

Factors Influencing Access to Credits among Micro and Small Agro-based Enterprises in the Tamale Metropolis, Ghana

ABSTRACT

Access to credits has been noted as a teething problem among agro-based micro and small enterprises (MSEs). The study examined and estimated the factors influencing access to credits using survey data of 155 micro and small enterprise operators selected through multistage sampling technique in the Tamale Metropolitan Assembly in the Northern Region of Ghana. The method of analysis involved the use of binary logit estimations. The study revealed that older entrepreneurs, males, level of education, income, distance from formal credit source, engagement in casual work significantly influenced the access to formal credit. Access to formal credit was however strongly and adversely influenced by number of paid employees, production sector, processing sector and engagement in other economic activities. The age of respondent, high number of years in business, high income, far distance to informal credit source and increased number of casual workers engaged positively influenced access to informal credits while increased expenses on child education and increased number of paid employees inversely affected access to informal credits. Overall access to credit (whether formal or informal), access was found to have influenced by older entrepreneurs, higher income and far distance but older Businesses and being in the service sectors were found to significantly affected access inversely. Government policies should aim at formulating programmes to promote and strengthen economic power of MSE operators to enhance their access to credits; by designing a sustainable and appropriate training programme for business skills development; provide technical assistant and advisory and consultation services.

Keywords: [Access, credit, Micro, small, agro-based, enterprises]

1. INTRODUCTION

Micro and Small agro-based enterprises (MSEs) played a vital and vibrant role in the economic growth and development of most developing economies [1]. MSEs play a significant role in development, especially in the third world countries and generate wide-spread economic benefits. The sector plays an important role in industrialization, promotion of rural urban balance, effective resource utilization and indigenous people's participation in economic development. To be effective in promotion of rural urban balance and indigenous people's participation in economic development and other industry areas, finance plays a key role. As far as MSEs are concerned as part of business enterprises, they need finance to start up, expand, diversify and for working capital of the business firms, without which no one business enterprise can achieve its objectives[1]. Micro, small, and medium-sized agricultural producers, processors, and traders need access to a variety of financial services in order to maintain and grow their businesses.

Micro and Small agro-based enterprises are labour intensive and perform useful roles in ensuring income stability, growth and employment participation for the bulk of low-income earners and as a result provides the poor a potential escape route from poverty [2,3]. The Food and Agricultural Sector in Ghana employs majority of people in the Ghanaian economy though its contribution to Gross Domestic Product (GDP) has been declining slowly over the years. Going beyond traditional agriculture dominated by production by farmers to include other value chain actors in agriculture is often considered a promising pathway out of poverty for poor rural economies, and there is a widespread belief that small enterprises may play an important role in especially the early stages of diversifying beyond agriculture [4, 5, 6].

32 The current agricultural policy framework under which Ghana operates is provided by the Food and
33 Agriculture Sector Development Policy (FASDEP II) document which firmly recognizes the role that
34 credit can play in productivity and livelihood improvements of its citizens. The definition of SMEs varies
35 across disciplines and locations. The World Bank defines SMEs as having no more than 500
36 employees, but this varies from country to country. In Ghana SMEs are describe on the basis of
37 capital requirements and employment size. The National Board for Small Scale Industries (NBSSI)
38 defines small-scale enterprise as firms with not more than 9 workers with plant and machinery
39 (excluding land, buildings and vehicles) not exceeding 10 million Ghana Cedis. Access to credit refers
40 to the possibility that individuals or enterprises can access financial services, including credit, deposit,
41 payment, insurance, and other risk management services [7].

42 The working and operational definition of MSEs for this study is adopted from [8] who classified small-
43 scale enterprises into three categories, namely; micro enterprises employs less than 6 people; very
44 small enterprises employing 6-9 people; and small enterprises between 10 and 29 employees.

45 1.1 Access to Credits among MSEs

46 In Sub-Sahara Africa, most small businesses fail in the first year due to lack of funding from
47 government and traditional banks [9]. In Ghana, the problems of financing small firms have
48 meaningfully hindered the role that these Micro and Small Agro-based Enterprises play in the general
49 macroeconomic performance of the Ghanaian economy. Government hard work to develop and
50 advance funding to the MSEs have not yielded the desired results and the place of small and
51 medium-sized enterprises in growing economies, especially Ghana as instruments of economic
52 growth is yet to be realized fully. Micro and Small Agro-based Enterprises in Ghana utilize their little
53 capital that would not be sufficient to finance a large business to startup businesses and provide jobs
54 and promote economic growth to the communities in which they are established. This helps to reduce
55 rural, urban migration by ensuring even supply of economic activities. MSEs learn to utilize mainly
56 local raw substance that would otherwise be neglected and have less foreign exchange, and to
57 mobilize and utilize financial wealth like family savings that is otherwise dormant and by their activities
58 promote local knowledge [8].

59 MSEs in Ghana are still challenged with a variety of limitations despite trade and industry
60 improvement presented in Ghana since independence. Access to credit remains the most important
61 and principal constraint of all. Small and Micro Enterprises (SMEs) in Ghana face a lot of difficulties in
62 assessing credit which affects their working capital and their ability to utilize raw materials. [10]
63 recounted that 38% of the SMEs measured mention finance as a main constraint; SMEs have
64 inadequate access to capital markets locally and internationally, in part because of the perception of
65 complex risk, serious management weaknesses, lack of information, and the advanced costs of
66 intermediation for smaller firms. As an outcome, SMEs often cannot achieve long-term access to
67 credit from financial institutions.

68 Several studies indicate that credit markets are characterized by information asymmetry and poor
69 contract enforcement mechanisms resulting in a credit gap trapping those who cannot access formal
70 sources of credit [11, 12, 13 and 14]. Another problem that SMEs face in accessing credit is due to
71 inadequate or lack of legal mechanism to ensure repayment, especially in rural and urban sectors in
72 developing countries where SMEs dominate. Moreover, the use of collateral as a solution for the
73 information asymmetry problem is constrained by the limited available assets possessed by SMEs in
74 developing countries [15].

75 Access to credit is an important instrument that enables MSEs overcome problems of liquidity,
76 however MSEs in Ghana have received less attention. Though studies on small and medium
77 enterprise sector has been researched in Ghana [16, 17, 18] emphasizing the factors influencing the
78 micro and small enterprises at the household level with less attempts on analysis at the enterprise
79 levels.

80 This paper examines the determinants of access to formal and informal credits at the enterprise levels
81 specifically agro based MSEs. The main objective is to investigate factors influencing access to
82 credits among MSEs in Tamale Metropolis. The study hypothesized that household and entrepreneur

83 specific characteristics, socio-economic factors and market environment factors have an effect on
84 access to credits among Micro and Small agro-based enterprises in the Tamale Metropolis.

85 2. THEORETICAL BACKGROUND

86 Given the objective of the study, which is to examine factors influencing access to credits among
87 micro and small agro-based enterprises, we assume that micro and small agro-based enterprises
88 have two choices; that is to be able to access credit or not able to access credit. Any MSEs may
89 decide whether or not to apply for credit on the basis of their perceived utility of accessing credit
90 relative to that of not accessing credit. Theoretical approaches in analyzing factors influencing access
91 to credits among MSEs have their roots in the theory of consumer behaviour. The study adopts the
92 theoretical frameworks of [19, 20 & 21], it is assumed there are many micro and small agro based
93 enterprises trading for profit maximization. MSEs are most likely to seek access to credit for
94 expansion of businesses and to improve their operation, however viable collateral is vital for rapid
95 credit approval. Thus, some of these firms may possess collateral while others do not. In the case of
96 Tamale metropolis where the poverty incidence is high, it is logically prudent to generalize that
97 collateral is almost lacking by most of the enterprises [22].

98
99 Based on the profit maximization goal of MSEs, these firms may seek formal or informal loans to
100 initiate or expand businesses, given lending rates “r” and firms characteristics (X), MSEs decision to
101 seek credit is considered as the demand for loan, which is the total number of firms that seek to
102 borrow or access credit. In the credit market, this demand is contingent on the supply of loans, which
103 is the number of loans, that a particular financial institution (formal or informal) is willing to provide.
104 According to [19] information asymmetry exists concerning various degree of borrower’s riskiness.
105 Assuming that firms (MSEs) are risk neutral, firms compare the expected utility of wealth from
106 accessing credit denoted as $U(\pi p)$ to that of not accessing credit, represented by $U(\pi np)$ with net
107 returns (π) representing wealth. Participation then occurs if $U(\pi p) > U(\pi np)$. MSE’s expected utility of
108 accessing credit can be related to a set of explanatory variables (Z) as:

$$109 \quad \pi = \alpha Z_i + u_{1i}$$

110 Where α is a vector of parameters to be estimated and u_{1i} is the error term distributed as $N(0, \sigma^2)$.

111 Z_i is a vector of exogenous variables including the determinants of credit access. The utility MSEs
112 derive from accessing credit is not observable but actions of the MSEs can be learned by either
113 observing SMEs whose credit application were approved to access credit or non-credit approval and
114 did not access credit.

115 The conceptual framework adopted assumes that a micro and small agro based operator who apply
116 for credit from the formal or informal credit source and his/her request is approved to receive part or
117 the full amount requested is influenced by certain key household and entrepreneur specific
118 characteristics, socio-economic factors as well as market environment factors.

119 The operational framework of the study portrays that access to credits by MSEs may be influenced by
120 household and entrepreneur specific characteristics such as age, gender, marital status, educational
121 level, number of dependents, head of household and household size while socio-economic factors
122 including business age, amount spent on child education and number of paid workers may have
123 positive or negative influence on access to credits. Market environmental factors such as business
124 sector (production, processing, service or trading sectors), net income and involvement in other
125 economic activities may also have effect on access to credits.

126 3. METHODOLOGY

127 3.1 The Study Area

128 The study was carried out in the Tamale Metropolis and Sagnarigu district of the Northern region of
129 Ghana respectively. The Metropolis is located in the central part of the Northern Region and is
130 bounded by Sagnarigu district to the north, Mion district to the east, Tolon district to the west, Central

Gonja to the south west and East Gonja to the south. Sagnarigu district shares boundaries with the metropolis. The Northern region is one of the poorest regions in Ghana, despite the heavy presence of NGOs. The region lacks most of the social amenities like schools, health facilities, roads and potable water supply necessary for economic development. Tamale metropolis and the Sagnarigu district has market potential for local goods from the agricultural and commercial sectors from the other districts in the region and the southern parts of Ghana; also stands to gain in trade from the neighboring countries e.g. Togo, Burkina Faso. Although the Tamale metropolis is seen as urban and Sagnarigu as peri-urban, several parts of the region are rural with most of the arable lands used for farming activities.

3.2 Sampling Procedure

A multi-stage stratified sampling technique was employed in selecting the respondents for the study, so as to ensure that the respondents were picked from urban (Tamale Metropolis), peri-urban and rural communities (Sagnarigu district). A four stage sampling techniques was used to select the sample population of the study. Stage 1: The Tamale Metropolitan and Sagnarigu district assemblies were purposively selected out of the 26 districts on the basis of high concentration of micro and small agro based enterprises. Stage 2: Four agricultural zones were selected randomly from each district (4 out of 4 for Sagnarigu and 4 out of 5 for Tamale metropolis) based on MoFA zoning criteria. Stage 3: Lists of Small Scale Agro-based enterprises were obtained and grouped into four sectors (production, services, trading and processing sectors). Stage 4: Twenty entrepreneurs (20) were selected randomly from the list of selected enterprises from each sector (4) across the agricultural zones making up 160 respondents for the study. A total of 155 questionnaires were properly answered representing 97% of the sample population.

3.3 Logistic Model

The logistic regression model was applied in estimating the probability of factors influencing access to credit by agro based MSEs. The study employed the logistic regression model for evaluating SMEs access to credit bearing in mind the dichotomous nature of the dependent variable. To access credit can take one of the two values, either $Y = 1$ for enterprises whose credit application was approved to access credit, while $Y = 0$ for the non-credit approval and did not access credit. Since the dependent variable is not continuous, the application of linear regression models is not appropriate. This means that the use of probit or logit models which provide equally efficient parameters are more appropriate methods in analyzing dichotomous dependent variables [23].

Preceding literature on credit access [24, 25 & 26] also adopted the use of the logit model in the analysis of their study in Nigeria and Ghana. Additionally, [27] also explained that a logit model is well-matched for explaining and testing the hypotheses about the relationship between a categorical outcome variable and one or more categorical or continuous variable, when a continuous dependent variables are included in the model.

The functional form of the logit model is presented as follows:

$$P_i = E\left(\frac{Y_i}{X_i}\right) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_i)}} \quad (1)$$

$$P_i = E\left(\frac{Y_i}{X_i}\right) = \frac{1}{1 + e^{-Z_i}} \quad (2)$$

Where P_i is a probability of access to credit given i^{th} MSE and ranges from 0 to 1. ; Z_i is the set of unobserved continuous variable, called latent variable or the functional form of n explanatory variables (X_i) including demographic attributes of entrepreneur and firm's Socio- economic attributes. The logit model also assumes that Z_i is linearly related to the explanatory variables which is expressed as:

$$Z_i = \beta_0 + \sum_{i=1}^n \beta_i X_i$$

Where;

$i=1,2,3,4,\dots,n$

β_0 is the intercept and β_i are the slope parameters.

If P_i is the probability of a firm accessing credit, then $1 - P_i$ indicates the probability of not accessing, which can be given as;

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

Dividing equation (1) by equation (3) and simplifying gives

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

Equation (4) gives the ratio of the probability that an MSE or a firm accessing credit when its credit application is approved or otherwise. Lastly, the logit model is obtained by taking the natural logarithm of equation (4) as follows:

$$Li = \ln \left[\frac{P_i}{1 - P_i} \right] = \beta_0 + \beta_1 X_1 + e$$

Where;

P_i is the probability ($Y=1$) that a firm will access credit,

$1 - P_i$ is the probability ($Y=0$) that a firm will not access credit,

β_0 the intercept. It is the value of the log odd ratio, when the explanatory variables are zero.

β_1 the slope, which measures the change in L (logit) for a unit change in the explanatory variables (X);

e is the error term.

3.4 Methods of Data collection

Data collection techniques consisted of key informant interview, individual (face-to-face) questionnaire administration and observation. The questionnaire and interview guide were pretested to ensure that they were good instruments for the purpose of the study.

3.4.1 Description and Measurement of Variables

The justification for the choice of variables used in this study was based on gaps revealed in the reviewed literature and focus of the study which motivated the choices. The variables considered include demographic (household and entrepreneur specific characteristics), socio-economic as well as market environment factors.

3.4.2 Dependent Variables

The dependent variables for the study are the overall access to credit, formal access to credit and informal access to credit.

i. The overall Access to Credit

The overall access to credit takes the value of "1" for MSE operator's whose applications were approved and given a part or full amount requested from either the formal or informal credit source or from both sources in 2013/2014 for his business operations and "0" otherwise. The MSE operator had no access to credit, if his loan application was rejected, or did not borrow for particular reasons.

211 **ii. Formal access to credit**

212 Formal access to credit takes the value of "1" for MSEs operator whose loan application were
213 approved and was given a portion of amount or the full amount requested from the formal credit
214 institutions for business in 2013/2014 and "0" otherwise.

215 **iii. Informal access to credit**

216 Informal access to credit takes the value of "1" for MSEs operators whose loan applications were
217 approved and was given a portion of amount or the full amount requested from the informal credit
218 sources in 2013/2014 and "0" otherwise.

219 **Independent Variables**

220 A summary of the list of explanatory variables, their measurement and hypothesized signs as used in
221 the logit regression model are given below. The effect of the independent variables on access to
222 credit (Over all, Formal and Informal) could be either negative (-) or positive (+). The expected sign for
223 each independent variable on access to credit (Overall, Formal and Informal) is stated.

224 If the expected sign of an independent variable is negative (-) then we expect to have a negative
225 relationship of that independent variable with access to credit which means that given the
226 independent variable is continuous(count), an increase will make an MSE less likely to access credit
227 and a decrease otherwise. Given the independent variable is dummy, a movement or change from
228 zero (0) to one (1) will make an MSE less likely to access credit.

229 Also if If the expected sign of an independent variable is positive (+) then we expect to have a positive
230 relationship of that independent variable with access to credit which means that given the
231 independent variable is continuous(count), an increase in that independent variable will make an MSE
232 more likely to access credit and a decrease otherwise. Given the independent variable is dummy, a
233 movement or change from zero (0) to one (1) will make an MSE more likely to access credit.

234 Both the dependent and independent variables are summarized and described on Table 3.1
235 and 3.2 below.

236 **Table: 3.1 Variables Definitions, Unit of measurements and hypothesized sign**

237	Dependent	Unit of measurement	
238	Variables		
239	Over all Access	Dummy	
240	to credits	1= MSEs applications were approved and received part or full amount	
241		requested from either the formal or informal credit source or from both	
242		sources between in 2013/2014 for business	
243		0= otherwise	
244	Formal Access	Dummy	
245	to credits	1=If MSE Operator whose credit applications were approved and received	
246		either part or full amount of the loan from a formal financial institution	
247		0= otherwise	
248	Informal Access	Dummy	
249	to credits	1=If MSE Operator whose credit applications were approved and received	
250		either part or full amount of the loan from informal sector	
251		0= otherwise	
252	Independent Variables		
253	Definition	Unit of measurement	Expected sign for
254			Overall, Formal and
255			Informal credit access

256			Overall	Formal	Informal
257			Access	Access	Access
258	Sex of	Dummy	+	-	-/+
259	respondent	1=MSE Operator is a male			
260		0=MSE Operator is Female			
261	Age of	A continuous variable - measured in Years	+	+	+
262	entrepreneur				
263	Household	A continuous variable - total number of people in	+	+	-/+
264	Size	the household.			
265	Number of	A continuous variable - Number of vulnerable	-/+	-	-/+
266	Dependents	people in MSE operator's household catered for by			
267		entrepreneur.			
268	Marital status	Dummy	+	-/+	-/+
269	of entrepreneur	1= MSE Operator is married			
270		0=Otherwise			
271	Entrepreneur's	A continuous variable - Number of years of	+	+	+
272	level of	schooling			
273	education				
274	Income	A continuous variable - sum of earnings from all	+	+	+
275		business ventures by entrepreneur in Ghana cedes.			
276	Production	Dummy	-	+	-/+
277	Sector	1= MSE Operator is engaged in the production sector.			
278		0=Otherwise			
279	Processing	Dummy	-	+	-/+
280	Sector	1= MSE Operator is engaged in the processing sector.			
281		0=Otherwise			
282	Service Sector	Dummy	-	+	-/+
283		1=MSE Operator is engaged in the service sector			
284		0= otherwise			
285	Trade Sector	Dummy	-	+	-/+
286		1=MSE Operator is engaged in the trading sector			
287		0=Otherwise.			
288	Business Age	A continuous variable- number of years enterprise	+	+	+
289		has being in operations			

290 **Table: 3.2 Variables Definitions, Unit of measurements and hypothesized sign**

291	Definition	Unit of measurement	Expected sign for		
292			Overall, Formal and		
293			Informal credit access		
294			Overall	Formal	Informal
295			Access	Access	Access
296	Amount Spent	A continuous variable - School fees paid on	+	-	+
297	on child	child education			
298	education				
299	Head of	Dummy	+	-	+
300	Household	1=MSE Operator is head of house hold.			
301		0=Otherwise			

302	Family Labour	Number of family labour used by entrepreneur	+	+	+
303	Number of employees or Paid Workers	A continuous variable - total number of employees who are on salaries or wages paid by the entrepreneur.	+	-/+	-/+
306	Distance to Source of formal Credits	A continuous variable - Distance travelled to formal credits source to obtain credits (Km)	-/+	-/+	-/+
309	Distance to Source of Informal Credits	A continuous variable - Distance travelled to informal credits source to obtain credits (Km)	-/+	-/+	-/+
312	Distance to Source of overall Credits	A continuous variable - Distance travelled to either formal or informal credits source to obtain credits(Km)	-/+	-/+	-/+
315	Other Economic Activity	Dummy 1=MSE operator engaged in other economic activity 0=Otherwise	-	-	-
318	Casual worker engaged MSE.	A continuous variable - number of casual labour engaged MSE.	+	+	+

4. RESULTS AND DISCUSSIONS

4.1 Demographic and Socio-Economic Characteristics of Agro Based MSEs

The age distribution of the surveyed entrepreneurs ranges from 19 years to 65 years with an average age of 43 years. Those that fell within the age bracket of 41-50 years constitute majority (35.5%) of the respondents. Generally, 85.2% are within the economically active age group (19 – 50 years) which represents a potential agro based MSE sector in Tamale Metropolis and Sagnarigu Districts. According to [28] as the age of a household increases, so does his business experience, practical, wisdom and his income generating capacity. Age is related to time and this means with time, commitment and perseverance one gains more experience and virtually succeeds in achieving his goals. Details of the socio-demographic characteristics are presented in Table 4.1.

The result further indicates that a fair distribution of both male (51.6%) and female (48.8%) SME owners exist though the women dominate especially in food processing and trading sector. Majority of MSEs are female-owned businesses, which are often home-based compared to those owned by males; and are mostly not considered in official statistics [9]. The level of education of respondents essentially helps him/her to observe good business management practices including credit management. Majority (58.1%) of the respondents had no formal education whereas 26.4% had basic level of education for an individual to read and write. These results reflect a general trend of low levels of education among people in the northern region, where the school dropout rate is very high. [29] revealed that the probability of applying for credit significantly increases with the number of years of schooling, increased age and as well as income.

Table: 4.1 Demographic characteristics of respondents

Characteristic	Frequency	Percent	Characteristic	Frequency	Percent
Education			Age		
No formal education	90	58.1	Below 31	26	16.8
Basic	41	26.4	31 – 40	51	32.9
Secondary	9	5.8	41 – 50	55	35.5
Tertiary	15	9.7	above 50	23	14.8
No of Dependents			Sex		
1 month – 6years	73	47.1	Male	80	51.6

351	Above 65 years	17	10.9	Female	75	48.4
352	House Hold Size			Marital Status		
353	1 – 5	31	20.0	Single	4	2.6
354	6 – 10	56	36.2	Married	141	91.6
355	11 – 15	30	19.3	Widow	9	5.8
356	16-25	26	16.8			
357	above 25	12	7.7			

358 Mainstream SME owners are predominantly married (91.6 %) with a small proportion (8.4 %) either
359 single or widowed. Additionally most (36.2 %) SME have a household size between 6 to 10 members
360 and closely followed by 20 % of SME owners with household size between 1 to 5 members.

361 4.2: Borrowing Status MSEs Entrepreneurs

362 According to the results of the survey, majority (61.9%) of MSEs applied for formal credits and 88.5%
363 of those who applied had their request honored, while 11.5% had their request rejected due to failure
364 to meet the terms of lenders. The reasons for the high levels of amount of credits given were due to
365 the different type of loan packages. Most of the MSEs, especially the Tractor service providers,
366 received tractors while the agro inputs and chemical dealers also received very large amounts as a
367 result of support by government to improve supplies of inputs and agro chemicals to food crop
368 producers. Details are presented on Table 4.2.

369 **Table 4.2: Borrowing Status of Micro and small agro based entrepreneurs**

370	Characteristic	Frequency	Percent	Characteristic	Frequency	Percent
371	Borrowing Status			Interest Charges		
372	Yes	96	61.9	Less than 10%	8	8.3
373	No	59	38.1	10% - 20%	6	6.3
374				21% - 30%	15	15.6
375	Request Honored			31% - 40%	20	20.8
376	Yes	85	88.5	Greater than 40%	47	49
377	No	11	11.5			
378	Collateral types					
379	Land /building	6	6.3			
380	Guarantor	90	93.7			

381 The survey also revealed that 8.3% respondents of formal credit beneficiaries paid interest lower than
382 10% on their loans while 49% of respondents paid interests greater than 40%. These interest rates
383 are far too high for any realistic profits to be made according to respondents. The lenders claim the
384 interest rates were computed comprising of interest rates, insurance and processing fees. Majority of
385 formal credit beneficiaries of the surveyed respondents (93.7%) were guaranteed to obtain access by
386 virtue of their group or association solidarity.

387 4.3 Factors Influencing Access to Credits by Agro based MSEs

388 In Table 4.3 below, the estimation results of the logistic model of factors influencing access to credits
389 by agro based MSEs in the Tamale Metropolis are presented. The table presents the marginal effects,
390 standard errors and odds ratio of the independent variables, the p-value
391 of the chi square and the Pseudo R². We observe that the p-values (0.0030, 0.0000 & 0.0000) and
392 their corresponding chi square (46.27, 96.28 & 75.81) for Overall Access to Credits, Formal Access to
393 Credits and Informal Access to Credits respectively are significant. This indicates that, overall, the
394 model applied can statistically predict factors influencing access to credits (Overall Access, Formal
395 Access & Informal Access) by agro based MSEs in the Tamale Metropolis. Thus, the independent
396 variables jointly determine access to credits by agro based MSEs. The results of the logistic
397 regression are presented on table 4.3.
398

Table: 4.3 Logit Regression Estimates of factors affecting access to Formal, Informal and Overall Credits by MSEs

Variable	Overall Access		Formal Access		Informal Access	
	Marginal effects	Std error	Marginal effects	Std error	Marginal effects	Std error
Age	.0182**	.0045	.0200**	.0097	.0128*	.0067
Sex	.1064	.1003	.0747	.2539	-.0118	.2014
Marital status	.0263	.0814	.3604*	.1856	.0111	.1962
Education	.0003	.0814	.0258*	.0134	-.0003	.0100
Dependant	-.0211	.0141	.0224	.0368	.0259	.0259
Age of business	-.0124**	.0014	.0070	.0113	.0166*	.0090
Income	.00001*	6.880	.0005***	.0001	.00001*	.0000
Child Education	.00004	.00005	.0001	.0001	-.0002**	.0000
Distance Overall Access	.1067***	.0341	-	-	-	-
Distance Formal Access	-	-	.0791***	.00001	-	-
Distance Informal Access	-	-	-	-	.2341***	.0487
Household Size	.0155	.0102	-.9199	.0216	-.0165	.0199
Employees	.0082	.0177	-.1632***	.0434	.0674*	.0199
Service Sector	-.2994**	.1408	-.2111	.2721	-.2209	.2543
Production Sector	-.0735	.0776	-.6638***	.1342	.1072	.1748
Processing Sector	-.0310	.0731	-.4951***	.1520	.1285	.1194
Family labour	-.0052	.0235	.0589	.0553	-.0083	.0395
Other economic activity	.0281	.0593	-.3351**	.1627	-.0561	.1349
Household Head	-.0224	.0670	.5942	.1920	.8609	-.1467
Casual Employee	-.0168	.0193	.1237**	.0529	-.0615**	.0349
Number of Observations		155		155		155
LR-Chi2(18)		46.27		96.28		75.81
Prob >Chi2		0.0030		0.0000		0.0000
Pseudo R2		0.5180		0.4511		0.3648

*** Significant at 1%, ** Significant at 5% and * Significant at 10%.

Source: Field survey 2015.

Overall access to credits was determined by distance (1%), age of entrepreneur (5%), age of business (5%), service Sector (5%) and income (10%). Distance, age of entrepreneur, service sector and income met the expectation of the research. However age of business had a negative effect on access to credit which did not correspond to the expectation of the research. Formal access to credits was determined by distance (1%), Income (1%), number of Employees (1%), Production Sector (1%), Processing Sector (1%), Casual Employee (5%), other economic activity (5%), age (5%), marital status (10%) and education (10%). All variables that determined formal access to credit met the expectation of the research. However Child Education and number of casual employees were negatively related to access to informal credit and did not meet the expectation of the study.

Entrepreneur's age positively influences MSEs overall access to credit, formal and informal access to credit at 5% significant level for overall and formal access to credit and 10% significance level for

informal access to credit. This implies that old entrepreneurs are more likely to access credit and a year increase in an entrepreneur's age will increase the probability of an entrepreneur accessing credit by 0.0182. The effect of an entrepreneur's age in accessing credit is stronger in influencing access to formal credit compared with informal credit. Age of an entrepreneur influences the probability of accessing formal and informal credit by 0.0200 and 0.0128 respectively. According to [30] age of an individual is said to be positively related to the decision to apply for credit and the amount of credit applied. Generally it can be said that due to the capability of the older entrepreneurs to accumulate assets which are used as collaterals, formal financial institutions perceive them as creditworthy, therefore stand the likelihood of accessing formal credit from commercial banks than the younger entrepreneurs.

Distance to source of credit was another factor that was found to have a positive and significant influence on access to credit. Distance to credit source influenced both formal and informal credit at 1% significant level, with a very strong effect on access to informal (0.2341) credit compared with formal (0.0791) credit. The positive association suggest that the likelihood of accessing credit increases if the distance between the firm and source of credit increases. The possible explanation to these findings is that the enterprises are located within urban centers closer to the banking institutions and cost of travelling is low and again most of the MSEs received their credits at their door mouths due to mobile banking. However [31] on the contrary showed that physical distance of farm households from formal lending institutions adversely influenced access to formal credit. Because transportation cost raised the effective cost of borrowing at otherwise relatively lowers interest rate in the sector. [30] indicated that there was no evidence on impact of distance from urban centers (remoteness) on demand for credit and showed that availability of different sources of credit have limited impact on demand for credit.

Number of hired paid employees had a negative but significant effect on Access to formal credits and a positive effect on access to informal credit. However, number of hired paid employees had a positive effect on access to informal credit. Additionally number of hired paid employees was not significant in influencing overall access to credit. An increases in the number of hired employees reduces the probability of a firm to access formal credit by 0.16 times. This implies that as the number of hired labour increases in the firm it affects the business and raises operational cost thereby affecting profitability. The results from the study implies that most of these MSEs require intensive labour, however as a result of unavailability and high cost of labour prevailing in the study area, increases in hired labour may serve as a disincentive to access formal credits since this can affect profitability and ability to pay back credits. These results are in contrast with [32] who revealed that the decision to use hired labour increases the probability of demanding credit but consistent with the study of [32] who revealed that the decision to use hired labour increases the probability of demanding credit.

Business Age or enterprise age has a negative influence on access to overall credits but positively increases access to informal credit by small scale agro-based enterprises in the region, however enterprise age had no effect on access to formal credit. The negative association suggest that for every one year increase in the age of the enterprise there will be a decrease in the probability of accessing overall credit by 0.0124 and increase access to informal credit by 0.0166. This might be due to the peculiar characteristics of MSEs who are noted to retrogress or virtually collapse with time due to low productivity and inefficiency. The results are consistent with studies by [33] but in contrast with studies by [34] who revealed that firms age play a major role in access to credits since older firms are noted to have capital generated over time and also credit history that can be used by lenders to assess their credit worthiness.

Educational of entrepreneur's has a positively significantly influences on SMEs access to formal credits but did not have any effect on the overall access to credit and access to informal credit. An increase in an entrepreneur's years of education will increase the probability of accessing formal credit by 0.0258 times. The results are consistent with findings by [35] who revealed that educational background of the SME owner-manager is often positively related to the firm's usage of leverage. [36] also asserted that more educated entrepreneurs have the ability to present positive financial information and strong business plans, with better ability to maintain a good relationship with financial institutions compared to less educated entrepreneurs.

496 Marital status was significant and positively influenced access to formal credit but was not significant
497 in determining overall access to credit and access to informal credit. Married entrepreneurs are
498 0.3604 more likely to access formal credit compared to non-married entrepreneurs. Married
499 entrepreneurs are often viewed as responsible personalities and very stable and may be able to meet
500 their loan obligations as compared to those not married. [30] from his probit estimations found out that
501 married individuals who demand for credit are more likely to obtain credit from NGOs/cooperatives,
502 government programmes though in the case of commercial banks and money lenders, marital status
503 is not important for one to qualify for credit.

504 Engagement in other economic activities aside the main business is significant and negatively affects
505 access to formal credits but was not significant in influencing Overall access to credit and access to
506 informal credit. This means that entrepreneurs engaged in other economic activities apart from their
507 main business are 0.3351 less likely to access formal credit. This may be attributed to the fact that as
508 MSEs may earn additional incomes from their engagement in other economic activities and can easily
509 plough back the extra incomes into the business. SMEs engagement in other economic activities may
510 not have need for external credits. The high transaction cost associated with obtaining credit may
511 prompt MSEs to switch profits from other income generating activities back to other business making
512 them less likely to borrow from formal sources. These findings are consistent with investigations by
513 [20] who found out that engagement in other economic activities had a significantly negative effect on
514 the probability of demanding for credit. However, the findings of [37] were not consistent with these
515 results as they realised a positive and significant relationship between demand for credit and
516 engagement in other economic activities.

517 Engagement of casual workers or casual labour by entrepreneurs significantly influenced access to
518 formal and informal credit but not access to overall credit. Engagement of casual workers had a
519 positive effect on access to formal credit but a negative effect on access to informal credit. Additional
520 engagement of a casual worker increases the probability of accessing formal credits by 0.1237
521 (12.4%) whilst the engagement of an additional casual worker decreases the likelihood of accessing
522 informal credit by 0.0615 (6.15%). These findings are consistent with research by [38] in analysing
523 the performance of microenterprises in Ghana.

524 The estimates also showed that the income earned by an entrepreneur is statistically significant with a
525 positive effect on overall access to credit, access to formal credit and access to informal credit
526 respectively. The effect of income on access to formal credit (0.0005) is stronger compared to its
527 effect of 0.00001 on both access to informal credit and overall access to credit. Additionally, an
528 increase in the income earnings of an entrepreneur increases his/her likelihood of accessing formal
529 credit by 0.0005 times (0.05%) and that of both informal and overall access to credit by 0.00001
530 times. These results are consistent with a study by [39] who found out that income positively affect
531 demand for credit and subsequently promotes access to credit. With increases in the firm's income,
532 ability to save and accumulate wealth increases and more assets are acquired which can be used as
533 collaterals for accessing credits.

534 The Production sector was found to be statistically significant with a negative effect on formal credit.
535 However SMEs involved in the production sector had no effect on overall access to credit and
536 informal access to credit. SMEs involved in the production sector are 0.0363 times less likely to
537 access credit from formal sources compared with SMEs in the trading sectors. In terms of access to
538 formal credits, SMEs involved in the production sector were less competitive compared with those
539 involved in the trading sectors. The possible explanations to these findings are that SMEs selected for
540 the study were primary raw cereals legumes and yam producers who are characterized with low
541 productivity, low incomes and rarely have collaterals to source formal credits.

542 The Processing sector was statistically significant with a negative effect on access to formal credits.
543 Overall access to credit and informal access to credit were not determined by SMEs involved in
544 processing. The results show that SMEs involved in the processing sector are 0.4951 less likely to
545 access credit from formal sources compared with SMEs in the trading sectors. The respondents
546 selected from the processing sector for this study were from the rice processors and groundnuts oil
547 processors, majority of whom were females and noted to have less access to formal loans. According
548 to [40], majority of MSEs in the processing sector are female-owned businesses, which are often

home-based, compared to those owned by males; and mostly not considered in official statistics which affects their chances of gaining access to formal financial institutions.

5. CONCLUSION

The results of the study confirms the hypotheses that household and entrepreneur specific characteristics (*Age, Marital status and educational level*), Socio-economic factors (*Age of business, Distance to source of credit, Number of regular employees and Number of casual employees*) and Market environment factors (*Income, Service sector, Production sector, Processing sector and involvement in other economic activity*) have effect on access to credits among Micro and Small agro based enterprises in the Tamale Metropolis.

Majority of the MSEs operators were found to be engaged in the production sector and their general educational level was low. Older entrepreneurs, males, higher level of education, higher income, far distance from formal credit source, engagement in casual works made it significantly possible to have access to formal credit whereas informal credits was positively influenced by increased age of respondent, high number of years in business, high income, far distance to informal credit source and increased number of casual workers engaged. Due to the positive impact of education on access to formal credits coupled with low levels of education, specific policies that will provide a sustainable and appropriate educational programme will be a major milestone towards improving and enhancing Micro and Small agro based enterprises growth, to drive the private sector and become the real engine of economic development. The study results portrays that income levels of MSEs facilitates and impact positively on their access to credits, government policies should therefore be geared towards creating a good micro environment for effective and efficient running of these enterprises in order to increase and obtain higher profit margins for sustainable growth and development of the small scale enterprises sector.

The analysis revealed that the production, processing and service sectors really lack access to credits in the study area. Efforts should be directed at addressing specific issues that confront these enterprise sub-sectors. Policies should aim at formulating programmes to strengthen economic power of MSE operators such that the sector players are perceived attractive by financiers. Facilitating and providing technical assistant as well as advisory and consultation services to MSEs will go a long way to promote and strengthened these enterprises. The Rural Enterprise Programme is in existence supporting micro and small enterprise development in the districts; efforts need to be intensified to secure funding to sustain this programme.

The study captured factors influencing the micro and small agro based enterprises with less detailed factors captured at the institutional (financial credit institutions) and prevailing national economic factors. It is therefore recommended that further studies should capture more institutional and economic factors.

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