Dimensions and Determinants of Growth in Micro and Small Enterprises: Empirical Evidence from Mekelle City, Ethiopia

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Abstract

This paper aims to investigate the dimensions and determinants of growth in Micro and Small Enterprises (MSEs) based on a survey covering 178 randomly selected MSEs in Mekelle city, northern Ethiopia through the test of four main hypotheses and arguments of Gibrat's law and the learning theory hypothesis. Semi-structured questionnaire and interview were used to collect data, and the binary choice model was used to identify factors that significantly affect the growth of MSEs. Employment size index is used as a proxy to measure firm growth in which about 76.4 percent of MSEs are found survival and the remaining 23.6 percent are growing type. There is also an evidence supporting the law of proportional effect could hold in the MSEs context. Moreover, the logit model result reveals that there is a significant gender difference in growth of MSEs. Furthermore, the start up capital, location and sector in which MSEs operate matter a lot for their growth. Hence, government and non-government organizations that are concerned with the promotion and development of MSEs need to take these factors in to account to accomplish better result and increase the potential contribution of MSEs to the economic growth.

Key words

Determinants, dimensions, growth, MSEs, binary choice model, Tigray, Ethiopia.

Introduction

In developing countries, Micro and Small Enterprises (MSEs) by virtue of their size, location, capital investment and their capacity to generate greater employment have proved their paramount effect on rapid economic growth (MTI, 1997). The sector is also known in bringing structural economic transformation by effectively using the skill and the talent of people without requesting high-level training, much capital and sophisticated technology. As a result the MSE sector is described as the natural home of entrepreneurship since it provides an ideal environment that enable entrepreneurs to exercise their talents to fill and attain their goals. Due to these MSEs are recognized as a real engine of economic growth and technological progress (Carrier, 1994; Mulharn, 1995). Moreover, MSEs exert a very strong influence on the economic growth of all countries over the world (Drillhon and Estime, 1993). These makes MSEs a major area of concern for government and non-government organizations with an objective of unemployment and income inequality reduction, income generation, import substitution, innovation, poverty alleviation etc.

The MSE sector is seen as an essential catalyst for job creation, unemployment reduction and social progress at large since it takes the lion share of fast growing labor force in the world particularly 48% in North Africa, 51% in Latin America, 65% in Asia, and 72% in Sub-Saharan African Countries (ILO, 2002). The study made in five countries of Eastern and Southern Africa (Botswana, Kenya, Malawi, Swizaland and Zimbabwe) by Mead and Liedholm (1998) shows that people engaged in MSEs are nearly twice the level of employment in large scale enterprises and in the public sectors.

In Ethiopia, MSEs are the second largest employment generating sector next to agriculture. A National survey conducted by Central Statistics Agency (CSA) in 2006 indicates that more than 1.3 million people in the country are engaged in MSEs sector. But a large number of MSEs are unable to grow (expand in terms of employment) and remain to be survival (non-growing) type which cannot provide employment. Moreover, out of 1000 MSEs in this country

around 69% of them are found survival types (Gebreeyesus, 2009) and particularly in capital city Addis Ababa majority (75.6%) of the MSEs are unable to grow at all since start up and only 21.9% of the MSEs were added workers (Wasihun and Paul, 2010). Even though MSEs that add workers or seeking to add labor force make a major contribution to the economic growth of the country (Mead and Liedholm, 1998) and helping more of these enterprises to grow (add workers) can make a greater contribution to unemployment reduction and income generation than equal efforts made for the promotion of new MSEs. Besides, the MSEs that add workers are very important mechanism for helping people to move up and out of poverty since increase in size is often associated with an increase in economic efficiency but, most MSEs are subject to different set of dynamic forces which can affect their growth and reduce their potential contribution to the economic growth of the country. Hence, most MSEs remain the same in size of employment since start up as compared to larger enterprises since the factors that influence the growth of MSEs are many, complex and erratic.

The Ethiopian Government in this regard has formulated a National MSEs Development and Promotion Strategy in 1997 with a major objective of creating long-term employment and providing basis for medium and large scale enterprises there by to facilitate economic growth. However, this strategy needs to be supported by detailed studies at every level i.e., country, regional and firm level so as to be easily realized.

While a significant amount of research has been done on the determinants of growth in large firms, much less is known with respect to MSEs (Raymond, Bergeron, & Blili, 2005), specifically in developing countries like Ethiopia, given that MSEs survival, growth and prosperity are more often than not and potentially subjected to different constraints and contingencies related to entrepreneurial, firm, external and inter-firm factors. Hence, most MSEs remain the same in size of employment since start up as compared to larger enterprises since the factors that influence the growth of MSEs are many, complex and erratic. As Ajibefun and Daramola (2003) emphasized that many studies that exist in the developing countries are macro in nature and generally rely on cross-country or multi-country data rather than firm level survey data. Therefore, most problems that are found at firm level were remaining unsolved due to lack

of detailed studies in most developing countries including Ethiopia.

So that taking these all in to account, it is very essential to systematically analyze the factors that affect the growth of MSEs. Therefore, this study aims to investigate the dimensions and determinant factors of MSEs growth in Mekelle city, Tigray regional state of Ethiopia. In which major emphasis was given to examine the growth status of MSEs, to identify the key factors affecting they growth of MSEs and to critically analyze the causes and consequences.

Materials and methods

The dimensions and determinants of MSEs growth is vast and complex (Delmar, 1997). However, to examine factors affecting the growth of MSEs, this study draws on empirical evidence from 2012 survey covering 178 randomly selected MSEs from Mekelle city Tigray regional state of Ethiopia. A semi-structured questionnaire and personal interview were used to collect first hand data. The data collected in this way was classified, summarized and presented using text and table, and analyzed using the descriptive statistical tools like percentages, ratios, mean and standard deviation. In addition, the econometric analysis tool that is binary choice logistic regression model was used to test the literature driven hypothesis and to draw conclusions.

The model

The growth of MSEs is subject to different set of interrelated factors (Baldwin, 1995) in order to investigate the factors that determine the growth status of MSEs, the binary logistic regression model is used to examine the relation of each factor with growth of MSEs. These models are often used to approximate the mathematical relationships between explanatory variables and dichotomous dependent variable.

The binary logistic regression model is selected due to the nature of dependent variable, if the dependent variable is categorical variable with only two categories (growing & non-growing/ survival valued as 1 & 0 respectively), binary logistic (logit) regression is appropriate. But when the dependent variable is categorical, OLS regression technique produces parameter estimates that are inefficient and heteroscedastic error structure. As a result, testing hypothesis and construction of confidence interval becomes inaccurate and

misleading. Similarly, a linear probability model may generate predicted value outside 0 - 1 interval which violates the basic principles of probability (Gujarati, 2004). It also creates a problem of non normality, hetroscedasticity of the disturbance term; thereafter leading to lower coefficients of determination (Gujarati, 2004).

Therefore, to alleviate these problems and come up with relevant out put the non-linear specification model is selected i.e., the cumulative distribution functions (CDFs) are commonly chosen to represent the 0-1 response model which are the logit and the probit models.

The logit model assumes cumulative probability distribution function where as the probit model is associated with the cumulative normal distribution (Gujarati, 2004). The logit and the probit model yield similar parameter estimates, but the cumulative logistic regression model is preferred because of its comparative mathematical simplicity and more meaningful interpretation of odds ratio (Gujarati, 2004).

In this study MSEs are assumed to be either growing or survival (not growing). Hence the binary choice logistic regression model that assumes dichotomous dependent variable which takes either 1 or 0 value depending on Y^* is used, this is specified as:

$$Y = \begin{cases} 1 \ if \ Y^* > 0 \\ 0 \ if \ Y^* \leq 0 \end{cases} \quad (1)$$

In a qualitative response model, the probability that Y=1 is given by the sign of the latent variable that is the probability that the latent variable becomes positive.

$$P(Y^* > 0) = P(\beta'X + \varepsilon > 0) = P(\varepsilon > -\beta'X) = P(\varepsilon < \beta'X) = F(\beta'X) \quad (2)$$

The finally employed model becomes:

$$P(Y=1) = \alpha + \beta_1(genow) + \log\beta_2(iis) + \beta_3(entloc) + \beta_4(entsec) + \varepsilon \quad (3)$$

Where α the intercept, β_{1-4} is is is the coefficient to be estimated, genow is the gender of enterprise owner, iis is initial investment size, entloc is the enterprise operation location, entsec is the enterprise sector of operation and ε is the error term that has a logistic distribution with mean 0 and variance 1. In this binary choice model, each observation is treated as a single draw that is binomial with one draw. The model with growing probability *(Y=1)* of *F(ß'X)* and

independent individual observations leads to the joint likelihood function, given by the sum-product of the probabilities of growing and survival.

The model can be written as a multiplicative function by taking the exponential form of both sides: *Odds (growing) =P/ (1-P) = exp {α + $\beta_i X_i$} = $e^\alpha \ e^{\beta i x i}$*. This is a model for Odds. Odds change multiplicatively with X_i. A one unit increase in X_i leads to a change (increase or decrease) of $e^{\beta i}$ in the odds that a MSE would be growing type. The logarithm of the odds changes linearly with X_i; however, the logarithm of *Odds* is not an intuitively easy or natural scale to interpret.

Alternatively, it can be expressed in terms of probability as:

P = exp {α + $\beta_i X_i$ / {1 + exp (α +$\beta_i X_i$)}. Or, p = Odds / (1+odds) (4)

Where:

exp = e = 2.71828 = base of natural logarithm,

P /1-P = odds of MSE growth

X_i = independent variables

X_i's can be categorical or continuous, but *Y* is always categorical (qualitative), *Growing* or survival in this case. The *Logistic Regression* is a powerful tool in its ability to estimate the individual effects of continuous or categorical independent variables on categorical dependent variables (Wright, 1995).

Specifying dependent and independent variable

The dependent variable is a dichotomous variable that represent the growth of MSE that is measured in terms of change in employment size. Taking the calculated growth in employment, MSEs are classified in to two categories i.e., growing (if gr > 0) and survival (if gr ≤ 0) following Cheng (2006) growth classification and represented in the model by 1 for the growing and 0 for survival MSEs. The independent variables that that are critically examined in this study are gender of the owner, initial investment size, location and sectors the MSEs are engaged. Taking this, the following hypotheses were driven.

Gender of owner versus MSEs growth

In most countries, majority of MSEs are owned and operated by women (Mead & Liedholm, 1998). The new start rates for female owned MSEs are substantially higher as compared to male headed MSEs but women owned Micro and small enterprise (WMSE) grow less rapidly than those male owned

MSEs. The studies made by Gebreyesus (2009) and Liedholm (2001) show that male owned MSEs grow more than double as compared to WMSEs. This gender difference on the growth of MSEs is hypothesized in this study as follow.

Hypothesis 1: Male owned MSEs are more likely to grow faster as compared to women owned MSEs.

Initial investment size versus MSEs growth

Resource endowment, capabilities and competitive advantages are major determinants of firm growth as per resource-based view since resources are basis for profitability and growth (Grant, 1991). MSEs that are started operation with higher initial investment are more likely to grow than their counter parts that are started operation with relatively smaller initial investment (Barney, 1991). Thus, the following hypothesis is formulated in this regard.

Hypothesis 2: Relatively the higher the initial investment sizes of the MSEs, the higher the chance of the MSEs growth.

Location versus MSEs growth

MSEs located at main road side exhibit higher growth compared to MSEs located out of town (Eshetu & Mammo, 2009; Gebreyesus, 2009). Moreover, the MSEs operating in commercial districts reveals strong tendency of growth than those which operate at distant areas (McPherson, 1996). Thus, this study formulates this hypothesis.

Hypothesis 3: The MSEs that are operating at main roadside (busy street) have higher probability of growth as compared to those MSEs that are operating at out of town (distant area).

Sector versus MSEs growth

MSEs operating in manufacturing and service sector grow faster than those in trade/service (Mead & Leidholm, 1998; Gebreyesus, 2009). MSEs in the construction sector grow more rapidly than enterprises in retailing business (McPherson, 1996). Hence, the following hypothesis is formulated.

Hypothesis 4: MSEs that are engaged in manufacturing sectors have higher chance of growth than those MSEs that are engaged in other sectors.

Research findings and discussions

To determine the status of MSEs, information on the growth measure has to be collected and an appropriate measure of aggregate growth has to be used. As a result, from the available alternatives of aggregate growth measures (capital, sales, profit, employment and etc) (Holmes, Zimmer, 1994), this study used employment size as an objective measure of firm growth since the data used in this study rely on a recall basis as a result other measures are susceptible to measurement errors (Story, 1994). Accordingly, MSEs growth rate is computed by taking the natural logarithm of change in employment size over the life of the firm [i.e., $MGR = \left(\dfrac{\ln S_{t'} - \ln S_t}{Ea} \right)$] following

Evans (1987) model. 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) following Cheng (2006) growth classification. Thus, out of the total sample 23.6 percent are found growing type (42 MSEs) and the remaining 76.4 percent are found survival type (136 MSEs).

MSEs category	Number of MSEs	Percent (%)
Growing	42	23.6
Survival (non-growing)	136	76.4
Total	178	100

Source: Stata result from survey data (2012)

Table 1: Status of MSEs.

As table 1 shows majority (76.4%) of MSEs are found survival type and only 23.6 percent are found growing type. This result is consistent with the findings of Wasihun and Paul (2010) whose found that majority (75.6%) of MSEs in Addis Ababa are survival type. Moreover, Gebreeyesus (2009) also found that majority (69%) of MSEs in Ethiopia are non-growing type. This confirm that about three-forth of the MSEs are survival type and one-forth or less of MSEs are growing type in this country though the growing MSEs percentage is higher as compared to other African countries (Botswana, Malawi, Swaziland and Zimbabwe except Kenya) in which the growing MSEs ranges from 19.3 – 22.8 percent while it is 34.8 percent for Kenya (Liedholm, 2001).

As the following table 2 shows that out of the total respondents (178 MSEs), 66 percent are male owned MSEs and the rest 34 percent are female owned MSEs. The growing female owned

MSEs are accounted for 20 percent of the total female owned MSEs. On the other hand, growing male owned MSEs are accounted for 25 percent of the total male owned MSEs.

Whereas the survival female owned MSEs are accounted for 80 percent of the total female owned MSEs and the survival male owned MSEs are accounted for 75 percent of the total male owned MSEs. In addition there is a difference in the average growth rate between the female owned MSEs and the male owned MSEs i.e., the WMSEs reveals a smaller mean growth rate (16.1%) where as the mean growth rate of male owned MSEs is higher (19.2%). As a result, the WMSEs have a smaller tendency of growth and are more of survival type as compared to male owned MSEs.

Table 3 shows about 74 percent of the growing and 76 percent of the survival MSEs operates in separate business house (out of home) whereas only 26 percent of the growing MSEs and 24 percent of the survival MSEs operates in their residential house (in home).

Table 4 show majority (28%) of the growing MSEs start operation with an initial investment size that ranges from birr 10,000–50,000 while majority

(37%) of the survival MSEs start operation with an initial investment size that ranges from birr 1000-5000. But most (72%) MSEs in this study start operation with an initial investment size that ranges from birr 100 – 10,000 since all most all MSEs have no access to formal credit or discriminated by the formal financial institutions (banks/MFIs).

The minimum initial investment size for all MSEs is birr 100 where as the maximum initial investment size is birr 800,000 and the average initial investment size is birr 25,719.10. The initial investment size for the growing MSEs is more variable and diverse as compared to the survival MSEs as the SD of the initial investment shows in the above table (4.6). Similarly, the average initial investment size is higher for the growing MSEs (birr 51,547.62) compared to the survival MSEs average initial investment size (birr 17,742.65).

The average growth rate is higher for those MSEs that are started operation with an initial investment size that ranges from birr 5001-10,000 and decrease for those that start operation with an initial investment size that is over birr 10,000.

The average initial investment size is substantially higher for the growing MSEs (birr 51,547.62)

Variable		Growing MSEs		Growth Rate*			Survival MSEs		Total	
		No	Percent	Min.	Max.	Mean	No	Percent	No	Percent
Gender	*Female*	12	29	0.05	0.23	0.161	48	35	60	34
	Male	30	71	0.04	0.65	0.192	88	65	118	66
	Total	42	100	0.04	0.65	0.183	136	100	178	100

Note: * Indicates growth rate is for growing MSEs only
Source: Stata result from survey data (2012)

Table 2: Status of MSEs by gender owners.

Variable		Growing MSEs		Growth Rate			Survival MSEs		Total	
		No	Percent	Min.	Max.	Mean	No	Percent	No	Percent
Operation condition	*In-home*	11	26	0.05	0.31	0.185	32	24	43	24
	Out of home	31	74	0.04	0.65	0.182	104	76	135	76
	Total	42	100	0.04	0.65	0.183	136	100	178	100
Location	*Down town*	17	40	0.05	0.65	0.199	48	35.2	65	36.5
	Main road side	18	43	0.07	0.28	0.187	55	40.3	73	41
	Traditional Mkt	-	-	-	-		16	12	16	9
	Out of town	7	17	0.04	0.22	0.132	17	12.5	24	13.5
	Total	42	100	0.04	0.65	0.183	136	100	178	100

Source: Stata result from survey data (2012)

Table 3: Status of MSEs by areas of operation.

Variable	Range (ETB)	Growing MSEs		Growth Rate			Survival MSEs		Total	
		No	Percent	Min.	Max.	Mean	No	Percent	No	Percent
	100-1000	5	0.17	0.17	0.170	0.170	12	9	14	8
	1001-5000	17	0.05	0.23	0.108	0.108	50	37	57	32
Initial investment size	5001-10000	26	0.07	0.65	0.244	0.244	46	34	57	32
	10001-50000	28	0.09	0.35	0.233	0.233	22	16	34	19
	50001-100000	12	0.04	0.22	0.152	0.152	2	1	7	4
	100000-500000	10	0.07	0.09	0.079	0.079	4	3	8	4.5
	500001-1000000	2	0.04	0.04	0.04	0.04	-	-	1	0.5
	Total	42	100	0.04	0.65	0.183	136	100	178	100
	Mean	51547.62		0.183			17742.65		25719.1	
	SD	126952		0.138			46707.4		74862.41	
	Minimum	1000		0.041			100		100	
	Maximum	800000		0.65			300000		800000	

Note: ETB indicates Ethiopian Birr
Source: Stata result from survey data (2012)

Table 4: Status of MSEs by the initial investment size.

Variable	Growing MSEs		Growth Rate			Survival MSEs		Total	
	No	Percent	Min.	Max.	Mean	No	Percent	No	Percent
Construction	2	5	0.09	0.09	0.09	-	-	2	1
Hotel & Tourism	-	-	-	-	-	2	1.5	2	1
Manufacturing	14	33	0.08	0.65	0.268	7	5	21	12
Service	14	33	0.04	0.34	0.146	29	21	43	24
Trade	12	29	0.05	0.23	0.146	96	71	108	61
Ur. agriculture	-	-	-	-	-	2	1.5	2	1
Total	42	100	0.04	0.65	0.183	136	100	178	100

Source: Stata result from survey data (2012)

Table 5: Status of MSEs by the sector.

compared to the survival MSEs average initial investment size (birr 17,742.65) and overall initial investment size. The average growth rate is higher for those MSEs that are started operation with an initial investment size that ranges from birr 5001-10,000.

As table 5 reveals, in this survey, different variety of activities found in the samples which are categorized under urban agriculture, construction, hotel & tourism, manufacturing, service and trade sectors. Accordingly, urban agriculture takes 1 percent (2 MSEs), construction 1 percent (2 MSEs), hotel and tourism 1 percent (2 MSEs), manufacturing 12 percent (21 MSEs), service 24 percent (43 MSEs), and trade takes 61 percent (108 MSEs). The following table (4.7) shows

details about the sectors that are found in the study.

From those MSEs that are engaged in manufacturing sectors (21 MSEs), 14 MSEs are growing type and the remaining 7 MSEs are survival type. In addition, the manufacturing sector growth rate is very high (26.8%) as compared to other sectors. Whereas from the MSEs that are engaged in service sectors, only 14 MSEs are growing and the remaining 29 MSEs are survival. Besides, this sector shows the highest growth rate next to manufacturing sector.

Concerning the test of Gibrats law and the learning hypotheses, the age of MSEs result shows that most MSEs (72.4%) that are included in this study have an age that ranges from 3-6 years and 12 percent of the MSEs are found within the age ranges

of 7-10 years. The remaining 7.2 and 8.4 percent have an age of 11-14 and over 15 years from the total respondent respectively. From those MSEs that are found survival type, 73 percent have an age of 3-6 years, 12 percent have an age of 7-10 years, 7 percent have an age of 11-14 years and only 8 percent of them have an age of more than 15 years.

Similarly, 71.5 percent of the growing MSEs have an age that ranges from 3-6 years and the remaining 28.5 percent have an age that ranges from 7-10, 11-14 and over 15 years which constitutes 9.5 percent each. The growing types of MSEs age is more variable and diverse than the survival MSEs age. Since the SD of age for the growing MSEs (7.12) is greater than the SD of the survival MSEs (4.64) and the growing MSEs average age is higher (7.33) than the survival MSEs average age (6.48). The minimum and maximum age for growing MSEs is 3 and 34 years respectively where as it is 3 and 24 for non-growing/survival MSEs respectively. The following table 6 shows details of the survey result regarding age of MSEs.

As it can be shown in table 6, 72.4 percent of the respondents are found in the age range of between 3-6 years. This indicates that most MSEs are found at the early stage as the other study also found (Wasihun, Paul, 2010). This may be associated with the recent favorable condition created and attention given by the government to the sector i.e., 1997 onwards the government of Ethiopia has formulated and implementing an enabling legal framework for the development and expansion of MSEs through facilitating their access to finance, appropriate technology, market, education, training, information and advice (BDS), and access to physical infrastructure (MTI, 1997). Whereas the remaining 27.6 percent have an age of over 7 years, as compared to those MSEs which are found at the early stage, their average growth rate is further declining and becomes flat. This indicates that there is an agitated negative relationship between the age and growth status of MSEs as the growth rate of MSEs contrary to finding of Chow and Fung (1996). The average growth rate decreases by increasing rate as age increases and then decreases by decreasing rate as age further increases. It shows there is a tendency of becoming flat or growing at constant growth rate. Moreover, it is consistent with the Gibrat's law since it shows that growth is subjective (idiosyncratic). The ups and downs in growth rate may be consistent with the law of proportional effect that state growth is the result of up and downs (shocks) in the size of the MSEs in previous years i.e., growth in employment may increase/decrease following previous year growth in employment.

The initial employment size of the MSEs in this study ranges from 1-10 with an average 1.5 employees i.e., owner and one occasional helper. Besides, most MSEs (72.4%) start business with one employee (owner alone). Similarly, 79.4 percent of the survival MSEs and 50 percent of the growing MSEs start operation by owner (one employee) alone. The MSEs that start operation with 2-5 employment size constitutes 25.3 percent. Only 2.3 percent of the respondent start operations with an employment size of over 5 employees

Variable name	Range	Growing MSEs		Growth Rate			Survival MSEs		Total	
		No	Percent	Min.	Max.	Mean	No	Percent	No	Percent
MSEs age	*3-6*	30	71.5	0.05	0.65	0.228	99	73	129	72.4
	7-10	4	9.5	0.05	0.15	0.096	17	12	21	12
	11-14	4	9.5	0.05	0.07	0.059	9	7	13	7.2
	Over 15	4	9.5	0.04	0.07	0.055	11	8	15	8.4
	Total	42	100	0.04	0.65	0.183	136	100	178	100
	Mean	7.33		0.183			6.48		6.68	
	SD	7.12		0.138			4.64		1.29	
	Minimum	3		0.041			3		3	
	Maximum	34		0.65			24		34	

Source: Stata result from survey data (2012)

Table 6: Status of MSEs by age of MSEs.

and all MSEs in this category are growing type. The SD of the employment size for the growing MSEs (2.25) is greater than the SD of employment size in survival MSEs (0.66) which implies the growing type MSEs initial employment size is more variable and diverse than the survival MSEs size (Penrose, 1995). The average employment size is also higher (2.24) for the growing MSEs as compared to non growing MSEs (1.3). The following table 7 summarizes details of initial employment size. As it is shown the average growth rate decreases as initial employment size increases to the extent of some employment size and then after there is a tendency of showing constant growth rate. This supports that growth of MSEs is subjective or idiosyncratic since the growth of MSEs was high/low no matter what the initial employment size is.

The average annual employment growth rate since startup is 18.3 percent. This growth rate is two times higher than the MSEs employment growth in five African countries, except Kenya. The annual average growth rate of employment size since start-up for Botswana, Malawi, Swaziland and Zimbabwe ranges from 6.3 - 9 percent where as it is 24 percent for Kenya which is the greatest (Liedholm, 2001).

Moreover, finding the factors that significantly contribute to the growth of MSEs goes beyond the descriptive analysis and requires employing econometric analysis. Hence, multivariate econometric analysis helps us to identify factors that significantly influence the extent of growth. As it was discussed in materials and methods part of this study, a binary logitistic regression model

was used to identify the key determinants of MSEs growth and to test the hypotheses. The variables described in the descriptive analysis are used as explanatory variables in the logistic model.

Using the MSEs growth status as a dependent variable where by a value of 1 is given to growing MSE and 0 to non growing MSE taking the employment growth rate in to account, the output of the model shown in table 8 reveals, most influential variables that significantly determine the growth of MSEs are gender of owner (GEO) with an estimated odds ratio of 3.74 ($p < 0.10$), initial investment size (start-up capital) (EIIS) with an odds ratio of 2.05 ($p < 0.05$), location (EOL) with an odd ratio of 8.14 ($p < 0.05$) for out of town (distant area) located and sector (ESC) with an odd ratio of 0.23 ($p < 0.10$) for service and 0.035 ($p < 0.01$) for trade sectors respectively, holding all other factors remains constant. Moreover, male owned MSEs was found to have positive relation with growth status of MSEs and statistically significant at 10 percent. The odds ratio of the variable "gender of owner" indicates the probability of growth of MSEs that are owned by male operators is 3.74 times higher than the female owned counterparts.

The marginal effect of this variable shows that the probability of growth for male owned MSEs increase by 15.86 % as compared to female owned MSEs. Therefore, the first hypothesis that is "Male owned MSEs are more likely to grow faster as compared to women owned MSEs." is accepted and it is consistent with previous studies of Mead

Variable name	Range	Growing MSEs		Growth Rate			Survival MSEs		Total	
		No	Percent	Min.	Max.	Mean	No	Percent	No	Percent
MSEs age	*1*	21	50	0.05	0.65	0.205	108	79.4	129	72.4
	2-3	16	38	0.07	0.31	0.191	26	19	42	23.6
	4-5	1	2.4	0.07	0.07	0.070	2	1.5	3	1.7
	Over 5	4	9.5	0.04	0.09	0.064	-	-	4	2.3
	Total	42	100	0.04	0.65	0.183	136	100	178	100
	Mean	2.24		0.183			1.3		1.52	
	SD	2.25		0.138			0.66		1.29	
	Minimum	1		0.041			1		1	
	Maximum	10		0.65			4		10	

Source: Stata result from survey data (2012)

Table 7: Status of MSEs by the employment size.

MSEs growth status	Odds ratio	P>|z|	Marginal effects (dy/dx)
Gender of MSEs head	3.736918	0.097***	.1586903
Age of MSEs	.929372	0.223	-.0102632
Initial size of MSEs	1.197916	0.582	.0253034
Initial investment size of MSEs	2.047728	0.027**	.1004287
Market linkage	.808429	0.203	-.0297984
Location (reference main roadside			
Down town	3.306261	0.118	
Out of town	8.141648	0.043	
Sector (reference Manufacturing)			
Service	.232882	0.060	-.1670204
Trade	.035697	0.000	-.5081790

Note: *, **, *** represent the level of significance at 1%, 5%, and 10% respectively
Source: Stata result from survey data (2012)

Table 8: Output of the model (logistic).

and Liedholm (1998) and Gebreeyesus (2009). Considering this a number of justifications have been given as to why the female owned MSEs grow slowly than male owned MSEs. In this study, women's are more concentrated in least growing sectors such as trading. As the survey data shows, out of the total female owned MSEs around 67 percent of them are engaged in trade sector. In addition, around 85 percent of women owned MSEs (WMSEs) start business with an initial capital of below 10,000 birr and as compared to male and the minimum startup capital is birr 100 for women while it is 1000 birr for male counterparts. The WMSES startup capital ranges from 100 – 270,000 birr where as the startup capital for male owned MSEs ranges from 1000 – 800,000 birr. Moreover, women have dual (domestic and productive) responsibility than men, thus the business objective of women is different from men. As a result, women is risk averse than male to maintain their welfare and survival of the household (Mead and Liedholm, 1998; Gebreeyesus, 2009).

Similarly, the initial investment size has a positive effect on the probability of being growing as the odd ratio show the probability of being growing increase by 2.05 times as the initial investment size increases by one percent. In addition, the marginal effect (0.10) of implies that, ceteris paribus, the probability of being growth increases by 10 percent as initial investment increases by one percent. As a result, the fourth hypothesis

which states "Relatively the higher the initial investment sizes of the MSEs, the higher the chance of the MSEs growth." is accepted. Moreover, in this study as the initial investment increase there is a tendency of shifting from least growing sector such as trading to higher growing sectors such as manufacturing. Besides, the initial investment size ranges from birr 1000-800,000 for growing MSEs but it ranges from birr 100-300,000 for the survival MSEs. Therefore, as the initial investment size of MSEs increases, the probability of becoming graduated from being survival MSEs increases (Barney, 1991).

Further, the logistic regression results predict that holding other factors constant, the probability of being growing for MSEs that operates at out of town (distant areas) is 8.14 times (p<0.05) higher than those which operates in busy streets (main road side). As the marginal effect shows the probability of being growth increases by 41.8 percent for those MSEs that are operated at out of town as compared to those MSEs that operates at main road side. As a result, the hypothesis that assumes "MSEs that are operating at main roadside has higher probability of growth as compared to those MSEs that are operating at out of town/distant area" is rejected. This is due to the fact that MSEs that are operating at out of town are engaged in higher growing sectors, particularly in manufacturing sector and this MSEs have an easy access for input while those MSEs that are operating at main road side are engaged mostly in least growing sectors

	Hypotheses	Significance level	Decision
H$_1$	Male owned MSEs are more likely to grow faster as compared to women owned	p < 0.1	Accepted
H$_2$	Relatively the higher the initial investment sizes of the MSEs, the higher the chance of the MSEs growth.	p < 0.05	Accepted
H$_3$	MSEs that are operating at main roadside has higher probability of growth as compared to those MSEs that are operating at out of town/distant area	p < 0.05	Rejected
H$_4$	MSEs that are engaged in manufacturing sector have higher chance of growth than others	p < 0.01	Accepted

Source: Stata result & researcher's own analysis (2012)

Table 9: Summary of hypotheses tests.

like trading. In addition, as the MSEs location get out from the center the copycat strategy is reduced which imply that the MSEs that are located at out of town mostly produce differentiated product. As a result they have more and loyal customers than those which operate at main road side.

Assuming all other factors remains constant, the probability of growth for MSEs that engaged in service sector decreases by 16.7 percent (p<0.10) compared to MSEs that operates in manufacturing sector. Similarly, the probability of growth for MSEs that operate in trade sector decreases by 50.8 percent (p<0.01) than manufacturing sector. Therefore, the sixth hypothesis in this case "MSEs that are engaged in manufacturing sector have higher chance of growth than others" is accepted at 1% level of significance since most manufacturing sector MSEs in this study start business with higher initial investment size as compared to MSEs that operate in other sector. The minimum initial investment size for manufacturing sector is birr 5,000 where as it is birr 100 for trade and service sectors. Further most manufacturing sector MSEs are owned by male. The hypotheses that are tested in this study are summarized in table 9.

Conclusion

Taking the findings, the study concludes that over three-fourth of the MSEs that are found in Mekelle city are survival MSEs and about one fourth of them are growing MSEs. The MSEs that are owned by male grow at relatively higher rate of growth as compared to the WMSEs. There is a slight difference in the growth rate between MSEs that are operating in home and out of home but there is a big difference in growth rate among the MSEs that are operating at down town (commercial center), main road side (busy street) and out of town (distant areas). MSEs that start

operation with an initial investment size that ranges from birr 5000-10,000 shows the highest growth rate as compared to those which start operation with an initial investment size that exceed 10,000 birr. Manufacturing sectors MSEs grow faster than those in service/ trade sectors. In addition, Female headed MSEs grow slowly than male headed MSEs.

The dimensions and determinants of MSEs growth are vast and complex. The growth of MSEs has a recognized effect on unemployment reduction and poverty alleviation since MSEs have massive contribution in employment creation and income generation than big enterprises but change in employment size in MSEs is subject to different constraints such as financial, working premises and other socio-economic conditions. Thus, proper understanding of these factors and conditions constitutes an essential starting point and is a key to the formulation of policies, designing of appropriate intervention strategies and practical steps by the government, non-government organizations and other stake holders in order to reduce poverty, unemployment and income inequality as well as to promote sustainable growth at micro and macro levels. Furthermore, one of the millennium development goals is reduction of poverty. And currently, unemployment is global agenda. Thus, the government and the NGOs, particularly operating at the local levels should design an awareness creation program to put the already endorsed and existing MSEs development policy and strategy (promotion of existing MSEs than establishment of new MSEs) in to effect. To this end, more emphasis should be given to make the formal financial institutions (banks &MFIs) affirmative to support MSEs particularly WMSEs through financial services provision and an integrated BDS provision that make the MSEs to be engaged in manufacturing (other growing sector), that reduce the practice

of copycat strategy and mass operation in the same sector must catch the attention of the government and non-government organizations in this regard at every level.

Further research directions

The MSEs take a central position in today's poverty alleviation and unemployment reduction strategy. As a result, much theoretical work has been done on the dynamics of MSEs. However, empirical work lags far behind the dynamics of MSEs. But, because of the limits in time and resources, considerable issues remain unresolved and need further research, particularly, in the specific areas considered.

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