a study that, acquisition of entrepreneurship education, implementation of technological devices and platforms, as well as globalisation improves effectiveness of SMEs resulting to higher profitability in Nigeria. It further reported that for SMEs to operate competitively, profitably and significantly contribute to the economic recovery and growth of Nigeria, they need to continuously acquire entrepreneurial education. While, Njenga and Theuri (2016) revealed that most entrepreneurs displayed limited entrepreneurial knowledge in areas such as access to financial information, operation of a business, business planning and monitoring profitability.

Also, Uzuegbunam (2016) investigated the entrepreneurial activities that would promote better societal conditions in Nsukka. A survey research using a stratified random sample of 200 respondents was adopted and descriptive and chi-square techniques were used to analyse the data. The findings revealed that female entrepreneurs are engaged in entrepreneurial activities just for monetary gains and or profit making, and the study concludes that female entrepreneurs should be recognized as partners in development and as such should be assisted financially through policy making and policy implementation.

Similarly, Makinde and Agu (2018) examined the effect of strategic entrepreneurship on performance of selected SMEs in Aba metropolis. Their study adopted the survey research design using a questionnaire, and population of the study were 231 leaders of the selected SMEs in the manufacturing, the finance, health and the food and beverages sectors. The simple linear regression technique was used to analyse data. The results revealed that strategic entrepreneurship variables have positive effects on the performance variables (profitability), and concluded that strategic entrepreneurship plays an important role in enhancing the profitability level of SMEs in Aba metropolis. Thus, they recommend that SMEs should pay critical attention to the adoption of strategic entrepreneurship due to its positive influence of performance variables such as the profits.

Furthermore, Nelson (1991) in a study of Jamaica found that women were more attracted to business which required the least capital outlay, or which were an extension of household activities, for example, small scale retail business such as dress making and garment manufacturing. Majority of women had the bitter experiences of sex bias while establishing and developing their business and 26 percent of them believed that they would be socially isolated if they exhibited the assertiveness and strength usually associated with male entrepreneurs. However, 30 percent of the women, identified advantages of being female. They could negotiate preferential treatment and solicit sympathetic cooperation from males. Hence, household responsibility played a significant role in the choice of economic activity among women. The sample respondents stated that they depended on their business to maintain their homes and support their families. Also, the need for a specialized training programme for women in small business was also by the respondents.

Access to education has a major impact on rural women's potential to access productive, income-generating opportunities and more decent work, because of their increased confidence and skills to be able to negotiate for better conditions and organize with others to do so. However, FAO (2017) points to a gender bias in education for girls. Although there is evidence of bias against girls in education, tremendous gains have been made in primary school enrolment rates for girls. When girls expand their knowledge and skills, they expand their range of employment opportunities upon leaving school. Estimates indicate that an extra year of schooling increases women's wages by 10 to 20 per cent (World Bank, 2007). Moreover, in looking to future generations and the education of rural women evidence indicates that when rural women are economically empowered, their children are more likely to attend school and less likely to engage in child labour [International Labour Organisation (ILO, 2009)]. Increased education and training for women can also increase their opportunities for migration under skilled migration schemes.

A variety of approaches, including non-formal education, technical and vocational training, agricultural extension services, workplace training, lifelong learning and training in new technologies, and literacy and numeracy training are needed to assist women in searching for better jobs (World Bank, 2007). This calls for policies that are broad and comprehensive in addressing education in terms of recognizing the value of formal and non-formal education in the context of rural areas, and making education more accessible to rural women and girls as well as men and boys. This calls for the strengthening of social protection systems that can also support women in accessing education opportunities (through accessing funds, childcare facilities, etc.) and increased investment in rural infrastructure and human resources to provide greater access for rural women.

In a study, FAO, (2017) wrote that, without access to credit, rural women often lack the capacity to deal with risk and the costs associated with innovation such as establishing or growing a rural enterprise or improving their productivity (as agricultural producers). Constraints to women's access to financial

services include policy and legal barriers as well as cultural “norms” that prevent women from keeping bank accounts or entering into contracts without their husbands or another man to record higher profits.

Moreover, women’s lack of ownership over assets that can be used as collateral to leverage loans also constraints them more than men. Women may be more disadvantaged than men in starting up enterprises, as they may be less able than men to afford long and expensive registration procedures either because of financial and/or time costs [United Nations (UN, 2009)] or because of illiteracy issues that constraint them in the process. Women are also constrained in transitioning to general finance. Approaches to address this problem have included group collateral through associations.

Recently, there has been growing interest in developing comprehensive “inclusive financial sectors” that include a diverse range of financial services to rural areas including agricultural and non-agricultural finance (World Bank, 2017). Both financial institutions and governments at national and regional levels have taken interest in increasing the access of women entrepreneurs to financial instruments, including regular banking services, debt financing and equity financing (UN, 2009). Through financial service access, women can become economically empowered through using credit, savings, and insurance to promote their own economic activities, as well as create and protect their assets, enter or strengthen their links to markets, and diversify their economic activities (World Bank, 2017).

Furthermore, Habomugisha (2005) studied families with low income in Cairo (1983 – 1984) and found that women had financial problems with their husbands. In most of the households visited, the family income only just covered basic and immediate needs, and therefore the women’s primary concern was with budgeting rather than with access to or control over household cash. Women wanted access to financial information, as this was seen to militate against excessive expenditure by husbands. They were more likely to buy a television set or a cassette recorder than a gas cooker. As a result, women were forced to join local savings schemes with friends and neighbours, so that they could buy small items for the house, such as clothes for the children, or even pay for children’s school fees. In homes where women had incomes of their own, husbands contributed little money for food and rent. Some did not contribute anything at all. Women had to do all.

In Uganda, there are contradictory views about women’s economic empowerment. Whereas the government encouraged women to get loans from banks, it did not create the right atmosphere for women to get those loans. In order to get a loan, one had to have an asset (like land or a house) to pledge as collateral. (Kenyangi, 1996). As most women do not have any asset to pledge, they find it practically impossible to get a loan without involving their husbands. As a result, men control the money women get from these projects. For a woman to obtain a loan from the bank in this way does not lead to her empowerment in any sphere of activity.

Most rural women entrepreneurs are unpaid family workers or self-employed, typically in low-paying work (ILO, 2017) as they seek to provide goods and services for both home consumption and sale in local markets or peri-urban and urban markets. Moreover, their time to engage in waged market opportunities is often limited compared to men (Fontana & Paciello, 2010).

Rural women's primary asset is their own labour, therefore one of the keys to achieving the Millennium Development Goals, particularly MDG1, is to ensure more and better rural employment – whether waged or self-employed enterprise (Fontana & Paciello, 2010). Lack of access to decent work is a major cause of poverty among rural people, and particularly rural women (ILO, 2009). Decent work involves opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families; better prospects for personal development and social integration; freedom for people to express their concerns, organize and participate in the decisions that affect their lives; and equality of opportunity and treatment for all women and men. The lack of decent work has been identified as the primary cause of poverty (ILO, 2009; UN, 2009).

While agriculture provides most of the rural employment for some 1.3 billion smallholder farmers and landless workers, employment in other areas is also needed to reduce rural poverty and to enable rural women's economic empowerment. This includes, for instance, employment in infrastructure works; rural health, education, finance, and insurance services; tourism, shops and restaurants; and rural industry. The burden of combining productive and reproductive responsibilities inevitably affects rural women's access to paid employment, often increases their stress levels and has an impact on power dynamics within households. These effects are not accounted for in conventional notions of decent work, which tend to focus only on paid employment outcomes (Fontana and Paciello, 2010). Moreover, gaps in access to education are also a key determinant for women workers' opportunities for better rural jobs (ILO, 2009).

The work of Duflo and Udry (2004) demonstrated that, when women income increase or when they have access to other resources (increased profit); more resources are allocated to children's well-being including other basic necessities of life like food, clothing and education. Similarly, Shehu (1988) observed that women who engaged in small scale businesses use the money they earn (profit) from daily sales to buy essential household items like matches, kerosene, soap, salt, maggi, onions and other food items.

The lack of knowledge of expansion is making the small-scale business women to use outmoded, insufficient, time consuming and laborious techniques yielding to low turnover. In fact, the employment generating potentials of small-scale businesses are yet to be fully explored. Ironically, small-scale business women who are supposed to contribute to the nation's economic base still remain among the poorest class of rural dwellers (Makinwa-Adebusoye, 1991). For instance, most of these women learned, their skill in processing various products and other small-scale businesses from serving

apprenticeship with relatives: mothers, co-wives, step-mothers and other female relations. Hence, a typical example is the case of Fulani women who process assorted diary and cereal foods.

### **3.0 Methodology**

#### **3.1 Pilot Study**

The instrument (questionnaire) for the study was subjected to experts' review, after the review and modifications of the questionnaire, we conducted the pilot study in two towns within the North-western Nigeria. Thus, the reliability analysis of the pilot study was very good; Cronbach's Alpha ( $\alpha$ ) = 0.61, and validity test results of the principal component analysis were high and very good.

Reliability Statistics	
Cronbach's Alpha	N of Items
.605	20

*Source: Authors' computations from SPSS Package*

Although, after the two test, there was modifications, adjustments and fine-tuning of the instruments. Lastly, the result of pilot and on the basis of conventional knowledge, we undertook the substantive study.

#### **3.2 Population and Sampling Size**

The first sampling procedure that was adopted is purposive sampling. Thus, women entrepreneurs were identified and the category is more of married women. Secondly, the selected sample was randomly drawn from three locations in the region; these locations are Kiyawa, Kafin – Hausa and Ringim. The population of the research is the women entrepreneurs' that are involve in enterprises or some economic activities in North-Western Nigeria. Two hundred (200) questionnaires were distributed to women involved in economic activities in each of the sampled area making up to six hundred (600) questionnaires. Out of which four hundred and fifty (450) were analyzed, (some were incomplete, missing, unfilled, and damaged) consisting of one hundred and fifty (150) from each location.

#### **3.3 Multivariate Regression Models**

The study employs descriptive statistics and multivariate regression analyses using the profitability model, the dependent variable is the profit of the enterprises, while the independent variables are; level of education, access to finance, turn-over of the enterprises, employment capacity and experience.

##### **3.3.1 Econometric Model Specification**

To test the profitability of the rural women businesses, the following functional relationship was a modified version of Makinde & Agu (2018) who examined the effect of strategic entrepreneurship on performance of selected SMEs. Thus, the functional relationship can be specified as:

$$PFT_C = f(EDU, dFIN, TVER, EMP_C, EXP_C) \quad \dots (1)$$

The functional relationship in equation (1) was transformed to mathematical form as specified in equation (2) below:

$$PFT_{Ci} = \alpha_0 + \alpha_1 EDU_i + \alpha_2 dFIN_i + \alpha_3 TVER_i + \alpha_4 EMP_{Ci} + \alpha_5 EXP_{Ci} \quad \dots (2)$$

Consequently, econometric model was derived in equation (3) from equation (2) which is given as;

$$PFT_{Ci} = \alpha_0 + \alpha_1 EDU_i + \alpha_2 dFIN_i + \alpha_3 TVER_i + \alpha_4 EMP_{Ci} + \alpha_5 EXP_{Ci} + e \quad \dots (3)$$

Where;  $PFT_{Ci}$  = Daily profit of the enterprises,  $EDU_i$  = Education level,  $dFIN_i$  = Access to Finance,  $TVER_i$  = Turn-over of women enterprises,  $EMP_{Ci}$  = employment generation of the rural women enterprises,  $EXP_{Ci}$  = Experience of entrepreneurs,  $e$  = Error term,  $\alpha_0$  = Constant term, and  $\alpha_1$  to  $\alpha_5$  are parameters of the model.

## 4.0 Empirical Results and Findings

We present the results and findings of this work in two sections, section A, which explains the descriptive results and section B which explains the multivariate regression results.

### 4.1 Section A: Descriptive results

#### 4.1.1 Daily profit of business

Profit is the driving force for most business enterprise to be engaged-in by people in any society. However, the profits earned daily by the rural women entrepreneurs' in the north-western region of Nigeria reveals that those who earn below N200 accounted for nearly 37%, for those earning within N201 - N500 has very close to 35%, Still again, about 7% reported that they earn between N501 – N800, and approximately 9% were earning between N801 - N1,100. However, close to 12% of them earns above N1,100 at the time of the study. This reveals that most of the rural women entrepreneurs falls under the category of N200 and below and this implies that they averagely made a profit of N6,000 monthly, which they use in the purchasing of households needs such as food (Table 4.1) below. This is in line with Shehu (1988) who reported that women entrepreneurs use their daily profit to buy essential household items.

**Table 4.1: Daily profit of women entrepreneurs' economics activities**

Option	Frequency	Percent	Valid Percent	Cumulative Percent
200 and Below	167	37.1	37.1	37.1
201 – 500	157	34.9	34.9	72.0
501 – 800	32	7.1	7.1	79.1
801 – 1100	42	9.3	9.3	88.4
1101 and Above	52	11.6	11.6	100.0
Total	450	100.0	100.0	

Source: Field Survey, 2017.

#### **4.1.2 Educational level of respondents**

Education is an important aspect in entrepreneur progression. It is believed that the higher the level of education of the entrepreneur, the better is expected of their business output which improves profits. This study categorized the level of education into non-formal, Arabic, primary, secondary and tertiary levels. Majority (38%) of the women entrepreneurs in rural north-western Nigeria only had Arabic education; this is closely followed by those who never attended any formal education. Those who attended up to either primary or secondary education accounted for 16% and about 20% respectively while tertiary (constituting of mostly NCE holders) have the least percentage of slightly above 5%. This result indicates that rural women in the region are disadvantaged in terms of formal education which could affect their business activities and this could have a negative effect to the region's economic growth and sustainability of their businesses (Table 4.2). This result agrees with Yusuf (2017) who asserted that for SMEs to operate in an efficient manner to make profits and significantly contribute to the economic growth and development of Nigeria, they need to be educated to acquire higher entrepreneurial education.

**Table 4.2: Educational level of women entrepreneurs' economics activities**

Options	Frequency	Percent	Valid Percent	Cumulative Percent
Non-Formal	96	21.3	21.3	21.3
Arabic	171	38.0	38.0	59.3
Primary	72	16.0	16.0	75.3
Secondary	88	19.6	19.6	94.9
Tertiary	23	5.1	5.1	100.0
Total	450	100.0	100.0	

*Source: Field Survey, 2017.*

#### **4.1.3 Accessibility of loans or credit facilities of business**

Loans or credit schemes availability creates an avenue for business to be enhanced and improved. Approximately 88% of the respondents do not enjoy any loan facility due to the fact that some of them are not aware of the sources of loan facilities; others lacked collateral to collect loan and absence of banking/lending services among others, while the rest of them enjoyed credit facilities to boost their business activities. Moreover, those who enjoyed the loan facilities established that it was sourced through various means such as private individuals, government intervention programmes, loan and thrift society as well as microfinance bank. This implies that most of them are not aware of loans or credit schemes. If the government or Non-Governmental Organizations (NGOs) could create awareness to these categories of entrepreneurs, there is a tendency that their enterprise profitability could be enhanced.

**Table 4.3: Accessibility of loans or credit facilities to women entrepreneurs**

Options	Frequency	Percent	Valid Percent	Cumulative Percent
No	395	87.8	87.8	87.8
Yes	55	12.2	12.2	100.0
Total	450	100.0	100.0	

*Source: Field Survey, 2017.*

The results are consistent with Njenga and Theuri (2016) who reported that most entrepreneurs displayed limited entrepreneurial knowledge in areas such as access to financial information.

#### **4.1.4 Daily turnover of business**

The study reveals that majority (60%) of the respondents earned less than N2,000 on daily basis as their turnover from the engaged economic activities, 14% of them recorded above N5,000 a day and the rest earned in-between N2,000 and N5,000. From the findings, the turnover from the rural women entrepreneurs' businesses is an indication that they are making a normal and above normal profits from their activities. Thus, Table 4.4 provides the details.

**Table 4.4: Daily turnover of women entrepreneurs' economics activities**

Options	Frequency	Percent	Valid Percent	Cumulative Percent
500 and Below	73	16.2	16.2	16.2
501 – 2000	197	43.8	43.8	60.0
2001 – 3500	59	13.1	13.1	73.1
3501 – 5000	58	12.9	12.9	86.0
5001 and Above	63	14.0	14.0	100.0
Total	450	100.0	100.0	

*Source: Field Survey, 2017.*

#### **4.1.5 Employability of the business**

The profitability level of an enterprise is expected to increase and be higher when such enterprises employ more workers. This study reveals that about 42% employed additional persons to support them in their business activities, about 58% do their business by themselves, that is they did not employ anybody to assist them in their business enterprise. This meant that majority of them do their business by themselves, this is perhaps because their enterprises are being operated in rural place of the region than urban areas. This finding is similar with Makinwa-Adebusoye (1991) who reported that, the employment generating potentials of rural small-scale businesses are yet to be fully explored.

**Table 4.5: Employability of women entrepreneurs**

Options	Frequency	Percent	Valid Percent	Cumulative Percent
No	261	58.0	58.4	58.4
Yes	186	41.3	41.6	100.0
Total	447	99.3	100.0	
Missing	3	.7		
Total	450	100.0		

*Source: Field Survey, 2017.*

Furthermore, Table 4.6 reveals that close to 59% of those who assented to employ other persons have employed a maximum of three persons. This possibly due to the nature of their enterprise, while only about 1% employs above seven persons. The rest (about 42%) employ in-between three and seven persons. Out of those employed, approximately 50% holds a permanent employment, while about 26% work on causal basis, about 19% were volunteer workers, and about 5% are attributed to other forms of employment.

**Table 4.6: Number of people employed by women entrepreneurs**

Options	Frequency	Percent	Valid Percent	Cumulative Percent
1	4	.9	2.2	2.2
2 – 3	106	23.6	57.0	59.1
4 – 5	53	11.8	28.5	87.6
6 – 7	21	4.7	11.3	98.9
8 and Above	2	.4	1.1	100.0
Total	186	41.3	100.0	
Missing	264	58.7		
Total	450	100.0		

Source: Field Survey, 2017.

#### 4.1.6 Duration of time in the business (experience)

The longer the operating time of an entrepreneur, the higher is expected of such an enterprise profitability level and vice-versa *ceteris paribus*. This survey reveals that nearly 15% of the respondents spent below one year in their business operations, about 45% have spent between two to five years, another 10% spent six to nine years, whereas close to 15% were in operation for ten to thirteen years. Also, those who spent above thirteen years were very close to 15%. It is clear here that more than 85% of the respondents were operating for more than two years in their line of business which means that, most of them have vast experience of their economic activities to record higher profits.

**Table 4.7: Experience of women entrepreneurs' economics activities**

Options	Frequency	Percent	Valid Percent	Cumulative Percent
1 and Below	66	14.7	14.7	14.7
2 – 5	202	44.9	44.9	59.6
6 – 9	46	10.2	10.2	69.8
10 – 13	67	14.9	14.9	84.7
13 and Above	69	15.3	15.3	100.0
Total	450	100.0	100.0	

Source: Field Survey, 2017.

## 4.2: Section B: Profitability regression model

**Table 4.8: Regression result of women entrepreneurs' profitability**

Dependent Variable: Profit

Variables	Coefficient	Standard Error	t	Sig.
(Constant)		420.553	-2.761	.006
EDU	.069	91.618	.999	.319
dFIN	.042	300.847	.612	.541
TVER	.355*	89.823	5.013	.000
EMP <sub>C</sub>	.139**	76.984	1.990	.048
EXP <sub>C</sub>	.033	84.689	.458	.647

R<sup>2</sup> = 0.165      F = 7.100

Source: Authors' Computation, 2017

Significant level at 1% (\*); 5% (\*\*); 10% (\*\*\*).

The analytical technique adopted to establish the profitability of rural women entrepreneurs is multiple regression analysis. The result is presented in Table 4.8 which reveals that, the R<sup>2</sup> is 0.165, implying that the model fit is low, this normally occur whenever we have more regressors as noted by Gujarati & Porter (2008). Also, the F-statistics = 7.100 which suggest 1% level of significance with probability

of 0.000, meaning that all the variables joint together are significant at 1% level. Moreover, the coefficient of independent variables were accounted for, viz; level of education ( $\alpha_1=0.069$ ), access to finance ( $\alpha_2= 0.042$ ), turn-over of women enterprises ( $\alpha_3= 0.355$ ), employment generation of the rural women businesses ( $\alpha_4= 0.139$ ), and their experience in business ( $\alpha_5= 0.033$ ). Also, the standardized parameter of constant variable is statistically significant at 1% level with probability value of 0.006 and the t-ratio is -2.761.

The coefficient of rural women entrepreneurs' level of education (EDU) is  $\alpha_1 = 0.069$  which is positively related to the dependent variable and unfortunately not significant at any level of significance. Similarly, the coefficient of access to finance (dFIN) is  $\alpha_2 = 0.042$  and directly related to the dependent variable. It implies that a unit increase in rural women entrepreneurs' access to finance on average tends to increase their profit volume by 4.2%. The standard error is 300.847 and t-ratio is 0.612. But, the statistics shows that it is statistically insignificant at any level of significance.

The coefficient of turn-over of rural women entrepreneurs' enterprises (TVER) is  $\alpha_3 = 0.355$ . This coefficient indicates a positive relationship with the dependent variable and statistically significant at 1%. This is in line with our *a priori* expectation. It implies that a unit increase in turn-over of rural women entrepreneurs' businesses on average tends to increase their profit level by 35.5%. Therefore, this suggests that rural women enterprises that have higher turn-over get more profit than those ones with lower turn-over.

The coefficient of the rural women entrepreneurs' employment generation is  $\alpha_4 = 0.139$ . It is positively related with the dependent variable and statistically significant at 5% level. This agrees with the *a priori* expectation. It suggests that a unit increases in employment generation of women entrepreneurs' businesses on average tends to increase their profit by 13.9%. Therefore, this implies that rural women enterprises that employ more efficient labour get more profit than those that employs less.

The standardized coefficient of rural women entrepreneur experience (EXPC) is directly related with the dependent variable and is  $\alpha_5 = 0.33$ . It suggests that a unit increase in experience on average tends to increase rural women entrepreneurs profit capacity by 33%. This suggests that experience rural women entrepreneur get more profit than the inexperience ones. But, this parameter is statistically not significant at any level of significance (Table 4.8).

Lastly, the variables; TVER and EMP<sub>c</sub> are significant in explaining variations in profits. The regression result shows that there is a significant role played by TVER and EMP<sub>c</sub> in determining the profits of the rural women entrepreneurs. The positive relationships that exist between these variables can be attributed to the fact that their businesses were able to generate profits in North-Western Nigeria which could enhance and promote economic growth. This finding is in agreement with that of Makinde & Agu (2018). They reported that strategic entrepreneurship variables have positive effects on performance

variables (i.e. profitability), and concluded that strategic entrepreneurship plays an important role in enhancing the profitability level of SMEs. Also, it agrees with the study of Uzuegbunam (2016) who reported that female entrepreneurs are engaged in entrepreneurial activities due to its profitability nature.

## **5.0 Conclusion and recommendations**

The paper concludes that about 42% of the rural women entrepreneurs in the survey indicated that they employ workers (Table 4.5), and this indicates their employment capacity. Also, the more women entrepreneurs are engaged in business or trading activities, the more they create employment for the youth, thus, increasing their profitability and income. Moreover, the major determinants of profitability of women entrepreneurs' economic activities are daily turnover (TVER) and employment capacity (EMPc) of the rural women enterprises.

Finally, the paper proffered the following policy recommendations: (1) Government and Non-Governmental Organizations should provide soft loans or credit packages at a lower interest rate to enable women entrepreneurs to improve in their businesses. This would help to provide a large working capital for the women and thus yield more profit to them, hence, income increases. If more income is generated, there are higher chances of women being economically empowered, not only in their homes but in their societies as well and this will lead to more job creation by them; (2) Government should provide adequate finance to women entrepreneurs' through existing policy measures and persuade relevant agencies e.g. Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), Bank of Industry, National Directorate of Employment (NDE), FADAMA III, Microfinance banks, commercial banks, etc. This will help in boosting economic activities of the women entrepreneurs'; (3) The government should also persuade international development agencies such as United States Agency for International Development (USAID), Department for International Development (DFID), to provide finances to women entrepreneurs'; (4) The economic activities engaged by women entrepreneurs', if incorporated into the computation of national incomes by policy makers at all levels, will surely boost the region's income [through Internally Generated Revenue (IGR's)] by 2.1% in particular and also increases the country's income; and (5) The government and NGOs should collaborate to provide database of existing women entrepreneurs' by region as well as create a sensitization session on income generating activities to enlighten them more. This could increase the number of women engaged in business and possibly creating jobs for others, thereby reducing unemployment rate.

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## References

- Ayogu, D. U., & Agu, E. O. (2015). Assessment of the contribution of women entrepreneur towards entrepreneurship development in Nigeria. *International Journal of Current Research and Academic Review*, 3(10), 190 – 207.
- Chen, M., Vanek, J., Lund, F., Heintz, J., Jhabvala, R., & Bonner, C. (2005). *Progress of the world's women 2005*. Geneva: United Nations Entity for Gender Equality and the Empowerment of Women (UN Women).
- Duflo, E., & Udry, C. (2004). Intra-household resource allocation in Cote d' Ivoire: Social norms, separate accounts and consumption choices. *NBER Working Paper No. 10498*. Cambridge, MA: National Bureau of Economic Research.
- FAO, Federal Agricultural Organization (2017). Women in infrastructure works: Boosting gender equality and rural development! Gender and rural employment policy brief #5. Accessed on 20<sup>th</sup> July, 2017 from <http://www.fao.org/docrep/013/i2008e/i2008e05.pdf>
- Fontana, M., & Paciello, C. (2010). Gender dimensions of rural and agricultural employment: Differential pathways out of poverty: A global perspective. In gender dimensions of agricultural and rural employment, differentiated pathways out of poverty. Rome: FAO/IFAD/ILO. Accessed on 20<sup>th</sup> July, 2017 from <http://www.fao.org/docrep/013/i1638e/i1638e.pdf>
- Gujarati, D. N. & Porter, D. C. (2008). *Basic Econometric (5<sup>th</sup> Edition)*. Irwin: McGraw Hill.
- Habomugisha, P. (2005). Economic empowerment of women in contemporary Uganda: The case of income-generating projects among women in Kireka, Kampala, Uganda in *Men and Woman between the Public and Private Spheres*. 53-80.
- ILO, International Labour Organization (2009). Gender equality at the heart of decent work, Report VI, international labour conference, 98<sup>th</sup> session. Accessed on 20<sup>th</sup> July, 2017 from [http://www.ilo.org/wcmsp5/groups/public/@ed\\_norm/@relconf/documents/meetingdocument/wcms\\_105119.pdf](http://www.ilo.org/wcmsp5/groups/public/@ed_norm/@relconf/documents/meetingdocument/wcms_105119.pdf)
- ILO, International Labour Organization (2017). Women in labor markets: Measuring progress and identifying challenges, Geneva. Accessed on 20<sup>th</sup> July, 2017 from [https://www.ilo.org/wcmsp5/groups/public/---ed\\_emp/---emp\\_elm/---trends/documents/publication/wcms\\_123835.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_elm/---trends/documents/publication/wcms_123835.pdf)
- Kenyangi, G. (1996). Constraints to women's access to agricultural credit: The case of Uganda commercial bank rural farmers' scheme'. A paper presented at the UNRISD/UNDP/CBR workshop dialogue on gender dimensions of agricultural policy, Kampala. 3 – 4 May, 1996.
- Khaleque, A. (2018). Performance of women entrepreneurs: Does access to finance really matter? *Eurasian Journal of Business and Economics*, 11(21), 23 – 48.
- Mahmud, S. (2001). The interaction between physical space and the way of life in low-income settlements: Case of Bustees and resettlement camps in Dhaka. Bilkent University, Faculty of Art, Design and Architecture. Unpublished Ph.D. Dissertation of University of Ankara.
- Makinde, O. G., & Agu, C. U. (2018). Strategic entrepreneurship and performance of small and medium scale enterprises in Aba metropolis. *Archives of Business Research*, 6(9), 49 – 69.
- Makinwa-Adebusoye, P. K. (1991). The role of women in small-scale food processing and distribution industries. In Erinosh, L. and Bello Imam, I. B. (eds.) (1991). *Perspective on small-scale food processing and distribution industries in Nigeria*. Ibadan: Vantage Publishers.
- Mohammed, U. D. & Obeleagu-Nzelibe, C. G. (2014). Entrepreneurial skills and profitability of small and medium enterprises (SMES): Resource acquisition strategies for new ventures in Nigeria. *Proceedings of 25<sup>th</sup> International Business Research Conference held on 13<sup>th</sup> – 14<sup>th</sup> January, 2014 at Taj Hotel, Cape Town, South Africa*. ISBN: 978-1-922069-42-9.
- Nelson, B. O. (1991). Meally small business opportunities for women in Jamaica, *Small Enterprise Development Management Extension*. 18 (1), 35 – 43.
- Njenga, G., & Theuri, F. (2016). The role of entrepreneurship training and education in enhancing growth of small and medium enterprises in Kenya: A case study of Mombasa country. *Journal of Humanities and Social Science*, 21, 97 – 106.
- Rahman, M. M. (1999). Squatters and housing rights. The daily star, Dhaka, 24 September, p.7.
- Schumpeter, J. (1934). *The theory of economic development*. Cambridge: Harvard University.
- Shane, S. (1992). Why do some societies invent more than others? *Journal of Business Venturing*, 5, 327 – 340.

- Shehu, D. J. (1988). Women in small-scale food processing and distribution. The case of Sokoto state. Social Science Council of Nigeria (SSCN), final report, Mimeograph.
- Shihabuddin, M. (2003). Women and the transformation of domestic spaces for income generation in Dhaka Bustees. *Cities*, 20(5), 321 – 329.
- UN, United Nations (2009). World survey on the role of women in development. Women's control over economic resources and access to financial resources including microfinance. Department of economic and social affairs, division for advancement of women. ST/ESA/326, Geneva: United Nations.
- Uzuegbunam, A. O. (2016). The relevance of female entrepreneurs in rural development of Nigeria: A study of selected rural communities in Nsukka (1999 – 2014). *International Journal of Gender and Women's Studies*, 4(1), 61 – 73.
- World Bank (2007). *Global monitoring report 2007: Millennium development goals: Confronting the challenges of gender equality and fragile states*. Washington, DC: The World Bank.
- World Bank (2017). *Gender in agriculture sourcebook (agriculture and rural development series)*. Washington, DC: The World Bank.
- Yusuf, E. (2017). Influence of entrepreneurship education, technology and globalization on performance of SMEs in Nigeria. *African Journal of Business Management*, 15(11), 367 – 374.

## APPENDIXES

### APPENDIX I: QUESTIONNAIRE



FEDERAL UNIVERSITY DUTSE  
FACULTY OF ARTS & SOCIAL SCIENCES  
DEPARTMENT OF ECONOMICS & DEVELOPMENT STUDIES

### QUESTIONNAIRE

**Instruction:** Please select the best option that corresponds to you by ticking (✓).

**Questionnaire Identification:**

Local Government Area \_\_\_\_\_

Business Location/Address: \_\_\_\_\_

Business Type: \_\_\_\_\_

Questionnaire Number \_\_\_\_\_

Result of the Interview:

1. Completed ☐
2. Not Completed ☐

#### Section A: Socio-Economic Characteristics of Respondent

S/N	Question	Filters	Skip to
1	Marital Status	1. Married <input type="checkbox"/> 2. Divorced <input type="checkbox"/> 3. Widow <input type="checkbox"/>	
2	Age	.....	
3	Number of Children	1. No Child <input type="checkbox"/> 2. 1-3 Child/Children <input type="checkbox"/> 3. 4-6 Children <input type="checkbox"/> 4. 7-9 Children <input type="checkbox"/> 5. 10 Above and Children <input type="checkbox"/>	
4	Education	1. Non-Formal <input type="checkbox"/> 2. Arabic <input type="checkbox"/> 3. Primary <input type="checkbox"/> 4. Secondary <input type="checkbox"/> 5. Tertiary <input type="checkbox"/>	
5	Occupation	1. Civil Servant <input type="checkbox"/> 2. Private Sector Employee <input type="checkbox"/> 3. Business/Trading <input type="checkbox"/> 4. Student <input type="checkbox"/> 5. Others (Specify _____) <input type="checkbox"/>	

#### Section B: Income Generation

S/N	Question	Filters	Skip to
6	Do you engage in any form of business activity?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	
7	If yes, what kind of business are you engaged in?	Check Code on Page 5:.....	
8	On average, how much income do you earn from your business?	1. Daily: ₦..... 2. Weekly: ₦..... 3. Monthly: ₦.....	
9	How long have you been in this line of business?	.....	
10	How do you improve your sales?	1. Improve quality of product <input type="checkbox"/> 2. Reduced price <input type="checkbox"/> 3. Market promotion/advertise <input type="checkbox"/> 4. Others (Specify _____) <input type="checkbox"/>	
11	Have you ever enjoyed any government support in your business?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	If no, skip to 13
12	If yes, specify	.....	

13	Do you need any support?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	If no, skip to 17
14	If yes, from where?	1. Government Intervention <input type="checkbox"/> 2. Non-Governmental Organizations <input type="checkbox"/> 3. Others (Specify _____) <input type="checkbox"/>	
15	What form of support do you need from government to boost your profit?	1. Finance <input type="checkbox"/> 2. Accommodation <input type="checkbox"/> 3. Accessible roads <input type="checkbox"/> 4. Security <input type="checkbox"/> 5. Skills Acquisition Programme <input type="checkbox"/> 6. Others (Specify _____) <input type="checkbox"/>	
16	What form of support may you require from Non-Governmental Organizations (NGOs) if any, that will assist in increasing your capital?	1. Skills Acquisition Initiative <input type="checkbox"/> 2. Market Information <input type="checkbox"/> 3. Hygiene <input type="checkbox"/> 4. Self-help Group Initiative <input type="checkbox"/> 5. Others (Specify _____) <input type="checkbox"/>	

### Section C: Finance

S/N	Question	Filters	Skip to
17	What amount was your initial capital?	₦.....	
18	What was the source of your initial capital?	1. Family <input type="checkbox"/> 2. Friends <input type="checkbox"/> 3. Personal Savings <input type="checkbox"/> 4. Banks <input type="checkbox"/> 5. Cooperative Societies <input type="checkbox"/> 6. Philanthropists <input type="checkbox"/> 7. Government Intervention Programmes <input type="checkbox"/> 8. NGOs <input type="checkbox"/> 9. Others (Specify _____) <input type="checkbox"/>	
19	What is the amount of the present capital you have?	₦.....	
20	Are you enjoying any loan/credit facility?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	If yes, skip to 24 If no, skip to 23
21	If yes, how much?	₦.....	
22	And, from what source(s)?	1. Commercial Bank <input type="checkbox"/> 2. Micro Finance Bank <input type="checkbox"/> 3. Loan and Thrift Society <input type="checkbox"/> 4. Private individual <input type="checkbox"/> 5. Government Intervention Programmes <input type="checkbox"/> 6. Others (Specify _____) <input type="checkbox"/>	
23	If No, what are the constraints?	1. Insufficient collateral <input type="checkbox"/> 2. Insufficient awareness <input type="checkbox"/> 3. Absence of banking/lending services in my area <input type="checkbox"/> 4. High interest rate <input type="checkbox"/> 5. Not familiar <input type="checkbox"/> 6. Others (specify _____) <input type="checkbox"/>	
24	Do you keep records of your business transactions?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	If yes, skip to 27 If no, skip to 26
25	If yes, what type of records?	1. Proper book-keeping <input type="checkbox"/> 2. Sales/purchases receipts <input type="checkbox"/> 3. Single book records <input type="checkbox"/> 4. Others (Specify _____) <input type="checkbox"/>	
26	If no, why?	1. Business too small to keep records <input type="checkbox"/> 2. No skills <input type="checkbox"/> 3. Insufficient awareness <input type="checkbox"/> 4. Others (Specify _____) <input type="checkbox"/>	
27	What is the daily profit of your business?	₦.....	
28	What is the daily turnover of your business?	₦.....	

#### Section D: Employment

S/N	Question	Filters	Skip to
29	Based on question 6 above, what attracted you to venture into this line of business?	1. Profitability <input type="checkbox"/> 2. Family/inherited business <input type="checkbox"/> 3. Friends/associates <input type="checkbox"/> 4. Special skills <input type="checkbox"/> 5. Means of livelihood <input type="checkbox"/> 6. Others (Specify _____) <input type="checkbox"/>	
30	Do you employ people to help you in your business?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	If no, skip to 35
31	If yes, how many people do you employ?	.....	
32	Under what arrangement?	1. Permanent <input type="checkbox"/> 2. Casual <input type="checkbox"/> 3. Volunteer <input type="checkbox"/> 4. Other (Specify _____) <input type="checkbox"/>	
33	Are your workers sufficient for your business operation?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	If yes, skip to 35
34	If no, how many additional workers would you need?	.....	
35	Do you have any business expansion plans?	3. Yes <input type="checkbox"/> 4. No <input type="checkbox"/>	
36	If yes, what are your business expansion plans?	1. Open more outlets <input type="checkbox"/> 2. Employ more workers <input type="checkbox"/> 3. Raise more capital <input type="checkbox"/> 4. Modernize the business <input type="checkbox"/> 5. Others (Specify _____) <input type="checkbox"/>	
37	What problem, if any, do you face with your workers?	1. Insufficient Knowledge on business skills <input type="checkbox"/> 2. Truancy <input type="checkbox"/> 3. Distrust <input type="checkbox"/> 4. Greediness <input type="checkbox"/> 5. Others (Specify _____) <input type="checkbox"/>	

#### Section E: Productivity

S/N	Question	Filters	Skip to
38	How do you rate your labour productivity?	1. Very High <input type="checkbox"/> 2. High <input type="checkbox"/> 3. Medium <input type="checkbox"/> 4. Low <input type="checkbox"/> 5. Very low <input type="checkbox"/>	
39	How do you rate your material productivity?	1. Very High <input type="checkbox"/> 2. High <input type="checkbox"/> 3. Medium <input type="checkbox"/> 4. Low <input type="checkbox"/> 5. Very low <input type="checkbox"/>	
40	How do you rate your overall business productivity?	1. Very High <input type="checkbox"/> 2. High <input type="checkbox"/> 3. Medium <input type="checkbox"/> 4. Low <input type="checkbox"/> 5. Very low <input type="checkbox"/>	

#### Section F: Challenges

S/N	Question	Filters	Skip to
41	What are the major problems/challenges facing your business?	1. Competition <input type="checkbox"/> 2. Inadequate capital <input type="checkbox"/> 3. Increasing prices of inputs <input type="checkbox"/> 4. Accommodation <input type="checkbox"/> 5. Transportation costs <input type="checkbox"/> 6. Others (Specify _____) <input type="checkbox"/>	
42	How can these problems be tackled?	.....	
43	Have you ever faced any form of harassment/threat?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	If no, skip to 45

44	If yes, from who?	1. Government Agencies <input type="checkbox"/> 2. Customers <input type="checkbox"/> 3. Thugs <input type="checkbox"/> 4. Competitors <input type="checkbox"/> 5. Others (Specify _____) <input type="checkbox"/>	
45	Are you been restricted to operate your business/work by your husband/family?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	
46	Do your customers collect credit from you?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	If no, skip 47 and 48
47	If yes, how often?	1. Frequently <input type="checkbox"/> 2. Partially <input type="checkbox"/> 3. Not Frequently <input type="checkbox"/>	
48	How do your customers repay your credit?	1. Full payment <input type="checkbox"/> 2. Partial payment <input type="checkbox"/> 3. Default <input type="checkbox"/>	

**Note:** Gender has not been taking into consideration since we are dealing with female respondents

\*\*\* Thank you for answering all the questions been asked. \*\*\*

**FOR OFFICIAL USE ONLY**

Administered by \_\_\_\_\_  
Field Assistant's (Name, Signature & Date)

Checked by \_\_\_\_\_  
Supervisor's (Name, Signature & Date)

Coded and Cleaned by \_\_\_\_\_  
Coder's (Name, Signature & Date)

**Appendix II: Code to Types of Business**

S/N	Types of Business	Code
1.	Tailoring	01
2.	Local Hair Making/Henna/Perfumes	02
3.	Saloon Hair Making	03
4.	Poultry and Eggs	04
5.	Livestock	05
6.	Fishery	06
7.	Fruits	07
8.	Vegetables	08
9.	Fresh Pepper and Tomatoes	09
10.	Dried Pepper and Tomatoes	10
11.	Sweat Pepper	11
12.	Provision Store	12
13.	Cool Drinks (Pure Water, Roselle, Soya Drink, Ginger Drinks, Traditional Herbs, etc)	13
14.	Foods and Local Snacks	14
15.	Groundnut Cake and Oil	15
16.	Grains	16
17.	Recharge Cards	17
18.	Water Vendors Business	18
19.	Tri-cycle/Motorcycle	19
20.	Clothing Materials/Children Wears	20
21.	Cosmetic	21
22.	Sales of Used Clothes	22
23.	Fura da Nono	23
24.	Kerosene	24
25.	Sales of Firewood	25
26.	Sales of Charcoal	26
27.	Others (Specify.....)	27

### Appendix III: Regression

[DataSet1] C:\Users\HP\Desktop\Research File\Substantive Work Updated1.sav

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.406 <sup>a</sup>	.165	.142	1487.474	.165	7.100	5	180	.000

a. Predictors: (Constant), EXP<sub>C</sub>, dFIN, EDU, EMP<sub>C</sub>, TVER

**ANOVA<sup>b</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7.854E7	5	1.571E7	7.100	.000 <sup>a</sup>
	Residual	3.983E8	180	2212579.704		
	Total	4.768E8	185			

a. Predictors: (Constant), EXP<sub>C</sub>, dFIN, EDU, EMP<sub>C</sub>, TVER

b. Dependent Variable: PFT<sub>C</sub>

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1161.146	420.553		-2.761	.006
	EDU	91.519	91.618	.069	.999	.319
	Dfin	184.185	300.847	.042	.612	.541
	TVER	450.275	89.823	.355	5.013	.000
	EMP <sub>C</sub>	153.206	76.984	.139	1.990	.048
	EXP <sub>C</sub>	38.823	84.689	.033	.458	.647

a. Dependent Variable: PFT<sub>C</sub>