PERFORMANCE ASSESSMENT AND THE DECISION TO PARTICIPATE IN SMALL AND MICRO AGRIBUSINESS ENTERPRISES IN DELTA STATE, NIGERIA

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Abstract: In order to examine the performance of small and micro agribusiness enterprises (SMAE) as well as factors that determine entrepreneur's participation, 561 enterprises were randomly drawn from urban and peri-urban locations in Delta State, Nigeria. Data collected were analyzed using descriptive and inferential statistics Binary probit model was used to determine the effect of personal, family, farm and location characteristics on the decision to participate in small and micro agribusiness enterprises. The results of the probit analysis indicated that age of operator, household size, marital status, educational status positively affect the decision to operate a small agribusiness enterprise while wage employment and non farm income have a negative influence. Furthermore, the study found that majority of the enterprises were young with a median age of 6 years while about 50% of respondents were engaged in retail trading. About 30% of entrepreneurs had vocational and tertiary education; average household size was 9 persons per household with a mean age of 43 years. Food retailing had the highest average sales revenue/year (₦ 209,270.00) (USD1,268.30) while the least was crop farming (₦ 135,030.00) (USD 818.36). Income/worker/year ranged from ₦ 14,770.00 (USD 89.52) in food retailing to ₦ 27,850.00 (USD 168.79)5) in fish farming. The total workforce in the 561 SMAEs surveyed was 1971 persons; 1005 full-time staff and 966 casual workers with an average workforce of 3 persons/enterprise. Personal savings, friends and relatives, loans from cooperative societies, were the major sources of start-up capital. Lack of access to credit, high cost of credit and labour were the topmost constraints to SMAEs operations in Delta State, Nigeria. In order to expand their asset base and boost production, the development of business partnerships among SMAEs is recommended.

Keywords: Agribusiness enterprises; binary probi;t;; employment creation; marginal effects; participation decision

INTRODUCTION

Small and micro enterprises (SMCE) whether in the agricultural or industrial sector contribute immensely to the growth of the domestic economy by promoting effective domestic resources utilization, providing managerial and technical training for the majority of unskilled and semi–skilled workers engaged in such enterprises, producing intermediate goods for use in larger enterprises and by stemming rural-urban migration. Furthermore, a large number of agribusiness enterprises require relatively small capital investment and utilise labour-intensive production techniques that unskilled and semi-illiterate people can handle.

The dynamic role of small-scale enterprises in developing countries as engines of growth has long been recognized (Kayanula and Quartey, 2000). This is because during the early stages of economic development small and micro enterprises help to create employment and wealth, particularly in low income countries. Small-scale enterprises are reputed to be behind most of the socio-economic transformation in South East Asia, and they have also played a significant role in the development of sub-Saharan Africa countries (Kimuyu and Omiti, 2000). This is so because, during the early stages of economic development, small enterprises provide great opportunities for creating employment and wealth, and thus have been noted as vital instruments for poverty alleviation (Kimuyu, 1999).

In the period after independence, many African countries including Nigeria attempted to leap directly to a modern industrial structure through public investment in large-scale industries. The Federal Government often took the lead for lack of a strong indigenous entrepreneurial class and to avoid

dependence on foreign investors. But inadequate attention to economic viability and market prospects resulted in substantial excess capacity, with many large public firms unable to survive without heavy protection or subsidies. Many enterprises were squeezed first, by economic crises and, subsequently by Structural Adjustment Policies (SAP) that reduced protection, cut back subsidies, constrained demand, and changed relative prices. Given budgetary constraints and a policy shift away from direct ownership of productive enterprises, governments have had to look increasingly to the private sector to take the lead in future industrialisation process.

According to Anderson (1982) industrialisation process normally involves initial rapid growth of production in small-scale enterprises, some of which may expand into medium and large-scale firms that will gradually play a dominant role in the economy. This has been the thrust of the Nigerian government since the economic reform of the 1980s (SAP). According to Inang and Ukpong (1992), small scale enterprises (SSE) have the potentials for developing domestic linkages for rapid and sustainable industrial development. Besides their production relying heavily on local raw materials, they are in a better position to boost urban employment due to the widespread nature of their activities. SSEs particularly in the urban informal sector have been seen to absorb a growing labour force, especially in situations where the formal sectors are not expanding enough to match the alarming numbers of the unemployed.

Small-scale enterprises (SSE) have been variously defined among individuals and organisations in many countries. This difference in definition is due to differences in the organization of business in countries at different levels of economic development or even regional differences in industrial development within the same country. The Nigerian Bank for Commerce and Industries (1982) categorized enterprises investing not more than ₦500, 000.00, excluding the cost of land as small-scale enterprises. However, Steel and Webster (1992) and Gauthier (1996) defined small-scale enterprises on the basis of the number of workers. Enterprises that employ between 4 and 29 employees irrespective of their capital investment are considered SSEs while those employing less than 4 persons are microenterprises.

The development of small and micro agribusiness enterprises (SMAE) in Delta State has been accentuated by the rising level of unemployment and limited opportunities for low income earners in other sectors of the State's economy. With the high level of technical skills and investment capital requirement in many other sectors, many rural and urban households had to scratch a living from the productive segment of the agribusiness sector while others had to be engaged in produce processing and marketing. Therefore, small and micro agribusiness enterprises are a viable alternative strategy to reduce the burden of poverty and unemployment, as well as improving the income of the masses in our society. Although, there have been an expansion in the number of small agribusiness enterprises and their operators over time, there is need to assess their level of performance as well as factors tht influence the decision to participate in SMAEs' operation.

A number of factors are known to affect entrepreneurs' participation in SMAEs. They include socio-economic and family characteristics of the operator, farm characteristics, and location factors. Entrepreneurs engage in SMAEs for income generation purposes and to reduce the risk of income variability due to vicissitude associated with most on-farm production activities, as well as to diversify the income base of the family and reduce poverty. Human capital plays an important role in investors participation decision, because investment in education increases the ability of individuals to perform specialised tasks more efficiently and effectively.

The objective of the study therefore, was to assess the performance of small and micro agribusiness enterprises and identify factors that affect entrepreneurs' participation decision in Delta State, Nigeria. Specifically, the study described the characteristics of enterprises and the demographic characteristics of entrepreneurs; identified the sources of start-up capital; assessed the performance of micro and small agribusinesses as well as identified constraints to the operations agribusiness enterprises in the study area.

RESEARCH METHODOLOGY

Area of Study and Sampling Procedure

Delta State, which is one of the nine states in the Niger Delta region of Nigeria, is the location of the study. Delta State is located approximately between longitude 5^{o} $00^{/}$ and 6^{o} $45^{/}$ east and latitude 5^{o} $00^{/}$ and 6^{o} $30^{/}$ north of the equator. The State is comprised of 25 local government councils with Asaba as its capital. It occupies a total land area of 17,698 square kilometres with a population of 2,570,181 people (National Population Commission, 1993). The natural

vegetation in the State varies from the mangrove swamp forests in the south, to the freshwater swamp forests and rainforests in the central agro-ecological zone, and the derived savannah belt in the northern part of the State. The prevailing climatic conditions thus favour a thriving agricultural economy.

In order to assess the performance of SMAEs as well as determine factors that influence decision to participate by entrepreneurs in Delta State, Nigeria, copies of a questionnaire were administered to 648 small and micro agribusiness operators in 36 rural and urban/peri-urban communities drawn from five (9) local government areas (LGAs) out of the twenty five LGAs that comprised the study area.

Firstly, 3 Local Government Areas (LGAs) were draw randomly from each of the three (3) agricultural zones in Delta State to make a total of nine LGAs covered in the study. At the second stage, 4 communities were drawn at random from each of the 9 LGAs earlier chosen to give a total of 36 communities covered in the survey. The final stage involved the random selection of 18 entrepreneurs each from the 36 communities giving a total sample size of 648 respondents. The survey was conducted between April and August, 2010. However due to non-response and inadequate information, eighty seven (87) copies of the questionnaire were discarded, and data from 561 respondents were used for the analysis.

The Probit Participation Model

An entrepreneur's decision to participate in SMAE can be expressed as a dichotomous binary variable based on whether the individual invest in agribusiness enterprise or not. The model assumes that an operators' decisions are based on utility maximisation objective, and that individual decision to participate or not to participate in agribusiness depends on an unobservable utility index or a latent variable that is determined by farm and farmer specific characteristics (Chukwuji, 2010). The choice of the probit model for this study is quite appropriate because the error term is assumed to be normally distributed (Gujarati, 2004). The probit model of SMAEs' participation is derived from an underlying latent variable model expressed as;

$$Y_i^* = \beta_0 + \beta_{ij}X_{ij} + e_i \quad \text{.....(1)}$$

Where Y_i^* is an unobserved index reflecting the difference between the utility of participating and not participating in agribusiness enterprises; β_0 is the intercept; β_{ij} is a vector of unknown parameters to estimated; X_{ij} is a vector of operator's farm, location and socio-economic characteristics, which are the independent variables that explain participation in SMAEs; e_i is the standard normally distributed error term that is independent of X_j and is symmetrically distributed about zero (Wooldridge, 2002; Green, 2008). Following from equation (1), the operator participation

model is given as;

$$P(Y_i^* = 1|x) = F(\beta X) = \int_{-\infty}^{\beta X} \frac{1}{\sqrt{2\pi}} exp(-z^2/2)dz \quad \text{.....(2)}$$

Where F is a function that ensures that the likelihood of participating in agribusiness enterprises lies between zero and one; P is the probability that an entrepreneur participates in SMAEs or otherwise. Thus, $Y_i = 1$ if $Y_i^* > 0$; $Y_i = 0$ if $Y_i^* \leq 0$. The parameter estimates were obtained by maximum likelihood estimation (MLE) procedure using Limdep 7.0 econometric software. The descriptive of variables that affect individual's participation decision in SMAEs are shown in Table 1.

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Table 8: Description and Summary Statistics of Variables Used I the Probit Model (Participation: dependent variable)

Variable	Variable description	Mean	Std. Deviation	Minimum	Maximum
PART	1 if participated in SAME, 0 otherwise	0.51	0.50	.00	1.00
SEX	Sex of agribusiness operator	1.41	0.50	1.00	3.00
AGE	Age of operator (years)	43.53	9.97	20.00	69.00
MRTL	Marital status	1.44	0.50	1.00	2.00
YRED	Years of formal education	10.68	3.98	.00	25.00
HHSZ	Number of adult in operator's household	2.94	0.82	1.00	5.00
EXPR	Business experience (years)	6.38	2.46	1	16.00
SLNC	Salaried income (₦)	51513.62	19943.94	12973.70	111870.50
LCTN	Location of business,1 if located in urban/surb-urban area, 0 otherwise	1.67	0.47	1.00	2.00

Data Collection and Analysis

Data for the study were collected as primary data from a cross section of non-farm agribusiness enterprises and they included socio-economic characteristics of the agribusiness owners, performance indices of agribusinesses, salary income, business location, constraints to the operation of enterprises in the study area, as well as information on financing. Data on equipment and labour utilisation as well as output were also obtained.

Data collected were analyzed using descriptive and inferential statistics The descriptive statistics such as tables, ratios, percentages, means, median, and standard deviations were used to describe the socio-economic characteristics of entrepreneurs and highlight indicators of performance. Binary probit model was used to determine the effect of personal, family, farm and location characteristics on the decision to participate in agribusiness enterprises.

RESULTS AND DISCUSSION

Type of Enterprises and Characteristics of Agribusiness Entrepreneurs

Forms of Micro and Small Agribusiness Enterprises

The study identified seven types of small agribusiness enterprises in the study area as shown in Table 2. The results indicate that, retail of farm produce is the major activity carried out

Table 2: Types of Micro and Small Agribusiness Enterprises identified

Agribusiness activity	No. of Enterprises
Crop farming	60(10.70)
Fish farming	24(4.28)
Livestock farming	36(6.42)
Processing of farm produce	105(18.72)
Retailing of farm produce	147(26.20)
Agro-services	19(10.16)
Food retailing	57(23.53)
Total	**561(100)**

* Figures in parentheses are percentages of total enterprises

Source: Computed from Survey Data, 2010.

by many agribusiness entrepreneurs, with 26.20% of operators engaged in it. This is followed by food retailing (23.53%) and processing of farm produce (18.72%). The involvement of majority of micro agribusiness operators in retail trading may be due to the comparatively less capital investment in equipment in this sector to producing sectors such as crop, livestock and fish farming.

Majority of the enterprises are young in age and new businesses emerge regularly, particularly in retail trade. About 52% of the agribusinesses have operated between 1 – 6 years while only 6.42% have existed beyond twelve years. Table 3 shows the distribution of firm age with a median enterprise age of 6 years.

Table 3: Distribution of Enterprises by Age

Enterprise type	**Years in Operation**				
	1-3	**4-6**	**7-9**	**10-12**	**>12**
Crop farming	6	21	27	6	–
Fish farming	9	12	3	–	–
Livestock farming	3	18	9	6	–
Processing of farm produce	9	21	39	21	15
Retailing of farm produce	33	24	51	21	18
Agro-services	15	27	9	3	3
Food retailing	27	63	30	12	–
Total	**102(18.18)**	**186(33.16)**	**168(29.95)**	**69(12.30)**	**36(6.42)**

*Figures in parentheses are percentages of total agribusiness entrepreneurs
Source: Computed from Survey Data, 2010.

Sex Distribution of Respondents

Table 4 shows the distribution of respondents according to sex among the different types of agribusinesses studied. 327 of the small-scale enterprises representing 58.29% of the total sample were owned by women while 234 of them were owned by men. It should be noted however that majority

Table 4: Sex distribution of Respondents according to Enterprises

Sex	**Type of Enterprises**							**Total**
	Crop farming	Fish farming	Livestock farming	Processing of farm produce	Retailing of farm produce	Agro-services	Food retailing	
Male	21	24	27	39	54	42	27	234(41.71)*
Female	39	–	9	66	93	15	105	327(58.29)
Total	**60(10.70)**	**24(4.28)**	**36(6.42)**	**105(18.72)**	**147(26.20)**	**57(10.16)**	**132(23.53)**	**561(100)**

*Figures in parentheses are percentages of total agribusiness entrepreneurs
Source: Computed from Survey Data, 2010.

of the men were concentrated in farm produce processing and retailing, while the women were more distributed across enterprises. No woman operated any fish farm, but they dominated food retailing as food preparation is a

woman role in most African cultures. The results of the survey are quite understandable. Livestock production and fish farming operations require high technical skills which many urban and peri-urban women farmers may not have acquired. Also the comparably high initial investment in land and potential risks may have made women prefer other agricultural enterprises in the study area. And since many women farmers may not be able to raise start-up capital, they may have seen it as a male vocation. Inability of women to obtain credit and loans according to Spring (2000), limit their investment in commercial activities. The results are in consonance with those of Sanyang and Huang (2008), Spring (2002) and Robertson (1998) that women entrepreneurs performed better and more successful in enterprises that are linked to their domestic activities in the home.

Age Distribution of Respondents

The ages of respondents in the study ranged from 23 to 67 years with a mean age of 43 across the enterprises (Table 5). The results indicated that majority of the small-scale business owners were between the ages of 32 – 49 years with a mean age of 43 years. In fact, 110 of the respondents

Table 5: Age distribution of Respondents according to Enterprises

Age	Type of Enterprises							Total
	Crop farming	Fish farming	Livestock farming	Processing of farm produce	Retailing of farm produce	Agro-services	Food retailing	
23 – 31	6		3	9	36	3	15	72(12.83)*
32 – 40	15	3	9	36	33	12	60	168(29.95)
41 – 49	24	3	15	27	45	27	21	162(28.88)
50 – 58	15	12	3	24	24	9	27	114(20.32)
59 – 67		6	6	9	9	6	9	45(8.02)
Total	60	24	36	105	147	57	132	**561(100)**

*Figures in parentheses are percentages of total agribusiness entrepreneurs
Source: Computed from Survey Data, 2010.

constituting 58.83 % of the sample were within this age bracket. The results imply that most of the entrepreneurs are middle-aged men and women who possessed the energy required to cope with the pressure of work given the labour-intensive nature of the agro-based enterprises.

Marital Status of Respondents

Majority of the agribusiness owners sampled were married with only few single, divorced and widows. In fact, 342 of the respondents making up 60.96% of the total entrepreneurs were married while 24 of them were single (Table 6). That majority of the entrepreneurs are married may be due to their range of ages as shown in Table 4. More than 86 % of the respondents were between 32 – 67 years old and people of this age bracket are expected to be married according to the culture of the people. Inability to raise start-up capital may limit the entrepreneurial capability of singles, as spouses may have helped to raise fund to establish some of the businesses under study. According to Conquery-Vidrovitch (1997) husbands are known to support the businesses of their wives in different parts of Africa, by providing little start-up capital so that they can have their own finances.

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Table 6: Marital Status of Agribusiness Entrepreneurs

Marital status	**Type of Enterprises**							**Total**
	Crop farming	Fish farming	Livestock farming	Processing of farm produce	Retailing of farm produce	Agro-services	Food retailing	
Single	12	3	6	27	33	12	15	108(19.25)*
Married	36	15	24	63	81	42	81	342(60.96)
Separated/ Divorced	9	6		6	21		27	69(12.30)
Widow/ Widower	3		6	9	12	3	9	42(7.49)
Total	60	24	36	105	147	57	132	**561(100**)

*Figures in parentheses are percentages of total agribusiness entrepreneurs

Source: Computed from Survey Data, 2010.

Educational level of Entrepreneurs

The results of the survey revealed that operators of micro and small agribusiness enterprises in Delta State, Nigeria acquired a great level of formal education. In fact, 35.29% of the entrepreneurs had secondary education; 23.00% attained primary education while 18.18% had tertiary education (Table 7). However, 11.23% of the respondents had no formal education. The results are thus comparable to those of Spring and McDade (1998) who reported that low level of educational qualification is characteristic of the informal sector activity.

Table 7: Educational Level of Agribusiness Entrepreneurs

Educational level	**Type of Enterprises**							**Total**
	Crop farming	Fish farming	Livestock farming	Processing of farm produce	Retailing of farm produce	Agro-services	Food retailing	
No formal education (0)	9			15	33		6	63(11.23)*
Primary school (1)	24			24	45	6	30	129(23.00)
Secondary school (2)	18	9	9	39	30	18	75	198(35.29)
NCE/OND (3)	3	6	12	6	21	6	15	69(12.30)
Tertiary education(4)	6	9	15	21	18	27	6	102(18.18)
Total respondents	**60**	**24**	**36**	**105**	**147**	**57**	**132**	**561(100)**

*Figures in parentheses are percentages of total agribusiness entrepreneurs

Source: Computed from Survey Data, 2010.

Household Size of Respondents

A relatively large household size was found in the study with a mean size of 9 persons per household; though about 49.20% of the households had family sizes ranging between 9 –14 persons (Table 8). Both on-farm and off-farm agricultural activities require a great deal of human effort, and

Table 8: Household Size of Agribusiness Entrepreneurs

Household size	Type of Enterprises							Total
	Crop farming	Fish farming	Livestock farming	Processing of farm produce	Retailing of farm produce	Agro-services	Food retailing	
3 – 5	12		3	24	12	3	27	78(13.90)*
6 – 8	30	15	6	54	24	15	63	207(36.90)
9 – 11	15	6	12	21	66	6	24	150(26.74)
12 – 14	6	3	15	6	45	33	18	126(22.46)
Total	60	24	36	105	147	57	132	**561(100)**

*Figures in parentheses are percentages of total agribusiness entrepreneurs

Source: Computed from Survey Data, 2010.

small and micro agribusiness operators rely considerably on family labour for their needs. For instance, in on-farm production operations, large families are able to cultivate larger land area and also carry out other farming activities more efficiently than households with fewer members. The same conditions apply in processing and food preparation activities.

Probit Model Results

The results of the probit analysis are shown on Table 9. Age, marital status, years of education, household size, and business experience have positive influence on the decision to participate in small agribusinesses in Delta State, Nigeria. The positive sign on the coefficients of age implies that the probability of participating in SMAEs increases with age. The marginal effect indicates that an additional year in age increases the probability of participation by an agribusiness operator by 2%. Household size also exerted a positive and statistically significant effect on entrepreneurs participation decision. The result suggests that agribusiness operators who spent more years in school aquiring formal education are more likely to participate in small agribusinesses than their less educated counterparts. In fact the results revealed that an additional year of education increases the likelihood of an individual's participation by 1.57%. The results also indicated that agribusiness operators who are married have a higher likelihood of participating in agribusiness activities. The marital status coefficient is highly statistically significant and positive. The implication of this result is that individuals that are married are more likely to participate in agribusiness operations. The probability of participation with respect to marital status is 8.73%.

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Table 9: Parameter Estimates and Summary Statistics of the Probit Model for Participation in SMAEs

Variables	Coefficient	Std. Error	z-value	p-value	Marginal effect
Const	-3.62423	0.515249	-7.0339	0.00001***	
Sex	0.145433	0.12082	1.2037	0.22870	0.0042
Age	0.0348142	0.00602697	5.7764	0.00001***	0.0203
Marital status	0.985469	0.123523	7.9780	0.00001***	0.0873
Years of education	0.0333324	0.0147382	2.2616	0.02372**	0.0157
Household size	0.18638	0.0726108	2.5668	0.01026**	0.0313
Business experience	0.0531697	0.0247708	2.1465	0.03184**	0.0229
Salary income	-7.25853e-06	2.88995e-06	-2.5116	0.01202**	-0.0193
Location	-0.208516	0.128058	-1.6283	0.10346	-0.0019

Mean dependent var	0.508021
McFadden R-squared	0.216169
Log-likelihood	-304.7405
Schwarz criterion	666.4484
S.D. dependent var	0.398694
Adjusted R-squared	0.193020
Akaike criterion	627.4809
Hannan-Quinn	642.6956

Number of cases 'correctly predicted' = 410 (73.1%)
Likelihood ratio test: Chi-square(8) = 168.086 [0.0000]
Null hypothesis: error is normally distributed
Test statistic: Chi-square(2) = 0.167398 with p-value = 0.919708

*** statistically significant at the 1% level; ** statistically significant at the 5% level

The number of adults per household (household size) is another variable that had a positive and and significant influence on participation decision. Operators from households with a large number of adults are more likely to engaged in SMAEs than those from households with fewer adults. Therefore the likelihood of participation increases with the number of adults per household. Most SMAEs operations are arduous are labour intensive, thus the availability of adults in the household of an agribusiness operator is a ready source of family labour in the business. The marginal effect shows that the presence of an additional adult in a household will increase the probability of participation by 3.13%. The business experience of operator also had a positive and significant effect on an individual participation decision. The more experience an individual has, the more the likelihood of participating in SMAEs.

Wage income and location of the agribusiness are two variables that had a negative effect on participation decision. The influence of wage income was significant at the 5% level indicating that the probability of participating in SMAEs decreases if the individual earns a regular salary.

Employment Creation and Income Generation in Small scale Agribusiness Enterprises

The results of the survey revealed how SMAEs in the central agricultural zone of Delta State have performed in the year 2009, with respect to employment creation and income generation. As shown in Table 10, a total of 1971

persons were engaged in the 561 enterprises covered in the study. Of this total number, 636 of them amounting to 32.27 % of total employees were in food retailing; 411

Table 10: Number of persons engaged in Agribusiness Enterprises

Enterprise type	No. of Enterprises	Fulltime workers	Casual workers	Workforce	Average workforce
Crop farming	60	60	177	237(12.02)	4
Fish farming	24	24	51	75(3.81)	3
Livestock farming	36	90	84	174(8.83)	5
Processing of farm produce	105	192	219	411(20.85)	4
Retailing of farm produce	147	207	63	270(13.70)	2
Agro-services	57	87	81	168(8.52)	3
Food retailing	136	345	291	636(32.27)	5
Total Workforce		1005(50.99)*	966(49.01)	1971(100)	

* Figures in parentheses are percentages of total workforce
Source: Computed from Survey Data, 2010.

in farm produce processing; 270 in retailing of farm produce while the rest are in production activities and agricultural services. Furthermore, of the total workforce, 1005 of them were full-time employees while 966 were casual workers. Average workforce ranged from 2 workers in farm produce retailing to 5 employees in livestock production and food retailing. Thus one can say that SMAEs have helped to boost employment among the low income groups in the area.

In order to assess the level of performance of SMAEs in the study area, indicators such as average sales revenue/year, income/worker as well as average workforce were computed (Table 11).
Food retailing and livestock farming had sales revenue of ₦ 209,270 and ₦ 203,390 respectively, while fish farming and farm produce retailing had income/worker of ₦ 27,850 and ₦ 22,480 respectively. It must be noted that though food retailing had the highest sales revenue, it recorded the least income per worker. The high workforce of 5 persons may have damped income outlook for this activity given the high labour requirement in the arduous task of restaurant business.

Table 11: Performance assessment of Agricultural Enterprises

Indicator	Type of Enterprises						
	Crop farming	Fish farming	Livestock farming	Processing of farm produce	Retailing of farm produce	Agro-services	Food retailing
Average sales revenue/year (₦ '000)*	135.03	197.81	203.39	153.12	129.07	144.01	209.27
Annual income/worker (₦ '000)	19.14	27.85	15.57	16.04	22.48	15.15	14.77
Average workforce	4	3	5	4	2	3	5

Source: Computed from Survey Data, 2010.

Sources of Capital for Small and Micro Agribusiness Enterprises

The study identified several sources of start up capital for small and micro agribusinesses, but personal saving stood out as the most important source of investment capital for SMAEs as every entrepreneur sampled utilised own fund in starting their operations (Table 12). Sani and Danwanka (2011) found similar results in the study of soap making agribusiness enterprises in Kogi State, Nigeria. Apart from personal savings, loan from co-operative societies is the third most patronised source of initial financing amongst small and micro agribusiness entrepreneurs. In fact, 67 proprietors got cooperative loans out of the 187 sampled, to finance their operations. Chukwuji *et. al.* (1999), found co-operative societies to be an important source of financing commercial livestock production in Delta State. Other significant sources of start-up capital for small and micro enterprises found in the study were credit from friends and relatives (39.52 %), and savings and credit groups (27.81%). The role of rotating savings groups in small and microenterprises financing has been reported by Von Pischke (1991). The results are similar to those found by Aryeetey *et al*, (1994) in Ghana, and Kimuyu and Omiti (2000) in Kenya who reported that own funds and family are the most important sources of both initial and additional capital in small-scale enterprises. They said that given the very low income

Table 12: Sources of Start-up Capital for Micro and Small Agribusinesses

Source of start-up capital	**Type of Enterprises**							**Total**
	Crop farming	Fish farming	Livestock farming	Processing of farm produce	Retailing of farm produce	Agro-services	Food retailing	
Loan from cooperative societies	27	15	24	45	36	11	21	201(35.83)*
Personal savings	60	24	36	105	147	19	132	561(100)
Money lenders	–	–	–	–	–	–	–	–
Savings and credit groups	15	6	–	27	3	5	63	156(27.81)
Commercial banks	–	–	–	–	–	–	–	–
Credit from Relatives and Friends	21	3	–	45	87	3	57	222(39.57)

*Figures in parentheses show the percentage responses of the 561 Entrepreneurs to the various sources of start-up capital.

Source: Computed from Survey Data, 2010.

and savings rate of operators of SSEs, the findings suggest that SSEs fall back on these sources for lack of alternatives and out of desperation. Alternative sources of fund are either too costly or out of reach for the majority of these enterprises. Furthermore, Levy (1993) reported that own savings accounted for 95% of the sources of finance for informal SSEs in Tanzania.

Constraints to Micro and Small Agribusiness Enterprises

Although SMAEs have great potentials as shown by the results of this study, operators face a number of constraints. Table 13 revealed that lack of access to credit, high cost of labour and high cost of credit are the three topmost challenges to small and micro agribusiness activities in the study area,

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Table 13: Constraints to Micro and Small Agribusiness Enterprises

Constraint	Type of Enterprises							Percentage response (%)
	Crop farming	Fish farming	Livestock farming	Processing of farm produce	Retailing of farm produce	Agro-services	Food retailing	
Lack of access to credit	27	15	15	90	96	45	105	70.05
High labour cost of labour	33	21	21	87	75	15	111	64.71
High cost of inputs	15	24	30	–	–	–	–	12.30
High cost of credit	24	18	24	54	81	45	87	59.36
Scarcity of competent workers	–	21	27	63	27	–	81	39.04
High cost of goods	–	–	–	–	123	–	120	43.32
High cost of equipment	–	18	21	105	–	33	30	36.90

*Figures in parentheses show the responses of the 561 Entrepreneurs to the various sources constraints they faced
Source: Computed from Survey Data, 2010.

and they elicited 70.05%, 64.71% and 59.36% of responses from small scale entrepreneurs. Other problems faced by entrepreneurs included high cost of goods, scarcity of competent workers, and rising cost of equipment. As consumers demand for high quality products and better service delivery, the need for competent hands rises. And with the increasing number of operators in the small-scale sector, competent workers are therefore very scarce.

Conclusion

Small and micro enterprises (SMCE) are engine of economic growth and development in developing countries due to their significant roles in employment creation, income generation and poverty reduction. Therefore, efforts should be made by government and international development organisations to support their operation in our economy. In spite of the great potentials of small and micro agribusiness enterprises to achieve the aforementioned goals, the constraints of access to credit, rising cost of labour and credit have remained daunting. Surmounting these critical challenges in the agribusiness sector requires government intervention in the provision of basic infrastructure such as roads, power and strengthening resource and support institutions, especially in rural areas to enhance the accessibility of small and micro agribusiness entrepreneurs to needed credit. The studied has also revealed the underlying factors that influence individual's decision to participate in SMAEs in Delta State, Nigeria. Years of formal education and business experience were found to have a positive and significant effect on the probability of participation in agribusiness enterprises. Arising from this results, policies that are aimed at providing general education as well as vocational training and skills acquisition for potential and existing entrepreneurs should be developed to stimulate investment in the small and micro agribusiness enterprises sector. It is our opinion that unless the issues of policy raised in this study are addressed as a matter of urgency, the expected goals of SMAEs in income generation and employment creation in Delta State, Nigeria will be difficult to achieve.

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