

Impact of Credit and Capital Structure Decisions on Growth of Small Enterprises: Evidence from Tigray Regional State of Ethiopia

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Abstract

The primary objective of this study was to examine how and to what extent access to formal credit and capital structure affect growth of small enterprises, following the static-trade-off theory of capital structure as theoretical frameworks. The study intends to address two basic questions: (1) Does access to formal credit have significant influence on growth of small enterprises? (2) To what extent is growth of small enterprises affected by capital structure decision of their owners/managers? In order to address these questions, a mixed explanatory cross-sectional research design was crafted that is inclined towards quantitative approach. Data were collected from both primary and secondary sources through a standardized questionnaire, key informant interview (KII), direct observation, and documentary analysis. A combination of purposive, systematic, and simple random sampling techniques was employed to choose appropriate samples. Accordingly, primary data were collected from 333 small enterprises operating in five urban towns of Tigray. These were selected out of 2765 small firms operating in the target areas. In this research descriptive statistics, statistical difference tests, and regression analysis, and propensity score matching were applied for the purpose of data analysis, with the help of Stata version 12 software. The descriptive analysis shows that that debt financed small enterprises have been growing at 9.41% but growth rate of those equity financed firms was 5.98%. The regression model also revealed that leverage has significant positive contribution to growth of small enterprises with a growth coefficient of 2.76 ($P < 0.05$). Besides, results of propensity score matching showed that leveraged firms grew at 3.4 percent higher than those equity financed small enterprises ($p < 0.05$). The researcher found that possessing strong financial resources, more leverage and easily accessible credit facilities have significant positive effect to enhance growth of small enterprises. On the other hand, growth rate of majority of the enterprises have been retarded due to lack of financial resources because banks could not provide adequate credit to the sector. Therefore, the writer provides the following recommendations so that credit need of the sector could be satisfied. Ethiopian government (1) need to introduce and strengthen a credit guarantee fund as a risk sharing scheme; (2) assess the potential of such non-bank financial services and develop guidelines or regulations for smooth functioning of these institutions to participate (3) initiate some guidelines to introduce Mandatory Minimum ratio of Bank loan to small enterprises so that banks are directed to make loans to potentially growing enterprises, (4) take necessary action so that credit is easily accessible through development of development oriented banking that specialize on financing SEs, (5) upgrade knowledge and skill of owners and/or employees of the SEs so that they can prepare financial statements and business plan that banks use as input in assessing the financial condition and operating result of their businesses

Key words: Capital Structure, Credit, Growth of Small Enterprises, Static-trade-off Theory, Tigray-Ethiopia.

1. Introduction

A hard look into the existing body of knowledge in small enterprises (SEs) sector and the day-to-day observation of the realities on the ground reveal that SEs do have a number of benefits. The small enterprises sector has been considered by academicians and policy makers as an engine of economic growth, poverty reduction, and social development due to its effect on employment and income generation, import substitution, its role as a springboard to entrepreneurship and industrialization, input distribution for large industries and distribution of their products through linkage and sub-contracting, and income distributions among different sections of the society (Mead & Liedholm, 1998; Liedholm, 2002; Bekele and Worku, 2008; Kabongo and Okpara, 2009). For instance, the sector takes 48% of the labour force in North Africa, 51% in Latin America, 65% in Asia, 72% in Sub-Saharan African Countries (ILO, 2002). According to Goldmark and Nicher, (2009), while over 96% of businesses are small enterprises in USA, approximately 97% of firms in Mexico and Thailand are MSEs. According to the Ethiopian Central Statistical Authority (2004), almost 50% of all new jobs created in Ethiopia

are attributable to MSE sector. According to Aregash (2005) cited in Bekele and Worku (2008), 98% of business firms in Ethiopia are MSEs, out of which SEs account for 65% of all businesses. In Ethiopia, MSE sector is the second largest employment generating next to agriculture. Report of Federal Micro and Small Enterprises Development Agency FeMSEDA released in April 2013 indicated that the MSE sector created 1.5 million new job opportunities and about 4 billion birr loan was provided by microfinance institutions during the years 2006-2010.

Recognizing the significance of this sector as a key factor for rapid economic development, the Government of Ethiopia had issued Micro and Small Enterprises Strategy (FDRE, MoTI, 1997). Besides, the Growth and Transformation Plan (GTP) of Ethiopia has envisaged the promotion of micro and small enterprises as an important tool of poverty reduction (FDRE, MoFED, 2010).

Countries define micro and small enterprises using different criteria. In Ethiopia, the MSE sector is categorized into industrial and service sub-sectors. The former subsector comprises of manufacturing, mining, and construction subsectors while the service sector includes the retail trade, transport, hotel and tourism, information technology and repairs (FDRE, MoFED, 2010). In the industrial sector, a business enterprise which employs 6-30 five labor force, including business owner and family labor, and/or the monetary value of the enterprise's total asset ranging from Birr 100001-1500000¹ is considered as small enterprise, and any enterprise with less than 6 employees and/or up to Birr 100,000 capital investment in total assets is considered as micro enterprise. In the service sector a business enterprise is considered as a small enterprise if it employs 6-30 five labor force, including business owner and family labor, and/or if the monetary value of the enterprise's total asset ranges Birr 50001-500000. A service enterprise below 6 labor force and/or capital up to Birr 50,000 is classified as a micro enterprise.

Because of the sector's role in economic growth and poverty reduction growth of small enterprises has attracted considerable attention of researchers in recent years. Rationality of this research is justified based on the following facts. First, despite the increase in research volume, recent review of the literature on growth of small enterprises suggested that little is known about the phenomenon, that is there is no consensus among result of different researchers (Wiklund *et.al*, 2009) because of different reason:-existence of diverse theories on growth determinants, difference in metric of growth used and specific formula used to calculate growth.

Second, The vast majority of earlier researches came from developed countries of America and Europe and Asian developing countries. Consequently, their research findings do not permit generalization on the importance of these variables and their contribution to growth in less developed countries like Ethiopia.

Third, findings of the earlier researches in Ethiopia are not only inconsistent and contradictory in identifying the critical challenges of small enterprises, but also none of them explained how and to what extent growth was associated with or explained by the stated business constraints. But this research applied statistical models to examine to what extent the explanatory variables influence growth of the small enterprises sector.

Therefore, this study applied statistical models to examine how and to what extent growth is affected by financial position and credit access, by controlling entrepreneurial orientation, firm specific tangible and intangible resources, motivation of owners, and environmental variables, by raising the following major questions.

1. Does access to formal credit have significant influence on growth of small enterprises?
2. To what extent is growth of small enterprises affected by capital structure decision of their owners/managers?

2. Literature Review:

2.1. Financial Resources and Growth of Small Enterprises

Small enterprises need finance to invest in new productive activities, enter into new market, develop new products, engage in innovative activities through research and development, cope with temporary cash flow shortage as well as modernize and expand their business (Wiklund, *et.al*, 2009). However, growth of small enterprises has been constrained by limited access to formal financial resources, especially bank credit (Ageba & Amaha, 2006a; Negash (2006).

Previous literature (e.g. Rosmary, 2001; Kavanamur, 2002 cited in Bekele and Worku, 2008) reported that formal financial institutions are reluctant to lend money to the small scale enterprises due to the associated high risk with the lending of money to the sector. This perception of banks and other formal financial institutions emanates mainly from the existence of asymmetric information. In order to mitigate the risk due to the information asymmetry, banks require small enterprise borrowers to fulfill certain requirements such as provide adequate collateral for their loans, precise information about themselves in the form of business plan and financial statements. However, due to their nature, it is very difficult to the small enterprises to fulfill these requirements because they lack adequate assets to be used as collateral, skill and knowledge to prepare acceptable business plan or financial statements.

¹ Birr is the official currency of Ethiopia whose current exchange rate (ask price) is about Birr 19.25 per dollar.

As the result of these small enterprises in developing countries, including Ethiopia, reported that shortage of financial capital to be the most bottleneck for their survival and growth (Goldmark & Nicher, 2009; Mulu, 2008; Bekelle & Worku 2008; Ageba & Amaha, 2006a; Ageba & Amaha, 2006b; Beccetti & Trovato, 2002).

2.2. Capital Structure Decisions and Growth

A financial manager faces two interconnected decisions: investment decision and financing decision. In financing decision he/she must determine the best financing mix or capital structure for his/her firm, considering the cost and return expected from the use of particular mix. Capital structure refers to a mix of different securities that a firm can choose among many alternatives of financing the firm. It basically explains how a firm finances its overall activities. There are two broad theories with regard to the impact of capital structure on firm performance: capital structure irrelevance theory and capital structure relevance theory.

(i) Capital Structure Irrelevance Theory

Based on assumptions of perfect capital markets, identical expectations of investors, tax free economy, and non-existence of transaction costs, Miller and Modigliani (1958) cited in Neway and Aregawi (2013), argue that the value of a firm is independent of capital structure. The firm's value is determined by its existent assets, not by the type of securities it issues to finance its operations.

Nevertheless, researches made after Miller and Modigliani (1958) confirmed that their assumptions were unrealistic and the existence of bankruptcy costs and tax deductibility of interest expense (tax shield advantage) on debt finance lead to the idea of an optimal capital structure which minimizes firm's total cost of capital and likewise maximizes the value of the firm. Finally, once failure of this irrelevance theory had been proved, capital structure relevance theory emerged. The main ones are the static trade-off theory, and the pecking-order theory.

(ii) Static Trade-Off Theory

This theory argues that as firm's capital structure has both benefits and costs, a firm can borrow up to the point where the tax benefit from an extra debt is exactly offset by the cost that comes from the increased probability of financial distress. Debt benefits include tax shields (saving) advantage induced by the deductibility of interest expenses from pre-tax income of the firm (Modigliani & Miller, 1963). On the other hand debt has both direct and indirect bankruptcy costs. While direct costs are those costs associated with periodic interest and principal payments, default and bankruptcy costs arise when periodic payment obligations increase.

(iii) Pecking Order Theory

The pecking order theory is developed by Myers and Majluf (1984) cited in Newya and Aregawi (2013) which stated that capital structure is determined by firm's desire to finance new investments, first internally generated funds, then with low-risk debt, and finally if all fails, with equity finance.

(iv) Is debt capital more important than Own saving (equity capital)?

According to the trade-off (or theory of optimum leverage) cost of debt is less than the cost of equity because differences in associated risks and costs. Creditors' funds are less risky than owners' funds because (i) creditors have fixed (known) preferential rights on their claims (ii) claims of creditors are legally protected and secured by collateral. The cost of debt is lesser than the cost of equity due to the tax deductibility of periodic interest payments. Thus, according to trade of theory, the use of leverage can increase the rate of return to equity though excessive leverage can also be harmful. Because acquiring too much debt may subject enterprises to financial risk due to the variability in interest rates and net income. Therefore, the owners of small enterprises must weigh the trade-off between debts and own saving (equity capital) and determine an optimum mix of debt and equity capital to efficiently operate and grow.

3. Research Methodology

3.1. Research design, sample and data collection

This research can be described as mixed explanatory cross-sectional research because both qualitative and quantitative data were employed during data collection and analysis processes. A combination of purposive, multi-stage, stratified, systematic, and simple random sampling techniques were applied to collect cross-sectional primary data, using structured questionnaire from the 333 small enterprises out of the 2765 total small enterprises (population) operating in five urban towns.

The researcher made decisions to use the following formula with finite population correction (Daniel, 1999) for calculating the required sample size in the study¹. The final sample size, after a 5% increase to account for any lost questionnaires and uncooperative subjects that may happen during data collection, was 354 small enterprises

¹ $n = \frac{N * Z^2 * (p) * (1-p)}{d^2 * (N-1) + Z^2 * (p) * (1-p)}$; n = Sample size with finite population correction, N = Population size = Z statistic for a level of confidence, P = Expected proportion, expressed as decimal, and d = Margin of error, expressed as decimal.

(computed as $337 * 1.05 = 354$). Out of the 354 distributed questionnaires, the researcher proved that 333 (94.07%) of them were found to be complete and usable for data analysis. However, 21 questionnaires (5.93%) were rejected because they missed some important information

3.2. Hypotheses of the study

Research findings show mixed results on the effect of credit on growth of small enterprises. Findings of (Beccetti & Trovato, 2002; Tushabomwe-Kazzoba, 2006; Ishengoma & Kappel, 2008; and Wiklund & Dess, 2005) show strong evidence that loan and internal finance are important factors in stimulating the growth of small firms. Goldmark and Nichter (2009), on the other hand, argue that credit access is not a significant determinant of firm performance.

Thus, the researcher expects that growth rate of small enterprises with access to capital (mainly to credit) and leverage will be more than those small enterprises with lack of access credit:

H1: Access and availability of credit have significant positive influence on growth of small enterprises.

H2: Capital Structure decision has significant positive impact on growth of Small enterprises

3.3. Variables of the study and their measures

(i) Dependent and independent Variables

(i) Dependent and independent Variables

Different writers used different types of growth measure and came out with different results and because of which comparison of findings was found to be very difficult (Lumpkin and Dess, 1996). There is no universally recognized superior growth indicator. Dependent variable of this study was defined as a logarithm of change in number of employees at the time of establishment and time of survey. Use of employment size as a measure of growth is justified because: (i) it is easily accessible data that can be easily remembered by small enterprises (USAID, 2002, McPherson, 1996). Since many of the owners of small enterprises do not keep records, they would be unable to remember and accurately report their firm's historical sales level; (ii) unlike sales, employment is not sensitive to change in inflation and exchange rate changes (USAID, 2002; Wiklund and Shepherd, 2005); (iii) employment size is preferred measure when the interest of policy makers is fostering employment growth (USAID, 2002; Davidson *et al.*, 2005); (iv) Pensrose (1959; in Delmar *et al.*, 2003) suggests employment as a measure of growth should be applied for resource and knowledge-based view of the firm; (v) studies found that growth in sales and growth in the number of workers are highly correlated, and (vi) its reliability and validity was proved by prior researchers (Mead 1994; McPerson, 1996; Mead and Liedholm, 1998; Liedholm and Mead, 1999; DurimHxha, 2008; Chirwa, 2008; Beyene, 2010); and less developed countries like Ethiopia use micro and small enterprise as a source of employment opportunity and income.

Many cross-sectional studies have logarithmized the dependent variable in order to correct a skewed distribution, and thereby fulfilling the assumption of the normal distribution of residuals. Though normality is not an important assumption in estimating the most efficient unbiased coefficient, skewness generates unnecessary outliers and compromises the interpretation of the least square fit, because fit is dependent on the distribution around the mean, and the mean is not an appropriate measure for a skewed distribution (Delamr, 1997). Different researchers (Delmar (1997, Evans, 1987; McPerson, 1996; Liedholm and Mead, 1999; Mulu, 2009) argues, the logarithm of the dependent variable is often an option for obtaining both a higher fit and a better use of the data.. Accordingly, the growth rate used in this study was measured as the logarithmic change in employment between the date of establishment and the date/time of survey. The commonly logarithmized formulas used to measure growth are presented in the following sections.

$$\text{Growth} = \frac{\ln(\text{EMP}_{t_1}) - \ln(\text{EMP}_{t_0})}{\text{age of enterprise}}$$

where EMP_{t_1} = Number of employees at the time of survey

EMP_{t_0} = Number of employees at start-up (initial number of employees

\ln = Natural logarithm

(ii) Independent and Control variables of Study

The explanatory variables comprise access to bank credit and capital structure decision of owners/managers of SEs. The control variables comprise of financial difficulty (financial position of SES0, overall score of entrepreneurial orientation, entrepreneurial resources, mainly human capital of owners; location of the enterprise, age and size of the enterprise amount of initial investment, motivation of owners while establishing their business, sector in which an enterprise operates, gender and age of owners, marketing related problems, cost and accessibility of infrastructure, government policies, strategies and bureaucracy, BDS are controlled in the regression model.

3.4. Methods of data analysis

In this study both descriptive and econometric analyses were used. The researcher applied descriptive statistics such as percentages, ratios, mean, standard deviation, tables; regression analysis; and Propensity score matching for the purpose of data analysis. In order to ensure the internal consistency and reliability of variables captured by five point Likert scale, Cronbach's alpha coefficients were calculated. Accordingly, the alpha coefficients of

entrepreneurial orientation (EO); motivational factors; government policies, strategies, and bureaucracy; access and cost of infrastructure; BDS; and marketing and market related factors were found to be 0.78, 0.74, 0.76, 0.700, 0.75, and 0.64, respectively. These are beyond the acceptable range recommended by Bryan (2008), Sekeran (2005) and Nunnally (1978) as cited by Fairoz et al (2010).

4. Results and Discussions

4.1. Growth Category of Small enterprises

Small enterprises covered in this study are categorized into two: survival and growing. Survival types are enterprises with static or declining growth rate and growing SEs are those that registered greater than zero growth rate (in percentage). Accordingly, 187 small enterprises (56%) were found to be survival type and 146 (44%) were growing type of enterprises. This indicates that the majority of the small enterprises (both male owned and female owned) have been operating for survival due to different internal and external challenges. The average growth rate of the small enterprises was found to be 7.085 percent with the minimum of -13.86 percent and 76.11 percent maximum growth rate. Average growth rate of those of growing type of SEs was found to be 16.37%, ranging from a minimum rate of 1.16% to maximum of 76.11% while the growth rate of survival type of SEs ranged from -13.86% to zero with a mean growth rate of -0.165%.

4.2. Profiles of the respondents

Out of the 333 respondents of the study, 259 SEs (77.78%) were male owned which registered higher growth rate than those female owned small enterprises (7.25 percent against 6.52 percent for female).

With regard to age of entrepreneurs, the majority of the small business (about 81%) are owned and operated by the working age group (21-50 years old). Out of the 333 respondents 112 (33.63%) fall under the age category of 21-35 years, and 159 owners (47.75%) are within the category of 36-50 years age.

With regard to sectoral distribution, 65 percent of the small enterprises have been engaged in trading (merchandising) business sector followed by manufacturing (16%), service sector (16%) and construction sector (3%). The highest growth rate was registered in the manufacturing sector (14 percent) while the lowest growth was in trading sector (4.02%).

4.3. Results and Discussions

With regard to the relationship between financial capital and growth of small enterprises, this study tries to examine growth of small enterprises vis-à-vis the following issues (i) access to bank credit and (ii) capital structure decision (defined as debt equity ratio)

(i) Growth rate in relation to Access to credit

Not only was the beginning capital too small, but the source of this scanty initial capital was also mainly from personal saving. Bank loan was very small. Of the 203 SEs that used single source, initial investment of the 125 small enterprises (62%) had been financed from personal saving of the owners, while 28% of the initial investment was financed from informal sources (See Appendix B2). Banks and microfinance institutions contributed only 10% of the initial capital, which is similar to findings of earlier researches. Consistent to earlier researches (e.g. Carpenter and Petersen, 2002) cited in Fatoki (2011); & Goldmark and Nicher ;2009) the writer of this paper found that growth of SEs was constrained due to their reliance on internal finance. While bank financed SEs tend to show highest growth rate (13.27%) those SEs which used their own saving (internal source) registered the lowest growth rate (6.06%). Fatoki (2011) also indicated that internal sources are very limited and less productive (as they are more expensive than debt).

Out of the 261 financially deficient SEs, 200 SEs (77%) had applied for bank loan and only 21 applications (10.5%) were accepted (see Appendix B6). Not only banks accepted very smaller proportion of the applications, but the amount of loan they actually dispersed was also inadequate. Only seven of the eligible applicants (33%) received adequate loan. This implies that 96.5% of the financial demand of financially weak small enterprises was not satisfied by banks and microfinance institutions as a result of which their growth rate was delayed. While those accepted SEs had been growing at 10.24%, growth rate of those rejected SEs was only 6.15%, significant at 10% level (see Appendix B6). These research findings imply that any additional access to credit (loan) has marginal positive influence to enhance growth of small enterprises though majority of them had inadequate access to bank loans.

(ii) Impact of Capital Structure on Growth of Small Enterprises: Regression Results

Consistent with this theory, the descriptive analysis shows that those debt financed SEs of this study have been growing at 9.41% while growth rate of those equity financed firms is 5.98% (Appendix B3). Besides, the regression model (Appendix A) also reveals that leverage has significant positive contribution to growth of small enterprises with a growth coefficient of 2.76. This implies that leveraged or debt financed firms grow 2.76% faster than equity financed or unleveraged small enterprises ($P < 0.05$).

(iii) Impact of Capital Structure on Growth of Small Enterprises: Results of PSM

In addition to the regression model, the researcher applied propensity score matching (PSM) techniques in order

to rigorously examine the effect of capital structure (intervention) on growth of small enterprises.

The PSM is a non-parametric estimation technique which is widely used in non-experimental impact evaluation studies. This method, first proposed by Rosenbaum and Rubin (1983), is based on the idea that the selection bias based on observable can be eliminated by matching every individual observation of treatment group (SE that used debt capital) with an observation with similar characteristics from the control group (SE that used equity capital). It balances the distributions of observed covariates between a treatment group and a control group based on similarity of their predicted probabilities of being treated (Rosenbaum and Rubin, 1983). (See Appendix C for notes on PSM).

In implementing the propensity score matching estimation, we follow to the following steps. In the first step, the probability of debt capital using is estimated using logit or probit model to calculate the propensity score (probability) of debt using for each observation. In the second step, each user is matched to a non- user with similar propensity score. Several matching methods have been developed to match debt users with equity capital users with similar propensity score. In this study we use the three most commonly used impact assessment methods. These are radius matching, the kernel matching and the stratification matching estimator. The following table (table 3) reports PSM results of financing preference of owners on growth of SEs.

Table 3: PSM Result of financing preference of owners on growth of SEs

| Variable | Impact of owners' financing preference on growth of SEs | | | | | |
|-----------------------------|---|----------|-----------------|---------|----------------|---------|
| | Radius Matching | | Kernel Matching | | Stratification | |
| | ATE | t-value | ATE | t-value | ATE | t-value |
| Empl.Growth Rate (%) | 3.4 | 1.827*** | 3.4 | 2.069** | 3.4 | 2.231** |
| Boottstr | | 0.026 | | 0.031 | | 0.027 |
| Debt Financed | 107 | | 107 | | 107 | |
| Equity Financed | 226 | | 226 | | 226 | |

Note: ** shows $p < 0.05$ *** shows $p < 0.01$

The result shows that there is significant owner financing preference effect on growth disparity observed in small enterprises. As indicated in Table 3, growth rate of leveraged firms is 3.4 percent greater than those unleveraged firms. This result proves that, consistent to the hypothesis (H3b) leverage has a significant positive impact on the growth of SEs. This suggests that debt is a key determinant of SE growth which in turn supports the static-trade-off theory of capital structure and most previous studies. The result also indicates that the employment growth rate is more robust in measuring the growth of SEs.

6. Conclusion

In support of the static trade theory of capital structure and hypothesis of this research, results of descriptive, regression analysis and PSM revealed that access to bank credit and leverage have, to be among the the key determinants of SE growth (see Appendix A). Policy makers may benefit from these findings to understand that though financial position and credit/debt capital are the key determinants of growth of SEs, growth of SES was retarded due to lack of bank credit. Using these findings as an important source of information policy makers can take appropriate intervention to facilitate the credit access to the sector.

7. Recommendations on Financial Capital

The main policy implication of this study is that the government of Ethiopia should work hard to meet the credit need of the SE sector for speedy economic growth of the nation.

The financial market should be promoted as an alternative source of capital for effective mobilization of domestic capital. Regulatory and institutional framework need to be developed and strengthened because well regulated and functioning financial market help the sector not only as an alternative source of fund but also as an alternative investment opportunity and income sources for those enterprises with surplus capital. Therefore, consulting experience of many developing countries in Africa and Asia, the writer provides the following recommendations.

(a) National Credit Guarantee Funds.

Respondents of this study reported that lack of tangible assets to be used as collateral by banks was one of the most critical causes for their financial constraint. Thus, as a remedy the researcher suggests that the Ethiopian government need to introduce and strengthen a credit guarantee fund as a risk sharing scheme among those parties that participate in financing the SE sector. Support from such a mechanism may help SEs that do not have tangible collateral to obtain bank loans.

(b) Promotion of Non-bank financial services.

As Kyaw (2008) such non-bank financial services and institutions as leasing companies, saving and mutual funds, investment banking, trade credit, factoring, venture capital financing are best suited for small enterprise financing. Therefore, the government of Ethiopia should assess the potential of these financial institutions/services and develop guidelines or regulations for smooth functioning of these institutions to

participate in SEs lending.

(c)Mandatory Minimum ratio of Bank loan to SEs.

As a means of priority lending system, government needs to initiate some guidelines so that banks are directed to make loans to potentially growing SEs. For example, in the Republic of Korea all commercial banks are required to provide more than 45 percent of the increase in loans to SMEs (Kang, nd)

(d)Easily Accessible credit.

Easy accessibility to credit through development of specialized or development oriented banking or financial institutions that specialize on financing SEs, need to be encouraged. Fund can be made available to the MSEs at reduced interest rate. NGOs and government can earmark funds in order to subsidize the financial institutions.

(e) Improve the internal capacity of small enterprises.

In order to get better access to credit SEs owners, government and relevant stakeholders should strive to overcome these internal problems such as lack of skill and knowledge to prepare sound financial statements and business plans in accordance of the bank requirements. The first suggested solution is to upgrade knowledge and skill of owners and/or employees of the SEs in order to prepare financial statements that can be used to assess the financial condition and operating result of their businesses. For this purpose, concerned body should develop easily understandable financial manual that help them to properly record and control daily transactions and prepare acceptable financial statements. second, tailored made training should be given in order to solve knowledge deficiency in accounting and preparation of tax returns. Third, , in addition to short term on job training, such courses as Entrepreneurship and Small Business Management need to be given in schools and training centers.

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Appendixes

Appendix A: Robust Regression Model

Linear regression Number of obs = 333
 F(18, 314) = 4.34
 Prob > F = 0.0000
 R-squared = 0.2429
 Root MSE = 10.939

| | Robust | | | | | |
|----------|-----------|-----------|-------|-------|----------------------|-----------|
| emgrr | Coef. | Std. Err. | t | P> t | [95% Conf. Interval] | |
| owedule | -1.296251 | .52454 | -2.47 | 0.014 | -2.328308 | -.2641935 |
| owedule2 | .0765056 | .0321569 | 2.38 | 0.018 | .0132354 | .1397759 |
| owexpc | -1.0794 | 1.52008 | -0.71 | 0.478 | -4.070229 | 1.911429 |
| findiff | 2.716593 | 1.55588 | 1.75 | 0.082 | -.3446744 | 5.77786 |
| locatn | -2.725103 | 1.547053 | -1.76 | 0.079 | -5.769003 | .3187963 |
| entage | -.6912465 | .2455174 | -2.82 | 0.005 | -1.174314 | -.2081792 |
| entage2 | .0115224 | .0050466 | 2.28 | 0.023 | .001593 | .0214518 |
| noemp0 | -.5869838 | .2372151 | -2.47 | 0.014 | -1.053716 | -.1202519 |
| capam0 | 8.95e-06 | 4.73e-06 | 1.89 | 0.059 | -3.56e-07 | .0000183 |
| avoaeo | 3.59233 | 1.065751 | 3.37 | 0.001 | 1.495413 | 5.689246 |
| avomot | 2.787862 | 1.146528 | 2.43 | 0.016 | .5320128 | 5.043711 |
| sectr | 7.567183 | 1.767006 | 4.28 | 0.000 | 4.090514 | 11.04385 |
| ageow | -.0618792 | .0839659 | -0.74 | 0.462 | -.2270861 | .1033277 |
| ofpr | 2.760157 | 1.457877 | 1.89 | 0.059 | -.1082842 | 5.628599 |
| avmkt | 4.309996 | 1.913591 | 2.25 | 0.025 | .5449142 | 8.075077 |
| genow | 1.147724 | 1.634404 | 0.70 | 0.483 | -2.068045 | 4.363492 |
| avinfr | .6370401 | 1.197336 | 0.53 | 0.595 | -1.718775 | 2.992855 |
| avgovss | -.6322322 | .7895288 | -0.80 | 0.424 | -2.185668 | .9212033 |
| _cons | -18.96265 | 10.29928 | -1.84 | 0.067 | -39.22698 | 1.301679 |

Appendix B: Tables in relation to Financial Capital and Growth

Appendix B1: Growth in relation to single versus multiple sources of Capital

. ttest emgrr, by (casoinc)

Two-sample t test with equal variances

| Group | Obs | Mean | Std. Err. | Std. Dev. | [95% Conf. Interval] | |
|----------|-----|-----------|-----------|-----------|----------------------|----------|
| Single s | 203 | 6.391924 | .8242562 | 11.74384 | 4.766674 | 8.017174 |
| Multiple | 130 | 8.167808 | 1.132841 | 12.91637 | 5.926455 | 10.40916 |
| combined | 333 | 7.085212 | .6700146 | 12.22662 | 5.767203 | 8.403221 |
| diff | | -1.775884 | 1.372042 | | -4.474907 | .9231387 |

diff = mean(Single s) - mean(Multiple) t = -1.2943
 Ho: diff = 0 degrees of freedom = 331
 Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
 Pr(T < t) = 0.0982 Pr(|T| > |t|) = 0.1965 Pr(T > t) = 0.9018

Result of hypothesis test indicates that growth rate of single source SEs was less than those SEs financed their investment using multiple source ($H_a: \text{diff} < 0$; $\text{Pr}(T < t) = 0.0982$) which is weak significant effect

Appendix B2: Proportion of Single source and related Growth rate

| Category of Single Source | No of SE (percent) | Growth of Small Enterprises | | | |
|---------------------------|--------------------|-----------------------------|-----------|---------|--------|
| | | Mean | Std Dev | Min | Max |
| Own saving | 125 (62%) | 6.06% | 0.1111074 | -0.0229 | 0.7611 |
| Family | 55 (27%) | 6.34% | 0.1191449 | -0.0785 | 0.4621 |
| Bank loan | 21 (10%) | 13.27% | 0.2024050 | 0 | 0.7324 |
| Others* | 2 (1%) | 7.70% | 0.1333962 | 0 | 0.2310 |
| Total | 203 (100%) | 7.85% | 12.22662 | 13.86% | 76.11% |

* includes trade credit, lease financing etc

Appendix B3: Relationship between Capital Structure and Growth

ttest emgr, by(ofpr)

Two-sample t test with equal variances

```
-----+-----
  Group | Obs   Mean  Std. Err.  Std. Dev.  [95% Conf. Interval]
-----+-----
  Equity | 226  .0598365  .0073068  .1098449  .045438  .074235
  Debt  | 107  .0941188  .0138093  .142845  .0667404  .1214972
-----+-----
combined | 333  .0708521  .0067001  .1222662  .057672  .0840322
-----+-----
diff   |      -.0342823  .0142453          -.062305  -.0062596
-----+-----
```

diff = mean(Equity) - mean(Debt) t = -2.4066
Ho: diff = 0 degrees of freedom = 331

Ha: diff < 0 Ha: diff! = 0 Ha: diff > 0
Pr (T < t) = 0.0083 Pr (|T| > |t|) = 0.0167 Pr (T > t) = 0.9917

Appendix B4: Financial Position of Small Enterprises

```
-----+-----
Financial |
difficulty | Freq.  Percent   Cum.
-----+-----
Had fin Shortage 261    78.38    78.38
Had no Fin shortage 72    21.62    100.00
-----+-----
Total |      333   100.00
-----+-----
```

Appendix B5: Small Enterprises Applied for Bank loan (tab affloan)

```
-----+-----
Applied for |
loan | Freq.  Percent   Cum.
-----+-----
No |     133   39.94   39.94
Yes |    200   60.06  100.00
-----+-----
Total |    333  100.00
-----+-----
```

Appendix B: Access to Bank loan and Growth of SEs (Loan application Accepted/Rejected)

ttest emgrr, by(loapac)

Two-sample t test with equal variances

| Group | Obs | Mean | Std. Err. | Std. Dev. | [95% Conf. Interval] | |
|----------|-----|-----------|-----------|-----------|----------------------|----------|
| Rejected | 179 | 6.147545 | .8177282 | 10.94046 | 4.533856 | 7.761234 |
| Accepted | 21 | 10.24786 | 3.021885 | 13.84802 | 3.944319 | 16.5514 |
| combined | 200 | 6.578078 | .7997614 | 11.31033 | 5.000983 | 8.155173 |
| diff | | -4.100316 | 2.599177 | | -9.225939 | 1.025307 |

diff = mean(rejected) - mean(Accepted) t = -1.5775

Ho: diff = 0

degrees of freedom = 198

Ha: diff < 0

Ha: diff != 0

Ha: diff > 0

Pr(T < t) = 0.0581

Pr(|T| > |t|) = 0.1163

Pr(T > t) = 0.9419

Table 1: Growth Rate by Amount of Initial Capital

| Initial capital category (Birr) | Small Enterprises | | Growth Rate |
|------------------------------------|-------------------|------------|--------------|
| | Frequency | Percent | |
| Below 10,000 | 106 | 31.83% | 6.17% |
| 10,001-50,000 | 108 | 32.43 | 7.13% |
| 50,001-100,000 | 60 | 18.02 | 6.27% |
| 100,001-250,000 | 39 | 11.71 | 7.84% |
| Above 250,000 | 20 | 6.01 | 12.61% |
| Total | 333 | 100 | 7.85% |

Table 2: Growth rate by Enterprises' Financial Position

| Financial condition of Small Enterprises | Growth of Small Enterprises | | | | |
|---|-----------------------------|-------|-----------|---------|--------|
| | Obs | Mean | Std. Dev | Min | Max |
| Had Fin. Shortage | 261 | 6.6% | 0.119543 | -13.86% | 76.11% |
| Had no Fin. Shortage | 72 | 8.83% | 0.1310607 | -7.85% | 46.21% |

Appendix C: Note on Propensity Score Matching

The PSM starts by dividing sampled small enterprises into two groups; SE's with debt capital (treated SE's) (denoted by $D_i=1$) and those with equity capital (control SE's) (denoted by $D_i=0$). Let Y_{i1} be the potential of outcome variable (growth of SE) for firms with debt capital, Y_{i0} is the potential outcome for equity capital. The impact of debt capital on the outcome variable of the i^{th} firm, which is called the treatment effect, is given by $\Delta Y = Y_{i1} - Y_{i0}$. With non-experimental data, we cannot estimate this treatment effect for every firm because we cannot observe both potential outcomes for each firm at the same time. What we observe is $Y_i = D_i Y_{i1} + (1 - D_i) Y_{i0}$. As in many impact evaluations with non-experimental data, our primary interest is to estimate average treatment effect on the treated households (ATT) defined as

$$ATT = (E(Y_{i1} - Y_{i0} | D = 1)) = (E(Y_{i1} | D = 1) - E(Y_{i0} | D = 1)) \dots \dots \dots (1)$$

Similar to the problem of individual firm treatment effects, it is impossible to observe the mean outcomes for treated observations without treatment, i.e. $E(Y_{i0} | D = 1)$. This is the missing data problem. The objective of the matching procedure is how to find a proxy for this missing data in non-experimental sample observations. We cannot solve the problem by replacing $E(Y_{i0} | D = 1)$, in equation (1), by $E(Y_{i0} | D = 0)$, the average outcome of debt non users. If factors that affect the treatment decision (use of debt capital) also affect the outcome (growth), using $E(Y_{i0} | D = 0)$ as a substitute for $E(Y_{i0} | D = 1)$ will introduce systematic bias. To solve the selection problem, matching methods introduces conditional independence identification assumption.

The conditional independence assumption (CIA) states that given observable control variables, assignment to the treatment group is random and is independent of the outcome, i.e

$$E(Y_{i1}, Y_{i0}) \perp D // X \quad (2)$$

Where, X is a vector of pre-treatment characteristics of the SE's and \perp denotes independence. This assumption

is needed to eliminate selection bias based on observables.

Under the CIA, the ATT can be written;

$$ATT = E_X \{ (E(Y_{i1} | X, D = 1) - E(Y_{i0} | X, D = 0)) | D = 1 \} \dots \dots \dots (3)$$

One way to estimate (3) is to match debt users and non-users on their pre-treatment characteristics, X_i . Matching on all variables in X_i becomes impractical as the number of variables increases. This is known in the literature as 'curse of dimensionality'. To overcome this problem, Rosenbaum and Rubin (1983) suggest the use of so-called balancing scores $b(X)$, i.e. functions of the relevant observed co-variables, X such that the conditional distribution of X given $b(X)$ is independent of assignment into treatment. One possible balancing score is the propensity score $P(X)$, i.e. the probability of being in a treatment group (debt using group) given observed characteristics X . Matching procedures based on this balancing score are known as propensity score matching (PSM). $P(X)$, the propensity score or predicted conditional probability of debt using, is defined as

$$P(X) = P(D=1|X) \dots \dots \dots (4)$$

Where

$$0 < P(X) < 1 \dots \dots \dots (5)$$

The condition in (5) is required to rule out the phenomenon of perfect predictability of D given X . This is known in literature as common support assumption. This assumption ensures that firms with the same X values have a positive probability of being both participants and non-participants (Rosenbaum and Rubin, 1983).

We can rewrite ATT in (3) by replacing the X vector by $P(X)$ as

$$ATT = E_X \{ (E(Y_{i1} | P(X), D = 1) - E(Y_{i0} | P(X), D = 0)) | D = 1 \} \dots \dots \dots (6)$$

Equivalently, the average effect of the treatment on the untreated (ATU) can be written as:

$$ATU = E_X \{ (E(Y_{i1} | P(X), D = 1) - E(Y_{i0} | P(X), D = 0)) | D = 0 \} \dots \dots \dots (7)$$

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