

## **GROWTH AND CONSTRAINT ANALYSIS OF MICRO AND SMALL SCALE AGRO ENTERPRISES IN ACCRA, GHANA**

**Edinam Dope Setsoafia** 

Dept. of Agriculture and Resource Economics

University for Development Studies, FACS, Nyankpalla Campus, Tamale, Ghana

edsetsoafia@gmail.com

**Joshua Aboah**

PGHGSFP, SNV Ghana, Netherlands Development Organisation,

Northern Portfolio office, Tamale, Ghana

joshaboah@gmail.com

**Danso- Abbeam Gideon**

Dept. of Agriculture and Resource Economics

University for Development Studies, FACS, Nyankpalla Campus, Tamale, Ghana

nanayawdansoabbeam@gmail.com

### **Abstract**

*Micro small enterprises make up a significant portion of the private investments in the agro-industrial sector of Ghana. Despite of it, these enterprises are bedeviled with a whole lot of constraints. The study investigates the specific effects of identified constraints on the growth potential of agro MSE in the Greater Accra region, Ghana. A multi stage sampling was used to select a sample of 120 agribusiness operators in the region. Ordered probit model was used to measure the effects of the identified constraint on growth potential of the business while the linear OLS model was used to measure the effects of the constraints on growth performance. The study revealed empirically that some constraints (i.e. high cost of production, insufficient government support) hinder performance of agro MSEs whilst others (i.e. insufficient government support, high cedi depreciation rate, lack of collateral) impede the growth potential. The study recommends amongst others, that policy makers and stakeholders such as the banks and financial institutions should come up with more innovative ways of guaranteeing loans, such as marketing arrangements, in order to allow agro MSEs expand their businesses.*

*Keywords: Micro small enterprises, Agribusiness constraints, Business growth, Challenges*

## INTRODUCTION

According to the World Bank (2006), the economic performance of sub-Saharan Africa countries has been relatively stable since the 1990s, with a brief decline during the global recession 2008/9. Ghana is currently being touted as one of the world's fastest growing economies, with a steady growth trajectory of 6% annually for the past six years with a decline in growth of 4.4% recorded in 2013 (African economic outlook, 2014). The economy of Ghana has been described as robust, and may remain so, if strategies such as promoting the integration of regional agricultural value chain into the industrial sector, increased private sector investment and improved public infrastructure development are pursued earnestly. It is no secret that development of agribusiness and the agro industrial sector is critical to sustaining the overall development of the economy. This is highlighted by the fact that almost all development policy programmes since independence in 1957, has recorded the modernization and transformation of the agro- industrial sector as a main strategy.

The Ghanaian economy has been described as an agrarian economy, till recently when agriculture's contribution to the nations' gross domestic product (GDP) decrease, making the service sector the largest contributor to GDP. However agriculture still remains the largest employer in Ghana which is in line with the fact that in Africa agriculture employs 65% of the continents working population. These people are not only engaged in farming but also across the whole agricultural value chain from harvest to the tables of consumers which makes up the agro industrial sector. The agro industry, according to Wilkinson & Rocha (2009), comprises of all the post-harvest activities that are involved in the transformation, preservation and preparation of agricultural production for intermediary or final consumption of food and non-food products. The nature of agro industrial sector in Ghana has been described by FAO (2004) as rudimentary, and artisanal; with most players engaging in it as a means of subsistence. There is a need for structure, growth promoting regulations and high technological investments to enhance the productivity and efficiency of the sector.

Micro, small enterprises (MSE) make up a significant portion of private investments in various sectors in an economy. Most of the developed nations such as America, Germany, China, Brazil, owe their growth to MSEs. These groups of enterprises are often described as the engine of growth of an economy. In Ghana, they represent a significant portion of the firm tissue. According to Abor & Biekpe (2006), they represent about 80% of the private sector and also account for about 92% of businesses in Ghana. According to the Ghana Living Standards Survey 5 (GLSS 5) the private sector employs 66.7% of the working population, with the public sector employing 28.5 %; making the private sector the largest employer in the country. The survey also recorded 55.9% of those working as being self-employed, out of which 32.1% were

engaged in agriculture related activities. This shows the pivotal role MSEs engaged in the agro industrial sector play, in reducing unemployment, enhancing food security and sustaining the overall growth of the Ghanaian economy.

In spite of the significant role they play in the economy many studies have shown that most agro industrial MSEs fail to survive the first year of their existence (Bannock, 2002; Berry et al., 2002; Fuller, 2003; Setsoafia et al., 2013). This has been attributed to the numerous constraints that bedevil these businesses, thus impeding their growth and survival. Some of the constraints identified include: limited access to finance, poor public infrastructure, higher input costs, increased regulatory burden, high bureaucracy, increasing competition in the output market, and pressure on prices received by primary producers etc. This study seeks to investigate the specific effects of these constraints on the growth potential of the agro MSE in the Greater Accra Region (GAR) of Ghana; by asking the following questions:

- i. What are the major constraints of agro industrial MSE in the Greater Accra region?
- ii. What effect do these constraints have on the growth potential of MSE?
- iii. What effect do these constraints have on the growth potential of MSE?

Achieving this objective will aid in the formulation of sector specific policies that will boost the growth of agro industrial MSEs and eventually sustain Ghana's growth. It will also add on to the knowledge base of literature on agro industrial MSEs.

The structure of the remainder of the paper is as follows: the second section provides a review of the literature on small business growth and constraints. The next section explains the methodology employed for the study. The empirical results are presented and discussed in the fourth section. The final section concludes the discussion and also provides policy recommendations in addressing the constraints of agro industrial MSEs to enhance their growth.

## **LITERATURE REVIEW**

### **Firm growth measures**

Growth of a firm is typically measured using absolute or relative changes in sales, assets, employment, productivity, profits and profit margins. It serves as an indicator of success of the entrepreneur and the company as a whole, and it is a measure of the economic contribution of the firm to common good (Dunkelberg and Cooper, 1982). In principle, the manager expects demand to stabilise before recruiting personnel, thus employment is theoretically a less volatile measure than sales (Delmar, 1997). However, sales data are usually readily available and business owners themselves attach high importance to sales as an indicator of business

performance. In addition, sales growth is also easier to measure compared with some other indices and is much more likely to be recorded. Sales are a good indicator of size and growth (Olawale and Garwe, 2010).

According to Maas and Herrington (2006), the creation of a new firm is a two-stage process. The first phase is the start-up phase, a three month period during which individuals identify the products or services that the firm will trade in, access resources and put in place the necessary infrastructure such as staff. The next phase, a period of 3 - 42 months, is when the business begins to trade and compete with other firms in the market place. Once a firm has successfully existed for more than 42 months, it becomes an established firm.

### **Business Constraints and Growth**

The survival rates for small businesses according to Stokes (1995) is low and agro industry MSEs are no exception. It is therefore important to understand the factors in the environment that influence the likelihood of success. Smit et al. (2007) define a business environment as all those factors or variables, both inside and outside the organization that may influence the continuous and successful existence of the organization. The factors are dynamic that is, their impact on the firm changes over time. Changes in the business environment may have either a negative or positive effect on the growth or failure of MSEs in most countries in Africa (World Bank, 2006). When it has a negative impact, it is often regarded as a constraint since it hinders the growth and sometimes survival of the enterprise. This business environment can be divided into the internal and external environment.

#### ***Internal environment***

According to Stokes (1995), the internal factors or influences stem from the motivations, attributes and competencies of the owner-manager who sets up the business in the first instance. These are factors in a firm's environment that are largely controlled by the firm. It is made of factors such as finance (especially internal finance such as owner's equity), managerial competency of the owner, location, investment in information technology, cost of production and networking (Cassar, 2004; Barbosa and Moraes, 2004). These factors can become constraints for the firm when their presence or lack thereof hinders the growth of the firms.

- Access to finance and capital: Factors contributing to the unimpressive performance of MSEs, as mentioned in different studies, are limited capital and limited access to finance (Okurut and Bategeka 2006; Kappel *et al.*, 2004). MSEs are usually financed from owners' wealth and/or by accessing external sources of finance, whether from 'informal' sources such as family and friends, or from 'formal', market-based sources such as

banks, venture capitalists and private equity firms. Once businesses are trading, further development can be financed using retained profits (Olawale and Garwe, 2010). Lack of access to external finance affect MSEs' decisions to upgrade their equipment, machinery and technology; this is because by making new investments they further constrain their limited internal sources of financing (Ishengoma and Kappel, 2008).

- **Management skills:** Managerial competencies are sets of knowledge, skills, behaviours and attitudes that contribute to personal effectiveness (Hellriegel *et al.*, 2008). The competence of the manager is the ultimate decider of whether the firm will grow or fail. According to Stokes (1995), as the business develops, growth can be prematurely curtailed by the inability to draw others into the management of the enterprise. Managerial competencies are very important to the survival and growth of MSEs. Martin and Staines (2008) found that lack of managerial experience and skills are the main reasons why new firms fail.
- **Location:** Rogerson (1998) found that the availability of infrastructure services is often directly linked to the location of business. The MSEs located closer to urban centres often have better access to services such as compared to those in poorer rural areas (Matangul *et al.*, 2001; Berry *et al.*, 2002). The necessary services for business survival and growth include access to water, electricity, accessible roads, telecommunications, postal services and protection from crimes are available in the urban areas (Clover and Darroch, 2005). Olawale and Garwe (2010) pointed out that geographical proximity to either potential buyers or suppliers produces a form of enhanced environmental scanning that enables MSEs to be easily identified and exploit growth opportunities in the market.
- **Networking:** Networking is very important to MSEs and can positively impact on their performance and access to finance. Researchers have identified networking as one of the fastest ways for the owner-manager to understand his environment which is crucial for the business growth. Okten and Osili (2004) found that the formation of networks help entrepreneurs to tap resources in external environment successfully. Shane and Cable (2002) suggest that networking can be used to reduce information asymmetry in creditor/debtor relationships. Ngoc *et al.* (2009) explain that in the absence of effective market institutions, networks play an important role in spreading knowledge about a firm's existence and its practices. It also enables a firm to learn appropriate behaviour and therefore obtain needed support from key stakeholders and the general public (Olawale and Garwe 2010). Successful entrepreneurs use informal networks to keep up to date thus developing a rich mental map of their environment (Stokes, 1995).

### **External environment**

According to Stokes (1995), the external environment is made up of the macro environment and the micro environment. The macro environment is made up of political and regulatory factors (e.g. levels of tax), economic conditions (e.g. inflation rates), social and demographic influence (e.g. age profile of population), and technological changes (e.g. information handling and communication) which impact the firm nationally or internationally. The micro environment refers to factors which influence a particular firms or enterprises such as the competitive environment, customer needs and the structure of demand for individuals' products and or services. These state variables are largely uncontrollable by MSEs.

- Economic variables and markets: Ehlers and Lazenby (2007), observed that economic factors have a direct impact on the potential attractiveness of various strategies and consumption patterns in the economy and have significant and unequal effects on organizations in different industries and in different locations. Economic variables include the fiscal and monetary policies of the government, inflation, interest rates and foreign exchange rates. These variables influence the demand for goods and services, hence the growth of MSEs. The extent of competition and potential competition also impact on the market potential and growth opportunities of MSEs. Therefore, managers of new firms have to scan and interpret environmental changes (especially the extent of present or future competition) to maintain their firms' viability and performance (Zahra *et al.*, 2002).
- Corruption: Gaviria (2002) argued that the reason why MSEs engage in corruption is often linked to problems with regulatory compliance and bureaucracy. MSEs lack the bargaining power and the influence to oppose requests for unofficial payments and similar solicitations. The World Bank (2005) found that about 70 percent of MSEs perceive corruption as an impediment to their business compared to approximately 60 percent, for large firms.
- Labour, infrastructure and regulations: MSEs require access to a pool of suitably-skilled and suitably- motivated labour in order to sustain growth. Labour can only be hired at a cost and within the confines of the labour regulations such as the Employment and Minimum Wage Regulations. Many developing countries suffer from deplorable state of basic infrastructure like transportation, telecommunication and electricity. Electricity supply does not meet the demand leading to power cuts which can affect the production and turnover of MSEs (Kalra, 2009). In addition, the cost of regulation may impact on the growth of MSEs. MSEs have to obtain registration licences and pay taxes (Hashi, 2001). The World Bank Doing Business Report (2006) indicated that it takes 127 days to deal

with licensing issues and there are 16 procedures involved in licensing a business in Ghana. It takes longer (176 days) in South Africa and there were 18 procedures involved in dealing with licensing issues. Meanwhile, the absence of antitrust legislation favours larger firms, while the lack of protection for property rights limits SMEs' access to foreign technologies (Kayanula and Quartey, 2000). Most MSEs also perceive that they do not get enough support from the government.

## **METHODOLOGY**

### **The study**

The Greater Accra Region is the smallest of Ghana's 10 administrative regions in terms of area, occupying a total land surface of 3,245 square kilometers or 1.4 per cent of the total land area of Ghana. Some of sampled communities from the 10 districts include Tema, Weija, Achimota, Dansoman, Madina, Abokobi, Kpone, Pokuase, Dodowa, Afienya, Ashiaman. The private informal sector, which employs 6 out of every 10 economically active persons, plays a leading role in the economy of the region. The two major industrial activities in the region are wholesale and retail trade (30.4%) and manufacturing (16.7%). Agriculture, fishing and forestry, the most predominant industry in the country, comes as the third major industry in the region. The region houses many MSEs involved in the production, processing and sale of agro based products along the whole agricultural value chain.

### **Sampling and data collection**

A multistage sampling procedure made up of purposive sampling, stratified sampling and snow balling was used to select the sample. The region where the study was carried out was purposively selected, because the Greater Accra region houses most of the agro-industry MSEs in the country.

A preliminary search in the region was done to find out the type of processing engaged in by operators of agro MSEs. The search showed that most of the firms were engaged in the first three stages of processing, that is, processing level 1 (which involves cleaning, grading, sorting with products like eggs, fruits and vegetables), processing level 2 (which involves cutting, mixing, milling with products such as cereal mixes, spices, flours) and processing level 3 (which involves cooking, pasteurization, extraction, freezing, dehydration with products such as fruit juices, yoghurt, and shito). A list of agro MSEs was obtained from National Board of Small Scale Industries (NBSSI), Ghana Industrial and Commercial Estates Limited (GICEL) and Ministry of Trade and Industries. Stratified random sampling technique was used to divide the firm population in processing level 1, processing level 2 and processing level 3. Snowball



technique was then used to select the firms (respondents) based on their availability at the time of data collection. In all, 120 firms involving 39 processing 1, 39 processing 2 and 42 processing 3 firms. Semi-structured questionnaire was the main tool used to collect the primary data from the owners/managers of the MSEs. Secondary data were also obtained from NBSSI, GICEL and Registrar General Department.

### **Analytical Techniques**

Thirty-one constraints were identified from literature and a five- point Likert scale was used to rank these constraints, with 5 as most pressing and 1 as least pressing. The constraints with the highest modes and percentages occurring as most pressing were selected to constitute the top seven (7) constraints. Ordered probit model was used to measure the effects of the identified constraint on growth potential while the linear OLS model was used to measure the effects of the constraints on growth performance while controlling for owner/operator demographic, socio-economic and firm characteristics.

#### ***Ordered probit model***

In relating the growth potential of income (*growthpep*) to business constraints (*bconst*), the paper utilizes an ordered probit model. This model indicates the probability that firms will experience growth in income, given business constraints. The conditional expectation of the growth potential of income (*growthpep*) given explanatory variables, business constraints (*bconst*), and control variables (*contrv*) is

$$E[\text{growthpep}_i | \text{bconst}_i, \text{contrv}_i] = P[e_i > -V(\text{bconst}_i, \text{contrv}_i)] = F[(\text{bconst}_i, \text{contrv}_i)]$$

where  $e_i$  is a disturbance term with mean zero, and variance equals one.  $P$  is the probability distribution function, and  $F$  is the cumulative normal distribution function with unity variance.

The term  $V$  represents the explanatory variables (business constraints) and control variables. The term  $i$  stands for a firm ( $i = 1, 2, 3, \dots, 120$ ). The variables *bconst* and *contrv* are defined as earlier. For the dependent variable *growthpep*, respondents were asked whether income situation was growing, this was coded 2 as growing, 1 as stable and 0 as not growing.

Non- linear models are often used when responses are coded on a discrete and ordinal scale, which are popular when variables require subjective assessment (Baetschmann et al., 2011). The model that is widely used for variables that require subjective assessment or for qualitative dependent variables is the ordered probit model (Baetschmann et al., 2011). This model operates with the focal idea that there is a latent continuous metric underlying the ordinal responses.



The model is often expressed as

$$y_i^* = X_i\beta + e_i, \quad e_i \sim N(0,1), \forall i = 1, \dots, N. \quad (1)$$

$y_i$  is the observed ordinal variable,  $X_i\beta$  is the explanatory variables

The maximum likelihood estimate is used to estimate the model, hence the log-likelihood function used is:

$$\ln L = \sum_{i=1}^N \sum_{j=0}^m Z_{ij} \ln [\phi_{ij} - \phi_{i,j-1}] \quad (2)$$

Most of the MSEs interviewed did not keep organized records of their accounts, so it was difficult to estimate their growth rates over the period. However, they were able to give the average level of monthly sales, which was transformed to its natural log form (*Ingsales*) to reduce the diversity in the average monthly sales values. The MSEs were also questioned on their perception of their income situation (that is, whether it increased, stabilized, or declined). This was used to construct an ordered variable to measure the perception of growth of their income (*growthpep*) as 2 if firm experienced growth in income, 1 if income situation has stabilized and 0 if income has declined.

### **Linear regression model**

The paper employed a linear regression model to associate the business performance (*Ingsales*) with business constraints (*bconst*) as shown below:

$$Ingsales_i = \alpha + \beta_1 bconst_i + \beta_2 contrv_i + e_i \quad (3)$$

Whereby  $\beta_1$  and  $\beta_2$  are parameters to be estimated, while  $\alpha$  and  $e$  are the constant and the error term, respectively. The terms *bconst* and *contrv* are business constraints and control variables.

The approaches used to measure *bconst* and *contrv* are addressed in the following sections.

The term  $i$  stands for a firm ( $i = 1, 2, 3, \dots, 120$ ).

### **Empirical specification**

The empirical models include two categories of control variables (*contrv*): owner-managers' attributes (such as gender, owner's level of education and his/her marital status) and the agro MSEs characteristics (location, processing level engaged in and the firm's organizational structure etc.).

Based on reviewed literature growth perception is modeled as follows:

$$\begin{aligned} \text{growthpot} = & \beta_0 + \beta_1 \text{Age} + \beta_2 \text{Agesq} + \beta_3 \text{Gender} + \beta_4 \text{EduPri} + \beta_5 \text{EduSec} + \beta_6 \text{EduTer} + \\ & \beta_7 \text{Mar} + \beta_8 \text{Internet} + \beta_9 \text{Location} + \beta_{10} \text{ProdLev1} + \beta_{11} \text{Prodlev3} + \beta_{12} \text{Prodtype} + \\ & \beta_{13} \text{Freezone} + \beta_{14} \text{Packaging} + \beta_{15} \text{Orgstruc} + \beta_{16} \text{FirmSize} + \beta_{17} \text{Whosale} + \beta_{18} \text{Conts} + \\ & v_i \end{aligned} \quad (4)$$

And the growth performance is modeled as:

$$\begin{aligned} \ln \text{Grosssales} = & \beta_0 + \beta_1 \text{Age} + \beta_2 \text{Agesq} + \beta_3 \text{EduPri} + \beta_4 \text{Firmage} + \beta_5 \text{Location} \\ & + \beta_6 \text{ProdLev1} + \beta_7 \text{Prodlev3} + \beta_8 \text{Whosale} + \beta_9 \text{Packaging} + \beta_{10} \text{Orgstruc} \\ & + \beta_{11} \text{FirmSize} + \beta_{12} \text{Const} + u_i \end{aligned} \quad (5)$$

Where:

Growthpep=growth perception of owner manger, age = age of owner/operator, agesq = age squared, gender= gender of owner operator, edupri = primary education, edusec =secondary education, eduter= tertiary education, mar = marital status, internet= use of internet, location= urban location, prodlev1=processing level, prodlev3= processing level 3, prodtype = product type, freezones = freezones status, packaging=small size packaging, orgstruc = organization structure, firmsize = small size firm, whosale = use of wholesalers, firmage = age of firm, gross sales = gross sales of the firm.

These variables are expected to have an effect in one way or another on the growth performance and the growth perception of the agro MSEs and may also interact with some business constraints. Several past studies have argued that women-owned firms are usually concentrated in under-performing industries, therefore they are less likely to expand their business in terms of upgrading their technical investments, since they are risk averse and afraid of being taken over by their male counterparts (Ishengoma, 2004, Abor & Quartey 2010). Others also argue that gender may affect performance, since women have relatively more limited access to external finance as compared to their male counterparts; and lack visibility since the most of women-owned businesses are home based (Ishengoma, 2004).

The age of the owner-operator plays an important role in determining the growth of an agro SME; younger operators are usually more educated, and the literature suggests that educated operators are more likely adopters of newer technology (Rahm & Huffman, 1984; Putler & Zilberman, 1988). Other studies also show that, younger operators are constantly searching for information on production and marketing strategies, via internet and networks that will make their business more profitable (Mishra *et al.*, 2009). The type of agribusiness (that is, farming, processing, marketing etc.) may affect the gross sales and subsequently the growth of the agro MSE (Detre *et al.*, 2010). The processing level engaged in may also have an influence

on the gross sales and the growth perception of the owner –operator. The distinction of the level of processing are processing level 1 (involves cleaning, grading, and sorting with products like eggs, fruits and vegetables), processing level 2 (involves cutting, mixing, milling with products such as cereal mixes, spices, flours) and processing level 3 (involves cooking, pasteurization, extraction, freezing, dehydration with products such as fruit juices, yoghurt, and shito).

Location of the enterprise is also one of the crucial factors influencing gross sales; this is because access and proximity to urban areas reduce the transportation costs associated with supplying produce to business clients (Morgan & Alipoe, 2001). According to Abor and Quartey 2010, MSEs can be categorized into “organized” and “unorganized” enterprises. The organized ones (which usually have a three/multiple tiered organisational structure) have paid employees with a registered office, whereas the unorganized category (which often has a two tiered organisational structure) is mainly made up of artisans who work in open spaces, temporary wooden structures, or at home, and employ few or in some cases no salaried workers (Kayanula and Quartey, 2000). The unorganized enterprises rely mostly on family members or apprentices, which may result in a decline in their growth potential and or gross sales.

## EMPIRICAL RESULTS AND DISCUSSION

### Business Constraint Identified

The constraints identified were those whose mode was 5, meaning extremely pressing constraints. From table 1, high interest rate and lack of collateral which leads to limited access to external funds, have 45.8 percent and 28 percent of respondents citing them as first and second extremely pressing constraints respectively. The cost of borrowing from the financial institutions (banking and microfinance) in the country ranges from 28 to 60 percent annually. This makes it difficult for agro MSEs to source funds externally to upgrade their investments, expand their business, and to increase the firms competitiveness in the global market (Schmitz 2004; Morrison, Pietrobelli and Rabellotti 2006).

Table 1: Extremely Pressing Business Constraints Identified from Sampled Agro MSEs

CONSTRAINTS	PERCENTAGE
High interest rate	45.8
High taxes and tariffs	40
High production cost	35.9
High cedi depreciation rate	29.2
Lack of collateral	28.5
Insufficient government support	22.5
Poor water supply	20.8

Forty percent of sampled respondents cited high taxes and tariffs as extremely pressing. This is because taxes and tariffs increase the cost of doing business in the country, especially when the tariffs for water supply and electricity are high and yet the service is poor. Most businesses look for alternative sources of water supply and electricity to augment the inconsistencies in their supply from the state institutions. High cost of production was cited by 35.9 percent of the respondents as being extremely pressing. Apart from the poor service supply from the utility companies which increases the cost of production, the cost of raw materials as well as the high transportation costs all makes the cost of production of goods high and uncompetitive in the wake of global trade. High cedi depreciation rate was cited by 29.2 per cent of the respondents as extremely constraints. The high cedi depreciation rate leads to high inflation rate in the country due to the fact that most of the consumables are imported. Insufficient government support and poor water supply were cited as extremely pressing by 22.5percent and 20.8 percent of the sampled respondents respectively.

### **Effects of constraints on growth performance**

The determinants of growth potential were estimated by regressing the gross monthly sales on the constraints together with the business characteristics and the owner/manager characteristics using a linear regression model.

Table 2 presents the estimates of the linear regression model used to determine the effects of the determinants of growth performance of SMEs in Greater Accra region. The  $R^2$  value of 0.246 indicates that about 25% variations in the monthly sales (which is a measure of performance) of the SMEs are explained by the explanatory variables used in the model. This is quite reasonable considering the fact that the data was cross-sectional obtain from selected individual MSEs in the study area. Generally, six variables out of twelve included in the model are significant in explaining the determinants of growth performance of MSEs. The statistically significant variables includes; Age, age squared, micro firm, high cost of production, poor water supply and insufficient government support

These constraints were dummied and modeled together with the business characteristics and the owner/manager characteristics in a linear regression model to estimate their effects on the growth performance of the MSEs, and in an ordered probit model to estimate their effect on the growth potential of the agro MSEs.

The linear regression model used explains approximately 25 percent of the variations in the monthly gross sales of the agro MSEs as indicated by the  $R^2$ . The results in table 2, shows the importance of age, age squared, micro firm, high cost of production, poor water supply and insufficient government supply in explaining the factors that determine the sales performance of

agro MSEs. Three of the statistically significant variables namely age of owner / operator, micro size of the firm and poor water supply have positive contributions to the firms' sales performance. However, the variables age squared of the owner/operator, high cost of production and insufficient government support have negative contributions to the sales performance.

Table 2: Results from Linear regression Model

Variable	Coefficient	Std. Err.	P-value
Age	2.827**	1.362	0.038
Age squared	-0.032**	0.015	0.030
Experience	-0.014	0.013	0.285
Marital status	-8.345	6.442	0.195
Secondary education	-9.744	7.340	0.184
Organization structure	-6.952	5.108	0.173
Processing level 1	-3.497	6.287	0.578
Micro firm	8.144*	4.597	0.076
High interest rate	-12.465	6.309	0.659
High cost production	-12.465**	6.241	0.046
Poor water supply	11.908*	6.538	0.069
Insufficient government support	-14.691**	6.090	0.016
<hr/>			
Number of observations	120		
Prob>F	0.0015		
R-squared	0.2467		
Adjusted R-Squared	0.1623		

\*\*\*, \*\*, \* for 1 percent, 5 percent, and 10 percent significance respectively

Age and Age squared were positive and negative respectively at 5 percent significance. The results show that younger people do better in increasing the sales growth of the agro MSEs than the older operators. This confirms our apiori expectation, that younger operators are usually more educated, zealous, enterprising and innovative in trying out new things to ensure that businesses grow (Rahm & Huffman, 1984; Putler & Zilberman, 1988). According to Mishra *et al.*(2009), younger operators are constantly searching for information on production and marketing strategies via internet and networks that will make their business more profitable. The micro size characteristic of a firm also had a significant positive influence on gross sales performance. This could be because of the hands-on approach most owner operators adopt when the business is usually at this stage where it has a maximum of 10 employees. They are mostly involved in the daily running of the business, supervising activities to ensure productivity and efficiency are enhanced thereby increasing their growth performance.

The constraints, high cost of production and insufficient government support are significant at 10% reducing sales growth by 12.5 percent and 14.7 percent respectively. This could be partially be attributed to the depreciation of the Ghana cedi in recent times and high levels of inflation being recorded in the country These have led to high cost of production which in turn have negative effect on sales and on profits.. It is inevitable that these firms will experience reduction in sales growth when they increase the prices of their products in their bid to maximize their profits or even break even. Insufficient government support in the form of inadequate business advisory services, inadequate grants and subsidies for agro MSEs were reported to constrain the growth of these firms. Poor water supply contributed positively to the growth of MSEs. This is contrary to our apiori expectation. This could be because, the agro MSEs have an alternative source of water such as dugout wells, rain harvesting tanks etc. which they use in their production activities, therefore did not rely solely on the services of national water company.

### Effects of constraints on growth potential

The estimates of the ordered probit model used to determine the probability that a firm will experience a growth in income are presented in table 3 below. The Pseudo R<sup>2</sup> value of 0.12 means that 12% of the variation in the SMEs perception of growth in income was explained by the variables included in the model. The results from the table indicate that sex of the owner operator, sole proprietorship, the organizational structure of the firm, insufficient government support, high cedi depreciation rate, lack of collateral are significant as factors determining the growth potential of agro MSEs. The sex of the owner operator and the organized structure of the business were found to have positive effects on the growth potential of the agro MSEs whilst sole proprietorship, insufficient government support, high cedi depreciation rate, and lack of collateral for accessing loans were found to have negative effects on the growth potential of income.

Table 3: Results from Ordered probit model

Variable	Coefficient	Marginal Effect	P-Value
Sex	0.671**	0.140	0.015
Primary Education	0.493	0.089	0.184
Secondary Education	-0.146	-0.032	0.741
Sole Proprietorship	-0.366***	-0.080	0.007
Organisational Structure	0.441*	0.096	0.099
Processing Level 1	-0.181	-0.038	0.560
Micro Size Enterprise	0.216	0.047	0.294
Urban Location	-0.257	-0.059	0.342

Tab 3.....

Insufficient Government Support	-0.901***	-0.148	0.001
High Cedi Depreciation Rate	-0.558**	-0.107	0.054
Poor Roads	-0.381	-0.073	0.180
Poor Water Supply	0.423	0.104	0.234
Lack Of Collateral	-0.671***	-0.123	0.007
Lr Chi <sup>2</sup>	28.79		
Prob>Chi <sup>2</sup>	0.0070		
Pseudo R <sup>2</sup>	0.1167		

\*\*\*, \*\*, \* for 1 percent, 5 percent, and 10 percent significance respectively

The results show that the male owner/manager can increase the firm's growth potentials by 15 percent more than his female counterparts. This could be because males have relatively more access to external finance than women and are more likely to upgrade their investments to expand their business. This is in conformity to several studies such as that of Ishengoma (2004), Abor and Quartey (2010), Kayanula and Quartey, (2000) who argue that women owned firms are concentrated in underperforming industries since their owners are generally risk averse and are less likely to expand their business due to the fear of being taken over by their male counterparts.

The form of business ownership was found to have a significant effect on the growth potentials of the business. The analysis revealed that agro MSEs being run as sole proprietorship had a decrease in growth potential by 8 percent. This could be due to the fact that in sole proprietorship all major decisions are taken by one owner/ manager who may have weak managerial skills, limited access to and use of new technologies, market information, access to credit from the banking sector are severely limited, thus inhibiting the development of a strategic plan for sustainable growth (Mensah, 2004). The study further demonstrated that having a organizational structure, with hierarchy and specialized departments was also found to increase the growth potentials of the firms by 9 percent. This could be because such arrangements allows for specialization and adequate supervision which enhances the productivity and efficiency of the firm.

Insufficient government support in the form of business advisory services, workshops training, subsidies and protection of the local industries from import substitutes were found to reduce the growth potential of agro MSEs by 14 percent. This lack of support in the face of globalization makes the local industries less competitive, thus reducing their growth potentials. The high rate of the cedi depreciation was also found to decrease the growth potential of agro MSEs by 11 percent. Most of the equipment and materials used by agro MSEs are imported, thus the high rate of cedi depreciation to the foreign currencies inevitably increases the cost of



production, which reduce their profit margins and subsequently their growth potentials. Lack of collateral to be able to access external sources of finance was also found to decrease growth potentials by 12 per cent. This is due to the fact that limited access to finance hinders the upgrading of investments and impedes owner/managers from expanding their business.

## **CONCLUSIONS AND RECOMMENDATIONS**

The objective of this paper was to examine the extent to which the growth potential and performance of agro MSEs were associated with identified constraints. The paper uses regression models whilst control for owner/ managers attributes and firms characteristics. It was revealed empirically that some constraints (i.e. high cost of production, insufficient government support) does hinder the performance agro MSEs whilst others (i.e. insufficient government support, high cedi depreciation rate, lack of collateral) impede the growth potential of these enterprises. It is interesting to note that poor water supply rather boosted growth performance. This could be due to firms having alternative sources of water, whose supply was more efficient and stable than the nation's water company.

Agro MSEs that reported insufficient government support in the form the of business advisory services, workshops training, subsidies and protection of the local industries from import substitutes, attain a lower turnover and their growth potential is likely to decrease. This indicates that adequate government support is an important factor for MSEs to perform better and to grow. Stakeholders especially government need to make their support services more readily available and accessible to more agro MSEs in the country. Also undertaking measures such as subsidizing agro MSEs participation in fairs, subcontracting arrangements and implementing policies that protect the local industries from excessive import substitutes will increase their access to differentiated markets and make them more competitive.

From our findings MSEs encounter high cost of production which reduces their growth performance and a high cedi depreciation rate which decreases their growth potential. Government of Ghana and other stakeholders should create a conducive macroeconomic environment such as local currency stabilization, ...by promoting home grown solutions such patronizing made in Ghana products, increasing our exports (traditional and non- traditional exports), increase production and use of local raw materials for production and fabricating quality appropriate machinery locally for use by industries.

The results show that lack of collateral limits MSEs ability to access finance in order to upgrade their investments and subsequently grow. Policy makers and stakeholders such as the banks and financial institutions should come up with more innovative ways of guaranteeing loans, such as marketing arrangements, in order to allow agro MSEs expand their businesses.

Agro MSEs should be trained to have a clearly defined organizational structure, with hierarchy and specialized departments. Such arrangements allow for specialization and adequate supervision which enhance the productivity and efficiency of the firm.

## REFERENCES

- Abor, J., & Biekpe N., (2006), Access to Debt Finance: A Comparison of Male-Owned and Female-Owned Businesses in Ghana", *International Journal of Entrepreneurship and Innovation*, 7(2), pp. 105-112.
- Abor J., & Quartey P., (2010), Issues In SME Development In Ghana And South Africa, *International Research Journal of Finance and Economics*, Eurojournals Publishing, Inc. 2010, ISSN 1450-2887 Issue 39, pp 218 -228
- AfDB, OECD, UNDP (2014) African economic outlook 2014, Global Value Chains and Africa's Industrialisation, DOI: <http://dx.doi.org/10.1787/aeo-2014-en>, ISBN 978-92-64-20941-1
- Bachtsman, G., Staub, K.E., and Winkelmann, R., (2011) Consistent estimation of the fixed effects ordered logit model. Discussion paper 5443, IZA 2011.
- Barbosa E.G., & Moraes C.C., (2004). Determinants of the Firm's Capital Structure: The Case of the very Small Enterprises [On-line]. Available: [http://econpa.wustl.edu.8089/eps/fin/papers\\_0302/0302001.pdf](http://econpa.wustl.edu.8089/eps/fin/papers_0302/0302001.pdf) [Accessed: 30 October, 2009].
- Bannock G., (2002). Improving the Enabling Environment for Indigenous Enterprise Development and Investment: Lessons of Experience. A summary of insights from six Southern African workshops. Prepared by the Small Business Project. Website: <http://www.brain.org.za>.
- Berry A., Von Bottnitz M., Cassim R., Kesper A., Rajaratnam B., & Van Seventer D.E., (2002). The Economics of SMEs in SA. Trade and industry policy strategies, Johannesburg, South Africa.
- Clover T.A. & Darroch M.A.G., (2005). Owners' Perceptions of Factors that Constrain the Survival and Growth of Small, Medium and Micro Agribusiness in Kwazulu-Natal, South Africa, *Agrekon*, Vol 44, No 2
- Cassar G., (2004). The Financing of Business Start-Ups. *J. Bus. Venture* 19(2): 261-283
- Delmar F., (1997), "Measuring growth: methodological considerations and empirical results", in Donckels, R. and Miettinen, A. (ed.) (1997), *Entrepreneurship and SME research: on its way to the next millennium*, Aldershot, Ashgate
- Detre J.D., Mark T.B., Mishra A.K., Adhikari A., (2011) Linkage Between Direct Marketing And Far Income: A Double Hurdle Approach. *Journal of Agribusiness*, Vol. 27 (1) 19-33, Wiley Online Library ([wileyonlinelibrary.com](http://wileyonlinelibrary.com))
- Dunkelberg W.G., & Cooper A.C., (1982), "Patterns of small business growth", *Academy of Management Proceedings*, 409-413
- Ehlers T., & Lazenby K., (2007). *Strategic Management. South Africa concept and cases 2nd edition*. Van Schaik, Pretoria.
- FAO (2005) Final Report, FAO/WHO Regional Conference of Food Safety for Africa, <ftp://ftp.fao.org/docrep/fao/meeting/010/a0215e/a0215e00.pdf>, AGN –AG, A0215, FAO, Rome
- Ghana Statistical Service. (2008). Ghana Living Standards Survey, Reports of the Fifth Round, Accra. 1-5.
- Hellriegel D, Jackson SE, Slocum J, Staude G, Amos T, Klopper HP, Louw L, Oosthuizen T., (2008). *Management*. 2nd South Africa edition. Oxford University Press, Oxford.
- Ishengoma E., (2004) The Role of Firm-Resources: Performance Differentials between Women- and Men-owned Micro-enterprises in Tanzania, Leipzig: University of Leipzig Paperson Africa, No. 70

- Ishengoma E.K. & Kappel R., (2008). Business Constraints and Growth Potential of Micro and Small Manufacturing Enterprises in Uganda, *GIGA Research Programme: Transformation in the Process of Globalisation* N° 78
- Kappel R., Lay, J., & Steiner S., (2004) The Missing Links—Uganda’s Economic Reforms and Pro-Poor Growth, Report commissioned by Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), Eschborn, February 2004, [www.giga-hamburg.de/dl/download.php?d=/content/staff/kappel/publications/gtz\\_ppg\\_2004.pdf](http://www.giga-hamburg.de/dl/download.php?d=/content/staff/kappel/publications/gtz_ppg_2004.pdf)
- Kayanula D., & Quartey P., (2000), “The Policy Environment for Promoting Small and Medium-Sized Enterprises in Ghana and Malawi”, Finance and Development Research Programme, *Working Paper Series*, Paper No 15, IDPM, University of Manchester
- Martin G., & Staines H., (2008). Managerial Competencies in Small Firm [online]. Available: <http://www.emeraldinsight.com/insight/viewcontentitem.do?contenttype>. Accessed: 15 May, 2009.
- Matangul P.M, Lyne M.C, Ortmann G.F., (2001). Transaction costs and crop marketing of Impendle and Swayimana, KwaZulu-Natal. *Development Southern Africa* 18(3):347–361.
- Mass G., & Herrington M., (2006). Global Entrepreneurship Monitor South African Executive Report (online). Available: [http://www.gbs.nct.ac.za/gbswebb/userfiles/gemsouth\\_africa2000pdf](http://www.gbs.nct.ac.za/gbswebb/userfiles/gemsouth_africa2000pdf). Accessed: 10 May, 2009
- Mensah S., (2004), A Review of Financing Schemes In Ghana, *Presented at the UNIDO Regional Workshop of Financing Small and Medium Scale Enterprises, Accra*.
- Mishra A., Wilson C., & Williams R., (2009). Factors affecting the financial performance of new and beginning farmers. *Agricultural Finance Review*, 69, 160–179.
- Morgan, T.K., & Alipoe D., (2001). Factors Affecting the Number and Type of Small-Farm Direct Marketing Outlets in Mississippi. *Journal of Food Distribution Research*, 32, 125–134.
- Morrison, A., Pietrobelli, C., Rabellotti, R. (2006): Global Value Chains and Technological Capabilities: a Framework to Study Industrial Innovation in Developing Countries, Milano:CESPRI Working Paper 192.
- Olawale F., & Garwe D., (2010), Obstacles to the growth of new businesses in South Africa: A principal component analysis approach, *African Journal of Business Management*, Vol 4(5), pp. 729 – 738
- Okurut F., & Bategeka, L.N., (2006). The Impact of Microfinance on the Welfare of the Poor in Uganda, in: *Journal of Social and Economic Policy*, 3, 1: 59-74.
- Okten G., Osil U.O., (2004). Social Networks and Credit Access in Indonesia, *World Development* 37(2): 1225-1246.
- Putler D.S., & Zilberman, D., (1988). Computer use in agriculture: Evidence from Tular County, California. *American Journal of Agricultural Economics*, 70, 790–802.
- Rahm, M.R., & Huffman, W.E., (1984). The adoption of reduced tillage: The role of human capital and other variables. *American Journal of Agricultural Economics*, 66, 405–413.
- Rogerson C.M., (1998). Rural SME development in South Africa: The White River Area, Mpumalanga. *Africa Insight* 28(1/2):53–64.
- Setsoafia E.D., Sarpong D.B., & Kwadzo G.T.M (2013), Determinants of Direct Marketing Strategy Adoption by Agro SMEs’ in the Greater Accra Region, Ghana, *Asian Journal of Agricultural Extension, Economics & Sociology* 2(2): 105-117, 2013; Article no. AJAEES.2013.001
- Shane S., & Cable D., (2002). Network Ties, Reputation and the Financing of New Ventures, *Management Science*. 48(3): 364-381.
- Schmitz, H. (ed.) (2004): Local Enterprises in the Global Economy: Issues of Governance and Upgrading, Cheltenham.
- Smit P.J., Cronje G.J., Brevis T., Vrba M.J., (2007). *Management Principle: A Contemporary Edition for Africa*. Juta and Co Ltd. Cape Town.

Stokes D., (1995) *Small Business Management; An Active Learning Approach*, 2<sup>nd</sup> Edition Ashford Colour Press, Hants, Great Britain

Wilkinson, J. & R. Rocha, 2009. Agro-industry trends, patterns and development impacts. In C. da Silva, D. Baker, A.W. Shepherd, C. Jenane, S. Miranda-da-Cruz (eds.), *Agroindustries for Development*, Wallingford, UK: CABI for FAO and UNIDO, pp. 46-91.

World Bank (2006). World Development Indicator Database. [online]. Available: <http://worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS>. [Accessed: 10 May, 2009]

Zahra S.A., Neubaum D.O., & El-Hagrassey G.M., (2002). Competitive Analysis and New Venture Performance: Understanding the Impact of Strategic Uncertainty and Venture Origin. *Entrepreneurship Theory Practice*. 27(1): 1-28.