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Digital Technology and Profit of SMEs in Kano State

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Abstract

The need for economic diversification, especially in the emerging economies toward enhancing living standard, poverty reduction and economic progress, governments in these nations have intensified effort in promoting SMEs. This will give raise to job creation, increase in income, savings, investments and economic performance. Hence, the study examines the influence of digital technology and profit of SMEs as factors responsible for the growth of SMEs in Kano state, using ordered logit technique. In addition, eight (8) Kano state metropolitan local government areas consider for the study area (Gwale, Fagge, Nassarawa, Kumbotso, Kano Municipal, Ungoggo, Dala and Tarauni). The population target for this research covers 631 registered SMEs in Kano state, in which 556 samples were drawn and Dillman (2011) method of sample size determination was applied. The study used computer-assisted personal interviews (CAPI) for the filling in questionnaire from the respondents. The finding of the study reveals that digital technology, labor, level of education, training, advertisement, business experience and government policy positively influence the growth of SMEs. Hence, the research is significant to policy makers and stakeholders on the policies aimed at promoting the growth of the SMEs through provision of means of digital technology apparatus in Kano state and Nigeria at large for the purpose of accelerating SMEs performance and economic development.

Key Words: Digital technology, profit, SMEs, Kano, OLM

1. INTRODUCTION

In the past decade, the global strength of small and medium scale enterprises (SMEs) have indicated a significant progress in job creation and economic development (World Bank, 2019). It is argued

that SMEs accounted for about 90 % of businesses and over 50% of employment globally (IMF 2019). According to International monetary fund IMF (2019) almost 70% of jobs created in developing nations are generated by SMEs. Ayyagari et al. (2011) emphasize that SMEs constitute more than 95% of enterprises across the world. Similarly, it contributed to almost 50% of GDP growth in the national economies. Recently, developing economies have increasingly benefiting from SMEs, ranging of employment generation, poverty reduction, increase in standard of living and general economic progress (IMF, 2019).

In Nigeria, SMEs recorded a tremendous progress in the national economy and development (CBN, 2018). Based on the National Bureau of Statistics, (2020) estimates there was an increase in the total number of micro business to the turn of 36,994,570 companies, 68,168 small business and 4,670 medium size enterprises within a decade. This indicates an increase in the number of SMEs in nation. Similarly, the sector employed a total number of 59,741,211 equivalent to 84.02% of the Nigerian total labor force. In addition, Micro, Small and Medium Scale Enterprises in 2016, contributes about 48.47% to the nation's Gross Domestic Product (GDP) and 7.2% of total volume of exportation in the country (Abbakin 2016). However, despite this progress unemployment rate has escalated. Unemployment ratio has been increasing to the higher extent. It is noted that the rate has rise by 23.10% from 2010 to 2018 (NBS, 2020). Similarly, inability of the SMEs to employ the youth population in the nation has intensified the level crime activities. The issues of Boko haram, kidnapping and other banditry activities are continue deteriorating economic performance in the country (Ibrahim and Ahmad 2020; Onuoha and Okolie-osemene 2019; Iyekekpolo 2020). Therefore, it is needful to examine the factors responsible for the growth of SMEs in Nigeria, particularly Kano state. Previous studies such as (Allan 2017; Omer 2018) have analyzed various factors influencing the growth of SMEs, however very few studies consider factors like digital technology, entrepreneurial skills and nature of business on growth of SMEs in Kano Metropolitan. In addition, none of these studies have analyzed different categories of the growth of SMEs. This is for the purpose to identify how differences in the level of profits accelerate growth of SMEs in Kano state.

2. LITERATURE REVIEW

Relationship among the Factors influencing the growth of SMEs in both developed and developing countries have been studied extensively in the literature for instance, Kamunge and Tirimba (2015) examine the influence of environmental factors on small scale enterprises performance in Kenya. The results show that infrastructure and finance accelerate SMEs performance. Osano and Languitone (2015) assess the role of the access to finance on the growth of SMEs in Mozambique. They found that access to finance influence the growth of SMEs positively. Afande and Uk (2015) estimate the effect of the factors influencing growth of SMEs in Kenya. The study shows that access to credit influence SMEs performance positively.

Banwo et al. (2015) studied the effect of education, experience and location on SMEs growth in Nigeria. The study reveals that these factors promote the growth of SMEs. Similarly, Wang (2016) use 119 developing nations to examine the influence of the factors determining the performance of SMEs. The outcome illustrates that lack of access to finance decreases the level of firm's performance. Quartey et al. (2017) studied the influence of finance access on growth performance of SMEs in West Africa economies. The study finds that finance promotes the capacity of SMEs performance. In another development, Thompson et al. (2017) emphasize that educational level and finance increase SMEs growth performance in Ghana. Baporikar et al. (2017) examine the influence of technology, finance, market strategy and skills on SMEs growth. The result indicates that poor technologies, finance, market strategy and lack of skills reduce SMEs performance. Omer (2018) studied factors that affecting SMEs growth in Sudan using OLS technique. The study find market strategy, resources and finance increase SMEs performance. Gunatilake, (2018) stressed financial inadequacy, the lack of access to new technology, and regulations adversely affect SMEs growth in Sri Lanka. Meressa (2020) argued that capital, finance access, location, business experience and market strategies influence SMEs growth positively in Ethiopia. Rafiki (2020) investigates the influence of management inefficiency, marketing and sales problems, inadequate infrastructure, market competition and financial inadequacy in Saudi Arabia. The study concluded that environmental factors increase the performance

of SMEs. Santoro et al. (2020) use 135 firms to examine the effect of educational and firms experience on SMEs growth. The outcome reveals that these factors positively influence firm's growth.

Several attempts have been made on the studies regarding the growth of SMEs and its determinants. However, digital technology on the SMEs growth has not been investigated. It is important to categorize the level of growth of the SMEs growth (profit) into High, Medium and Low for the purpose to know where the majority of the SMEs fall. This will ascertain proper suggestions to policymakers towards transforming and enhancing the lower category into large scale production with the regards of application of digital technology. Thus, the study examines the factors (digital technology) influencing growth of SMEs growth on the three different categories. In addition, most of the studies on growth of SMEs concentrate in developed countries, very few studies are done in Nigeria, particularly Kano State.

3. METHODOLOGY

The area of study in this research is Kano Metropolitan that comprised eight (8) local government areas which includes Gwale, Fagge, Nassarawa, Kano Municipal, Dala, Tarauni, Ungoggo and Kumbotso. This study is based on primary data and questionnaire was used as the instrument of data collection. The questionnaire was adopted and modified from National Survey of SMEs, situation in the Philippines. Furthermore, the target population for this research cover all the Small and Medium Scale Entrepreneurs in Kano metropolitan local government in which 556 samples were determined using Dillman (2011) sample size determination technique. Similarly, the study adopts multistage cluster sampling technique. In the first stage, the entire study area was divided into three groups (clusters) based on the industrial zone of location categories. These categories include industrial area, residential area and mix of industrial and residential area. In the second stage two clusters were selected randomly out of the three clusters. A total of 100 SMEs are selected randomly from each clusters for the 8 Kano metropolitan LGA making a total of 800 SMEs selected from the study area.

3. 1 Specification of the study model

In order to examine the influence of digital technology on profit of SMEs a modified model by Wang (2016) used and is state in the following equation:

$$Pro_i=\alpha+ \beta_1 Dtec_i + \beta_2 Cap_i + \beta_3 Loan_i + \beta_4 Bxp_i + \beta_5 Nop_i + \beta_6 Loc_i + \beta_7 Mar_i + \beta_8 lab + + \beta_{10} Edu_i + \beta_{11} Gov_i + \beta_{12} Trn_i + \varepsilon_i \quad (1)$$

Variables	Proxy
Profit (pro)	Amount of profit earned
Labor (lab)	Amount of labor employed
Capital (cap)	Amount of capital
Digital Technology (Dtech)	Technology measured by use of digital machines
Business experience (Bxp)	Number of years
Nature of business (Nob)	Category of the firm belong
Location (Loc)	Location of the business
Marketing (mar)	Marketing measured by media
Loan	Access to loan
Education (Edu)	Level of education
Government policy (Gov)	Amount of tax pay
Training (Trn)	Training acquired

Therefore, Orderd logit model was used for the model analysis. This model is used in order to take care of the nature of the dependent variable that has more than 2 ordered categories. Moreover, Test for parallel assumption will be utilized for the model estimation.

4. RESULT

Table 2 illustrates the outcome of the estimated model of digital technology and profit as growth of SMEs. The table shows the result of digital technology, other determinants and profit as growth of SMEs. Digital Technology, the variable represents the digital machines used in SMEs. Digital Technology is found to be statistically significant at 10%. According to the estimation, SMEs that use machines are likely to have increase in the profit by N0.169. Technology is positively related to profit and this is in line with the Apriori expectation that technology is expected to have positive relationship with SME growth. This confirms to the findings of Wu et al. (2001) where he found out that a small business that adopts greater levels of technological sophistication can be expected to grow more rapidly than a similar firm that does not. Using digital machines

as a production technology is associated with increasing the SMEs profit by 1.891 naira.

Moreover, labor based on the model, this variable represents the type of labor employed in SME that are unskilled, skilled and semi-skilled coded with 0, 1 and 2 respectively. The variable labor has positive relationship with profit. Labor was found to be statistically significant at 1%. Based on the estimated number of labor, when 1 or more skilled labor is employed compared with the semi-skilled, the profit made by the SME increased by about N1.327. Similarly the estimated coefficient also indicates that when the SME employs 1 additional unskilled labor compared to the semi-skilled labor, the profit decrease by N0.539. This is in line with the Apriori expectation that employment of more skilled labor of the SME have the tendency of increasing the growth of SME. This confirms to the findings of Ibrahim and Gimba (2018). This result implication indicates that additional number employment of 1 skilled labor is associated with increase in profit of the SME by N1.327 while employment of 1 unskilled labor is associated with decrease in profit of the SME by N0.539. Similarly, business experience represents the number of years spent in SME which include 5years or less, 6years to 10years, 10years and above coded as 0, 2 and 1 respectively. Business experience was found to be statistically significant at 10%. Based on the estimated value of business experience, 1 year increase in business experience has the tendency of increasing profit by about N0.797. While a decrease in the year of experience will decrease profit by N0.033. This is in line with the Apriori expectation that employment of more experienced people have the tendency of increasing the growth of SME than the people without experience.

Additional year of experience obtained by firm owner is directly linked with the increase in the SMEs profit by N0.797. However, lack of experience by firm owner is associated with the decline in SMEs profit by N0.033. In another development, nature of business, represents the type of business in SME which are manufacturing or service coded as 0 and 1 respectively. Nature of business was found to be statistically significant at 5%. It has positive relationship with profit. Based on the estimation, service has the tendency of increasing profit made by SME by about N2.243 while manufacturing increases by 2.514 naira. The implication shows that firms that engage in manufacturing are connected with the rise in

profit by N2.514 naira. Loan, this variable represents loan taken from banks that include Yes or No coded as 1 and 0 respectively. Loan was found to be statistically significant at 10%. Loan is positively related to profit. Based on the estimated value of loan, SMEs that were given loan, the profit made by that SMEs increased by about N0.031. Whereas SMEs that are not given loan, the odd of their profit decrease by N0.013. This is in line with the Apriori expectation that loan has the tendency of increasing growth of SMEs. This confirms to the findings of su and Okpara (2013) where he found that policies promoting loans enhanced growth. The implication shows that loan is associated with the increase of the firms profit by 0.031 naira. Similarly, advertisement, represents advert in media used by SMEs which are Yes or No coded as 1 and 0 respectively. Advertisement in media was found to be statistically significant at 1%. It has positive relationship with profit, this is in line with the Apriori expectation that use of advertisement by SMEs has the tendency of increasing growth of SME. Based on the estimation, when SMEs make advertisement in media, the profit will be increased by1.891 naira. An advertised business grows more or enjoys more profits than the business that does not. Consumers become aware of a product to gain or sustain market share through advertising.

The impact of this finding is that advertisement is directly enhancing SME profit by 1.891 naira. Education, This variable represents the level of education of the firm owner which are basic, secondary and higher education coded as 0, 2 and 1 respectively. Education was found to be statistically significant at 10%. The variable has positive relationship with profit. Based on the estimated value of education, when firm owner has acquired only basic education the profit made by the SME will be reduced by 0.044 naira compared to secondary education. Similarly the estimated coefficient also indicates that when the firm owner acquired tertiary education the profit will increase by 0.614 Naira when compared to acquiring secondary education. This is in line with the apriori expectation that higher education level increases economic growth just.

Government Policy, The variable represents the tax paid to the government as a levy that is categorized into Yes or No coded as 1 and 0 respectively. Tax was found to be statistically significant at 5%. Based on the estimation SMEs that do not pay tax have increase in the profit they make by N0.098 while those that pay tax have

decrease in the profit they make by 3.712 Naira. This is in line with the Apriori expectation that the higher the tax the lower the profit made by SMEs. This confirms to the findings of Isu and Okpara (2013) who found that exemption from tax have reduced SMEs costs. Also a business that avoids tax usually reports more profit as tax is an expenditure that reduces profits**.** The impact of this result is tax payment is associated with the reduction in profit of SMEs by 3.712 Naira.

Training, This variable represents the type of training provided to the employees in SMEs that include skills acquisition, seminar and new technology which were coded as 0, 2 and 1 respectively. Training was found to be statistically significant at 10%. According to the estimation, skill acquisition is more likely to increase the odd of the profit made by the SME compared to seminar by about N0.600 while that of new technology by 0.033 Naira. This confirms to the apriori expectation that training has tendency of increasing growth of SMEs. The result implication shows that acquisition of skills by SMEs is associated with the increase in profit of SMEs by 0.033 Naira.

Table 3 illustrates the post estimation diagnostic test. The result of the parallel line assumption test shows the model does not violate the parallel line assumption, hence the model is fit for policy analysis.

Table 2: Ologit result of digital technology and profit as growth of SMEs model

Variables	Ologit	P value
$DTCH_N$	0.243*	0.079
	(0.089)	
$DTCH_Y$	0.169*	0.063
	(0.046)	
LBO_U	-0.539***	0.001
	(0.168)	
LBO_S	1.327***	0.005
	(0.469)	
$BEXP_5$	-0.033*	0.059
	(0.009)	
$BEXP_{10}$	0.791*	0.069
	(0.209)	
NOB_M	2.514**	0.046
	(1.082)	
NOB_S	2.243**	0.020
	(1.025)	
LON_N	-0.013*	0.078
	(0.006)	
LON_Y	0.031*	0.083
	(0.011)	

ADV_N	1.608***	0.001
	(0.503)	
ADV_Y	1.891***	0.003
	(0.628)	
EDU_B	- 0.044*	0.077
	(0.014)	
EDU_H	0.614*	0.094
	(0.300)	
GOV_N	0.098**	0.034
	(0.046)	
GOV_Y	-3.712**	0.011
	(1.456)	
TRN_S	0.600*	0.053
	(0.210)	
TRN_N	0.033*	0.051
	(0.003)	

Note: Standard errors in parentheses ***$p < 0.01$,**$p < 0.05$ and *$p < 0.1$. LBO_U = Unskilled labour, LBO_S = Skilled labour, $BEXP_5$ = 5years and above, $BEXP_{10}$= 10years and above, NOB_M= Manufacturing, NOB_S= Service, LON_N= No loan, LON_Y= Yes, ADV_N= No advert, ADV_Y = Yes, $DTECH_N$= No machines, $TECH_Y$= Yes, EDU_B= Basic education, EDU_H= Higher education, GOV_N= No tax, GOV_Y= Yes, TRN_S= Skill acquisition, TRN_N= New technology.
Source: e-view estimation (2021)

Table 3 Test for parallel line assumption

Ologit	X^2	P-value
	10.2	0.53

Source: e-view estimation (2019)

5. CONCLUSION

This study examine the influence of digital technology on profits of SMEs as factors responsible for the growth of SMEs in Kano State using ordered logit model. The findings of the study reveals that digital technology, level of education, training, advertisement, business experience positively influence the growth of SMEs. Hence, the research is significant to policy makers and stakeholders on the policies aimed at promoting the growth of the SMEs. This study is not free from limitations despite of the efforts made at obtaining reasonable findings. One probable limitation to this study is difficulty in assimilating information to acquire the data, hence considering measuring some factors that influence the growth of SMEs remain abortive. The study utilizes factors like labor, loan, location, business experience, technology, education that explain the growth of SMEs. Nonetheless, certain factors such as capital, family size, willing to participate in the SMEs that have been used in the previous studies were not considered in this study. Furthermore, the study was limited to only Kano State and it involves eight local governments due to

financial constraint. Hence, the study suggests that further research should consider the following issues. Firstly, the future studies should consider expanding the coverage by increasing the data set to 44 Kano state local governments. Furthermore, this study examine the factors responsible for the growth of SMEs such technology, education, loan, business experience etc. however, there are other factors that determine the growth of SMEs that were not included in this study. Therefore, future research should consider these factors such family size, gender, marital status, willing to participate in to SMEs and integrate them in to the relationship to see how they affect the growth of SMEs. Finally, the study utilized ordered logit and Poisson regression models. Future studies may consider other approaches such as Tobit model examine the growth of SMEs.

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