External Factors Affecting the Growth of Micro and Small Enterprises (MSEs) in Ethiopia:
A Case Study in Shire Indasselassie Town, Tigray

Haftom Haile Abay
Department of Accounting and Finance, College of Business and Economics, Axum University
E-mail: haftom62@gmail

Fisseha Girmay Tessema, Ph.D.
Department of Accounting and Finance, College of Business and Economics, Mekelle University
E-mail: free77@yahoo.com

Araya Hagos Gebreegziabher
Department of Accounting and Finance, College of Business and Economics, Mekelle University
E-mail: nahomaraya@yahoo.com

Abstract
The role of MSEs are not only income and employment generating but also breeding ground for entrepreneurs, has higher employment capacity and not capital intensive, and highly competitive, flexible and innovative. However, MSE growth is affected by a number of factors. Therefore, the main objective of this study was to investigate external factors affecting the growth of MSEs by using semi-structured questionnaire covering 160 randomly selected MSEs from five Kebeles of Shire Indasselassie Town. Binary logistic regression model was employed to test the hypotheses and to analyze the factors affecting the growth of MSEs. The result of the study revealed that access to credit from formal financial sources, access to infrastructure and access to working premise are significant factors for MSEs growth. MSEs having access to sufficient infrastructure and access to own working premise are growing rapidly than of those MSEs that are operating with limited access to infrastructure and operating at rented and family working premise. In addition, MSEs that have no access to credit are rapidly growing than those of MSEs having access to credit. Considering the well recognized importance of MSEs in job creation, income generation and poverty alleviation, all stakeholders (government and non governmental institutions) have the responsibilities to make intensive effort to remove the factors that stand on the growth of the MSE.
Keywords: Employment, External, Factor, Growth, Survival.

1. INTRODUCTION

Micro and Small Enterprises (MSEs) can be defined as one, which are independently owned and operated, and not dominated in its field of operation. It also defined in terms of sales volume and by the number of employees in the firm. MSEs may be defined as business with a small number of employees. The legal definition of MSEs often varies from country to country and from industry to industry; in the United States generally under 100 employees while under 50 employees in the European Union (Endalkachew, 2008).

In Ethiopia, according to the Government of the Federal Democratic Republic of Ethiopia MSE Development Strategy (2011), the definition of MSEs is as follows:

- Micro Enterprises are business enterprises found in all sectors of the Ethiopian economy with a paid-up capital (fixed assets) of not more than Birr 100,000.
- Small Enterprises are business enterprises with a paid-up capital of more than Birr 100,000 and less than Birr 1.5 million.

Nowadays, employment is very serious issue and offering jobs to all citizens of a country; it is also a challenging task to every government. As a result, different governments are framing different strategies and policies to create job opportunities. One strategy as to create jobs and accommodate maximum number of citizens has been emerged, i.e., the establishment of MSEs. This form of sector comes in to existence with the aim to accommodate as much as possible numbers of member owned enterprises with affordable working capital and management (Ermias, 2011).

In Ethiopia, MSEs are the second largest employment-generating sector next to agriculture. A national survey conducted by Central Statistics Agency (CSA) (2003) indicated that more than 1.3 million people in the country are engaged in informal sector and small manufacturing businesses. Concerning Tigray, around 137,500 people are engaged in the sector. However, unemployment is one of the critical social problems of most Ethiopian cities in general and Tigray cities in particular. The urban employment rate is about 13.7% and 21.1% in 2006 and 2009, respectively in the region (Tigray Region State Bureau of Plan and Finance (TRBPF, 2010).

The MSEs are also an important force to generate employment and more equitable income distribution, to activate competition, exploit niche markets, enhance productivity and technical change, and through all of these stimulate economic development. Therefore, the Government of the Federal Democratic Republic of Ethiopia has recognized and paid due attention to the promotion and development of MSEs for they are important vehicles to address the challenges of unemployment, economic growth and equity in the country. To this effect, the government has formulated a National Micro and Small Enterprise Development and Promotion Strategy, which enlightens a systematic approach to alleviate the problems and promote the growth of MSEs (MoTI, 1997).

MSEs caught the attention of development practitioners and policy makers recently not only because of their importance in terms of generating employment but also because of various other attributes. Some of these are:

- MSEs are breeding ground for entrepreneurs.
- The sector has high employment generating capacity, and is less capital intensive.
- It is highly competitive, flexible, and innovative.

Having recognized the importance of the MSEs sector to the economy, the Federal Government of Ethiopia has issued a MSEs Development Strategy in 1997 followed by the proclamation for the establishment of the Federal Agency for MSEs Development in 1998 (MoTI, 1997).

It is obvious that agriculture is still the backbone of Ethiopian economy and medium and large companies are contributing for economic growth and development of the country. MSEs have been given due attention since 1997 as they have invaluable contributions in the economic development of countries like other sectors. Currently, the Ethiopian government has given priority and planned to work aggressively on MSEs to complement with the objective of the 5 years of Growth and Transformation Plan (GTP) that is focuses on industrial development in the country. The sector is expected to play a significant role as an instrumental in curbing the challenges of unemployment, poverty and to accelerate economic growth. Thus, this implies that further research is required on the factors affecting the growth of MSEs.

2. LITERATURE REVIEW

MSE is one of the institutions given recognition in the country's industry development plan. It serves as vehicles for employment opportunities at urban center and it strengthen the economic development. MSEs also serve as sources for sustainable job opportunities not only for developing countries like Ethiopia, but also for developed countries like USA. Thus, they should be given prior consideration as they are essential and serve for sustainable source of job opportunities to Ethiopia.

2.1. DEFINITION OF MSEs

One major problem that arises while dealing with MSEs is lack of clear-cut and universally accepted definition. Attempts to define MSEs have led to a remarkable diversity of conceptions that actually generated debate as to the different approaches of defining MSEs. Firms differ in their levels of capitalization, sales, and employment. Varieties of definitions have been applied among different countries and different criterions have been considered to define them. But commonly, MSEs are considered to be non-subsidiary independent firms which employ less than a given number of employees even though this number varies across countries. For instance, in Scottish, a Micro enterprise contains 0-9 employees (including sole traders) and Small 10-49 employees. Small firms are mostly considered to be firms with fewer than 50 employees while micro-enterprises have at most ten, or in some cases, five employees (Malhotra, Chen, Criscuolo, Fan, Hamel, & Savchenko, 2006).

In defining MSEs, in addition to considering number of employees engaged in the business, financial aspects such as turnover and total assets or balance sheet total are also taken into account. Especially, this has been used by international organizations like European Union, World Bank and others which are briefly described in the following tables (i.e., Table 1 and Table 2).

Table 1. European Union MSE Definition

Firm size	Headcount	Turnover or Balance Sheet Total
Micro	<10	<€ 2 million
Small	Between 10 and 49	€ 10 - €49 million

Source: IFC (2010)

Table 2. World Bank Group MSEs Definitions

Type of enterprise	Number of employee	Extent of total assets
Micro	1-10	Less than US$100,000
Small	11-50	Between US$100,000 and US$3 million

Source: Malhotra et al. (2006)

The Ethiopian modified definition of MSEs (Table 3) were brought and organized from foreign country

experiences as well as correspondence analysis of previous definitions. The revised definition envisaged the other country experiences and the actual economic circumstance such as inflation and exchange rates fluctuations in the country. Due to the rise in exchange rates and inflation, the minimum and the maximum value of total asset's threshold used for classification of enterprises in to micro and small has been increased from birr 20,000($2500) to 100,000($6000) (maximum threshold for micro enterprises) and for small enterprises from birr 500,000 to 1.5million maximum threshold (Government of the Federal Democratic Republic of Ethiopia MSEs development strategy (GFDRE), 2011).

The revised definition also considered the actual number of employed labors including family labor, total assets excluding land and building as a criterion to define MSEs. On the other side, it classified the overall sectors into two divisions as industry which includes manufacturing, construction and mining; and services that include retail trade, transport, hotel and tourism, information technology services and maintenance (GFDRE, 2011).

Table 3. Revised Definition of MSEs in Ethiopia

Type of enterprise	Sector	Number of employees including family member	Total assets
Micro	Industry	≤5	≤ 100,000Birr
	Service	≤5	≤ 50,000Birr
Small	Industry	6-30	≤ 1.5million Birr
	Service	6-30	≤ 500,000 Birr

Source: GFDRE (2011)

2.2. REVIEW OF EMPIRICAL STUDIES

The external factors that are hindering the growth of MSEs include access to financial services, access to infrastructure, and access to working premises (Ishengoma & Kappel, 2006).

Access to financial services

Different research evidenced that the small firms start their business with their own savings supplemented by borrowing from friends and relatives. Since most of the operators/owners are poor they start their business with very little capital. A few meet their capital requirements through informal credit mechanisms which exist within their community, but rarely from the formal sector institutions (Sethuraman, 1997).

Credit from formal sources are not only managed by government regulations but often they also form part of public sector domination, and hence administered by a bureaucracy that is generally unfriendly to the poor, illiterates and semi-educated in the small firm sector. Similar attitudes also prevail in the private sector; the private banks for example rarely find it profitable to deal with these units, though a few exceptions are emerging (Sethuraman, 1997).

Access to infrastructure

The most of small firms faced lack of appropriate location for their businesses. Some of the small firm's are located in places with a inadequate supply or lack of public services and economic infrastructure (water and electricity, transport systems, telecommunication system, sanitation services). In comparison to middle or high-income communities, small firms with access to these services incur a relatively high cost per unit for the service. Besides, small size firm cannot afford to invest in private public goods (Reinikka & Svensson, 2002) or to buy services from private providers which would be more expensive than supplying from government suppliers (Ishengoma, 2004). A poor economic infrastructure and limited access to public services increases the operating costs of small firms, limits their ability to meet quality standards (hygiene standards in café), hinders their participation in linkage relationships (Collier, 2000).
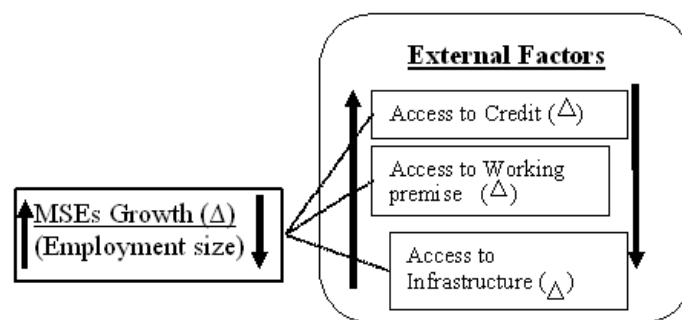
Access to working premises

The working place is one of the main components that are needed for a successful and sustainable growth of enterprises because it is essential in creating access to resources and the necessary markets. Most of the women do not have their own working premises; their working place is shared with other members in the cooperative (Rahel & Issac, 2010).

2.3. CONCEPTUAL FRAMEWORK OF THE STUDY

Figure 1 below presents a conceptual frame work of the relationship between the MSEs growth (dependent variable) and the external factors influencing MSEs growth (independent variables). MSEs growth (1, 0) = f [**external factors** (i.e., access to credit, access to working premise, and access to infrastructures)].Where 1 = if the MSEs growth rate is > 0, otherwise 0.

Figure 1. Conceptual framework of the study

Source: Adopted from Ishengoma and Kappel (2006)
Δ Indicates change for non-measurable factors
↑↓ Indicates increase/decrease for measurable factors

3. STATEMENT OF PROBLEM

Growth of MSEs has a special importance in the economy that it is responsible for the major contribution to net new jobs. However, many researches revealed that firm growth is a multidimensional phenomenon and there is substantial heterogeneity in a number of factors, such as operators/owners general characteristics factors, firm characteristics factors, and external related factors.

Limited access to debt financing is negatively affecting growth potential of MSEs (Siyoum, 2012). Eshetu and Zeleke (2008) found that absence of loan from formal financial institution for investment is the major factor affecting long-term survival of MSEs in Ethiopia. Although financial issues are essential to all firms, 75% of micro enterprise and 72% of small enterprises failed due to lack of finance.

The empirical study of Solomon (2004) and Siyoum (2012) showed that MSE operators that secure own working place and buildings are in a better position to plan with greater certainty and stand a better chance of accessing the needed infrastructure and in doing so will enhance the growth of such enterprises. Growth of firms is also enhanced by the availability of infrastructure inputs such as water, electric light, road network, etc. MSEs that have access to sufficient infrastructural facilities grow by 51.9% rate of employment than those that have not (Solomon, 2004).

Habtamu (2012) conducted his study on the determinants of MSEs growth in Mekelle city by taking entrepreneur characteristic factor (gender), firm characteristic factors (initial employment size, initial investment size, firm age, location, sector) and inter-firm factor (market linkage). His research found that initial investment size, location, sector and gender are the main determinant factors for MSEs growth.

As it is indicated in the review of literature above, most of the previous studies result shows differences. This difference indicates that the determinant factors for MSEs growth vary from country to country, place to place, and person to person. Therefore, this study has tried to identify and examine the factors affecting the growth of MSEs in Shire Indasselassie town by taking in to account the external factors.

4. OBJECTIVE OF THE STUDY

The objective of this study was to assess the effects of the external factors on the growth of MSEs in Shire Indasselassie town.

Literature Driven Hypotheses

The hypotheses were driven after an extensive literature review and identified the factors that were considered in this study. The external factors were derived from the previous empirical studies done be various researchers (Atsede et al., 2008; Birley & Westhead, 1990; Eshetu & Zeleke, 2008; Evans, 1987; Habtamu, 2012; Liedholm & Mead, 1993; McPherson, 1996; Mulu, 2007; Parker, 1995; Rahel & Issac, 2010; Siyoum, 2012; Solomon, 2004; Storey, 1994). The expected effects of the external factors on the growth of MSEs are hypothesized in the following section.

External Factors

Access to credit, access to infrastructure, and access to working premise are considered in this study as external factors that affect the growth of MSEs.

Access to Credit

It is defined as access of credit from formal financial sources. When the firm wants to expand their business, it needs capital either from its own internal (own saving) or external sources (debt). According to Aggrey, Ochai, and Mukasa (2012), access to credit is negatively associated with the firm growth. The enterprises with limited debt financing growth potential are lower than those enterprises having access to debt financing. Therefore,

limited access to debt financing is negatively affecting growth potential of MSEs (Siyoum, 2012). Eshetu and Zeleke (2008) also found that absence of loan from formal financial institution for investment is the major factor affecting long-term survival of MSEs in Ethiopia. Although financial issues are essential to all firms, 75% of micro enterprise and 72% of small enterprises failed due to lack of finance. Thus, the hypothesis for this factor is as follows:

Hypothesis 1: MSEs that have access to credit from formal financial source are more likely to grow faster as compared to those that have not.

Access to Working Premise

MSEs that have own premise is positively associated with its growth. Any business enterprises need enough working and marketing place for their product and services. Unless having enough working and selling place, the productivity of MSEs go down due to the fact that the product produced need warehouse to store and selling outlets to rich in the hands of final customers which is major determinant for existence and growth of the enterprises. Therefore, those enterprises having enough own working premises grow more than those enterprises which have not working premises and selling outlets (Siyoum, 2012). The empirical study of (Solomon, 2004) showed that MSEs operators that secure own working place and buildings are in a better position to plan with greater certainty and stand a better chance of accessing the needed infrastructure and in doing so will enhance the growth of such enterprises. Thus, the hypothesis for this factor is as follows:

Hypothesis 2: MSEs that have own working premise are more likely to grow faster as compared to others.

Access to Infrastructure

Growth of firms is also enhanced by the availability infrastructure inputs such as water, electric light, road network, etc. MSEs which have access to sufficient infrastructural facilities grow by 51.9% rate of employment than those which have not (Solomon, 2004). On the other hand, Aggrey et al. (2012) reported that access to infrastructure has no significant effect on the growth of the firm. Thus, the hypothesis for this factor is as follows:

Hypothesis 3: MSEs that have sufficient accesses to infrastructure are more likely to grow faster than those that have not sufficient access to infrastructure.

5. METHODOLOGY OF THE STUDY
5.1. RESEARCH DESIGN

Research design is the plan and structure of investigation so conceived as to obtain answers to research questions. The plan is an overall scheme or program of the research process. There are three types of research design, namely exploratory (emphasizes discovery of ideas and insights), descriptive (concerned with determining the frequency with which an event occurs or relationship between variables) and explanatory (concerned with determining the cause and effect relationships) (Gebregziabher, n.d.).

The type of research design used under this study was explanatory research design. The major purpose of explanatory research is to determine the cause and effect of dependent and independent variables. Moreover, the study used cross-sectional data in the sense that all relevant data were collected at a single point in time. Besides, quantitative research approach was used since numeric data was collected through semi-structure questionnaire.

5.2. DATA SOURCES AND COLLECTION TECHNIQUES

The study used primary and secondary sources. The primary data was obtained through semi-structured questionnaire. The operators/owners of the MSEs established before three years (i.e., before 2010) completed the questionnaire. The secondary data was collected from periodic reports in the Shire Indasselassie town MSE development office.

5.3. SAMPLE SIZE AND SAMPLING TECHNIQUE

Systematic random sampling is a technique of selecting sampling units using a fixed interval on a randomly ordered list of the sampling frame. It involves selection of every k^{th} element in the sampling frame where k is the ratio between number of elements in the population and the sample size (Gebregziabher, n.d). Therefore, in this study, systematic random sampling type of probability sampling was used in selecting each element of the sample size, where every element in the population has the same chance of being selected and the data was collected by using semi- structured questionnaire.

This study was conducted in five Kebeles of Shire Indasselassie town. The total number of MSEs were 5,628, out of this, 1,615 MSEs were established before three years (i.e., before 2010) and these 1,615 MSEs were the population of this study. Therefore, given the total population of the study, the study has applied a simplified scientific formula provided by Yamane (1967);

$$n = \frac{N}{1+N(e)^2}$$

i.e., ………………. (1)

Where e is the level of precision, i.e., e = 0.075 (0.075 level of significance); N = Population size; and n = sample size.

$$n = \frac{N}{1+N(e)^2} = \frac{1,615}{1+1,615(0.075)^2} = \frac{1,615}{1+9.08} = \frac{1,615}{10.08} = 160$$

Accordingly, 160 respondents (owners) were selected from 1615 MSEs. These 160 respondents were selected from each Kebele computed based on their number of respective population (weight) and the samples were selected by using systematic random sampling technique (k^{th}-interval). K is determined by using the formula (Alison, 2004, as cited in Habtamu, 2012);

$$\left(k^{th} = \frac{Total\ Population\ (N)}{Sample\ size\ (n)} \right) ………….. (2)$$

Where N = Population size (i.e., 1615 MSEs owners) and n = sample size (i.e., 160). Table 4 below shows the samples taken from each Kebele of Shire Indasselassie town administration.

Table 4. Sample size of the study

Kebele	N$\underline{o}$ of MSEs in 2012	N$\underline{o}$ of MSEs before 2010	Weight of each Kebele	Each Kebele sample size	Interval (Kth unit)
Dedebit (01)	1,214	329	0.21	34	10th
Suhul (02)	732	229	0.14	22	10th
Hbret (03)	764	230	0.14	22	10th
Adi Kentibay (04)	2,251	652	0.40	64	10th
Yekatit (05)	667	175	0.11	18	10th
Total	**5,628**	**1,615**	**1**	**160**	

Source: MSEs Development Office (2013)

5.4. METHODS OF DATA ANALYSIS AND PRESENTATION

Data processing and analysis is an important part of research work. After data were collected, it has to be processed and analyzed. The collected data was edited in order to identify errors and omissions and correct them when needed. After that the edited data was coded and classified. All these activities were carried out to make the data as ease for analysis. The binary logistic regression model was used to test the formulated hypotheses and examine the effect of the external factors on MSEs growth.

5.5. MODEL SPECIFICATION

In this study binary logistic regression model was used to examine the relationship between the independent variables and dependent variable (growth of MSEs). The basis for selecting the binary logistic regression model is the nature of dependent variable. If the dependent variable is with only two categories (growing and non-growing, valued as 1 and 0, respectively), binary logistic regression is appropriate (Gujarati, 2004).

Besides, though the logit and the probit model yield similar parameter estimates, but the binary logistic regression model is preferred because of its comparative mathematical simplicity and more meaningful interpretation of odds ratio (Gujarati, 2004). Accordingly, the binary logistic regression model employed has the following form:

$$MSEgrz = \ln \left(\frac{P_i}{1-P_i} \right) = \beta_0 + \beta_1 CRED + \beta_2 PREM + \beta_3 INFR + \mu_i \ldots\ldots\ldots(3)$$

Where,

$MSEgrz$ = the probability that i^{th} MSE is growing given independent variables,

$CRED$ = Access to Credit,

$PREM$ = Access to Working premise,

$INFR$ = Access to Infrastructure,

β_0 = Constant (intercept); $\beta_1 - \beta_3$ = Coefficients,

u_i = Error term (absorbs unobserved factors),

P_i = Probability of ith MSE is growing type; $1-P_i$ = Probability of ith MSE is survival type, and

ln = Natural logarithm; $\ln \left(\frac{1}{1-P_i} \right)$ = Natural logarithm of the odds ratio (logit model).

5.6. DEFINITION OF VARIABLE

There are two variables to be defined in line with this study. These are the dependent and independent (explanatory) variables employed in the study. The depended and independent variables are defined as follow.

Dependent variables of the study (MSEgrz)

There are various arguments in the existing literature on how to measure growth, and scholars have used a variety of different measures. These measures include, for example, growth of sales, employees, assets, profit, equity, and others (Davidsson & Wiklund, 2000).

Moreover, the time span over which growth analyzed in the literature varies considerably, ranging from one to several years. In addition, growth has been measured in absolute or relative terms. Perhaps the most common means of operationalizing firm growth is through relatively objective and measurable characteristics-such as growth in sales turnover, total assets and employment growth. These measures are relatively uncontroversial (methodologically) and data tend to be easily available, increasing the scope for cross study comparability (Freel & Robson, 2004). In this study, employment was used as measurement of growth of MSEs.

The growth MSEs status, which is the dependent variable for the binary logistic analysis, is a dichotomous variable representing the growth of MSE. It is represented in the model by 1 for the growing MSEs and 0 for survival MSEs. To measure the growth of MSEs, the researcher used employment size following Evans (1987) model of firm growth. The following equation used to measure the firm growth;

$$MSE\, gr = \frac{\ln St' - \ln St}{Ea} \qquad \ldots\ldots\ldots\ldots (4)$$

Where St' = represent the firm's current employment size; St = represent the firm's beginning employment size and Ea = denotes enterprise age.

The employment size is preferred to measure the growth of MSEs since:

- Most MSEs operators/owners do not keep records so that it is difficult to get reliable time series data on growth of fixed assets/sales, they would be unable to report their sales or profits even at the present time.
- As most economic theory proves, increase in employment size is associated with increase in efficiency.
- Moreover, MSEs operators/owners are extremely reluctant to give accounting information to external parties (outsiders) (Fioritto & Lafarge, 1986).

Independent (Explanatory) Variables

Access to Credit: Availability of credit from formal sources financing. Those MSEs that have access to formal credit are expected to grow faster than those that have not.

Access to working premise: Availability of working premise or working place. Those MSEs that have own premises are more likely to grow faster as compare to those have not.

Access to Infrastructures: Availability of infrastructural facilities like power, water, road, telecommunications, and so forth enhance growth of MSEs. These factors are very important for the growth of the firms.

Table 5. Name, type, code and value of the variables

Name	Type	Code	Value
MSEs growth status	Dummy	MSEgrz	1 if the MSEs growth rate>0, 0 otherwise.
Working premise	Categorical	PREM	Working premise in which MSEs operate: 1 (Own premise), 2 (Rented), 3(Family), 4 (Government building).
Credit	Dummy	CRED	1 if MSEs access to credit, 0 otherwise
Infrastructure	Dummy	INFR	1 if infrastructure access is sufficient, 0 otherwise.

Source: Own Survey, 2013

6. DATA ANALYSIS AND DISCUSSION

This section presents the major external factors for the MSEs growth by using the binary logistic regression model. The binary logistic tried to identify the major external factors that are affecting the MSEs growth. In this study employment is used as objective measurement of growth by following the model of Evans (1987) that is change in employment size over the life of the firm, i.e.,

$$MGR = \frac{(\ln st' - \ln st)}{Ea} \qquad \ldots\ldots\ldots (5)$$

By taking the calculated growth rate, the MSEs are classified in to two broad categories i.e., growing (if growth rate > 0) and survival (if growth rate ≤ 0). Accordingly, Out of the total respondents, 99 MSEs (61.98%) found survival (non-growing) types and the remaining 61 MSEs (38.12%) are found growing types. This result is consistent with the result of Mulu, (2007) found 69 percents of MSEs are survival types in Ethiopia and Habtamu (2012) found that 76.4 percent survival type and 23.6 percent growing type in Mekelle city. Table 6 below summarizes the growing and survival types of MSEs.

Table 6. Status of MSEs in Shire Indasselassie town

MSE category	Number of MSEs	Percent
Growing	61	38.12
Survival (non -growing)	99	61.98
Total	160	100

Source: Own Survey, 2013

6.1. MODEL SPECIFICATION TEST

Test for Multi-collinearity: The test for multicollinearity tests whether there are no perfect linear relationships among the explanatory variables. However, multi-collinearity problem is the existence of a "perfect," or exact, linear relationship among some or all explanatory variables of a regression model (Gujarati, 2004). In order to test the existence of multicollinearity problem, VIF (Variance Inflation Factor) is utilized. As a rule of thumb for multicollinearity, test of the model states a variable whose values are greater than 10 or whose 1/VIF value is less than 0.1 indicates possible problem of multi-collinearity. Thus, in this study there is no value greater than 10, all value of the Variance Inflation Factors are less than 3.28 or all values of 1/VIF are greater than 0.3049.

Correlation matrix illustrates bivariate relationship between two independent and/or independent-dependent variables. Correlation matrix examines the extent or direction of relationship among two variables and how one variable is related to another. Correlation matrix also indicates problem of multicollinearity (Gujarati, 2004). Multicollinearity is a problem when the correlation result is above 0.80 and below -0.80. But, in this study, the correlation coefficients are under 0.4821 and over -0.3778. Therefore, the VIF and 1/VIF, and the correlation matrix tests revealed that there is no multicollinearity problem.

Test for Heteroskedasticity: The test for heteroskedasticity test whether the disturbance term μ_i appearing in the regression function is homoskedastic. Test of heteroskedasticity says the null hypothesis that the variance of the residuals is homogeneous. If p value is very small, i.e., Pr < 0.05 (at 95% confidence), the null hypothesis will be rejected and accept the alternative hypothesis that the variance is not homogenous (Gujarati, 2004). However, in order to avoid heteroskedasticity problem, the MSEs growth equation is estimated by using logistic model through running robust estimation and it easily solves the problem of heteroskedasticity. The null hypothesis (i.e., Ho: Constant variance) was rejected because the test result showed Prob > chi2 = 0.1464, which is greater than the significance level (10 percent). Therefore, the result indicated that there is equal variance among the error terms. Therefore, there was no problem of heteroskedasticity in the process of model specification and the model was well fitted.

Besides, according to Ramsey RESET test, a model specification is fit or no omitted variables and ready for analysis if P-value stated in P>F greater than the chosen level of significances, i.e., 1 percent, 5 percent, and 10 percent. The result indicated that the model had no relevant omitted variables since the test failed to reject the hypothesis, i.e., Prob > F = 0.1181 is found greater than 10 percent significance levels of the specified model of the study.

Finally, the various goodness-of-fit measures validate that the model fits the data well. The value of Pearson Chi-square test shows that the overall goodness-of-fit of the model fit the data at less than 1% significance level (i.e., Prob > chi2 = 0.0001).

6.2. RESULTS AND DISCUSSIONS

The main objective of this study was to examine the factors affecting MSEs growth in Shire Indasselassie town. The binary logit regression model was used to identify the major determinant factors for SMEs growth in terms of employment by using the compound annual employment growth rate as an objective measure.

Binary logistic regression requires the dependent variable to be binary. Logistic regression assumes that P(Y=1) is the probability of the event occurring, it is necessary that the dependent variable is coded accordingly. That is, for a binary logit regression, the factor level one of the dependent variable should represent the desired outcome. Table 7 shows the result of binary logit regression, i.e., the probability of being growing P(Y=1).

Access to working premise, access to credit and access to infrastructure are found significant in determining the probability of MSEs growth from external factors. The results of the logistic regression model are summarized in Table 7 below.

Table 7. Logistic regression estimation result

MSEs growth status	Odd ratio	P>|z|	Marginal effects (dy/dx)
External factors			
Access of credit	0.2391505	0.036**	-.3327969
Access of infrastructure	6.601103	0.000*	.3999523
Working premise (reference own working premise)	-	-	
Rent	0.1648841	0.019**	-.3767276
Family	0.1572982	0.091***	-.2483287
Government	0.3515904	0.184	-.198548

Source: Own Survey, 2013

* indicated 1 percent level of significant

** indicates 5 percent level of significant

** indicates 10 percent level of significant

As per the Table 7 above, the variable access to infrastructure has a positive sign as expected and statically significant at 1 percent significance level. The odds ratio shows that the probability of growing for those MSEs that having sufficient access to infrastructure is 6.60 times higher than the MSEs that have no sufficient infrastructure access. The marginal effect also shows that the probability of growing for those MSEs having sufficient access to infrastructure increased by 40% as compared to those MSEs that have no sufficient access to infrastructure. Based on this, the hypothesis that states *"MSEs that have sufficient accesses to infrastructure are more likely to grow faster than those that have not sufficient access to infrastructure"* is accepted. This result is consistent with the previous study of Solomon (2004) which stated access to infrastructure has significant positive effect on MSEs growth.

Access to credit has negative and significant effect on the MSEs growth at 5 percent level of significance. The odds ratio shows that the probability of growth for those MSEs that have access to credit from formal financial sources is 0.24 times lower than those MSEs that have no access to credit from formal financial sources. Moreover, the marginal effect also indicates that the probability of growth for those MSEs that have access to credit from formal financial sources are decreased by 33.28% as compared to those MSEs that have no access to credit from financial sources. As a result, the hypothesis which states "*MSEs that have access to credit from formal financial source are more likely to grow faster as compared to those have not"* is rejected. This may happen when the firm operators used the credit for other purposes (not for the business) and some other factors within the firm such as managerial competence might explain poor understanding of the debt management. Therefore, credit can harm firm growth by increasing debt that may destabilize firms and ultimately force them to collapse. This result contradicts with the result of Siyoum (2012) and Eshetu and Zeleke (2008) which stated that access to credit from formal financial sources has significant positive effect on MSEs growth.

Assuming all other factors remains constant;

- The odds ratio shows that the probability of growth for those MSEs operating at rented working premise is 0.165 times lower than that of the MSEs operating at own working premise. The marginal effect also indicated that the probability of growth for MSEs that are operating at rented working premise decreases by 37.67% compared to MSEs that are operating at own working premise at 5 percent level of significance.

- The odds ratio shows that the probability of growth for those MSEs operating at family working premise is 0.157 times lower than that of the MSEs operating at own working premise. The marginal effect also indicated that the probability of growth for MSEs that are operating at family working premise decreases by 24.83% compared to MSEs that are operating at own working premise at 10 percent level of significant.

- Therefore, the hypothesis which states "*MSEs that have own working premise are more likely to grow faster as compared to others"* is accepted. This may be due to the fact that, those MSEs operate the business at own working premise are not face to costs of working place and they have the probability to grow faster than of the other.

7. CONCLUSION AND RECOMMENDATION
7.1. CONCLUSION

The aim of this study was to analyze the external factors affecting MSEs growth by using the binary logistic regression model. The resulted study was based on cross sectional data of the year 2013 at Shire Indasselassie town. Data was collected through semi-structured questionnaire from 160 MSEs owners' sample respondents selected by using systematic random sampling techniques.

The study used annual employment growth rate (compound) to determine status of the MSEs (growing and survival or non-growing). Accordingly, the descriptive statistics result showed that over three-fifth of the MSEs were found survival (non-growing) MSEs and two-fifth were found growing MSEs.

Furthermore, those MSEs those have access to credit from formal financial sources and access to sufficient infrastructure found high growth rate. Majority of the growing and survival types of MSEs were operating their business on rented working premise from private owners.

The determinant factors for the MSEs growth were tested by using the binary logit regression model based on the external factors. Access to credit, access to infrastructure and access to working premise have statistically significant effect on the growth of the MSEs.

Based on the binary logistic regression result;

- Accesses to credit from formal financial sources and growth of the MSEs have a negative relationship since those MSEs that have access to credit from formal financial sources grow slow than those that have no access to credit. This is may be due to the result of improper management of credit and the credit may not be used for intended purposes.
- Access to infrastructure is significant factor for the MSEs growth since those MSEs having sufficient access to infrastructure grow faster than those that have no access to sufficient infrastructure.
- MSEs that were operating at own working premise grow faster than those that operates at rented and at family working premise. Besides, those MSEs that were operating their business at rented working premise shown lower growth rate than those MSEs that were operating their business at their family working premise because the growth rate gap between the MSEs operating at own and family working premise is narrow than the MSEs operating at rented working premise.

7.2. RECOMMENDATION

The role of MSEs is consistently recognized in employment and income generating and has become a major playing field for policy makers and donors with dual objective of enhancing growth and alleviating poverty. However, MSE growth is multidimensional phenomenon and there is substantial heterogeneity in a number of factors. Policies and support program need to consider the heterogeneous nature of the MSEs. The finding result shows the external factor that affects the growth of MSEs are access to credit, access to infrastructure and access to working premise. Proper understanding of these factors constitutes an essential starting point and important for the government and non-governmental organizations to formulate policies and strategies in order to reduce poverty, unemployment and income inequality. Thus, on the basis of the finding and conclusion reached in this study, the following recommendations are forwarded.

Those MSEs which have an access to credit from formal financial sources are negatively affected their firm growth (expansion of employment). Although personal saving is one of the means of accumulation of capital, often personal saving alone cannot be sufficient for running and expanding business operations. However, if the available credit is not properly managed and not used for the intended purpose; it can affect the MSEs growth and ultimately forced them to collapse. So, the MSEs development office of Shire Indasselassie town should give awareness creation trainings on how to manage the credit and strictly follow up whether the borrowed fund is used for the intended purpose or not.

The development of infrastructure facilities including the supply of electricity, water, road, telecommunication connection, sewerage systems, etc are crucial for the expansion of MSEs. Therefore, those MSEs that have access to sufficient infrastructure are growing rapidly than those of MSEs that have no access to sufficient infrastructure. In line with the Growth and Transformation Plan (GTP), the Ethiopian Federal Government has been giving due emphasize on the development of infrastructure, but the main problem which are occurred at this time are frequently interrupted and insufficient water and electric power supply. Therefore, the Ministry of Water Resources and the Ethiopian Electric Power Corporation should promptly address these problems in collaboration with the Tigray National Regional State.

Working premise is found to have significant positive impact on MSEs growth. Therefore, the MSEs development office in collaboration with the municipality should strive for the MSEs to have own working premise or construct shades and avail them at fair rent.

7.3. FURTHER RESEARCH DIRECTION

Because of the limited time and resource, this study was only applied to Shire Indasselassie town, but a valuable finding may come up by taking data from different areas (towns). Moreover, in this study some findings regarding some factors are different from previous study. This entails further research in order to further identify and examine the external factors affecting the MSEs growth.

8. REFERENCES

Aggrey, N., Ochai, M., & Mukasa, I. (2012). *The effects of investment climate on manufacturing firm growth in Uganda*. ICBE-RF research report No.19/12. Makerere University, Uganda.

Atsede, W., Patricia, L., & Adebimpe, A. (2008). *Factors influencing small and medium enterprises (SMEs): An exploratory study of owner/manager and firm characteristics*. UK.

Birley, S., & Westhead, P. (1990). Growth and performance contrasts between types of small firms. *Strategic management Journal, 11,* 535-557.

Central Statistical Agency (CSA). (2003). *Report on bi-annual employment unemployment survey.* 1st year Round 1, Statistical Bulletin319, Federal Democratic Republic of Ethiopia (FDRE).

Central Statistical Authority (CSA). (2003). *Report on small scale manufacturing industries survey*. Ethiopia.

Collier, P. (2000). Manufacturing microenterprises as import substituting industries. In H. Jalilian, M. Tribe, and J. Weiss (eds.), *Industrial Development and Poverty in Africa*. UK: Ed-ward Elgar Publishing Limited.

Davidsson, P., & Wiklund, J. (2000). *Conceptual and empirical challenges in the study of firm growth.* The black well handbook of entrepreneurship. Oxford: Blackwell, 26-44. Retrieved from http://eprints.qut.edu.au/5571.

Endalkachew, M. (2008). *Underlying causes of micro and small business failures.* Addis Ketema Sub City. Addis Ababa.

Ermias, W. (2011). *Study on financial sources of micro and small enterprises*. Addis Ababa, Ethiopia.

Eshetu, B., & Zeleke, W. (2008). Factors that affect the long term survival of micro, small and medium enterprises. *South African Journal of Economics, 76* (3).

Evans, D. S. (1987). Test of alternative theories of firm growth. *Journal of Political Economics*, *95*(4),657-74. Retrieved from http://www.jstor.org/stable/pdfplus/1833253.pdf

Fioritto, S., & Lafarge, R. (1986). A marketing strategy analysis of small retailers. *American Journal of Small Business, 11*(1), 7-17. Retrieved from http://www.faqs.org/abstracts/Business-general/Win-win-business-sales-A-marketing-strategy-analysis-of-small-retailers.html.

Freel, M. S., & Robson, P.A. (2004). Small firm innovation, growth and performance. *International Small Business Journal, 22* (6), 561-575. Retrieved from http://icc.oxfordjournals.org/content/20/4/1049.full.pdf+html.

Gebregziabher, H. (n.d). *Business research methods*. College of Business and Economics, Mekelle University, Ethiopia.

Government of Federal Democratic Republic of Ethiopia (GFDRE), (2011). *MSEs development, support scheme, and implementation strategies*. Addis Ababa, Ethiopia.

Gujarati, D. N. (2004). *Basic econometrics* (4th Ed.). New York: McGraw-Hill companies.

Habtamu, T. (2012). *Determinants of micro and small enterprises growth in Tigray National and Regional State: Evidence from Mekelle City* (Master Thesis). Mekelle University, Ethiopia.

International Finance Corporation (IFC). (2010). *Scaling-up SME access to financial services in the developing world.* Retrieved from www.ifc.org/.

Ishengoma, E. (2004). *The role of firm-resources: Performance differentials between women- and men-owned micro-enterprises in Tanzania*. University of Leipzig, Tanzania.

Ishengoma, K., & Kappel, R. (2006). *Economic growth and poverty: Does formalization of informal enterprises matter*? Hamburg, German Institute of Global and Area Studies.

Liedholm, C., & Mead, D. C. (1993). *The structure and growth of microenterprises in southern and eastern Africa.* Evidence from recent surveys Working Paper No. 36, GEMINI.

nd%20developing%20nations.pdf.

Malhotra, M., Chen, Y., Criscuolo, A., Fan, Q., Hamel, I., & Savchenko, Y. (2006). *Expanding access to finance: Good practices and policies for micro, small, and medium enterprises.*

McPherson, M. (1996). Growth of micro and small enterprises in South Africa. *Journal of Development Economics, 48,* 253-277.

MSEs Development Office. (2013) Annual Report. Shire Indasselassie, Shire Tigray.

Ministry of Trade and Industry (MoTI). (1997). *Micro and small enterprises development strategy.* Addis Ababa, Ethiopia.

Mulu, G. (2007). *Growth of micro-enterprises: Empirical evidence from Ethiopia.* Ethiopian Development Research Institute (EDRI). Retrieved from http://www.csae.ox.ac.uk/conferences/2007-EDiA-LaWBiDC/papers/275-Gebreeyesus. pdf on Africa, No. 70.

Parker, J. (1995). *Patterns of business growth of micro and small enterprises in Kenya.* (PhD Dissertation). Michigan State University, East Lansing, Michigan.

Rahel, W., & Issac, P. (2010). Growth determinants of women operated micro and small enterprises in Addis Ababa. *Journal of Sustainable Development in Africa, 12*(6). Retrieved from http://www.jsdafrica.com/Jsda/V12No6

Reinikka, R., & Svensson, J. (2002). Coping with poor public capital. *Journal of Development Economics, 69,* 51-69.

Sethuraman, S. V. (1997). *Urban poverty and the informal sector: A critical assessment of current strategies.* Geneva: ILO.

Siyoum, G. (2012). *Business constraints and growth potential of micro and small enterprises. Evidence from*

Holeta Town (Master Thesis). Mekelle University, Ethiopia.

Solomon, E. (2004). *Socio economic determinants of growth of small manufacturing enterprises in Addis Ababa* (Master Thesis). Addis Ababa University, Ethiopia.

Storey, D. J. (1994). *Understanding the small business sector*. London: International Thomson Business Press.

Tigray Regional State Bureau of Plan and Finance (TRBPF). (2010). *Five years (2010/11 -2014/15) growth & transformation plan*. Mekelle, Tigray.

Yamane, T. (1967). *Statistics, an introductory analysis* (2nd ed.). New York: Harper and Row.

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