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The major bottlenecks of micro and small scale enterprises' growth in Ethiopia: An econometric analysis

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Abstract

Development of Micro and Small enterprises (MSEs) is one mechanism for alleviating unemployment, especially for women. Ethiopia has developed policy as part of the Growth Transformation and Plan (GTP) to develop MSEs to generate employment at the initial stage and transform the enterprises into medium and large enterprises in the long run. However, contrary to this objective, the growth of these enterprises has been very slow by every standard. This study evaluates the factors behind the slow growth of the enterprises by estimating the enterprise growth model captured by employment growth over the span of the period that the firm has operated. We find that women owners, in particular, face more severe credit, market and working premises constraints. We also find that while enterprise growth is inversely related to initial size, financial literacy and desirable managerial qualities of owners and managers positively contribute to enterprise growth.

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Table of contents

I.	Background	p.1
II.	Literature review	p.3
III.	Data and methodology	p.5
3.1.	Data	
3.2.	Methodology	
IV.	Results and analysis	p.9
4.1.	Descriptive analysis results	
4.2.	Econometric analysis results	
V.	Conclusion	p.23
	References	p.25
	Appendix	p.26

List of Tables

Table 3.1: Definition for Micro and Small Enterprises.....	6
Table 4.1: Business constraint hindered enterprise expansion.....	11
Table 4.4: Difference between male and female attributes.....	15
Table 4.5: Description of variables used in the regression.....	17
Table 4.6: Determinants of Initial Enterprise size (log)	18
Table 4.7: Estimation result of MSEs employment growth (log)	21

List of Figures

Figure 4.1: AverageGrowth in real capital by sector	10
Figure 4.2: Sources of finance and percentage of MSEs reporting them as primary in meeting their working capital needs	12
Figure 4.3: Size of initial capital (left) and initial employment (right) by Gender	13
Figure 4.4: Real capital growth (left) and employment growth (right) by Gender	14
Figure 4.5: Sectors of Employment for men and women	15
Figure 4.6: Difference in Employment growth by financial literacy and management quality	16
Figure 4.7: Difference in growth between micro and small enterprises	22

I. Background

The Government of Ethiopia has managed to achieve double digit economic growth for the past decade through heavy public sector led investment initiatives. Despite some success in economic growth and a significant reduction of poverty, income inequality and unemployment remain formidable challenges. As of June 2013, the unemployment rate in urban areas was as high as 16.5% while the overall unemployment rate was 4.5% (CSA, 2014). Although there has been a gradual improvement overtime¹, in line with the overall economic growth and targets set by the government, the unemployment rate is still very high; thus, requiring the design of effective policies and strategies.

The Central Statistics Authority (CSA) report also indicates that the unemployment rate is disproportionately higher for women and youth. As of June 2013, about 23% of women and 22% of youth were without job opportunities in urban areas (CSA, 2014). This is considerably higher than the unemployment rate of their male and older counterparts, respectively. These figures indicate that the pro-growth policies and strategies designed to alleviate unemployment are not sufficient, but also that they should be well tailored to address the gender and age biased labor market outcomes. One of the effective tools in this regard is the development of micro and small enterprises (MSEs). MSEs are recognized as an important potential for the generation of employment opportunities and major contributors of livelihood for the poor, and have, thus, occupied most of the discussions among policy makers. They are advocated as playing key roles in society including contributing to jobs by propelling innovations and creativity as well as contributing to human resources development and ultimately poverty alleviation (Mukras, 2003).

In this regard, Ethiopia has designed different policies to meet the targets set in the first and second five years Growth and Transformation Plans (GTP I and GTP II). In GTP I (2010/11-2014/15), the creation of employment opportunities for about 3 million people through MSEs was planned, and, thereby, enhancing income, domestic saving, and ultimately reducing unemployment and poverty; particularly to benefit women from the sector (MoFED, 2014).

Likewise, in GTP II, the supporting of MSEs to grow into medium and large scale enterprises, encouraging enterprises in trade and services to invest in the manufacturing sector and channel more investments into productive sectors is planned (MoFED, 2014). Moreover,

¹In 1999, the urban and overall unemployment rate in the country was respectively 20.6 % and 5%.

interventions are intended to enhance the productivity and technology adoption in this sector. It part of the action plan to engage more women and youth to actively participate in micro and small enterprises. The flourishing of these micro and small enterprises is supposed to play its part in reducing unemployment in Ethiopia, particularly in urban settings.

To achieve the objectives, the government established the Federal Micro and Small Enterprises Development Agency (FeMSEDA) in 1997 by the Council of Ministries Regulation Number 33/1998. To facilitate implementation of policies and strategies, regional MSEs development offices were also established to conduct similar tasks as FeMSEDA in the various regions. The federal agency operates at the federal level and gives support to MSEs by facilitating training sessions to acquire better technologies, working capital through loans, working space and also support the enterprises in their marketing strategies.

Broader understanding of the effectiveness of MSEs and the policies associated with them requires a deeper understanding of the conditions of the existing enterprises. Discerning the factors that accelerate or hinder the growth of these enterprises also contributes significantly to streamline policies and strategies to achieve the targets. Furthermore, understanding the differences in growth of enterprises owned by women is crucial in recommending tailored policies and strategies to make the sector more beneficial to disadvantaged groups.

In this light, this study has two broad objectives. First, it attempts to examine the factors that determine and/or constrain the growth of micro and small enterprises (MSEs) in Ethiopia. Second, it assesses whether there is any difference in (and the factors contributing to) the growth of MSEs operated by female owners compared to males.

The paper is organized as follows. The next section presents some of the literature on the growth determinates of MSEs. Section 3 presents the data and methodology used in the study. Section 4 presents the findings of the study using a description of the important variables and discusses the determinants of MSE growth from the econometric estimation result. The last section concludes with the major findings and policy recommendations.

II. Literature review

Explaining the factors behind firm growth has been much discussed in the literature. The theoretical explanation starts from the neoclassical economic theory that enterprises are profit-maximizing or cost-minimizing, operating in perfectly competitive markets. Under perfectly competitive conditions, the factors that determine the growth of an enterprise are not under the control of the enterprise in question. According to these theories, enterprises employ workers until the value of the marginal product of the last worker is equal to the value of its marginal product, which is the wage paid to the worker. Hence, a firm's growth will be affected by the changes in the price of a product, the wage rate and change in technology (McPherson, 1996). This is a static analysis that creates a problem in evaluating the growth of a firm with age and other dynamic factors.

In light of the neoclassical theory, Gibrat's law came into picture asserting that enterprise growth and enterprise size are independent (1931). According to the law, small enterprises and relatively large enterprises have equal chances of growth which denies the argument of small firms having a better growth rate than larger ones. Studies examining this have invalidated the theory as they found dependency between enterprise size and growth (Evans, 1987; Fotopoulos & Giotopoulos, 2010; Nunes, Marco & Zélia, 2013; Becchetti & Trovato, 2002). Fotopoulos and Giotopoulos (2010) found that Gibrat's law fails to hold for younger enterprises, but it becomes relevant to older enterprises. Jovanovic's learning model followed Gibrat's law stating the negative relationship between enterprise growth, and enterprise age and initial size. Older enterprises grow slowly as there is learning by doing and managers acquired the most efficient operational size. That is, enterprises grow faster at the early stages, but then slow gradually as the enterprise gets closer to its optimal size. The model also hypothesizes that larger enterprises grow more slowly than smaller ones. Some empirical studies indicate that young enterprises grow faster than older ones (Mcpherson, 1996; Mead & Liedholm, 1998). However, others postulate that age is positively associated with growth (Oliveira & Fortunato, 2006) since older firms with established credit histories find it easier to obtain external financial resources, as young firms without established credit histories and reputations face more problems related to information asymmetry in obtaining credit. On the other hand, Nichter and Goldmark (2009) found a non-definite relationship between enterprise age and growth of firms, as it varies during their lifetime.

This theory is further extended by Ericson and Pakes (1995) who refer to the 'active learning' model and the former model which they call 'passive learning'. According to the 'active learning' model, enterprises that invest in improving their efficiency and that invest more will experience faster growth. The investment can be on human capital or physical capital which enhances enterprise efficiency.

In the discussion above, theories have hypothesized that enterprise growth is determined by the firm's size, age and investment made to increase efficiency. In addition to these proposed factors, there are enterprise characteristics and owner characteristics that determine the growth of an enterprise. Owner characteristics like gender, age and education level have an implication on the functioning of an enterprise. Storey (1994), for example, argues that younger owners may have the essential motivation, energy and are more inclined to take risks as compared to older owners, who may already have achieved their targets and are likely to display more conservative behavior.

The role of gender in entrepreneurship capacities has also received much attention, both in the theoretical and empirical literature. Women are presumed to face more severe financial, time and work space constraints besides low levels of education and work experience than men. Empirical studies indicate that female-owned enterprises grow more slowly than male-owned ones (Liedholm, 2002; Simeon & Lara, 2005; Tefera, Gebremichael & Abera, 2013). Different factors are attributed to limiting the functioning of female-owned MSEs. One such factor is the extra disadvantage women experience in accessing inputs, particularly finances.

Coleman and Cohn (1999) summarized the main arguments in the literature on this subject. Women are unfairly treated and discouraged in the credit application process. Women are also poorly networked which adversely affects access to information and sources of capital (Riding & Swift, 1990). Contributing to this is the fact that women are risk averse and reluctant to search for collateral, and thus end up relying on their personal means for capital.

Another factor for the slower growth of female-owned enterprises is the gender-specific double duty roles of women (Goscilo, 1997; Woldie & Adersua, 2004) in traditional patriarchal societies leading to time constraints. In addition to these, women-owned MSEs are usually close to the household and even within the premises of their dwelling, which are less likely to grow as the result of their small market size and inoptimal time allocation (Mead & Liedholm, 1998).

Education of the owner or manager has always been considered as a factor for development of the sector (Storey, 1994). According to Nichter and Goldmark (2009), educated owners and operators tend to register better growth, although it has a certain threshold level. The study by Mcpherson (1996) in Botswana and Zimbabwe confirms the above in that MSEs with secondary education operators tend to have faster growth compared to those that are run by operators with no education. However, in MSEs, particularly in developing countries, the owners and employees of MSEs have a lower level of education (Simeon & Lara, 2005). In a similar fashion, financial literacy of owners also influences the performance of small businesses.

Besides these, environment specific factors such as location and the sector in which the MSE operates can play a significant role through externality and agglomeration issues.

III. Data and methodology

3.1. Data

As stated above, this study aims to identify the major determinants of the growth of firms in Ethiopia. It also seeks to examine if the gender of the owner or manager of the enterprise matters for growth. To meet the objectives of the study, we used data collected on micro and small enterprises by the Ministry of Urban Development and Construction (MUDC) in 2012 from major cities in Ethiopia with more than 100, 000 dwellers. The survey covered thirteen cities² and a total of 2,971 enterprises selected randomly. In this study, the whole sample of the enterprises in the survey is used for analysis.

The objective of the survey was “....to generate adequate, up-to-date and reliable information on growth oriented Micro and Small Enterprises (MSEs)” (MUDC, 2013, p.3). For this purpose, detailed information on the characteristics of the operators of the enterprises (age, gender, education level, experience); profile of the enterprises (year of establishment, initial capital, current capital, number of employees at the time of establishment, current number of employees), and major constraints facing the enterprises were collected, among others.

² The complete list of the surveyed cities include Addis Ababa, Hawassa, Mekele, Gondar, Bahirdar, Dessie, Jimma, Shashemene, DireDawa, Bishoftu, Adama, Jijiga, and Harar.

The enterprises were classified as micro and small enterprises based on the number of employees and the amount of the capital that the firms possess. The following table gives the definition used in classifying enterprises in Ethiopia.

Table 3.1: Definition for Micro and Small Enterprises

Enterprise	Sector	No. of employees	Total capital
Micro enterprise	Industry	≤5	≤100,000ETB ³
	Service	≤5	≤50,000ETB
Small enterprise	Industry	6-30	≤1,500,000ETB
	Service	6-30	≤500,000ETB

Source: MUDC, 2012

3.2. Methodology

The study uses descriptive analysis in order to extract some background information about the circumstances of operation of the MSEs. To establish the basic results obtained in the descriptive method and explore the factors that determine initial size and enterprise growth, however, the study uses an econometric method of data analysis.

The representation of the growth of MSEs is the first challenge in the analysis. As discussed in the previous sections, there are a number of studies conducted in Ethiopia and elsewhere on the subject at hand. The first challenge, and the shortcoming in most, is the selection of a variable to measure the growth of MSEs. Growth of MSEs can be measured using absolute and measurable characteristics like capital, total sales, total assets and employment.

Growth of MSEs can be measured in several ways, including growth in sales, profits, assets, output or number of workers. If measurement error were not a problem, defining growth in terms of sales or profits might be preferable to a labor-based measure from an accuracy standpoint since growth in the number of workers tends to hide growth variability over a short period compared to the other measures. A firm might increase its sales a great deal before it adds another worker (McPherson, 1996). Nevertheless, measuring size and its growth in terms of employment is superior to alternatives due to the following reasons. First, the concept of MSE employment growth is a key policy interest for a country like Ethiopia with significant numbers of unemployed youth. Second, measuring size in terms of employment reduces measurement problems compared to financial measures such as sales, as it does not require deflation,

³ETB stands for the Ethiopian Birr which is the currency used in Ethiopia. 1USD=16.93 ETB at the time of survey. Note that the exchange rate has changed since and is currently 22.36 ETB.

especially when firms established over significantly different periods are involved. Third, particularly for smaller firms, employment may be more robust to manipulation compared to reported sales and profits, which might be adjusted to avoid or minimize tax payments. Fourth, sales or assets may overstate the size of the firm as sales do not only reflect the value-added of a company, but also input prices. Fifth, sales or capital indivisibilities are substantial for very small firms with only a few employees, making use of employment rather convenient for measurement of size and growth. Finally, measuring growth in assets may be problematic for measuring firm size in industries, where intangible assets are important and where firms in the sample have very different capital intensities (Coad & Holz, 2010).

Following the works of Evans (1987), the growth of firms can be measured by the positive difference between the number of employees at the start of operation and the number of employees at the time of observation.

$$\text{Growth of firms} = \frac{\ln(\text{current employment}) - \ln(\text{initial employment})}{\text{Firm's age}} \dots \dots \dots (1)$$

The discussion in the literature review indicates different factors affect the growth of an enterprise. Hall (1987) also underscored the importance of firm size for the growth of a firm. Based on the review, the methodological framework that we relied on to see the growth of MSEs is written as;

$$\frac{\Delta \ln E_t}{\text{firm's age}} = \beta_0 \ln Z + \beta_j X + U_i \dots \dots \dots (2)$$

$\Delta \ln E_t = \ln E_t - \ln E_0$ - represents the change in firm's employment

Where: $\ln E_t$ - is firm's log of current employment, and

$\ln E_0$ - is firm's log of initial employment

Vector X represents owner characteristics- demographic characteristics of owners' age, gender, education, and other constructed variables, like age squared to control for non-linearity. The inclusion of gender and age as explanatory variables will give an indication of the growth of MSEs owned by women and youth⁴. Following Hall (1987), the variable Z is the number of

⁴Disaggregated regression by gender (women vs men) is also conducted and included in the Appendix.

workers at the establishment of the firm (initial firm size). It underscores the importance of initial size as a determinant of the growth of the firm.

We augment the model with a vector of explanatory variables represented by Y . The vector includes two policy dummy variables that capture external policy environment that MSEs faced in the country. The age of the firms in the data set extends to 40 years, during which enterprises experienced regime change in 1992 and policy change in 1997. Hence, the final model including policy change and regime change variables is given by equation (3) below:

$$\frac{\Delta \ln C_t}{\text{firm's age}} = \beta_0 \ln Z + \beta_j X + \delta_j Y + U_i \dots \dots (3)$$

Liedholm (2002) argues that the sector of employment that MSEs engage in can be taken as an indicator to control for demand for firms' products. In order to capture the contribution of each of these factors, we have controlled for the type of sector of MSEs.

At the analysis stage, we also tried to control for any possible non-linear nature of the variable by including squared terms. We also added interaction terms to account for the existence of possible scale factors and expand the understandings of relationships between variables. In this regard, for instance, Garoma (2012), in relying on the works of Goedhuys and Sleuwaegen (2009), used the interaction between firm age and size to control for the role of reputation in firm growth.

Previous studies on Ethiopia (Gebremichael, 2014; Hagos, Gebremichael, & Getie, 2014; Tadesse, 2014; Tefera, Gebremichael & Abera, 2013) employed limited sample sizes as their samples were obtained from a specific locality. We have an advantage over these studies as our data is representative of all thirteen major towns of the country. The estimated model has controlled for locational differences by using town dummies.

As robustness check and inspired by the empirical literature on the subject, several alternative models were estimated with the same basic result⁵.

⁵ Regression result based on capital growth can be provided on request.

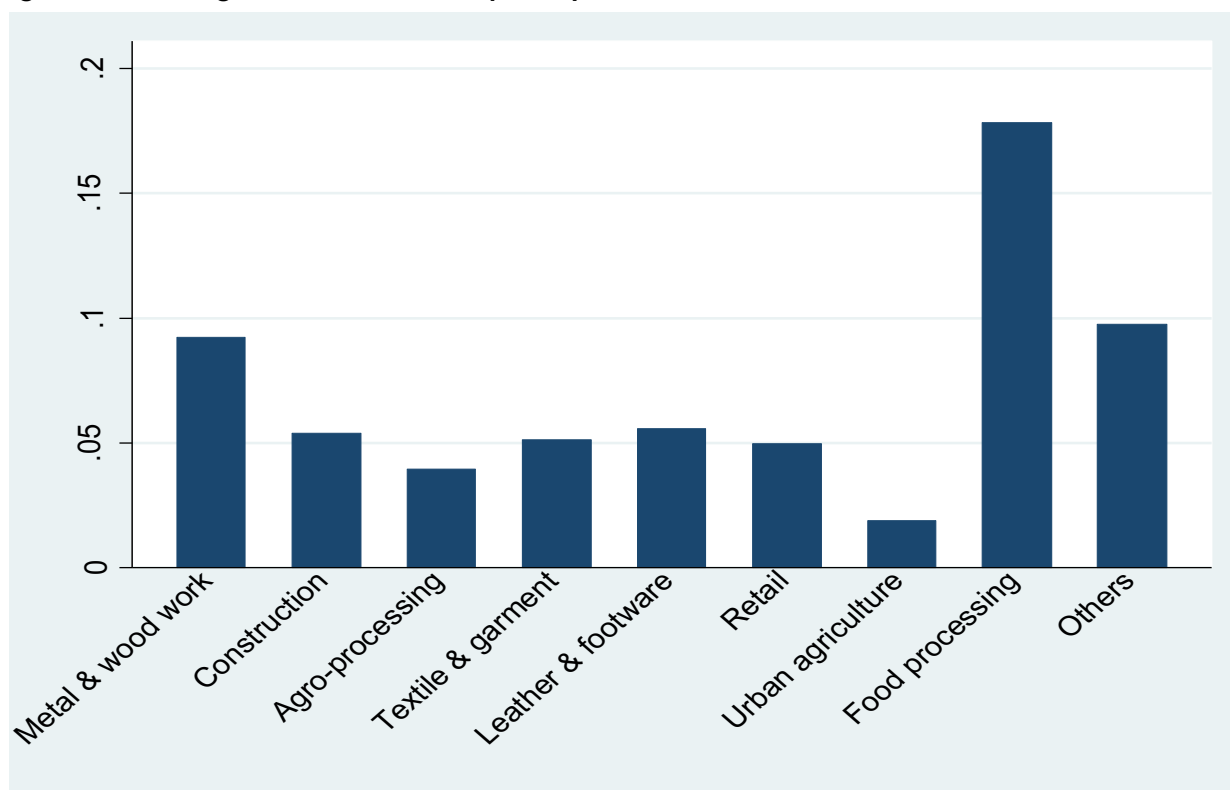
IV. Results and analysis

4.1. Descriptive analysis results

The development of MSEs is used as one tool for reducing unemployment in the country, particularly that of women and youth. Even if this sector is creating job opportunities for women, there is still gender bias in the major cities of the country. The MUDC survey report (2013) indicates that men take the upper share of employment in MSEs nationwide. Among the jobs created by MSEs, 56% are filled by men and 60% of the owners or managers of these enterprises are men. Together with gender bias, concentration of the enterprises in the capital city, lack of experience and inadequate competition could be cited as the reasons, among others, for poor performance of the subsector. For instance, the report indicates that in Addis Ababa, about 59.6% of the enterprises are owned by men, they contribute very little to employment creation (more than 50% hiring two employees or less), and most (about 60%) have less than 1 years' experience (MUDC, 2013).

In addition to looking at the contribution to employment, the flourishing of the enterprises is, in its own right, also pertinent to economic growth. The government supports these enterprises in order to transform them into medium, and in the long run, large scale enterprises. Such transformation is achievable only if the MSEs grow sufficiently. Figure 4.1 reveals that growth of firms, measured in terms of employment growth, is stagnant in all sectors, except for in the food processing sector.

Figure 4.1: Average⁶ Growth in real capital by sector



Source: Authors' computation based on MUDC, 2012.

Growth of the firm indicates the capacity of the firm in creating employment, its risk absorption, and its contribution to national output. Literature identifies, inter alia, the size at start-up, access to credit, access to work premises, appropriate training, access to or linkages to markets, and schooling and other demographic characteristics of operators as main factors determining the performance of enterprises (see, for instance, Gebremichael, 2014; MUDC, 2013).

Shortage of or lack of access to start-up capital and working capital is cited as one of the main constraints facing MSEs. This problem is particularly severe in developing countries where financial institutions are weaker; the competition for limited credit access is throat cutting and MSEs lack the necessary skill and financial capability to prosper on their own. The enterprises in our data were asked to mark the major constraint against their growth. Table 4.1 shows that lack of access to finance assumes the largest share for both female and male owned and run enterprises. By and large, inadequate access to finance, lack of enough working space, and limited market access appeared to be the major factors contributing to the slow growth of the

⁶These values are median values. Since the growth rate is considerably skewed, we opt to report median instead of mean values.

enterprises. Hence, the unavailability of capital to entrepreneurs determines the capacity of the country to create jobs in order to reduce unemployment and poverty.

Table 4.1: Business constraint hindered enterprise expansion

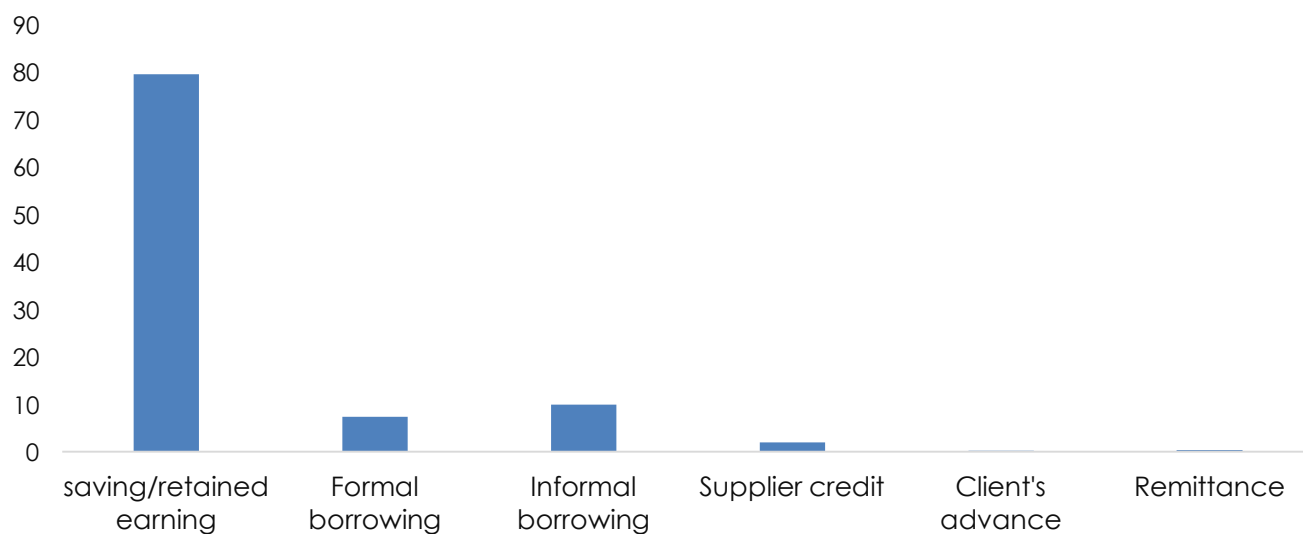
Constraint	Owner/Manger		Total
	Female	Male	
Access to finance	40.7	35.7	37.8
Access to land	26.6	29.0	28.0
Access to input	4.8	11.1	8.5
Lack of managerial skill	1.2	1.4	1.3
Lack of technical knowledge	0.6	1.4	1.1
Access to market	23.2	17.9	20.0
Others	3.0	3.7	3.4

Source: Own computation based on MUDC 2012 data

It is interesting to note that these problems are not only major challenges, but they are more severe for women than for their male counterparts. At the time of the survey, about 41% and 23% of women reported lack of finance and lack of access to the market as their major impediments. Though very large, the numbers for the corresponding group of male owners is lower (36% and 18%, respectively).

Besides limiting their capacity, the lack of credit forces them to resort to sources that charge extremely high interest rates. According to Bekele and Muchie (2009), money obtained from relatives and friends, *iqqub* schemes (social capital) accounted for 18% and 12% of start-up capital for women in developing countries, respectively. The share of microfinance institutions, banks and private money lenders accounted for 9.2%, 8% and 7.2%, respectively. The story is exactly the same once the enterprises are operational. Figure 4.2 shows results from a similar study that indicated that own savings and retained earnings are the major sources of working capital in developing countries.

Figure 4.2: Sources of finance and percentage of MSEs reporting them as primary in meeting their working capital needs



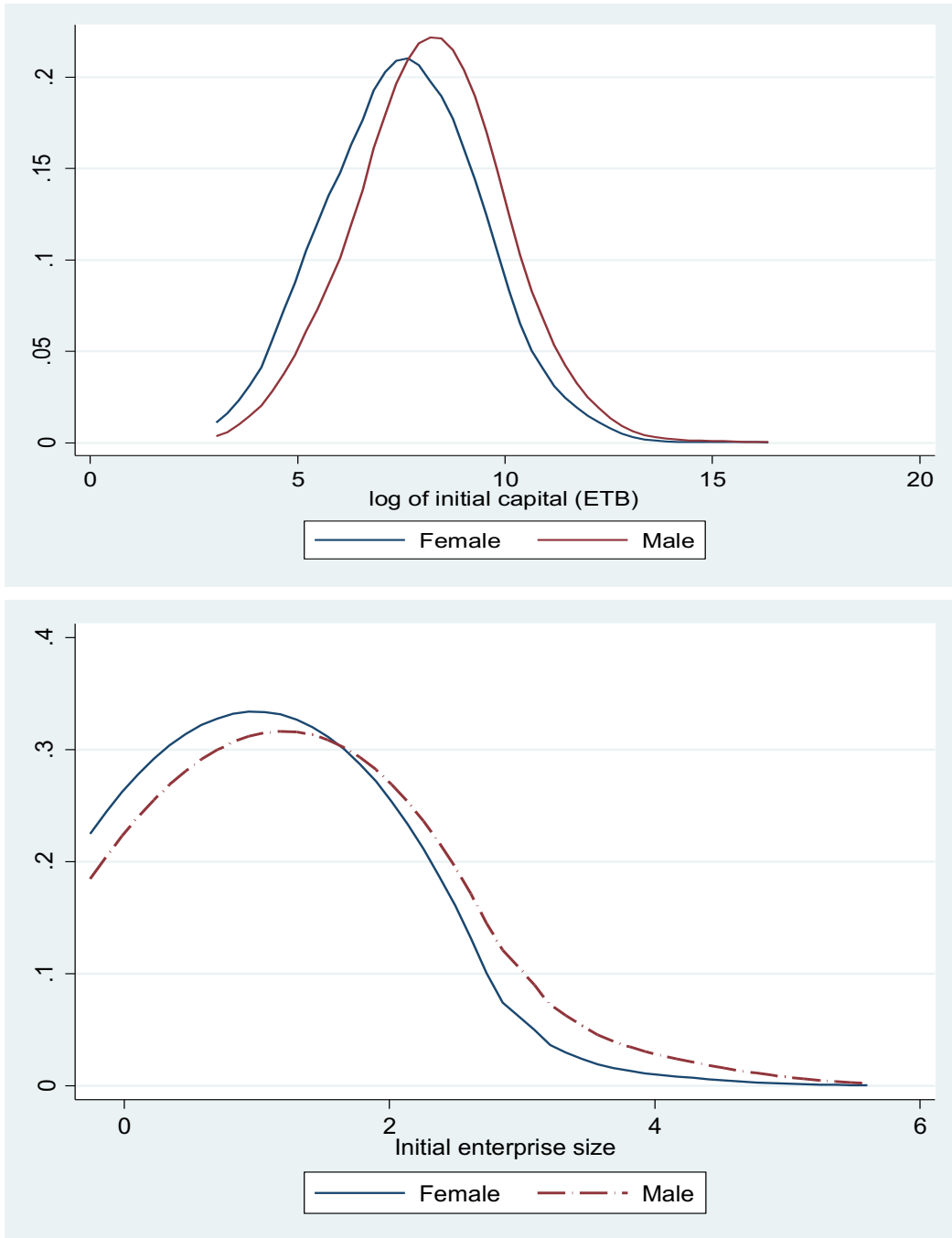
Source: Ageba & Amha, 2006

Access to markets is another constraint, especially for women. This is due to the fact that enterprises run or owned by women are located near their homes or are part of their dwellings which are far from center areas (Mead & Liedholm, 1998).

As discussed previously, it was shown that the growth of the enterprises is in general low except for in the construction sector. The median annual growth of the enterprises is about 12%. There is a huge difference in the performance by sector with growth rate ranging from just 8% for textiles and garments to about 32% for the construction sector.

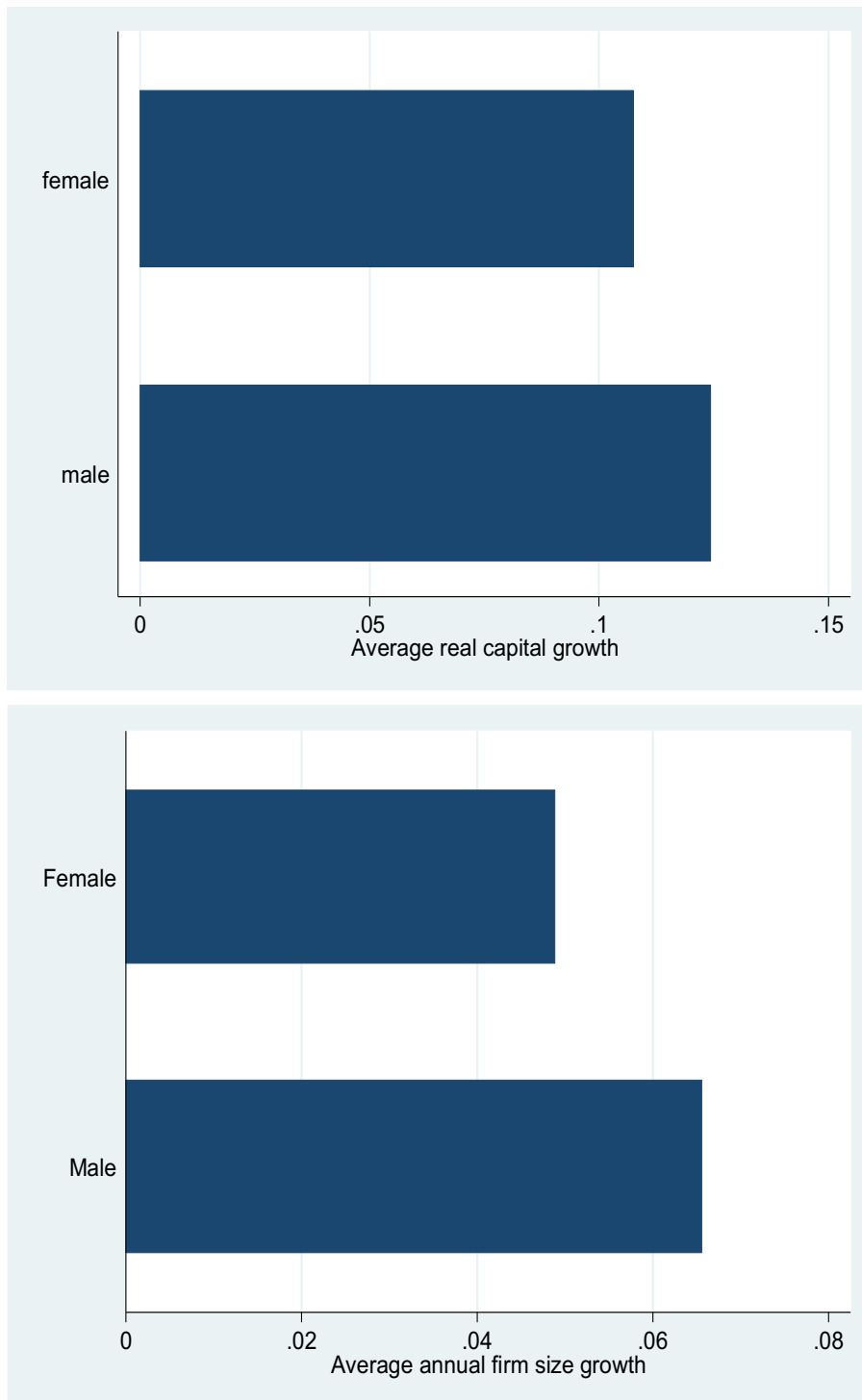
Though MSEs raise small initial capital and register generally poor capital growth, enterprises owned or operated by women have smaller start-up capital and growth of capital is also slower than their respective counterparts. Figures 4.3 and 4.4 show a notable difference in initial capital and a relatively lower level of growth of enterprises owned by women, respectively.

Figure 4.3: Size of initial capital (left) and initial employment (right) by Gender



Source: Authors' computation based on MUDC, 2012.

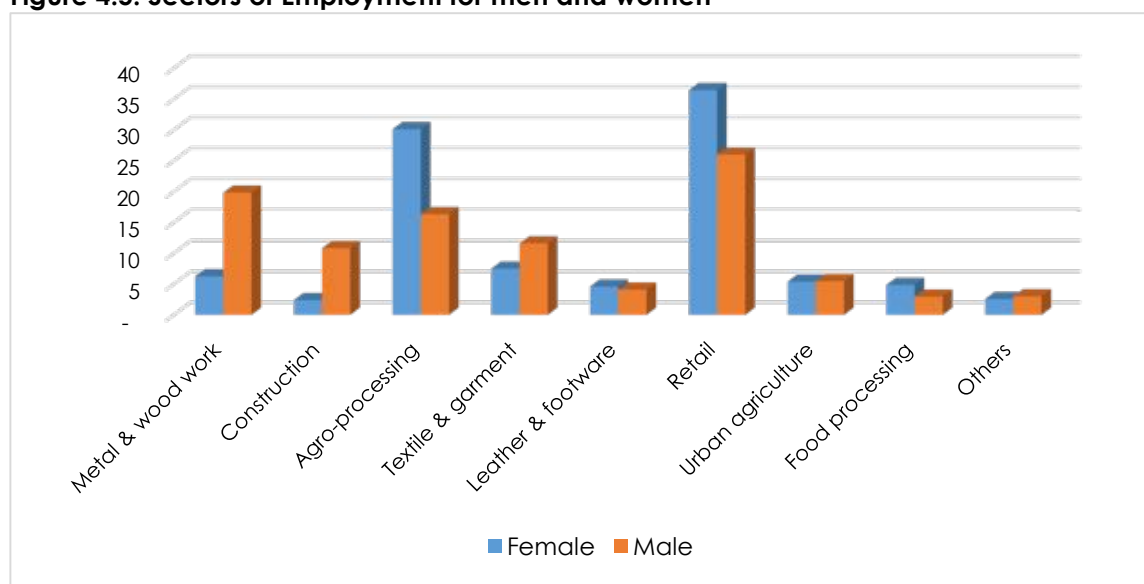
Figure 4.4: Real capital growth (left) and employment growth (right) by Gender



Source: Authors' computation based on MUDC, 2012.

The literature identifies several possible reasons as to why the growth of firms run by women is slower than their male counterparts, particularly in developing economies. Some of these include, but are not limited to the difference in managerial capabilities attributable to differences in educational background, culture, lack of role-models, and access to training, among others.

Figure 4.5: Sectors of Employment for men and women



Source: own computation based on MUDC 2012 data

The sector of participation for men and women in Figure 4.5 shows that women owned SMEs tend to dominate the retail and agro-processing, which may reflect the time, space and initial sector specific experience constraints faced by women. The MSEs owned by men dominate metal and wood work, construction, and textile and garment sectors. The difference in sectors dominated by men and women may also be attributed by demographic differences.

For instance, as presented in Table 4.4, our data shows the proportion of illiterate women is larger than that of men. Besides, the proportion of women who have received training on better and modernized production techniques is lower than men [see table 4.4 for the difference between male and female attributes]. We will, however, return to this discussion in the econometrics section where we will try to tease out the difference by gender controlling for other factors.

Table 4.4: Difference between male and female attributes

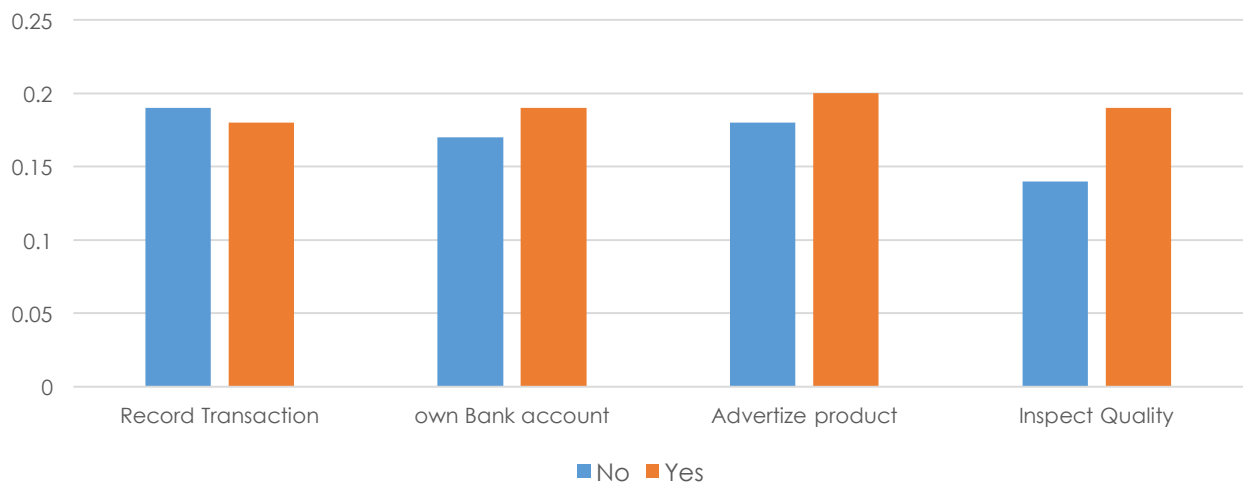
Variables	Female	Male	Total
Illiterate	15.9	4.9	9.4
Can read and write	5.9	5.3	5.5
Primary education	30.3	35.2	33.2
High school education	35.3	39.5	37.8
Vocational education	5.1	6.9	6.1
University education	7.5	8.2	7.9
Age	33.8	34.4	34.2
Production training	19.1	27.5	24.1

Management training	19.8	20	19.9
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Source: own computation based on MUDC 2012 data

Besides the attributes, Figure 4.6 shows that proprietors with financial literacy (own bank account) and those with desirable managerial qualities register higher growth rates than those without these traits. This finding is consistent with the literatures. It has been shown that financial literacy is a particular problem of micro, small and medium enterprises as they tend to have much higher rates of job growth, but also are more likely to go out of business or remain stunted due to institutional and financial literacy problems (Abiodun, 2016).

Figure 4.6: Difference in Employment growth by financial literacy and management quality



Source: Source: own computation based on MUDC 2012 data

4.2. Econometric analysis results

Table 4.5 presents the descriptive statistics of the variables used in the estimated model of growth of MSEs. The average age of owners and managers of the enterprises is 34 years; the majority of owners and managers have completed high school education (52%); and 60% of them are male. The firms under the sample aged about 6 years and above, had 4 workers on average when they were established.

The proportion of operators who owned bank accounts and record their transactions was 52% and 63%, respectively. Among all operators, around 80% inspected the quality of their product while 43% recorded the number of defective products. With regards to advertising products, only 20% of the owners had the means for advertising.

Table 4.5: Description of variables used in the regression

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
Employment growth	2849	0.03	0.1	-0.8	2.1
Gender (Male=1)	2870	0.6	0.5	0.0	1.0
Age	2870	34.2	12.1	16.0	84.0
No. initial workers	2870	3.5	6.9	0.0	104.0
Firm age	2870	5.6	6.3	1.0	40.0
Education					
No formal Education	2870	0.09	0.29	0	1
Primary education	2870	0.39	0.49	0	1
High school education or higher	2870	0.52	0.50	0	1
Average Number of proprietors	2,870	2.72	6.18	0	110
Enterprises with own premise (yes=1)	2,862	0.29	0.45	0	1
Micro Enterprises (Micro=1)	2,870	0.89	0.31	0	1
Financial literacy and Managerial Quality					
Records Transaction (Yes=1)	2,828	0.63	0.48	0	1
Has Bank account (Yes=1)	2,852	0.52	0.50	0	1
Advertises product (Yes=1)	2,852	0.20	0.40	0	1
Training	2,870	0.30	0.46	0	1
Inspects Quality (Yes=1)	2,793	0.82	0.38	0	1
Records Defective Products (Yes=1)	2,764	0.43	0.50	0	1
Policy change Variables					
Regime change	2,826	0.96	0.19	0	1
Policy change	2,826	0.92	0.27	0	1
Sectors of Engagement					
Retail	2,870	0.3	0.5	0	1
Metal and woodwork	2,870	0.1	0.4	0	1
Construction	2,870	0.1	0.3	0	1
Agro-processing	2,870	0.2	0.4	0	1
Textile	2,870	0.1	0.3	0	1
Leather	2,870	0.04	0.2	0	1
Urban agriculture	2,870	0.1	0.2	0	1
Food processing	2,870	0.04	0.2	0	1
Other sector	2,870	0.03	0.2	0	1

Source: own computation based on MUDC 2012 data

4.2.1 Determinants of Initial Enterprise size

Table 4.6 presents the results of the regression of initial enterprise size on a number of explanatory variables. To show robustness of the result and indicate the relative effect of the variables included in the regression, we ran regression models by subsequently increasing the number of variables. In the most complete model, model IV, firm characteristics, owner and manager characteristics, and location fixed effects were controlled for.

The result from this regression shows that age of owners and managers was positively associated with initial firm size, indicating that young owners of enterprises faced tighter financial constraints for start-up capital compared to older enterprise owners and managers. However, the sign and magnitude of the squared age term shows that there was a limit to this association. This result is consistent with other studies conducted on the subject (see, for instance, Aubert & Crépon, 2006).

Education level and financial literacy of owners (in terms of saving attitude) were also key determinants of initial size. The initial size of firms and education level of owners and managers were consistent with the hypothesis that better educated owners and managers raise better start-up capital. Ownership of bank accounts also tended to be positioned relatively better in terms of raising start-up capital. This is explained partly by the fact that both commercial banks and microfinance institutions make lending conditional on saving and membership.

Not surprisingly, firms owned by women tended to mobilize less resources to start up business compared to firms owned (run) by male counterparts (see also Figure 4.3). It is important to note that this holds true even after the age of owners (managers), level of education and sector of employment are accounted for. This indicates that empowering women might have to involve making credit facilities available to them through interest rate incentives, special promotions and awareness creation.

Finally, the sector in which the MSEs operate might explain the amount of initial capital that is possible to raise. There is no clear pattern but we did find that the metal and wood work, agro-processing and urban agriculture sectors were able to raise higher initial capital compared to the construction sector while the leather and retail sectors, on average, could raise less initial capital than the construction sector.

Table 4.6: Determinants of Initial Enterprise size (log)

Variables	Model I	Model II	Model III	Model IV
Gender (Male=1)	0.675*** (10.55)	0.703*** (10.26)	0.638*** (9.479)	0.561*** (8.428)
Age (log)		3.122* (1.809)	3.174* (1.868)	3.616** (2.169)
Age squared(log)		-0.406 (-1.606)	-0.416* (-1.671)	-0.482** (-1.971)
Education (Illiterate=0)				
Primary Education	0.290*** (2.602)	0.217* (1.904)	0.0912 (0.810)	0.218* (1.937)
Secondary Education	0.763***	0.689***	0.501***	0.629***

	(6.888)	(6.022)	(4.428)	(5.499)
Higher Education	0.968***	0.916***	0.686***	0.827***
	(7.563)	(6.962)	(5.219)	(6.264)
Sector (Construction=0)				
Metal and wood work		0.350**	0.527***	0.438***
		(2.270)	(3.400)	(2.837)
Agro-processing		0.145	0.350**	0.364**
		(0.924)	(2.234)	(2.351)
Textile		-0.0207	0.243	0.173
		(-0.127)	(1.480)	(1.070)
Leather		-0.834***	-0.498**	-0.578***
		(-4.119)	(-2.420)	(-2.820)
Retail		0.128	0.410***	0.259*
		(0.874)	(2.757)	(1.697)
Urban agriculture		0.388*	0.642***	0.687***
		(1.880)	(3.099)	(3.424)
Food processing		-0.294	-0.0432	-0.101
		(-1.289)	(-0.193)	(-0.447)
Other sector		-0.139	0.136	0.136
		(-0.486)	(0.502)	(0.494)
Own bank account			0.746***	0.766***
Regional fixed effects	No	No	Yes	Yes
Constant	7.346***	1.405	0.926	0.199
	(74.14)	(0.480)	(0.321)	(0.0704)
Observations	2,854	2,634	2,619	2,619
R-squared	0.078	0.106	0.151	0.184

Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

4.2.2 Estimation result of MSEs employment growth (log)

The estimation results of enterprise growth are presented in Table 4.7. The key findings from the regressions are presented below⁷.

First, the initial size of enterprises captured by the number of workers at the time of establishment is significantly negative. The effect size of enterprises measured by initial number of workers is negatively associated with growth indicating that smaller firms tended to grow faster than larger firms. This result is consistent with prior studies (Storey, 1994; Kumar, 1985), both in agriculture and manufacturing sectors (see, for instance, Coad & Tamvada, 2008). For economic policy, this offers the case for improved support to MSEs as a means of economic growth and poverty alleviation.

However, contrary to other studies, we find firm age to be insignificant in explaining firm growth. This implies that Jovanovich's learning theory does not hold true for the considered set of firms. This may be due to the lack of innovation efforts on the part of MSEs in Ethiopia.

⁷ The full regression result is presented in Table I in the Appendix.

The dummy variable for micro enterprises (baseline being small enterprises) is negative showing that micro enterprises grew slower than small enterprises. This is also consistent with the descriptive result shown in Figure 4.7. The average annual growth rate of micro enterprises is significantly lower⁸ than small enterprises.

Growth of male-owned or run MSEs was higher than the female-owned or run MSEs and relatively, female entrepreneurs underperformed compared to male entrepreneurs as is posited in the discussion in the literature on the many constraints faced by women. Together with the result in Table 4.6, this shows that male owners were more successful both in mobilizing resources to start up enterprises and grow faster once in operation. The Literature shows that the significance in growth difference between male and female owned enterprises vanishes when more controls are included in the model, signaling that the difference in the growth of enterprises by gender emanates from difference in endowments and access to services. Indeed, the descriptive result in Table 4.1 shows that female owners were more constrained in access to finance and market. However, we could not control for these variables in our model as information on these variables were not included in the data utilized by the study.

Confirming the result of the descriptive analysis, there is a clear difference in the growth rate of different sectors. Specifically, relative to the others, construction, metal and wood work, and urban agriculture tended to grow faster. In part, this could be explained by the high and increasing economic growth and commensurate urbanization in the country. This is in line with findings from other similar studies; MSEs in the construction sector grew more rapidly than enterprises in retailing business (Mcperson, 1996; Gebreyesus, 2007).

Financial literacy and managerial quality appear to be invaluable firm attributes for firm growth. Financial prudence, as given by regular recording of transactions, ownership of bank accounts and product promotions were all positive and contributed significantly to growth. The number of proprietors affects growth positively and this might be explained by better resource availability and management abilities.

⁸ The mean difference test between the annual growth rate of micro and small enterprise has a t-value of 4.808

Table 4.7: Estimation result of MSEs Employment growth (log)

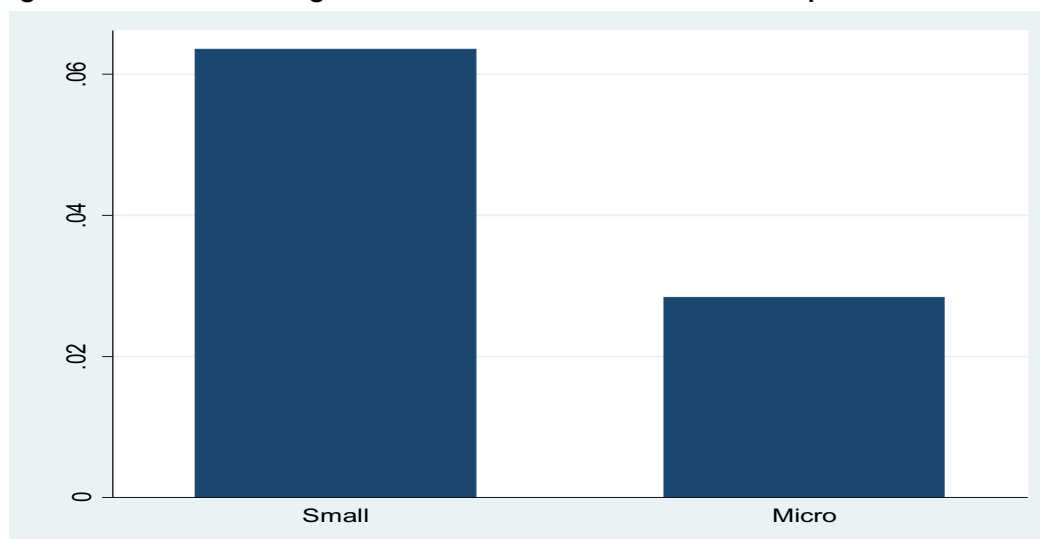
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Demography Variables						
Gender (Male=1)	0.02*** (3.547)	0.02*** (3.209)	0.02*** (4.982)	0.02*** (4.934)	0.03*** (4.893)	0.02*** (4.011)
Age (log)	0.22** (2.393)	0.20** (2.187)	0.16* (1.753)	0.14 (1.441)	0.15 (1.528)	0.13 (1.367)
Age squared (log)	-0.03** (-2.516)	-0.03** (-2.279)	-0.02* (-1.673)	-0.02 (-1.368)	-0.02 (-1.457)	-0.02 (-1.293)
Education level (No education (baseline))						
Primary Education	0.005 (0.927)	0.004 (0.838)	0.006 (1.088)	0.002 (0.412)	0.002 (0.361)	0.002 (0.345)
High school or higher	0.02*** (3.165)	0.02*** (3.145)	0.02*** (3.478)	0.01** (2.194)	0.01** (2.166)	0.01* (1.751)
Type of Enterprises						
Number of proprietors (log)	0.00 (0.474)	-0.01 (-0.888)	0.02** (2.519)	0.02** (2.475)	0.02** (2.461)	0.02** (2.508)
Enterprises with own premise (yes=1)		0.016*** (-2.703)	-0.0069 (-1.268)	-0.0085 (-1.448)	-0.0085 (-1.418)	-0.0076 (-1.298)
Micro Enterprises (Micro=1)		-0.04*** (-2.836)	-0.06*** (-4.331)	-0.06*** (-4.022)	-0.06*** (-4.006)	-0.06*** (-3.972)
Age and Size of Enterprises						
Initial size (log)			-0.07** (-1.970)	-0.09** (-2.180)	-0.09** (-2.156)	-0.09** (-2.030)
Initial size squared (log)			0.0014 (0.153)	0.0040 (0.408)	0.0041 (0.404)	0.0021 (0.211)
Firms age (log)			-0.04 (-1.618)	-0.05 (-1.645)	-0.05 (-1.519)	-0.05 (-1.334)
Firms age squared (log)			0.0010 (0.172)	0.0014 (0.221)	0.0017 (0.218)	0.0010 (0.120)
firms age*initial size (log)			0.02 (0.630)	0.02 (0.718)	0.02 (0.728)	0.02 (0.532)
firms age*initial size squared (log)			-0.00 (-0.665)	-0.00 (-0.801)	-0.00 (-0.790)	-0.00 (-0.601)
firms age squared* initial size (log)			0.00 (0.689)	0.00 (0.625)	0.00 (0.472)	0.00 (0.583)
Financial literacy and Managerial Quality						
Record Transaction (Yes=1)				0.01** (2.087)	0.01** (2.063)	0.01** (2.163)
Has Bank account (Yes=1)				0.02*** (4.756)	0.02*** (4.752)	0.02*** (4.307)
Advertise product (Yes=1)				0.01* (1.739)	0.01* (1.716)	0.01* (1.650)
Training				-0.00 (-0.680)	-0.00 (-0.698)	-0.01 (-1.083)
Inspect Quality (Yes=1)				0.02*** (3.361)	0.02*** (3.395)	0.02*** (3.104)
Record Defective Products (Yes=1)				-0.0007 (-0.134)	-0.0005 (-0.090)	0.0009 (0.158)
Policy change Variables						
Regime Change					-0.0063 (-0.794)	-0.0040 (-0.500)
Policy Change					0.0039 (0.604)	0.0043 (0.631)

Sectors of Employment	No	No	No	No	No	Yes
Location Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.3573** (-2.183)	-0.2770 (-1.644)	-0.1282 (-0.746)	-0.1039 (-0.574)	-0.1252 (-0.666)	-0.1073 (-0.577)
Observations	2,849	2,842	2,842	2,680	2,638	2,638
R-squared	0.023	0.031	0.099	0.118	0.118	0.127

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Figure 4.7: Difference in growth between micro and small enterprises



Source: Authors' computation based on MUDC, 2012.

The models are estimated again by classifying the operators by gender: women versus men and youth versus mature (see Tables II and III in the Appendix). In the women's estimation result, ownership of bank accounts, recording of transactions, and inspections of product quality together with location of employment (higher in Bahir Dar and Dire Dawa) shows up significantly. In the regression for MSEs owned by men, the number of proprietors, initial size and quality inspection show up to be the desirable qualities for firm growth. In line with the overall sample, men that engaged in small enterprises registered higher growth compared to those that engaged in micro enterprises. The sector of employment (high in construction and metal & work), and location of business (lower in Awash, Adama, Jijiga and Harar compared to Addis Ababa) were also statistically significant.

V. Conclusion

The establishment and proliferation of MSEs is high on the Ethiopian government's agenda due to their hypothesized direct link to unemployment and poverty reduction, particularly to the disadvantaged groups. However, the contribution of MSEs to these objectives has not been hugely successful owing mainly to the slow growth of these enterprises. In light of this, in this study, we opted to examine the factors that constrain enterprise growth using employment and capital growth as alternative measures.

The objective is timely because the government of Ethiopia has placed considerable attention on MSEs to yield a much needed impetus for unemployment and poverty reduction. The quality and coverage of data used in this study is also an additional merit since most of the studies conducted in the same subject area in the country are based on data from specific localities, and based on very few observations.

It is, however, worth mentioning at this juncture that we based our analysis on cross-sectional data only. This has hindered our capacity to sufficiently tackle several of the estimation issues including ownership and enterprise heterogeneities. Nevertheless, we ran several robustness checks and critically aligned our results with other similar studies to check for consistency.

The descriptive results show that access to finance (start up and working capital), access to the market and lack of working premises were the major constraints hampering enterprise growth. These constraints also appear to be more severe on enterprises run by women owners. For instance, about 23% of women owners reported that lack of access to the market was the main reason for not achieving sufficient expansion of their enterprises.

The recommendations emanating from the findings in the econometric analysis support the continued intervention in SMEs in the form of better financial accessibility. Women owned MSEs require special help compared to enterprises owned by men. The findings that growth is better achieved by trained and educated proprietors supports the notion of improving human capital stocks of MSEs.

This influences calls for continued support as part of capacity building, better access to technology and experience sharing by both donors and implementing government agencies. The evidence provided by the study also provides evidence that smaller firms grow faster and hence

addressing growth problems of smaller firms may be worthwhile. Sector wise, firms in construction, metal and wood works and urban agriculture need to be supported as they offer more promise of growth.

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Appendix

Table I: Regression Result: Growth of MSEs

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Demography Variables						
Gender (Male=1)	0.02*** (3.547)	0.02*** (3.209)	0.02*** (4.982)	0.02*** (4.934)	0.03*** (4.893)	0.02*** (4.011)
Age (log)	0.22** (2.393)	0.20** (2.187)	0.16* (1.753)	0.14 (1.441)	0.15 (1.528)	0.13 (1.367)
Age squared (log)	-0.03** (-2.516)	-0.03** (-2.279)	-0.02* (-1.673)	-0.02 (-1.368)	-0.02 (-1.457)	-0.02 (-1.293)
Education level (No education (baseline))						
Primary Education	0.005 (0.927)	0.004 (0.838)	0.006 (1.088)	0.002 (0.412)	0.002 (0.361)	0.002 (0.345)
High school or higher	0.02*** (3.165)	0.02*** (3.145)	0.02*** (3.478)	0.01** (2.194)	0.01** (2.166)	0.01* (1.751)
Type of Enterprises						
Number of proprietors (log)	0.00 (0.474)	-0.01 (-0.888)	0.02** (2.519)	0.02** (2.475)	0.02** (2.461)	0.02** (2.508)
Enterprises with own premise (yes=1)		-0.0155*** (-2.703)	-0.0069 (-1.268)	-0.0085 (-1.448)	-0.0085 (-1.418)	-0.0076 (-1.298)
Micro Enterprises (Micro=1)		-0.04*** (-2.836)	-0.06*** (-4.331)	-0.06*** (-4.022)	-0.06*** (-4.006)	-0.06*** (-3.972)
Age and Size of Enterprises						
Initial size (log)			-0.07** (-1.970)	-0.09** (-2.180)	-0.09** (-2.156)	-0.09** (-2.030)
Initial size squared (log)			0.0014 (0.153)	0.0040 (0.408)	0.0041 (0.404)	0.0021 (0.211)
Firms age (log)			-0.04 (-1.618)	-0.05 (-1.645)	-0.05 (-1.519)	-0.05 (-1.334)
Firms age squared (log)			0.0010 (0.172)	0.0014 (0.221)	0.0017 (0.218)	0.0010 (0.120)
firms age*initial size (log)			0.02 (0.630)	0.02 (0.718)	0.02 (0.728)	0.02 (0.532)
firms age*initial size squared (log)			-0.00 (-0.665)	-0.00 (-0.801)	-0.00 (-0.790)	-0.00 (-0.601)
firms age squared* initial size (log)			0.00 (0.689)	0.00 (0.625)	0.00 (0.472)	0.00 (0.583)
Financial literacy and Managerial Quality						
Record Transaction (Yes=1)				0.01** (2.087)	0.01** (2.063)	0.01** (2.163)
Has Bank account (Yes=1)				0.02*** (4.756)	0.02*** (4.752)	0.02*** (4.307)
Advertise product (Yes=1)				0.01* (1.739)	0.01* (1.716)	0.01* (1.650)
Training				-0.00 (-0.680)	-0.00 (-0.698)	-0.01 (-1.083)
Inspect Quality (Yes=1)				0.02*** (3.361)	0.02*** (3.395)	0.02*** (3.104)
Record Defective Products (Yes=1)				-0.0007	-0.0005	0.0009

					(-0.134)	(-0.090)	(0.158)
Policy change Variables							
Regime Change						-0.0063	-0.0040
						(-0.794)	(-0.500)
Policy Change						0.0039	0.0043
						(0.604)	(0.631)
Sectors of Employment (retail=Baseline)							
Metal & wood work							0.0288***
							(3.508)
Construction							0.0293*
							(1.898)
Agro-processing							0.0039
							(0.630)
Textile & garment							-0.0021
							(-0.208)
Leather & footwear							0.0000
							(0.001)
Urban agriculture							0.0052
							(0.608)
Food processing							0.0219
							(1.089)
Others							0.0312*
							(1.750)
Location Fixed Effects							
Hawassa	-0.0206***	-0.0218***	-0.0216***	-0.0296***	-0.0300***	-0.0274***	
	(-2.704)	(-2.868)	(-2.610)	(-3.393)	(-3.362)	(-3.037)	
Mekele	0.0187	0.0180	0.0085	-0.0081	-0.0083	-0.0128	
	(1.433)	(1.353)	(0.660)	(-0.568)	(-0.581)	(-0.826)	
Gondar	-0.0046	-0.0093	-0.0056	-0.0119	-0.0118	-0.0107	
	(-0.463)	(-0.920)	(-0.562)	(-1.124)	(-1.100)	(-0.995)	
Bahirdar	-0.0049	-0.0043	0.0025	0.0115	0.0112	0.0076	
	(-0.621)	(-0.547)	(0.337)	(1.555)	(1.480)	(0.877)	
Dessie	-0.0088	-0.0080	-0.0118	-0.0107	-0.0102	-0.0121	
	(-0.888)	(-0.820)	(-1.166)	(-0.981)	(-0.924)	(-1.049)	
Jimma	0.0010	0.0017	-0.0175*	-0.0208*	-0.0211*	-0.0189	
	(0.114)	(0.175)	(-1.714)	(-1.780)	(-1.792)	(-1.633)	
Shashemene	0.0013	-0.0018	-0.0025	-0.0072	-0.0073	-0.0039	
	(0.137)	(-0.177)	(-0.263)	(-0.694)	(-0.699)	(-0.363)	
DireDawa	0.0019	0.0022	0.0005	0.0017	0.0022	-0.0011	
	(0.190)	(0.228)	(0.051)	(0.174)	(0.215)	(-0.106)	
Bishoftu	0.0007	0.0062	0.0022	-0.0047	-0.0049	-0.0058	
	(0.050)	(0.448)	(0.164)	(-0.335)	(-0.347)	(-0.375)	
Adama	-0.0285***	-0.0355***	-0.0183**	-0.0319***	-0.0320***	-0.0321***	
	(-4.771)	(-4.160)	(-2.254)	(-2.666)	(-2.654)	(-2.673)	
Jijiga	-0.0030	-0.0073	-0.0031	-0.0103	-0.0103	-0.0093	
	(-0.266)	(-0.621)	(-0.272)	(-1.036)	(-1.030)	(-0.891)	
Harar	-0.0174**	-0.0183**	-0.0053	-0.0079	-0.0076	-0.0082	
	(-2.384)	(-2.527)	(-0.771)	(-0.981)	(-0.900)	(-0.955)	
Constant	-0.3573**	-0.2770	-0.1282	-0.1039	-0.1252	-0.1073	
	(-2.183)	(-1.644)	(-0.746)	(-0.574)	(-0.666)	(-0.577)	
Observations	2,849	2,842	2,842	2,680	2,638	2,638	
R-squared	0.023	0.031	0.099	0.118	0.118	0.127	

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table II: Regression Result: Growth of MSEs for Male operated enterprises

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Demography Variables						
Age (log)	0.36*** (2.763)	0.33** (2.529)	0.24* (1.810)	0.18 (1.259)	0.20 (1.351)	0.16 (1.115)
Age squared (log)	-0.05*** (-2.944)	-0.05*** (-2.695)	-0.03* (-1.789)	-0.02 (-1.217)	-0.03 (-1.313)	-0.02 (-1.076)
Education level (No education (baseline))						
Primary Education	0.01 (0.923)	0.01 (0.844)	0.01 (0.705)	0.00 (0.395)	0.00 (0.360)	0.00 (0.100)
High school or higher	0.02** (2.143)	0.02** (2.114)	0.03** (2.160)	0.02 (1.436)	0.02 (1.420)	0.01 (0.896)
Type of Enterprises						
Number of proprietors (log)	0.00 (0.784)	-0.00 (-0.085)	0.03*** (2.690)	0.03** (2.395)	0.03** (2.386)	0.03** (2.482)
Enterprises with own premise (yes=1)		-0.03*** (-3.068)	-0.02* (-1.961)	-0.02** (-2.266)	-0.02** (-2.243)	-0.02** (-2.101)
Micro Enterprises (Micro=1)		-0.04*** (-2.587)	-0.06*** (-4.341)	-0.06*** (-3.937)	-0.06*** (-3.918)	-0.06*** (-3.956)
Age and Size of Enterprises						
Initial size (log)			-0.10** (-1.969)	-0.12** (-2.242)	-0.12** (-2.184)	-0.12** (-2.037)
Initial size squared (log)			0.01 (0.741)	0.01 (1.021)	0.01 (0.984)	0.01 (0.766)
Firms age (log)			-0.06 (-1.383)	-0.07 (-1.551)	-0.07 (-1.291)	-0.06 (-1.139)
Firms age squared (log)			-0.00 (-0.088)	0.00 (0.221)	-0.00 (-0.047)	-0.00 (-0.051)
firms age*initial size (log)			0.02 (0.465)	0.03 (0.663)	0.03 (0.622)	0.02 (0.418)
firms age*initial size squared (log)			-0.00 (-0.857)	-0.01 (-0.870)	-0.01 (-0.818)	-0.01 (-0.630)
firms age squared* initial size (log)			0.01 (1.061)	0.00 (0.706)	0.00 (0.629)	0.01 (0.765)
Financial literacy and Managerial Quality						
Record Transaction (Yes=1)				0.01 (0.970)	0.01 (0.937)	0.01 (0.991)
Has Bank account (Yes=1)				0.03*** (3.911)	0.03*** (3.940)	0.02*** (3.336)
Advertise product (Yes=1)				0.01* (1.671)	0.01* (1.656)	0.01 (1.629)
Training				-0.00 (-0.012)	-0.00 (-0.052)	-0.00 (-0.612)
Inspect Quality (Yes=1)				0.02** (2.307)	0.02** (2.352)	0.01* (1.933)
Record Defective Products (Yes=1)				-0.00 (-0.231)	-0.00 (-0.200)	0.00 (0.003)
Policy Change Variables						
Regime Change					-0.01 (-1.051)	-0.00 (-0.376)
Policy Change					-0.00 (-0.367)	0.00 (0.015)
Sectors of Employment						

(retail=Baseline)						
Metal & wood work						0.03*** (2.965)
Construction						0.04* (1.794)
Agro-processing						0.01 (0.857)
Textile & garment						-0.02* (-1.840)
Leather & footwear						0.00 (0.006)
Urban agriculture						0.00 (0.091)
Food processing						0.03 (0.852)
Others						0.05* (1.768)
Location Fixed Effects						
Hawassa	-0.04*** (-3.973)	-0.04*** (-4.011)	-0.04*** (-3.566)	-0.05*** (-4.212)	-0.05*** (-4.273)	-0.05*** (-3.980)
Mekele	0.03* (1.792)	0.03 (1.644)	0.02 (1.067)	-0.00 (-0.088)	-0.00 (-0.098)	-0.00 (-0.098)
Gondar	-0.00 (-0.399)	-0.01 (-1.016)	-0.01 (-0.553)	-0.01 (-1.120)	-0.01 (-1.080)	-0.01 (-0.991)
Bahirdar	-0.01 (-0.480)	-0.01 (-0.415)	0.00 (0.051)	0.01 (0.743)	0.01 (0.726)	0.00 (0.143)
Dessie	-0.01 (-0.829)	-0.01 (-0.774)	-0.01 (-0.829)	-0.01 (-0.781)	-0.01 (-0.744)	-0.01 (-0.805)
Jimma	0.00 (0.268)	0.00 (0.278)	-0.02 (-1.303)	-0.02 (-1.438)	-0.02 (-1.471)	-0.02 (-1.421)
Shashemene	-0.00 (-0.295)	-0.01 (-0.740)	-0.01 (-0.720)	-0.01 (-0.551)	-0.01 (-0.550)	-0.01 (-0.395)
DireDawa	-0.01 (-0.420)	-0.01 (-0.571)	-0.01 (-0.533)	-0.01 (-0.572)	-0.01 (-0.565)	-0.01 (-0.841)
Bishoftu	-0.00 (-0.116)	0.00 (0.150)	0.00 (0.118)	-0.00 (-0.147)	-0.00 (-0.168)	-0.00 (-0.089)
Adama	-0.04*** (-5.184)	-0.04*** (-4.438)	-0.03*** (-2.592)	-0.04*** (-3.139)	-0.04*** (-3.122)	-0.04*** (-2.914)
Jijiga	-0.03*** (-2.724)	-0.03*** (-3.144)	-0.03** (-2.559)	-0.03** (-2.522)	-0.03** (-2.502)	-0.03** (-2.369)
Harar	-0.02** (-2.306)	-0.02** (-2.520)	-0.01 (-0.760)	-0.01 (-0.741)	-0.01 (-0.621)	-0.01 (-0.692)
Constant	-0.59** (-2.470)	-0.49** (-2.047)	-0.22 (-0.920)	-0.12 (-0.472)	-0.14 (-0.529)	-0.10 (-0.386)
Observations	1,698	1,693	1,693	1,592	1,561	1,561
R-squared	0.027	0.039	0.125	0.142	0.142	0.158

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table III: Regression Result: Growth of MSEs for Female operated enterprises

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Demography Variables						
Age (log)	-0.04 (-0.329)	-0.05 (-0.401)	0.04 (0.327)	0.10 (0.883)	0.11 (0.886)	0.08 (0.668)
Age squared (log)	0.01 (0.375)	0.01 (0.444)	-0.00 (-0.199)	-0.01 (-0.796)	-0.01 (-0.788)	-0.01 (-0.568)
Education level (No education (baseline))						
Primary Education	0.01* (1.910)	0.01* (1.850)	0.01** (2.182)	0.01 (1.637)	0.01 (1.577)	0.01 (1.267)
High school or higher	0.03*** (2.807)	0.03*** (2.835)	0.03*** (2.904)	0.02** (2.248)	0.02** (2.254)	0.01** (2.026)
Type of Enterprises						
Number of proprietors (log)	-0.01 (-0.473)	-0.02 (-1.157)	0.01 (0.790)	0.02 (1.138)	0.02 (1.126)	0.01 (1.054)
Enterprises with own premise (yes=1)		0.00 (0.183)	0.01 (1.244)	0.01 (1.261)	0.01 (1.298)	0.01 (1.375)
Micro Enterprises (Micro=1)		-0.03 (-1.114)	-0.07* (-1.745)	-0.07 (-1.603)	-0.07 (-1.617)	-0.07 (-1.549)
Age and Size of Enterprises						
Initial size (log)			0.00 (0.015)	0.01 (0.091)	0.01 (0.096)	0.01 (0.082)
Initial size squared (log)			-0.03 (-0.866)	-0.03 (-0.929)	-0.03 (-0.935)	-0.03 (-0.923)
Firms age (log)			-0.06 (-1.205)	-0.04 (-0.893)	-0.05 (-0.940)	-0.05 (-0.946)
Firms age squared (log)			0.01* (1.647)	0.01 (1.146)	0.01 (1.268)	0.01 (1.243)
firms age*initial size (log)			0.03 (0.470)	0.02 (0.266)	0.02 (0.252)	0.02 (0.261)
firms age*initial size squared (log)			0.01 (0.296)	0.01 (0.313)	0.01 (0.318)	0.01 (0.308)
firms age squared* initial size (log)			-0.01 (-1.328)	-0.01 (-0.810)	-0.01 (-0.787)	-0.01 (-0.752)
Financial literacy and Managerial Quality						
Record Transaction (Yes=1)				0.02*** (3.142)	0.02*** (3.188)	0.02*** (3.264)
Has Bank account (Yes=1)				0.02*** (2.870)	0.02*** (2.834)	0.02*** (2.875)
Advertise product (Yes=1)				0.01 (1.019)	0.01 (1.002)	0.01 (0.954)
Training				-0.01 (-0.977)	-0.01 (-0.994)	-0.01 (-0.969)
Inspect Quality (Yes=1)				0.01** (2.566)	0.01** (2.452)	0.02*** (2.704)
Record Defective Products (Yes=1)				0.01 (0.762)	0.01 (0.759)	0.01 (0.839)
Policy change Variables						
Regime Change					-0.01 (-0.474)	-0.01 (-0.702)
Policy Change					0.02** (1.976)	0.02* (1.893)

Sectors of Employment (retail=Baseline)						
Metal & wood work						0.01 (0.791)
Construction						-0.02 (-1.092)
Agro-processing						0.00 (0.390)
Textile & garment						0.03 (1.286)
Leather & footwear						-0.01 (-0.841)
Urban agriculture						0.01 (0.560)
Food processing						0.02 (0.847)
Others						-0.01 (-0.566)
Location Fixed Effects						
Hawassa	0.000344 (0.0258)	0.00151 (0.116)	0.00453 (0.350)	-0.000388 (-0.0304)	0.000509 (0.0400)	0.00277 (0.218)
Mekele	-0.0121 (-0.686)	-0.0124 (-0.674)	-0.0204 (-1.089)	-0.0362 (-1.562)	-0.0360 (-1.556)	-0.0317 (-1.313)
Gondar	-0.00490 (-0.298)	-0.00333 (-0.209)	0.00240 (0.140)	-0.00625 (-0.320)	-0.00674 (-0.343)	-0.00367 (-0.188)
Bahirdar	0.00304 (0.331)	0.00541 (0.667)	0.0111 (1.611)	0.0177*** (2.675)	0.0170** (2.572)	0.0240*** (3.011)
Dessie	-0.000213 (-0.0174)	0.00102 (0.0886)	-0.00308 (-0.253)	-0.000468 (-0.0361)	0.000596 (0.0462)	0.00345 (0.281)
Jimma	0.00351 (0.241)	0.00271 (0.172)	-0.00973 (-0.550)	-0.0141 (-0.660)	-0.0135 (-0.636)	-0.00874 (-0.456)
Shashemene	0.0135 (0.847)	0.0139 (0.857)	0.0153 (0.969)	-0.000174 (-0.0106)	0.000437 (0.0270)	0.00254 (0.151)
DireDawa	0.0151 (1.147)	0.0171 (1.400)	0.0163 (1.334)	0.0205* (1.702)	0.0223* (1.835)	0.0246** (2.124)
Bishoftu	0.0106 (0.740)	0.0147 (1.150)	0.0106 (0.862)	-0.000183 (-0.0115)	0.000616 (0.0390)	0.00246 (0.163)
Adama	-0.0167* (-1.847)	-0.0265 (-1.453)	-0.00702 (-0.474)	-0.0223 (-0.883)	-0.0217 (-0.862)	-0.0191 (-0.798)
Jijiga	0.0310 (1.354)	0.0296 (1.297)	0.0366* (1.698)	0.0241 (1.373)	0.0250 (1.421)	0.0306* (1.691)
Harar	-0.00525 (-0.506)	-0.00551 (-0.522)	0.00355 (0.382)	-0.00448 (-0.372)	-0.00312 (-0.262)	0.000296 (0.0262)
Constant	0.0594 (0.297)	0.139 (0.623)	0.0278 (0.114)	-0.110 (-0.468)	-0.130 (-0.533)	-0.0903 (-0.346)
Observations	1,151	1,149	1,149	1,088	1,077	1,077
R-squared	0.017	0.023	0.081	0.104	0.105	0.113

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1