



# **HOW DO MEDIUM SCALE ENTERPRISES (ME) DIFFER FROM OTHER SMALL-SCALE ENTERPRISES (SE) IN TERMS OF THEIR PROFITABILITY AND SALES GROWTH? A LOGISTIC REGRESSION APPROACH**

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## **ABSTRACT**

This study investigates how Medium Scale Enterprises (MEs) differ from other Small-Scale Enterprises (SEs) in terms of their profitability and sales growth. To achieving the objective, data were gathered via stratified sampling technique using questionnaire from 375 SEs and MEs in North-Western Nigeria. The study employed logistic regression analysis and reveals a tendency that the profitability increases of MEs to be higher than that of other SEs. Additionally, the odd ration of the profitability growth of the MEs doubles that of other SEs. While, the result of the odds ratio and the coefficient of the sales increase hear, are statistically insignificant in explaining the differences between the MEs and SMEs. Similarly, one of the control variables utilized in this research such as age of the firm, SMEs that has more years of the establishment have more likely to get an increase in their profitability growth than other SEs. On the other hand, other control variables in the study such as business ownership and gender display insignificant in explaining the differences in terms of being MEs or other SEs. The study is developed on the idea of previous study which examines the influence of microfinance service and SMEs factors on the performance of SMEs. The study concludes by providing recommendation and suggestion for future research.

**Keywords:** Logistic regression, Profitability, SMEs



## **1. INTRODUCTION**

Small and Medium Enterprises (SMEs) sector is described as one of the sectors that have been contributing to the development of many countries. The Organization for Economic Co-operation and Development (OECD), in 2017 described SMEs as the driving force for inclusive and prosperous societies. Alexander *et al.* (2010) asserted that SMEs contribute significantly to the innovative developments towards the economic growth of most developed and emerging nations. Etuk, Etuk, and Michael (2014) and Muriithi (2017) also approved that well achieved SMEs will establish wealth and provide merit of employment and source of income. SMEs were able to enhance the creation of employment in various developing and developed economies (Ayyagari, Demirguc-Kunt, & Maksimovic, 2011; Etuk *et al.*, 2014). According to a report by Abor and Quartey (2010), 85 percent of SMEs employment in Ghana are in the manufacturing sector and 70 percent of the activities contributed to the Gross Domestic Product (GDP).

According to the reports of the Small and Medium Enterprise Development Agency of Nigeria (SMEDAN) and the National Bureau of Statistics (NBS) survey (2012), SMEs are the primary employment provider in Nigeria and have significantly affected the GDP. Overall, the SMEs sector has contributed about 61 percent to the South Africa employment and an estimated 57 percent to the GDP for more than a decade (Abor & Quarter, 2010).

There are no collective criteria on definitions and classifications of SMEs throughout the world, but most commonly used are the number of employees, business turnover, and capital investment (Abe, Troilo, & Batsaikhan, 2015). The classification by size is the best way as this offers a real-world grouping of SMEs (SMEDAN, 2012). The characteristics of the categories of SMEs in Nigeria embrace the classification based on employment and assets, excluding land and buildings (SMEDAN, 2012). It is depicted in Table 1.



**Table 1.**  
**Categories of Enterprise in Nigeria**

<b>Size of the Enterprise</b>	<b>Number of Employees</b>	<b>Assets in (Million) Naira</b>
Micro Enterprise	Less than 10	Less than 5
Small Enterprise	10 - 49	5 - less than 50
Medium Enterprise	50 - 199	50 - less than 500

Source: Small and Medium Enterprise Development Agency of Nigeria and National Bureau of Statistics (2012).

## **2. LITERATURE REVIEW**

Many SMEs in developing nations like Nigeria do not specifically adopt a suitable business motive according to their nature of business and other factors that influences their businesses. The most important aspect of every business firm is to get profit. However, a business could generate more sales than profit depending on the influential factors. Therefore, concentrating on a motive (sales or profitability) that is not suitable for a particular business would affect the business. Hence, a careful selection of appropriate business motive is needed since the sizes (MEs & SEs) are different. Therefore, a comprehensive empirical study will help in achieving this goal for the reason that to the best of the researcher's knowledge, there is relatively shortage of empirical study that capture this important area in a developing economy like the study area.

Most of the studies concentrates on microfinance service and other SME factors that influence the performance of SMEs based on profit, sales or other performance measurement.

### **SMEs Performance (Sales and Profitability Growth)**

Previous studies have measured SME's performance based on the changes in their firms' profit (Tundui and Tundui, 2013), profitability and sales growth (Keh, Nguyen, and Ng, 2007). Other studies have measured SMEs performance in terms of gross profit and annual sales growth (Akpan & Nneji, 2015) sales revenues (Fauster, 2015), increase in profit, sales, and capital (Mohammed, 2014) and sales growth (Babajide, 2012). Also, SMEs performance is measured in terms of their level of productivity (McKenzie & Woodruff, 2013) and (output) product (Nwosa & Oseni, 2013). Gerba and Viswanadham (2016) supported the previous study by outlining



the measurement of SMEs performance based on sales and profitability growth, size of employment and return on investment.

A study by Stam, Arzlanian, and Elfring (2013) reveals that the critical aspect of firm performance is to be able to identify the financial performance measures of a firm. The financial performance shows the success of the economic objective of the organization, which will affect the organization's general operational efficiency. Meanwhile, Gill and Biger (2012) used average sales per annum as the performance measurement of SMEs.

Therefore, based on the ideas of the previous studies which gave more emphasis on profitability and sales growth, concerning SMEs performance, this study employed sales and profitability growth as the measurement of SMEs performance. The study is essential considering the difficulty SMEs faced in Nigeria in terms of their performance. As discussed in chapter two, most of the previous programs established by the Nigerian government in trying to boost the performance of SMEs are not making a significant impact and yet the population is growing every year which tends to create an unemployed environment thus, increasing the probability of high rate of crime.

Aliyu, Yusof, and Naiimi (2017) reported that SMEs in Nigeria and the prospective entrepreneurs continue to find themselves in a level of financial exclusion, which has a direct effect on the overall GDP. They stated that MFIs have the potentials to make a positive impact on the economic growth of Nigeria by providing adequate finance to the real productive (SMEs) sector. Hence, useful research of this nature which explores the impact of microfinance services coupled with the SMEs internal factors that also influenced their performance, is necessary and would play a tremendous role to both the policymakers (government), MFIs, SMEs and other stakeholders involved.

### **Microfinance Savings**

It has been revealed that the critical basis of start-up capital is largely possessed from personal savings as a result of the difficulties observed in seeking a loan in microfinance and other financial institutions (Koko, 2014). In most of the developing nations microfinance bank's memorandum of engagement indicates that any firm or SMEs wishes to apply for a loan or credit from the bank should operate an active deposit account with the bank, as one of the criteria for acquiring a loan. The aim of this deposit is to guaranty the repayment of a loan that SMEs received from the banks



as tangible collateral in most instances is not required from SMEs before the process of the loan. Savings also encourages the low-income earners or the entrepreneurs to have the habit of saving for future investment as stipulated in the regulatory and supervisory framework for microfinance in Nigeria by the CBN (2005).

Sanyang and Huang (2008) examined how women's entrepreneurs are supported and empowered by the microfinance strategy based on the implementation of policy approaches in the rural Gambia. They reported that informal microfinance provides a loan based on periodic small savings by each member of a group to guarantee their repayment. The study did not employ the means of statistical (methodological) analysis. They focused on outlining the practical issues of women SMEs in the Gambia. These studies have concentrated on the savings of microfinance and other facility such as microfinance training.

### **Microfinance Training**

Training is an essential factor in the development and performance of SMEs (e.g., Ayopo & Ibidunni, 2015; Kalui & Omwansa, 2015). Ayopo and Ibidunni (2015) examined the impact of marketing of nonfinancial services of microfinance services on the performance of SMEs. Using the method of survey in-depth interview and a sample of 502 SMEs, the results of the multiple regression analysis revealed that there is a positive impact between the non-financial services (training, weekly meetings and pre-loan training) of microfinance and the SMEs performance. This result is supported by Kalui & Omwansa (2015) which found a significant positive influence of training on SMEs financial performance.

### **Number of Employees**

Previous studies have examined a varied characteristic that relates to employees or employment on the performance or growth of a firm, either direct or indirect relationship. Crook, Todd, Combs, Woehr, and Ketchen (2011) employed 66 studies of human capital concerning firm performance and used three moderators suggested by Resource-Based Theory (RBT). They found that human capital is strongly associated with firm performance specially when operational performance that is not subject to profit appropriation is used.

Furthermore, Takeuchi *et al.* (2007) examined the mediating effect between the performance of Japanese firms and the high-performance work systems among employees and found that high-performance work systems create high level of collective human capital and stimulate a high extent of social exchange within a firm



and are positively associated to the firm’s general performance. While Lööf and Heshmati (2008) stated that an increase in the growth of a firm leads to growth in the number of employees. Kaen and Baumann (2003) Investigate the relationship between profitability and size (number of employees). They discovered that out of the 64 sampled firms about 32 observed increased profit at a decreasing rate, and profit declined as the firm grow. They also established that there is no correlation between the number of employees (size) and the profitability in terms of the remaining half of the sampled firms. However, they found that given a level of total assets and sales, firms with a fewer number of employees display a significant increase in profitability growth. This could mean that the level of SME size in terms of a number of employees, could lead to more profitability growth at their level, than the rate at which they grow towards becoming large firm.

Therefore, to the best of the researcher’s knowledge there is paucity or no study that try to establish a relationship between the profitability and sales growth of MEs and other SEs to determine how MEs differ from SEs in terms of their sales and profitability. The motive of this study is to establish a framework and guidelines for both SME owners as well as prospective SME owners on how to select a better business motive (either profitability or sales motive).

### 3. METHODOLOGY

A business enterprise may decide to be either Medium-scale Enterprise (ME) or other Small-scale enterprise (SE). The logit regression model was used in this study to achieve objective four of this research, which is to analyse the differences between the ME and other SE in terms of their profitability and sales growth in North-Western Nigeria. It takes a binary number that is 0 and 1. Therefore, to achieve this objective, the following logit model is expressed as:

$$P = E \left( Y = \frac{1}{X_i} \right) \frac{1}{1 + e^{-(\beta_1 + \beta_2 X_i)}} \dots \dots \dots (1)$$

Equation (1) can also be expressed in equation (4.25) if  $Z = \beta_1 + \beta_2 X_i$

$$P_i = 1 \frac{1}{1 + e^{-Z}} = \frac{e^Z}{1 + e^Z} \dots \dots \dots (2)$$



As such if “P” represents the probability of being ME then the probability of being other SEs can be expressed as:

$$1 = P_i \frac{1}{1 + e^{-Z_i}} \dots \dots \dots (3)$$

The odd ratio between the probability of being ME and other SEs is expressed as:

$$\frac{P_i}{1 - P_i} = \frac{1 - e^{Z_i}}{1 + e^{Z_i}} = e^{Z_i} \dots \dots \dots (4)$$

Where:  $\frac{P_i}{1 - P_i}$  represents the odd ratio of MEs. In other words, it is the ratio of the probability of an enterprise to be ME to the probability of being other SEs. Taking the natural log of Equation (4) the following equation can be writing as:

$$L_i = \ln\left(\frac{P_i}{1 - P_i}\right) = Z = \beta_1 + \beta_2 X_i \dots \dots \dots (5)$$

Where:  $L_i$  is the log of odds ratios. Equation (5) is known to be the logit model that is used if the dependent variable takes the binary value as: 0, 1 as in the case of dependent variables of this objective that is the SEs which takes 0 and MEs takes 1.

The empirical logit model estimated in this study is expressed as:

$$\ln\left(\frac{P_i}{1 - P_i}\right) = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \dots \dots + \alpha_n X_n \dots \dots \dots (6)$$

Which is transformed as:

$$\ln\left(\frac{P_i}{1 - P_i}\right) = \alpha_0 + \alpha_1 PFT + \alpha_2 SLS + \alpha_3 FAG + \alpha_3 NOW + \alpha_3 GND \dots \dots \dots (7)$$

Where:

$P_i$  is the probability that business enterprises being ME

$\frac{P_i}{1 - P_i}$  is the odd ratio of business being other SEs

$\alpha$ 's are the coefficients (parameters) of the model to be estimated

while the variables to be estimated consists of the following:

PFT is the Profitability Increase



SLS Represent the Sales Increase

FAG represent the Firm Ages

BOW is the Business Ownership

GND Represent Gender.

### **Population of the Study**

The study considers the SMEs located within North-Western Nigeria. The SMEs in the North-Western part of Nigeria is 16, 043 (SMEDAN, & NBS, 2012). This happens to be the total number of population of SMEs in the zone. Therefore, the number of SMEs (population) in the North-Western zone consists of seven States. It is shown in Table 2.

**Table 2**  
**The population of the study**

<b>S/N</b>	<b>States in North-West Nigeria</b>	<b>Population</b>
1	Jigawa	1,097
2	Kaduna	2,882
3	Kano	8,286
4	Katsina	1,355
5	Kebbi	989
6	Sokoto	841
7	Zamfara	593
<b>Total</b>		<b>16,043</b>

SMEDAN and NBS Survey (2012).

Table 2 shows the number of States in the North-Western zone in Nigeria with the total number of SMEs in each State. It is indicated in the Table that there are differences among the States in terms of the number of SMEs, the population of the state, economic transaction, and the standard of the market in relation to the location of each State.

### **Sample Size**

In making a good representative of a given population, this study employs the methods and calculation in line with the formula given by Dillman (2007) as a tool for the determination of good representative of sample size based on the given population. It is given as:





$$S = \frac{NP(1 - P)}{\left(\frac{B}{C}\right)^2 (N - 1) + P(1 - P)}$$

here:

S = Sample Size

N = Population Size

P = Population proportion (assumed to be 0.5)

B = The degree of expected accuracy (0.05)

C = The value of Z statistic (1.96)

substitute the formula to get the sample size

$$S = \frac{16043(0.5)(1 - 0.5)}{\left(\frac{0.05}{1.96}\right)^2 (16043 - 1) + 0.5(1 - 0.5)}$$

$$S = \frac{8,021.5(0.5)}{(0.0255)^2(16042) + 0.5(0.5)}$$

$$S = \frac{4010.75}{0.00065 (1,6042) + 0.25}$$

$$S = \frac{4010.75}{10.43 + 0.25}$$

$$S = \frac{4010.75}{10.68}$$

$$S = \mathbf{375}$$

The sample size of this study is (375) following the determination of the sample size indicated in the Table by Dillman (2007) as well as the Table of Krejcie and Morgan (1970).

#### 4. RESULTS AND DISCUSSION

The result of the study includes descriptive statistics in this study represent the frequency distribution of the study variables and their related items. It presents the frequency distribution of the non-Likert scale and dichotomous independent variables and their related items. The variables here include microfinance savings, training received or otherwise and types of training. Table 3. present the frequency distribution of the variables and their related items. Other results discussed are Pearson's correlation coefficients and the post estimation test of the regression analysis, which include link-test and range fulfilment test. The section ends with the logistic regression analysis and the Robust logistic regression analysis regression. The accounts for the results are presented in the subsequent sub-sections.

**Table 3**

**Frequency Distribution of Independent Variables on items relating to Savings and Training**

Variable	Frequency	Percent (%)	Cumulative Percent (%)
<b>Savings</b>			
Zero (0)	78	20.80	20.80
Below N20,000	92	24.53	45.33
N21,000 – N30,000s	116	30.93	76.27
N31,000 – N40,000	62	16.53	92.80
Above N40,000	27	7.20	100.00
<i>Training related item</i>			
<b>Training received or otherwise</b>			
Yes	321	85.60	100.00
No	54	14.40	13.87
<b>Training received</b>			
Leadership	6	1.60	1.60
Motivation	21	5.60	7.20
Management of Resources	260	69.33	76.53
Technical	34	9.07	85.60
Never received training	54	14.40	100.00

Source: Authors' analysis (2021)

Based on savings in Table 3. it shows that those SMEs that save within the range of 21,000 to 30,000 Naira have the highest percentage at about 31 percent, indicating that SMEs in North-Western Nigeria is not saving a considerable amount. It might



be a result of their level of profitability or sales growth which is below expectations. As such, they have to settle their expenses that include the payment of salaries and allowances of their employees and other general expenses. As indicated in the Table, SMEs that save below 20,000 Naira have 24.53 percent which indicated the direction of the low level of SMEs savings in the study area, followed by about 21 percent which is the SMEs that do not save any amount in their respective banks. This shows that such SMEs in the area do not relatively emerge huge profit and maybe such SMEs that are young (newly established SMEs). While SMEs that save within the range of 31,000 to 40,000 have 16.53 percent and SMEs that save above 40,000 are represented by only 7 percent. In general, the level of savings of SMEs in their banks depends on some factors that may include their profitability and sales growth, which also affect the level of services offered to them by MFIs.

Furthermore, the number of SMEs that received training (Yes) is approximately 86 percentage, and the SME that does not (No) receive training services in the study area is about 14 percent. The training services offered by microfinance to the SMEs in the study are dominated by the utilization of the loan received (management of resources) from their respective MFBs. Table 3. indicated that microfinance who provided a loan to SMEs focused on training SMEs on how to utilize such loans productively. For instance, training on the management of resources has about 69 percent, while training on the technical issue has about 9 percent, and training on motivation is 5.6 percent. However, training on leadership is insignificantly 1.6 percent. The SMEs that did not receive training of microfinance in the study area is about 14 percent.

Moreover, this section shows the frequency distribution of the dependent variables and their related items. The dependent variables consist of profitability and sales growth. While their related Items include the perception of the respondent's profit increase, sales increase perception, loan increase or otherwise and the reason for receiving a loan. Based on the reasons for receiving loan the respondents could answer more than one option. Table 4. present the frequency distribution of the dependent variables and their items.

**Table 4**  
**Frequency Distribution of the Dependent Variables**

Variable	Frequency	Percent (%)	Cumulative Percent (%)
<b>MES</b>			
0	340	90.67	90.67
1	35	9.33	100.00
<b>Dependent variables' related items:</b>			
<b>Profit increase perception</b>			
Yes	332	88.53	100.00
No	43	11.47	11.47
<b>Sales increase perception</b>			
Yes	354	94.40	100.00
No	21	5.60	5.60

Authors' analysis (2021)

MEs and SEs are the main objective of this study, which is a binary variable represented by (0 and 1) being medium and small enterprises. The percentage of MEs (0) 90.67 and that SEs (1). The dependent variables items include profit increase perception, sales increase perception and loan received or otherwise, and the reasons for receiving a loan. Therefore, the profit increase perception, which is represented by yes or no questions, on if there is an increase in the value of their business profit, which the yes answer is 88.53 percent while the no answer is 11.47 percent. Similarly, under the sales increase perception, the yes answer on whether or not, if there is an increase in the value of their business sales. Therefore, the yes answer represents 94.40 percent while the no answer is represented by 5.60 percent. On the other hand, with regards to the loan received or otherwise, when to ask whether or not their organization ever receive a loan from any Micro-finance bank, the yes answer is represented by 91.47 percentage and the no is 8.53 percentage. However, there are many reasons for SMEs to receive loan from financial institutions among which include in this study are but not limited to: started a new business, (11.08 %) developed an existing business, (74.34 %) used as working capital, (11.66 %) built a project, (2.04 %) and others (0.87 %).

### **Pearson Correlation Result**

Correlation analysis was conducted to determine the extent and direction of the relationship between the study variables, as provided in Table 5. Correlation analysis is used to describe the strength and direction of the linear relationship between two

variables (Pallant, 2007) generally between the regressand and the regressors. The outcome of the correlation coefficient denoted by (r) of the variables usually specified the status of the association amongst variables involved (strong, weak, positive, negative, and significant or insignificant). Therefore, the correlation result for the study is presented in Table 5.

**Table 5**  
**Correlation Matrix of MEs Model (Being Medium or Other Small Enterprises)**

	MEs	PFT	SLS	FAG	BOW	GND
MEs	1.0000					
PFT	0.3195*	1.0000				
SLS	0.3275*	0.7741*	1.0000			
FAG	0.2443*	0.3282*	0.4148*	1.0000		
BOW	-0.0803	-0.1495*	-0.1548*	-0.1808*	1.000	
GND	-0.0132	-0.0020	-0.0308	-0.0038	-0.0346	1.0000

Note: MEs=Medium Enterprises; SEs=Other Small Enterprise; PFT=profitability growth; SLS=sales growth; LSS=Sales Growth; FAG=Firm Age; BOW=Business Ownership; and GND=Gender

The correlation analysis in Table 5. of the MEs, confirmed the existence of correlations between MEs and profitability increase (0.320) as well as that of the MEs and sales increase (0.328) which are positive, but the relationships are weak and significant. In the same vein, the correlation between the MEs and the same age (0.244) is positive though, and it is weak and significant while the correlation between the MEs and the business ownership (-0.080) as well as that of correlation between the MEs and gender (-0.013) have negative, weak and are statistically insignificant.

Therefore, this introductory analysis indicates the absence of multicollinearity between the regressand and the regressors in the correlation analysis. Though, the highest correlation coefficient is less than 0.90, which is not a crucial issue based on Hair *et al.* (2014) or 0.80 based on Gujarati (2009).

### Link-test for Model Specification

Link test used to detect a specification error that is issued after the logistic command. If the model is appropriately specified, then there should not be any additional predictors that are statistically significant. The link test uses the `_hatsq` as the predictor to reconstruct the model. Based on the idea of Tukey (1949) and suggested by Pregibon (1980), the significance of the link test is based on `_hatsq` that is generated by the command, link test. If the `_hatsq` is not significant, then there is no issue of omitted variable, which depicts that our link function is correctly specified. The result of the link test is presented in Table 6.

**Table 6**  
**Result of the Link test (Logistic Regression Model)**

MEs	Coef.	Std. Err.	t	P> t	[95% Conf.	Interval]
<code>_hat</code>	1.4523	0.3942	3.68	0.000	0.6797	2.2248
<code>_hatsq</code>	0.1135	0.0839	1.35	0.176	-0.0510	0.2780
<code>_cons</code>	0.2661	0.4177	0.64	0.524	-0.5526	1.0848

Note: MEs = Medium Enterprises, coef. = Coefficient, Std. Err. = Standard error

The results of the link test for model specification showed in the preceding table above indicate that the null hypothesis which assumes that the model is correctly specified are accepted because the p-value of `_hatsq` (0.176) is not significant ( $p > 0.05$ ). Hence, the Logistic regression model is said to be correctly specified.

### Range Fulfilment Test

According to Gujarati and Porter (2009) the estimated logistic regression must lie between 0 and 1 i.e. ( $0 \leq E(Y_i|X_i) \leq 1$ ). Table 5 present the summary of the test result.

**Table 7**  
**Range fulfilment test**

Variables	Observation	Mean	Standard Deviation	Minimum	Maximum
Y	375	0.093	0.125	0.001	0.846



Based on the result in Table 6. the range fulfilment test shows that the maximum value is (0.846) and the minimum value is (0.001) which indicates that the estimated model is within the range and fulfils the requirement.

### **Result of the Logistic Regression Model (OBJ 4)**

The logistic regression model explained the fourth objective of this study that investigates how medium scale enterprises (ME) differ from other small-scale enterprises (SE) in terms of their profitability and sales growth. The result is presented in Table 8.

**Table 8**  
**Logistic Regression Result**

<b>Logistic regression</b>				
<b>Variables</b>	<b>Odds Ratio</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>Probability</b>
PFT	2.353	0.856	0.363	0.018
SLS	1.526	0.423	0.320	0.186
FAG	2.278	0.823	0.298	0.006
BOW	1.077	0.074	0.508	0.884
GND	0.857	-0.154	0.488	0.753
CST	0.000	-8.730	1.437	0.000

Note: PFT= Profitability growth, SLS= Sales growth, FAG= Firm age, BOW= Business ownership, GND= Gender, CST= Constant,

The result of the logistic regression depicts the coefficient, standard error, probability, and the odds ratios. The odd ratio shows how many times the profitability or sales of the (ME) is higher than that of the other small-scale (SE). While the coefficient measures the profitability as well as the sales differences (percentage probability) between the Medium Enterprise (ME) and other Small Enterprises (SEs).

### **Robust Logistic Regression**

Having identified that the estimated logistic regression is correctly specified, the robust logistic regression model further testified that there is no issue of multicollinearity. Thus, Table 9 portrays the robust logistic regression.

**Table 9**  
**Robust Logistic Regression Result**

Variables	Logistic regression (Robust)			
	Odds Ratio	Coefficient	Standard Error	Probability
PFT	2.353	0.856	0.365	0.019
SLT	1.526	0.423	0.292	0.148
FAG	2.278	0.823	0.240	0.001
BOW	1.077	0.074	0.495	0.881
GND	0.857	-0.154	0.495	0.756
CST	0.000	-8.730	1.484	0.000

Note: PFT= Profitability growth, SLT= Sales growth, FAG= Firm age, NOW= Business ownership, GND= Gender, CST= Constant

The Table shows that there is an 85.6 percent probability of the profitability growth of ME to be higher than that of the other Small-scale Enterprises (SEs). Similarly, the odd ration of the profitability growth of the ME is approximately 2.35 times doubles that of other SEs. This may be because of the enormous participation of the general society in the activity of the MEs such as the size characteristic with regards to the employment and assets, in comparison with the engagement of people in the entrepreneurial activity of other SEs with regards to the size and other characteristics of the two enterprises. It is testified that both potential and existing entrepreneurs that adopted the characteristics of the MEs are likely to have more profit increase from other SEs in the study area (North-Western Nigeria). However, in terms of sales growth, both the coefficient and the odds ratio are statistically insignificant in explaining the differences between MEs and SEs.

With regards to the firm age, it shows that there is 82.3 percent probability that the firm age of MEs is higher than that of other SEs, while the odds ratio of the firm age of the MEs is 2.278 times of other SEs. This may be because of the ages of enterprises, starting from young (micro or small) to Medium Enterprises (MEs), which considered to be the old aged enterprise amongst the SMEs. This result follows the anticipation of the real phenomenon that the age of a medium enterprise is higher than that of other small enterprises. However, in relation to business ownership and gender, the results in Table 9 indicates that both the coefficients and the odds ratios are not statistically significant in explaining how MEs differ from SEs.





## **5. CONCLUSION**

This study investigates how medium scale enterprises (ME) differ from other small-scale enterprises (SE) in terms of their profitability and sales growth. The result of the logistics regression indicates that a tendency that the profitability increases of MEs to be higher than that of other SEs. Additionally, the odd ration of the profitability growth of the MEs doubles that of other SEs. Similarly, based on the age of the firm SMEs that has more years of the establishment have more likely to get an increase in their profitability growth than other SEs. Since the older SMEs are regarded as MEs while younger aged SMEs are regarded as SEs. This is another significant contribution of this research because there is not a study of such nature that empirically investigates the differences between the MEs and other SEs in terms of their profitability and sales growth as well as the age of the firm.

Nevertheless, the result of the odds ratio and the coefficient of the sales increase hear, are statistically insignificant in explaining the differences between the MEs and SMEs. This result also supported the argument of the resource-based theory and the Penrose theory of the growth of a firm. Furthermore, there are some control variables (other factors) that are involved in this model but are insignificant in explaining the differences in terms of being MEs or other SEs. Such variables are business ownership and gender.

With regards to the policy recommendation, since the study found that MEs are more advantageous to get more profit than other SEs. Thus, it is recommended that government should encourage those small business owners by providing them with the necessary support such as subsidy and loan, especially during an anticipatory economic recession. This would help these potential and existing small business owners to boost their activities toward achieving the highest maximum profit, and other objectives, to move from the stage of being micro or small enterprises to medium enterprises. This would, in turn, paved their chances of becoming large enterprises in the long run.



## REFERENCES

- Abe, M., Troilo, M., & Batsaikhan, O. (2015). Financing small and medium enterprises in Asia and the Pacific. *Journal of Entrepreneurship and Public Policy*, 4(1), 2-32.
- Abor, J., & Quartey, P. (2010). Issues in SME Development in Ghana and South Africa. *International Journal of Finance and Economic*, 39(6), 215-228.
- Akpan, E. S., & Nneji, I. D. (2015). Contribution of microfinance banks to the development of small and medium scale enterprises in Nigeria. *Research Journal of Finance and Accounting*, 6(8), 19-28.
- Alexander H., Cathy J., Eric C., Jeremy W., Nicholas G., Joann P., & Allison G. (2010). Small and Medium-Sized Enterprises: Overview of Participation in US Exports. *Investigation No. 332-508 USITC Publication 4125*. U.S. International Trade Commission.
- Aliyu, S., Yusof, R. M., & Naiimi, N. (2017). The role of moral transaction mode for sustainability of banking business: A proposed conceptual model for Islamic microfinance banks in Nigeria. *International Journal of Social Economics*, 44(12), 2238-2256.
- Ayopo, B. A., & Ibidunni, O. S. (2015). Marketing of Non-financial services of microfinance institutions. Impact on Micro small and medium enterprises business performance. *The Journal of Business Diversity*, 15(1) 60-72.
- Ayyagari, M., Demirguc-Kunt, A., & Maksimovic, V. (2011). Small vs. young firms across the world: contribution to job creation, employment, and growth. *World Bank Policy Research Working Paper*, 5631. P 1-59. <https://doi.org/10.1596/1813-9450-5631>
- Babajide, A. A. (2012). Effects of microfinance on micro and small enterprises (MSEs) growth in Nigeria. *Asian Economic and Financial Review*, 2(3), 463-477.
- Central Bank of Nigeria (CBN), (2005). First, regulatory and supervisory guidelines for microfinance banks in Nigeria. Published by *central bank of Nigeria*. [www.cenbank.gov.ng](http://www.cenbank.gov.ng)
- Crook, T. R., Todd, S. Y., Combs, J. G., Woehr, D. J., & Ketchen Jr, D. J. (2011). Does human capital matter? A meta-analysis of the relationship between



- human capital and firm performance. *Journal of applied psychology*, 96(3), 443.
- Dillman, D. A. (2007). *Mail and internet surveys: The tailored design method (Vol. 2)*. Update with New Internet, Visual, and Mixed-Mode Guide. New York: Wiley. P 1-523.
- Etuk, R. U., Etuk, G. R., & Michael, B. (2014). Small and medium scale enterprises (SMEs) and Nigeria's economic development. *Mediterranean Journal of Social Sciences*, 5(7), 656-662. <https://dx.doi.org/10.5901/mjss.2014.v5n7p656>
- Fauster, A. (2015). The Impact of Microfinance on the Performance of Small-Scale Enterprises: A Comparison of Sinapi Aba Trust and Maata-N-Tudu Associations in Wa Municipality, Ghana. *Ghana Journal of Development Studies*, 11(2), 1-13.
- Gerba, T. Y., & Viswanadham, P. (2016). Performance measurement of small-scale enterprises: Review of theoretical and empirical literature. *International Journal of Applied Research*, 2(3), 531-535.
- Gill, A., & Biger, N. (2012). Barriers to small business growth in Canada. *Journal of Small Business and Enterprise Development*, 19(4), 656-668.
- Gujarati. D.N. (2004) Basic Econometrics. *The McGraw–Hill Companies, fourth edition*. P 1-1003.
- Hair, J. F., Wolfinbarger, M. F., Ortinau, D. J., & Bush, R. P. (2008). Essentials of marketing research. *McGraw-Hill/Higher Education*. (Second Edition) McGraw-Hill/Irwin.
- Kaen, F. R., & Baumann, H. D. (2003). Firm size, employees and profitability in US manufacturing industries. *Employees and Profitability in US Manufacturing Industries (January 13, 2003)*.
- Kalui, F. M., & Omwansa, D. M. (2015). Effects of Microfinance Institutions' Products on Financial Performance of Small and Medium Enterprises; A Case of Machakos Town, Kenya. *Journal of Business and Management* vol. 17(5) p 50-57 [www.iosrjournals.org](http://www.iosrjournals.org)



- Keh, H. T., Nguyen, T. T. M., & Ng, H. P. (2007). The effects of entrepreneurial orientation and marketing information on the performance of SMEs. *Journal of business venturing*, 22(4), 592-611
- Koko, M. A. (2014). Enterprise Characteristics and Accessibility to Growth Capital: Study of Indigenous Women's Enterprises in Sokoto, Nigeria. *World Journal of Social Sciences*, 4(2) Pp. 47 – 58.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educ Psychol Meas.*
- Löf, H., & Heshmati, A. (2008). Investment and performance of firms: correlation or causality? *Corporate Ownership & Control*, 6(2), 268-282.
- McKenzie, D., & Woodruff, C. (2013). What Are We Learning from Business Training and Entrepreneurship Evaluations around the Developing World? *World Bank Research Observer*, 29(1) P 1-35.
- Muriithi, S. (2017). African small and medium enterprises (SMEs) contributions, challenges and solutions. *European Journal of Research and Reflection in Management Sciences. Vol. 5 No. 1*, p 36-38.
- Nwosa, P. I., & Oseni, I. O. (2013). The Impact of Banks Loan to SMEs on Manufacturing Output in Nigeria. *Journal of Social and Development Sciences*, Vol. 4 (5) p. 212-217.
- Pallant, J. (2007). *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using SPSS for Windows.*
- Pregibon, D. (1980). Goodness of link tests for generalized linear models. *Applied Statistics*, 29, 15-24.
- Sanyang, E. S. & Huang, W-C., (2008). Micro-financing: enhancing the role of women's group for poverty alleviation in rural Gambia. *World Journal of Agricultural Sciences*. pp. 665–673.
- SMEDAN & NBS, (2012). A collaborative research between Small and Medium Enterprises Development of Nigeria (SMEDAN) and National Bureau of Statistics (NBS). *Selected table's findings*. [www.smedan.gov.ng](http://www.smedan.gov.ng)



- Stam, W., Arzlanian, S., & Elfring, T. (2013). Social capital of entrepreneurs and small firm performance: A meta-analysis of contextual and methodological moderators. *Journal of Business Venturing*, 29(1), 152-173.
- Takeuchi, R., Lepak, D. P., Wang, H., & Takeuchi, K. (2007). An empirical examination of the mechanisms mediating between high-performance work systems and the performance of Japanese organizations. *Journal of Applied Psychology*, 92(4), 1069.
- Tukey, J. W. (1949). One degree of freedom for non-additivity. *Biometrics*, 5(3), 232-242.
- Tundui, C., & Tundui, H. (2013). An empirical analysis of social capital and enterprise performance in Tanzania: The case of women-owned businesses. *International Journal of Developing Societies*, 2(1), 50-60.