

Gender Differential And Performance Of Technology-Based Micro, Small- And Medium-Scale Enterprises In Ondo State, Nigeria

Dada, A.D. and Ale, O.A.

Department of Entrepreneurship
Federal University of Technology, Akure, Nigeria

Abstract

This study examined the influence of gender differential on the performance of technology-based micro, small- and medium-scale enterprises (MSMEs) in Ondo State, Nigeria. These include garment production, leather production, food and beverage processing, computer engineering programming and system designing, water processing and packaging, metal fabrication of equipment and machineries, starch processing, woodwork production, domestic and industrial ceramics, paper production as well as printing and publishing. A multi-stage sampling technique was adopted to select a total of 100 respondents for the study in three local government areas (LGAs). These are Akure North, Akure South and Ondo West with a response rate of 62%. Data were collected through the administration of a set of questionnaire and interview schedule which were subjected to both descriptive and appropriate inferential statistics. The study revealed that some gender-based factors such as the age of firm ($r = 0.567$, $p \leq 0.01$); number of children ($r = 0.676$, $p \leq 0.05$), operators highest level of education ($r = 0.0113$, $p \leq 0.01$) as well as educational background of the operator ($r = 0.432$, $p \leq 0.05$) significantly affected and enhanced the performance of the MSMEs in the study area. The study concluded that there is a significant difference in the performance of various technology-based MSMEs managed by males and females. Several factors which influenced the choice and performance of the enterprises should therefore be improved upon to improve on the growth and development of the MSMEs.

Keywords: Gender, MSMEs, Sales turnover, Capabilities, Innovation, Performance

INTRODUCTION

The contributions of micro, small- and medium-scale enterprises (MSMEs) in promoting industrial and economic growth are well documented and appreciated all over the world. This is because some countries owe their industrial development to well co-coordinated MSMEs sub-sector. The MSMEs sector is recognised as an integral component of economic development and a crucial element in the effort to lift countries out of poverty (Eniola, 2014; Dada, 2017, 2018; Asaolu & Dada, 2018). They have been the means through which accelerated economic growth and rapid industrialization can be achieved, especially in developing countries (Fabayo, 2009; Dada, 2014; 2019).

Moreover, theoretical and empirical investigations have emphasized the crucial role that technology-based enterprises play in nurturing the development of today's industrialised nations. The idea that technological innovation fosters economic growth is broadly shared and accepted among economists worldwide. Factors affecting small business enterprise performance have been a good research area by scholars for many years. Previous studies indicate that several factors that influence performances include,

among many others, owners professional background, entrepreneurship capabilities and preferences, cultural and religious belief; as well as the technology and micro environment (Makhbul, 2011; Muhammad, Samia, Muhammad & Muhammad, 2012). There also seems to be a consensus on the fact that a gender-based entrepreneurial imbalance exists in almost any context. Among the seven background factors analysed by Wang and Wong (2004); Afolabi *et al.* (2008), gender was found to be the most significant factor influencing students' entrepreneurial interest in both Singapore and Nigeria. Here, gender represents a social construction of what it means to be of the male or female sex, including cultural, ethnic, economic, religious, and ideological influences. The GEM (2010) reported that men are almost twice as likely to start a new business as women, tracing this diversity to the relatively higher income potential of men. Muhammad *et al.* (2012) found that female are usually less controlling, outspoken and independent minded. Females are not much relaxed and emotionally controlled as males; the possession of such characteristics by males makes them to outperform females and makes their businesses more successful. Despite these inherent problems associated with the growth of female-owned MSMEs, women

entrepreneurs are increasingly venturing into ownership of small-scale enterprises either on their own or in partnership with male entrepreneurs (ILO, 2009). Whether women are involved in small or medium-scale enterprises, their contributions to output and value-addition in the business sector is substantial, even though there is dearth of information in the literature about these production activities. In addition, given the growth of entrepreneurship among women, understanding the social and economic factors influencing their successful performance is of critical importance. It is generally accepted that male and female differences influence business performance (Brush, 1992; Muhammad *et al.*, 2012), while these differences have been recognised; factors influencing the performance of gender have not been fully explained (Brush & Hirsch 2000). As the number of women in technology-based enterprise increases, it is important to develop an understanding of the female business and how the feminine gender influences the survival and growth of their businesses. Previous studies had indicated several factors that affect business performances among MSMEs owners. However, there is a lack of empirical data segregation on factors affecting gender as the variable of interest.

According to Aderemi (2006), the characteristics of women who start technology-based businesses are not established in the literature. Hence, empirical data segregation on factors influencing gender performances is rather scarce and difficult to obtain. In Nigeria, there are few studies on the actual contribution of the women-owned MSMEs to employment creation, income generation as well as wealth creation. More research and adequate knowledge of factors that affect gender enterprise performance are needed on women-owned enterprises in technology-based MSMEs which will go a long way in alleviating many problems in the economy.

Yet, there is a dearth of information on the impact of gender differential on technology-based small- and medium-scale enterprises in Nigeria particularly in Ondo State. This necessitates this study. The majority of studies either disregarded gender as a variable of interest or excluded female subjects from their design. To address this gap, this study contributes to knowledge through empirical study of the factors affecting performance in technology-based MSMEs in Ondo State. The study also provided adequate information on the factors influencing the choice of the MSMEs among the operators in the State; and provided adequate information on the effects of gender-based factors on the performance of the MSMEs in the study area. This was with a view to making policy inputs for enhanced performance of the MSMEs in Ondo State.

Micro, Small and Medium Enterprise (MSMEs)

There is no single criterion for classifying business enterprises as micro, small or medium scale globally. In a study carried out by the International Labour Organisation (2009), over 50 definitions were identified in different countries. However, evidence from the literature shows that in defining small-scale business for instance, reference is usually made to some quantifiable measures such as: number of people employed by the enterprises, investment outlay, the annual turnover (sales) and the asset value of the enterprise or combination of these measures. Several studies revealed that the definition of SMEs significantly varies from country to country contingent upon factors such as the country's state of economic development, the strength of industrial and business sectors, the size of SMEs and particular problems experienced by SMEs. Small and Medium Enterprise (SMEs) as defined by the Central Bank of Nigeria (CBN) and the Bankers Committee on the Guidelines for Accessing Small and Medium Industry Equity Investment Scheme in Nigeria in June 2001, as having total assets less than two Hundred Million Naira (₦200 Million), excluding land and working capital, and between 10 – 300 employees will be applied. According to Babatunde *et al.*, (2008), parameters such as the number of workers employed; financial strength and the annual turnover are used for the classification of SMEs in Nigeria.

The Small and Medium Industries (SMIs) have been recognised as critical in the economic and social development of most countries. They are especially important, amongst other roles, in job creation with low investment, regional development, as suppliers to large companies, entrepreneurship development, and new product and process development. These firms need assistance in different facets of their operations, including financing, marketing, manufacturing, engineering, quality and human resources development, among others. In many instances, they are assisted by R&D organizations that provide technical and business extension services, testing facilities, problem solving services as well as R&D assistance. They also play important role in assisting their clients to improve their capacity to innovate, and ultimately in competitiveness and sustainability. According to WAITRO, the ability of R&D organizations to serve their clients effectively is, no doubt, an important determinant of the success of the clients in meeting the competitive challenge of the workplace.

The establishment of R&D organisations is expected to serve as the primary source of technical knowledge from which the productive sector might draw as and when necessary. This has generally turned out not to be so in Nigeria (Oyeyinka-Oyelaran *et al.*; 2006; Dada & Abayomi, 2018). Thus the public R&D organizations

in Nigeria must change in order to cope with the twin-paradigms of internationalization and globalization. Effective management, coupled with a rigorous research and sound S&T policy, is necessary for a nation to sustain economic growth, provide a strong national defence at an affordable cost, and maintain a position of leadership in the international community. A productive scientific community and greater business efficiency drive the rapid technological progress.

METHODOLOGY

The study was carried out in Ondo State, Nigeria. Ondo State, generally referred to as the “Sunshine State” was created from defunct Western Region on the 3rd of February, 1976. The State is located on latitude 7°10'N and covers a land scale area of 14, 793 square kilometers and contained 18 local government area with its administrative capital located at Akure town. Ondo State is located within Southwest geopolitical zone of Nigeria and bounded in the North by Ekiti and Kogi States, in the East by Edo State, in the West by Osun and Ogun States and in the South by Atlantic Oceans. The State is located entirely in the Tropics with an estimated population of 3, 441,024 (National Population Commission of Nigeria, 2006). The ethnic composition of Ondo State is largely from the Yoruba sub-groups of the Akoko, Akure, Ikale, Ilaje and Ondo. Ondo State is largely urbane and is richly blessed with varied and favourable ecological and climatic conditions with its economy which is sixth largest in Nigeria dominated by agriculture, oil and gas abundant resources like bitumen, granites, crude oil, limestone, glass sand. The State therefore has great potentials for rapid industrial growth in view of its raw materials based. Sixty five percent (65%) of the labour force is in agricultural sector as the State’s economy basically agrarian with large scale production of cocoa, oil palm, and rubber. Other crops like kolanut, maize, yam and cassava are produced in large quantities. The State is also blessed with very rich forest resources where some of the most exotic timbers in Nigeria are produced. The State also has a wide range of fish deposit which amount for the course of economic activities in the riverine area of the State and presence of a large deposit of stock fish is remarkably opening some new investment opportunities in Ondo State.

The population for this study consists of all Technology-based MSMEs in Ondo State of Nigeria. Three-stage sampling technique was adopted for selecting the respondents. The first stage involved the adoptions of the stratification of the State into Local Government Areas (LGAs) in which three LGAs were purposively selected. The selected LGAs are Akure North, Akure South and Ondo West. The second stage involved the purposive selection of some technology-based enterprises in the selected LGAs. The last stage involved the random selection of 100 MSMEs from the

selected areas. The data for this study were derived from both primary and secondary sources. Primary data were gathered with the aid of questionnaire and an interview schedule. The secondary data for this study were obtained from relevant journals and textbooks. Both descriptive and inferential statistics were used in this study. The descriptive data analysis involved measures of central tendency, Weighted Average Index (WAI), frequency counts, percentages and charts. The inferential statistics was correlation analysis. The statistical analysis of the data was carried out with the aid of Statistical Analytical Software, version 22.

RESULTS AND DISCUSSION

Proportional Distribution of Respondents by Local Government Area in Ondo State

Out of a total of 100 copies of questionnaire that were administered, 74 (74% response rate) were completed, retrieved and found useful for the analysis (Figure 4.1). Majority (31%) of the respondents were from Akure South. This may be due to the high level of production activities in the LGA. The response rates from Akure North and Ondo West were 24% and 19% respectively.

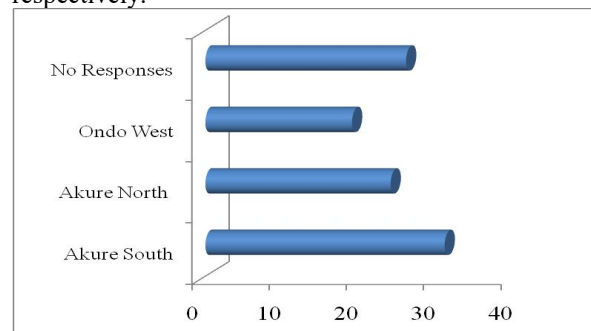


Figure 4.1: Distribution of Respondents by LGAs (%)
Source: Field Survey, 2017

Demographic Characteristics of Respondents

The demographic characteristics of the respondents were discussed in this section as follows. From Table 4.1, majority (81.69%) of the respondents from the firms were in the age group of 26 to 50 years, which showed that the respondents were within their economically productive age. The Table also revealed that only 5% and 6% of the respondents were between 21 and 25 years; and above 50 years old respectively. In general, the prevalence of respondents that fall within the economically productive age bracket is good for the sustainability and development of the MSMEs in Ondo State. Also, majority (57.0%) of the operators of the SMEs were married while very few (6.0%) were divorced. The distribution of respondents by marital status also showed that 21%, 7% and 9% of the respondents were single, widowed and separated respectively. The findings support the research by Adebite (2010) and Dada & Abayomi (2018) that there is a positive relationship between marital status

and business performance. Married people are believed to be more hard-working, focused and result-oriented because of the responsibilities and commitments associated with the status. Approximately 64% of the technology-based SMEs operators were male. The remaining 36% were female who were involved mainly in food processing, Dye Production, Textile and weaving among others. This may be attributed to the stereotype that these type of enterprises are supposed to be female dominated in the study areas. Moreover, socio-cultural attitudes had been found to influence the level of women's participation in some enterprises. For instance, women's reproductive responsibilities clash with their professional qualifications and aspirations.

Previous research on women entrepreneurs suggested that significance differences existed between male and female entrepreneurs. This view has however been proved otherwise in recent time. As shown in Table 4.1, about 50.0% of the business operators attended tertiary institutions in form of university, polytechnics or colleges of education. This high level of higher institutions qualifications may be connected with the high awareness of higher level of education in Ondo State. About 15% of the respondents possessed Senior School Certificate (SSCE) or its equivalent while 5% possessed secondary modern school certificate, while only 10% had First School Leaving Certificate (FSLC). The result further revealed that only 14% of the respondents did not have any form of formal education. This result thus indicates that most of the business operators had some form of formal education. This finding invalidates the results of NACETEM (2010), where it was observed that one of the major problems of the operators in the Nigerian indigenous leather tanning firms was their educational inadequacies. Oluwale *et al.* (2012) also found such educational deficiencies in the informal Nigerian automobile repair sector. The Table further revealed that most (24.0%) of the respondents had no formal education background. The Table also revealed that 15%, 12%, 12% and 11% of the respondents had their academic background in management sciences, social sciences, humanities and Engineering/Technology respectively. This may be due to the fact that graduates of these fields of academics are generally more enterprising and business-oriented than their counterparts from other fields. Furthermore, 10% and 7% of the respondents were from Agricultural sciences and Health/Medical Sciences backgrounds respectively.

Only 5% of the respondents were from Natural Sciences background.

Enterprise's General Information

This section addresses the general information about the responding firms by examining the scale of operation, investment capability of the firms, turnovers of the companies as well as sources of capital investment in the technology-based SMEs. Other variables considered in this section are categories of technology-based SMEs in the study area, ownership/legal structure of the firms, and development of new products/processes by the firms in the last 3 years; and contributions of the new product (s) or process (es) to the growth of the enterprises.

Figure 2 depicts the scale of operations of the responding firms in Ondo State. While 49% and 37% of the respondents were operating on micro and small scale levels respectively, only 5% of the firms were operating on medium scale level. The high level of micro and small enterprises is connected to the amount of investment as shown in Table 4.2.

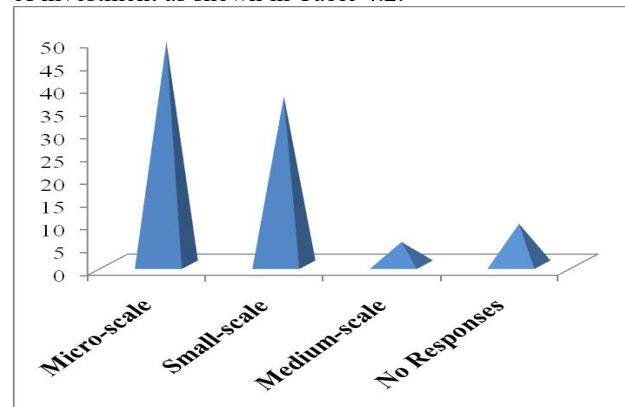


Figure 2: Firms' Scale of Operation

Source: Field Survey, 2017

Average Annual Capital Investment of the SMEs

Table 2 reveals the mean capital investment (₦) in the technology-based MSMEs considered in this study. The Table revealed that micro enterprises in Ondo State invested mean minimum and maximum capital of ₦313,000 and ₦2,612,000 respectively. The small scale firms invested mean minimum and maximum of ₦13,276,500 and ₦203,201,000, respectively while the medium scale enterprises invested minimum and maximum of ₦215,442,100 and ₦406,042,412 respectively.

Table 2: Average Annual Capital Investment of the SMEs

Scale of Operations	Frequency	Percentage	Average Capital Investment (₦) by the Firms	
			Minimum Investment (₦)	Maximum Investment (₦)
Micro Enterprises	49	49.0	₦313,000	₦2,612,000
Small Enterprises	37	37.0	₦13,276,500	₦203,201,000
Medium Enterprises	5	5.0	₦215,442,100	₦406,042,412
No Responses	9	9.0	-	-
Total	100	100.00	-	-

Source: Field Survey, 2017

Average Annual Turnover on Investment of the Selected Firms

As shown in Table 3, the minimum and maximum turnovers of the selected micro enterprises were ₦2,130,000 and ₦8,425,000 respectively. The small scale enterprises had ₦38,120,000 and ₦431,132,520 as their minimum and maximum turnover respectively. The average turnovers of the selected medium scale in Ondo State were ₦721,600,100 and ₦987,000,203 respectively. However, the number of firms in this category in Ondo State was very low (5%) relative to the total number of respondents in this study. As shown

in Table 3, the minimum and maximum turnovers of the selected micro enterprises were ₦2,130,000 and ₦8,425,000 respectively. The small scale enterprises had ₦38,120,000 and ₦431,132,520 as their minimum and maximum turnover respectively. The average turnovers of the selected medium scale in Ondo State were ₦721,600,100 and ₦987,000,203 respectively. However, the number of firms in this category in Ondo State was very low (5%) relative to the total number of respondents in this study.

Table 3: Average Annual Turnover on Investment of the Selected Firms

Scale of Operations	Frequency	Percentage	Average Turnover (₦) by the Firms	
			Minimum Turnover (₦)	Maximum Turnover (₦)
Micro Enterprises	49	49.0	₦2,130,000	₦8,425,000
Small Enterprises	37	37.0	₦38,120,000	₦431,132,520
Medium Enterprises	5	5.0	₦721,600,100	₦987,000,203
No Responses	9	9.0	-	-
Total	100	100.00	-	-

Source: Field Survey, 2017

Sources of Capital Investment in the Technology-Based MSMEs

The capitals that are invested over a period of time involve financial outlays on fixed assets which bring returns to an investment. As shown in Table 4. Majority (84.08%) of the operators of the SMEs sourced for capital from personal savings and more than 38% sourced loans from family and friends. Furthermore, 25.33% and 31.44% sourced funds for their business from family savings and loans from cooperative societies respectively.

Table 4: Sources of Capital Investment by the MSMEs		
Source(s)**		Percent
Personal Savings (n=84)		84.08
Loans from family and friends (n = 38)	38.02	
Family Savings (n=47)		25.33
Loans from Cooperative Societies (n = 64)	31.44	
Family Inheritance (n =14)	13.62	
Loan from Banks (n =18)		8.11
Government Financial Supports (n=6)	3.06	
Source: Field Survey, 2017 ** Multiply Responses.		

Several Studies had established that SMEs usually funded their enterprises with personal savings and loans from co-operative societies (Oyefuga *et al.*, 2008; Dada, 2014; Obembe, 2014). Table 4 also revealed that 13.62%, 8.11% and 3.06% of the respondents sourced for business funding from family inheritance, loans from Banks; and government financial supports. A personal interview with the respondents showed that most of the operators did not prepare feasibility study for their businesses. This might have informed the reason for the low level of financial supports from banks. A feasibility study is a fundamental document for starting and implementing a new or existing business enterprise. According to Dada (2014), the knowledge of feasibility study among SMEs is a *sine qua non* to business survival since it forms the basis of providing information to prospective investors or bankers.

Categories of Technology-Based SMEs in the Study Area

Table 5 depicts the categories of technology-based enterprises in the study areas. Majority (22% and 21%) of the respondents were involved in garment production and food and beverage processing respectively. Others (16%, 14% and 7%) of were involved in Computer Engineering Programming and system designing, water processing and packaging; and metal fabrication of equipment and machineries. The outcome of the study showed that many women were involved in technology-based business such as garment production, food and beverage processing; and starch processing. However, none of them was involved in metal fabrication of equipment and machineries. This may be due to the demands of such enterprises which might constitute heavy burden on women. Moreover, women are usually not encouraged to participate in some vigorous professions such as metal fabrications.

Table 5: Category of Enterprises of the Operators in Ondo State

Category	Frequency	Percent
Garment Production Leather	22	22.0
Production	21	21.0
Food and Beverage processing	16	16.0
Computer Engineering Programming and System Designing	14	14.0
Water Processing and Packaging	7	7.0
Metal fabrication of equipment and machineries	6	6.0
Starch processing	4	4.0
Woodwork Production	3	3.0
Leather Production	3	3.0
Domestic and industrial ceramics	2	2.0
Paper Production	2	2.0
Printing and Publishing	2	2.0
Total	62	100.0

Source: Field Survey

Starch processing, Woodwork Production, Leather Production, Domestic and industrial ceramics, Paper Production; and Printing and Publishing were also found to be 6%, 4%, 3%, 3%, 2% and 2% respectively. The low prevalence of these enterprises may be due to low level of technological capability in them. Moreso, the poor marketability and low immediate turnover on these businesses might have informed the low level of participation in them.

Ownership/Legal Structure of firms in the Study Area

As shown in Table 6, majority (51.0%) of the SMEs in Ondo State were solely owned (sole proprietorship). The sole proprietorship form of business ownership is known as an unincorporated form of business enterprise, because no permission is required from the government before its establishment. Interestingly, 20% of the firms claimed to be Limited Liability companies. The few number of limited liability

companies relative to sole proprietorship in this study may not linked to the high level of capital outlay required for the operation of such business. This financial requirement is not made available to small scale enterprises in most places in Nigeria. Moreover, access to bank loans is often limited by the unavailability of collateral security of the operators to the banks. Furthermore, 10.0% and 9.0% of the operators had their ownership structures in family business and partnership respectively. Cooperative society and inherited businesses were only 6.0% and 4.0% of the number of enterprises in the study areas.

Table 6: Ownership/Legal Structure of firms in Ondo State

Ownership Structure	Frequency	Percent
Sole proprietorship	51	51.0
Limited Liability Company	20	20.0
Family Business	10	10.0
Partnership	9	9.0
Cooperative Society Business	6	6.0
Inherited Business	4	4.0
Total	100	100.0

Source: Field Survey

Development of New Products/Processes by the Firms in the Last 3 years

A critical analysis of the technology based companies shows that only 29.0% of the firms had developed new product (s) or process (es) in the last 3 years (Figure 3). The low level of new products and processes development could be attributed to the poor in-house R&D engagements by these enterprises. Development of new products and processes provides an insight into the technological innovation competence of firms. Product development process (PDP) of such companies is also very important for their competitiveness. Generally, SMEs unlike larger firms lack the resources to conduct R&D but are sufficiently flexible to react, when facing new external conditions. However, SMEs, in comparison to larger firms, have geared up to take up new and emerging technology-based industries (Deselnicu *et al.*, 2007; Dada, 2011). A close interview with the respondents revealed that most of the new products developed was through operators' experience and customers' demand.

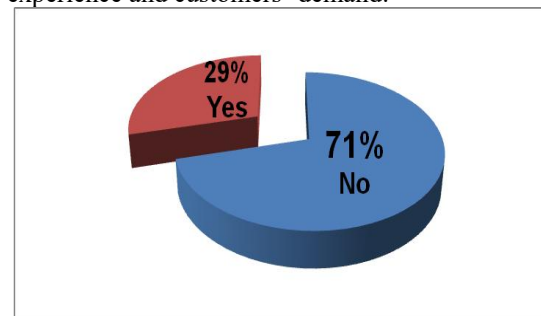


Figure 3: New products/processes Development by the firms

Source: Field Survey

Contributions of the new product (s) or process (es) to the growth of selected enterprise

Table 7 revealed the effects of new product (s) or process (es) development on the growth of SMEs in Ondo State. The outcome of the study showed that the new product (s) or process (es) development had high (4.01) impact on increased market share as well as improved sales turnover (3.50). The effect of new product (s) or process (es) development on the growth of SMEs also was medium (2.64) on increased profit margin. However, the development of new product (s) or process (es) on the companies had low effect on the creation of more market network (1.98) and very low (1.27) effect on the reduction in the cost of production.

Table 7: Effects of new product (s) or process (es) development on the growth of SMEs

Effect	Mean Range
Increased market share	4.01
Improved sales turnover	3.50
Increased profit margin	2.64
Creation of more market network	1.98
Reduction in the cost of production	1.27

Source: Field Survey, 2017 ** Multiply Responses.
1 - Very low, 2 - Low, 3 - Moderate, 4 - High, 5 - Very high

Factors Influencing the Choice of the MSMEs among the Operators

A number of factors have been established in the literature to influence the choice of the SMEs in

Table 8: Correlation between some variables and the choice of SMEs in Ondo State

S/No	Variables	Correlation coefficient	p-value
1.	Enterprise's Age (years) (X ₁)	0.418 ^a	0.0026**
2.	Business Ownership Structure (X ₂)	0.371 ^a	0.0048**
3.	Total Capital outlay of a firm (X ₃)	0.357 ^a	0.0036**
4.	Business Ownership Structure (X ₄)	0.319 ^{ab}	0.0139**
5.	Scale of operation of a firm (X ₅)	0.289 ^b	0.0164*
6.	Firm's Location in the State (X ₆)	0.278 ^b	0.0203*
7.	Operator's Working experience (X ₇)	0.266 ^{bc}	0.0432*
8.	Operator's highest level of education (X ₈)	0.261 ^{bc}	0.0807
9.	Operator's Gender (X ₉)	0.254 ^c	0.1023
10.	Sales turnover (X ₁₀)	0.248 ^c	0.4013
11.	Profitability (X ₁₁)	0.243 ^c	0.6231
12.	Government Policy (X ₁₂)	0.225 ^d	0.7410
13.	Operator's Age (years) (X ₁₃)	0.215 ^d	0.8429

Source: Field Survey, 2017

0 ≤ r ≤ 1

**Correlation is significant at 99% Confidence level *Correlation is significant at 95% Confidence level

Correlate of gender-based Factors on the Performance of MSMEs in Ondo State

Table 9 shows the relationship between the dependent variable (Sales turnover, Y₀) and each of the independent variables (various gender-based factors, X_i). The Table also shows the correlation among all the independent variables. There were positive and significant correlations between business performance (Y₀) and age of firm (r = 0.567, p ≤ 0.01); number of

industrial sector. In this study, seven factors that significantly correlated with the choice of the SMEs are as shown in Table 8. This was with a view to achieving the second objective of the study. These variables are enterprises' age (years) (X₁); business ownership structure (X₂); total capital outlay of a firm (X₃); operator's business experience (X₄); scale of operations of firm (X₅); firms' location in the state (X₆); and government policy (X₇). The age of a firm (X₁) significantly (r = 0.418, p ≤ 0.01) influence the operators' choices of the SMEs types. Furthermore, this study indicated a positive and significant (r = 0.371, p ≤ 0.01) impacts of Business Ownership Structure (X₂) on the choice of enterprise by the operators. Other variables that significantly influence the choice of enterprise of the SMEs were Total Capital outlay of a firm (X₃) (r = 0.357, p ≤ 0.01), Business Ownership Structure (X₄) (r = 0.319, p ≤ 0.01), Scale of operation of a firm (X₅) (r = 0.289, p ≤ 0.05), Firm's Location in the State (X₆) (r = 0.278, p ≤ 0.05) and operator's Working experience (X₇) (r = 0.266, p ≤ 0.05). Other variables such as Operator's highest level of education (X₈) (r = 0.261, p ≥ 0.05), Operator's Gender (X₉) (r = 0.254, p ≥ 0.05), Sales turnover (X₁₀) (r = 0.248, p ≥ 0.05), Profitability (X₁₁) (r = 0.243, p ≥ 0.05), Government Policy (X₁₂) (r = 0.225, p ≥ 0.05); and Operator's Age (years) (X₁₃) (r = 0.225, p ≥ 0.05) did not contribute significantly to the choice of the enterprise of the SMEs operators in Ondo State.

children (r = 0.676, p ≤ 0.05), operators highest level of education (r = 0.0113, p ≤ 0.01); as well as educational background of the operator (r = 0.432, p ≤ 0.05). The positive and significant correlations implied that each of the independent variables enhanced the performance of the gender-based SMEs. The correlation analysis between each of the independent variables showed that age of firm (X₁) had a positive and significant relationship with years of working experience (X₂) (r = 0.352, p ≤ 0.01).

Description of variables

Dependent Variable: Y_0 = Sales Turnover in 2014 as a Proxy Variable for SMEs Performance

Independent Variables

X_1 = Age of firm

X_2 = Years Working Experience

X_3 = Number of Children

X_4 =Ages of children

X_5 =Operator's Sex

X_6 =Operator's Highest level of Education

X_7 =Educational Background of the operator

X_8 =Marriage Type (Monogamy or Polygamy)

X_9 =Operator's Religion

Table 9: Correlation Matrix of the gender-based factorson the performance of the MSMEs

Variable	Y_0	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9
Y_0	1.000									
X_1	0.405	1.000								
X_2	0.567*	0.442*	1.000							
X_3	0.676*	0.074	0.338**	1.000						
X_4	-0.034	0.041	0.149	-0.211	1.000					
X_5	0.008	0.048	0.749	0.442	-0.112	1.000				
X_6	0.113**	0.352*	0.732**	0.106**	0.512	-0.104	1.000			
X_7	0.432**	0.685	0.420	0.308**	0.663	0.309	0.613**	1.000		
X_8	0.084	0.543	0.035**	0.105	0.014	0.608	0.221	0.542	1.000	
X_9	0.335	0.107	0.347**	0.523*	0.129	0.716	0.439	0.721	0.563*	1.000

*Correlation is significant at 99% Confidence level Source: Field Survey, 2017

**Correlation is significant at 95% Confidence level

Moreover, the relationship between years of working experience (X_2) and number of children (X_3) ($r = 0.106$, $p \leq 0.01$), operator's highest level of education (X_6) ($r = 0.732$, $p \leq 0.01$), Marriage Type (Monogamy or Polygamy) ($r = 0.035$, $p \leq 0.01$) as well as operator's religion ($r = 0.347$, $p \leq 0.01$) was positive and significant. This implies that years of working experience is a very important factor to consider in the performance of SMEs as well as other factors above. Table 4.9 also revealed that the number of children (X_3) was positively correlated with operator's highest level of education ($r = 0.106$, $p \leq 0.01$), educational background of the operator ($r = 0.308$, $p \leq 0.01$) as well as the operator's religion affiliation ($r = 0.523$, $p \leq 0.05$) with the Muslim and traditional worshippers having more children than the Christian operators. It was also found from the study that the operator's highest level of education (X_6) was positively correlated ($r = 0.613$, $p \leq 0.05$) with the educational background of the operator (X_7). A positive and fairly strong significant relationship ($r = 0.563$, $p \leq 0.05$) was also found between marriage type (Monogamy or Polygamy) (X_8) and operators religion (X_9).

Challenges facing SMEs in Ondo State

There are a number of challenges facing SMEs in Ondo State as shown in Table 10. Inadequate fund was the

major obstacle to the growth of the firms as claimed by 84.64% of the responding firms. NACETEM (2010) and Dada (2014) had earlier reported similar observation that production environment in Nigeria, especially for SMEs was not conducive mainly because of inadequate fund for production activities. The undue lack of access to finance by SMEs could be due to unwillingness of formal lending institutions to extend loans to the firms due to inadequacy or lack of collateral security needed for such credit. Poor infrastructure (road networks, electricity, water supply) (78.73%) and limited manufacturing knowledge and skills (62.54%) were also found as limiting factors to SMEs.

Table 10: Challenges facing the growth of SMEs in Ondo State

S/N	Challenge	Percent
i.	Inadequate funds (n = 94)	84.64
ii.	Poor infrastructure (road networks, electricity, water supply) (n = 57)	78.73
iii.	Limited manufacturing processing knowledge and skills (n = 48)	62.54
iv.	Poor business technical support services (n = 48)	61.31
v.	Government policy (n = 46)	59.73
vi.	Weak business advisory services (n = 57)	44.51
vii.	Inadequate marketing channels (n = 86)	43.21
viii.	Insecurity (n = 66)	36.92
ix.	High Production Costs (n = 64)	35.89

**Multiple responses

Other challenges facing the growth of SMEs in Ondo State were poor business technical support services (61.31%); government policy (59.73%); weak business advisory services (44.51%); inadequate marketing channels (43.21%); insecurity (36.92%) as well as high production cost (35.89%).

CONCLUSION AND RECOMMENDATIONS

Globally, SMEs had been recognized as an essential component for development of any nation. SMEs are therefore a major sub-sector for economic development in Nigeria. There are various technology-based enterprises operating on micro and small scale in Ondo State. This study establishes that the technology-based SMEs and enterprises had low manufacturing capabilities and innovations which may be due to weak linkages between the knowledge institutions and the enterprises; inadequate funds; poor infrastructure (road networks, electricity, water supply) and limited manufacturing processing knowledge and skills. Other factors may include poor business technical support services; unfavourable government policy; weak business advisory services; inadequate marketing channels; insecurity as well as high production costs.

Thus, in order to improve upon the performance of the technology-based MSMEs in Ondo State, this study recommends the following: Improved business environment which is a set of factors that have influence on the operations of the business enterprise. Such environment include customers, competitors, suppliers, distributors, industry trends, substitutes, regulations, government activities, the economy, demographics, social and cultural factors, technological developments and innovations.

The improvement on these factors will influence the performance of SMEs in Ondo State. Social and economic values from technologies should be generated by research into the industrial sector for improved impacts and performance. Provision of adequate funding supports especially working capital to enhance continuous production by the technology-based SMEs has been a major constraint. Investment in SMEs in form of loans and grants is therefore very important for creating wealth for the operators.

Formulation and implementation of appropriate policies will also enhance the performance of the SMEs. Such policies include those that favour the adoption and development of product-enhancing technologies. Design institutional capacity development to review and modify manufacturing policies as the need arise. Adequate human resource development supports in form of education (formal and informal) plays a crucial role in investment, technology and innovation growth. Government and private sectors should therefore intensify efforts to upgrade the knowledge of the SMEs

in Ondo State. The upgraded skills would assist the operators in the adoption of modern technologies in their businesses thereby improve their performances.

REFERENCES

Adegbite, S. A. (2010). A study of Technological Innovations in the Indigeneous Textile Weaving Industry in Southwestern Nigeria. A thesis submitted in partial fulfilment of the requirement for the award of the degree of Doctor of philosophy in Technology Management, Obafemi Awolowo University, Ile-Ife, Nigeria.

Aderemi H.O. (2006). A Comparative Analysis of Women Entrepreneurs in Technological and Non-Technological Industries in Southwestern Nigeria. An Unpublished M.Sc. Thesis Submitted to the Technology Planning and Development Unit (TPDU), Faculty of Technology, Obafemi Awolowo University, Ile-Ife, Nigeria.

Afsher, H. (1992). Women and Adjustment Policies in the Third World. New York: St. Martin's press.

Babatunde, R. O., O. A. Omotesho, E. O. Olorunsanya, and G. M. Owotoki. (2008). Gender differences in resources allocation among rural households in Nigeria: Implications for food security and living standard. *European Journal of Social Sciences* 5 (4): 160–172.

Bierly, III, P.E. and Daly, P.S. (2007). 'Sources of external organizational learning in small manufacturing firms' *Int. J. Technology Management*, 38, Nos. ½, pp. 45-68.

Brush, C.G. and Hisrich, R.D. (2000). Women-Owned Business: An exploratory study comparing factors affecting performance. Available at www.riseb.org/finalbrysh.Pdf. Retrieved May, 2015

Brush, C. G. (1992). Research on women business owners: past trends, a new perspective, future directions. *Entrepreneurship Theory and Practice*, 16(4), 5-30.

Crant, J.M. (1996): The proactive personality scale as a predictor of entrepreneurship intention. *Journal of Small Business Management*, 37(4), 42-58.

Dada A.D. (2019): Critical Skills for the 21st Century: Technopreneurial and Innovative Behaviours of Fresh Graduates in Lagos State, Nigeria. Readings in Technology Management (Ed.) In J.B. Akarakiri (1):270-298

- Journal of Emerging Trends in Economics and Management Sciences (JETEMS) 15(4):148-158 (ISSN: 2141-7016)
- Dada A.D., (2014): Evaluation of Technological Capability and Innovations in the Nigerian Cassava Processing Industry. An Unpublished Ph.D. Thesis Submitted to the African institute for Science policy and Innovation (AISPI), Faculty of Technology, Obafemi Awolowo University, Ile-Ife, Nigeria.
- Dada, A. D., Siyanbola, W. O., Ilori, M. O. and Olamide O. O. (2011): On the Nexus between Technological Innovations and Competitions of SMEs in a Developing Economy. *Technology and the Global Challenges: Security, Energy, Water and the Environment*. Proceedings of the 20th International Conference on Management of Technology (IAMOT 2011), Miami Beach, Florida, USA, April 10-14.
- Deselnicu D. C., Rusu C., and Martin I. (2007). Innovation Process and Competitiveness in Romanian SMEs. Paper Presented at the 5th International Conference on Global Network for Economics of Learning, Innovation, and Competence Building Systems (GLOBELICS), Saratov State Technical University, Saratov, Russia September: 19 – 23, 2007.
- Fabayo, J.A. (.2009). Small and Medium Enterprises development strategy: A critical Option for sustainable Long –Term Economic Development in Nigeria. A paper presented at the first Annual International Conference on: Effective Management of Small and Medium scale Enterprises for sustainable Economic Development held at Abraham Adesanya Polytechnic, Ijebu-Ode held from 25-27 August.
- Fischer, E.M, Reuber, A.R, and Dyke, L.S. (1993). A theoretical Overview of the extension of research on Sex, Gender and Entrepreneurship. *Journal of Business Venturing*. 8 (2): 151-168.
- Gebauer, H., Worch, H. and Truffer, B. (2012). Absorptive capacity, learning processes and combinative capabilities as determinants of strategic innovation. *European Management Journal*, 30(1): 57-73.
- Global Entrepreneurship Monitor (GEM) (2010). Global Perspective on Entrepreneurship in 2010 <http://www.gemconsortium.org>
- ILO (International Labour Organization) (2009). *Global employment trends for women*. Geneva. <www.ilo.org/wcmsp5/groups/public/dgreports/dcomm/documents/publication/wcms103456.pdf>. Accessed August 5, 2014.
- Makhbul, Z.M. (2011). Entrepreneurial Success: An exploratory Study among Entrepreneurs. *International Journal of Business Management*. Vol 1(6). Pp1-10.
- National Centre for Technology Management (2010). Technological Entrepreneurial Attitude in Nigerian Tertiary Institution. Monograph Series Number 3.
- Obembe, J. S. (2014). A Study of Technological Capabilities and Innovations in Furniture Processing Industry in Southwestern Nigeria. A thesis submitted in partial fulfilment of the requirement for the award of the degree of Doctor of Philosophy in Technology Management, Obafemi Awolowo University, Ile-Ife, Nigeria.
- OECD (1996). The Knowledge-Based Economy. OECD. Paris.
- OECD (2005). The measurement of scientific and technological activities. Oslo manual, guidelines for collecting and interpreting innovation data. Third edition.
- OECD (Organization for Economic Co-operation and Development) (1998). “University Research in Transition” OECD, Paris.
- Oluwale, B. A., Ilori, M. O., and Oyeibisi, T. O. (2012). Factors Influencing Indigenous Technological Learning and Innovations in the Auto-Mechanic Industry in Nigeria. *Management* 2(5): 180-187.
- Oyefuga, I., Siyanbola, W., Afolabi, O., Dada, A. and Egbetokun, A. (2008). SMEs funding: an Assessment of an Intervention Scheme in Nigeria. *World Review of Entrepreneurship, Management and Sustainable Development*. 4 (2/3).
- Oyelaran-Oyeyinka, B. (2006). Science, Technology and Innovation Capacity for Development and Competitiveness in Nigeria. Paper submitted to National Planning Commission for NEEDS2, UNU-MERIT, The Netherlands.
- Oyeyinka-Oyelaran, B.O. (1998). Technological Capability of Small and Medium Firms. Paper presented during a Course on Technology, Competitiveness and Innovation in Small- and Medium-sized Enterprises. National Centre for Technology Management (NACETEM), Obafemi Awolowo University, Ile-Ife. November 8-12, 1998.

Rammer, Z. E. W. (2009). Economic Policy and Private Sector Development Section. Sector Project 'Innovative Approaches for Private Sector Development' Innovation and Technology Policy in the Context of Technical Cooperation. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH. Postfach 518065726 Eschborn.

Schumpeter, J. A. (1942). Capitalism, Socialism and Democracy. New York: Harper Row, Sergeant, John and Crawford, Jennifer (2001). National Youth Entrepreneurship Attitude Survey. Department of Industry, Science and Resources, Emerging Industries Section, Canberra, Australia.

Schumpeter, J.A. (1934).The Theory of Economic Development", Harvard University Press, Cambridge, 64.

Streeton, p. (1987). "Structural Adjustment: A survey of issues and options World Development Report" 15/12, 1469-1682.

Volberda, H. W., Foss, N. J. and Lyles, M. A. (2010). Absorbing the Concept of Absorptive Capacity: How to Realize Its Potential in the Organization Field. *Organization Science* 21,931-951.

Wang, C. K. and Wong, P. (2004). Entrepreneurial interest of university students in Singapore. *Technovation* 24: 163–172.

Wolfenson, J. D. (2001).*The challenges of globalisation: the role of the World Bank*. Paper presented at the Address to the Bundestag, Berlin, Germany.

World Bank (2006).Enhancing Agricultural Innovation: How to Go Beyond the Strengthening of Research Systems. 1818 H Street, NW Washington, DC 20433.