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Financial and Non-Financial Growth of MSEs: The Role of Microfinance in Aksum Town

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Abstract

Micro and small enterprises (MSEs) are vital for creating jobs and reducing poverty in the developing world, and Ethiopia is no exception. Despite their considerable impact on the economy, these enterprises often struggle with numerous challenges, including limited access to capital and a lack of financial and management skills. While numerous studies have explored the influence of microfinance institutions (MFIs) on the financial growth of MSEs, the non-financial aspects of their development remain largely unexplored. This study aims to analyze the role of MFIs in both the financial and non-financial development of MSEs in Aksum town. To achieve this, primary data was gathered from 253 MSEs selected randomly in the town through surveys, interviews, and focus groups. The participants were MSE operators, both those who have and have not received loans from MFIs. The study employed descriptive and inferential statistics, to process and analyze the data, presenting findings in tables and charts. Linear regression was utilized to identify the determinants of revenue and profit growth, while binary logistic regression helped determine factors influencing the likelihood of MSEs adopting new technology, expanding markets, and developing new products. The study found that both MFI-related and unrelated factors significantly impact the revenue, profit growth, and non-financial development of MSEs. Therefore, it suggests an integrated strategy such as improving access to capital, enhancing finance, and supporting technological adoption that addresses both financial and non-financial factors to enhance the overall development of MSEs.

Keywords: *MSEs, MFIs, Financial Development, Nonfinancial Development, Ethiopia.*

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Introduction

Micro and small enterprises (MSEs) play a crucial role in economic development by creating employment opportunities, mobilizing domestic savings, reducing poverty, generating income, fostering regional development, training workers and entrepreneurs, nurturing an environment for large firms' growth and contributing to export earnings (Jayasekara et al., 2013). These enterprises have different names and categorizations across countries in the globe where some call them MSEs; some others micro, small, and medium enterprises (MSMEs); and still others small and medium enterprises (SMEs) (e.g. UN, 2024; Endris and Kassegn, 2022). Though we use the definition of MSEs in this article, we touch on such categorizations to substantiate some of our claims regarding the contributions of the sector. Thus, according to the OECD's 2023 report, small and medium-sized enterprises (SMEs) account for a significant share of employment across OECD countries. Specifically, SMEs generate around 70% of jobs on average. This includes notable proportions in countries like Italy and Japan, with the United States also having a considerable, though slightly smaller, share of jobs created by SMEs. Moreover, MSEs are responsible for a disproportionately large number of new jobs, particularly in countries with strong employment growth, such as the United States and the Netherlands (OECD, 2004). Small businesses also form a critical component of the economic landscape in developing countries, where they are pivotal for ongoing growth, innovation, and prosperity (Darbeg, 2011).

The claim that micro and small companies (MSEs) experience considerable hurdles in obtaining capital remains accurate, with approximately 40% of formal MSEs in developing countries having unmet funding needs of $5.2 trillion each year. Many new firms, especially those owned by marginalized groups, rely on personal or family funds due to difficulties securing bank loans. According to the World Bank and the Ewing Marion Kauffman Foundation, only 16% of Black-owned enterprises' funding needs are met (World Bank. 2023; Kauffman Foundation 2023).

Small businesses often cannot secure financing from local banks or face highly unfavorable lending conditions, a situation exacerbated by the recent financial crisis. Banks in developing countries are also constrained by inadequate lender information and regulatory support for engaging in small business lending. This results in a dysfunctional small business lending market, stifling growth and negatively impacting innovation, economic growth, and macroeconomic

flexibility in developing countries (Darbeg, 2011). In light of these credit market failures, alternative financing mechanisms, including microfinance organizations, savings and credit cooperatives, government programs, and other non-banking financial institutions, have emerged, spearheaded by the government, entrepreneurs, and other stakeholders (Marwa, 2014).

Microfinance aims not only to provide capital to the poor to combat poverty at an individual level but also to establish institutions that offer financial services to those traditionally overlooked by the formal banking sector (Otero, 1999). According to Rosenberg (2004), the exclusion of the poor from financial services necessitates the emergence of MFIs to fill this gap. By sustainably addressing this market failure, MFIs can integrate into a country's formal financial system, access capital markets for funding, and significantly expand their reach to the poor (Otero, 1999).

Recognizing the importance of MSEs in addressing unemployment, economic growth, and equity challenges, the Government of the Federal Democratic Republic of Ethiopia has prioritized their promotion and development. This commitment is reflected in the National MSE Development and Promotion Strategy, which outlines a systematic approach to mitigate challenges and foster MSE growth. Initial issues such as marketing difficulties, raw material shortages, and lack of working capital have hindered the expansion of small manufacturing industries, while the informal sector faces constraints due to insufficient capital, market access, and working premises (Federal Micro and Small Enterprise Development Agency, 1997; Amha and Ageba, 2006).

The strategy underwent revision in 2010/11, with a renewed focus on employment generation, entrepreneur growth, and transitioning MSEs to medium-sized enterprises. The framework aims to create a conducive environment for MSE growth and provide targeted policy support, enabling MSEs to drive economic growth, create sustainable jobs, foster cooperation among MSEs, lay the groundwork for larger enterprises, and enhance exports. Priority is given to enterprises in manufacturing and processing (Assefa et al., 2014).

Despite the potential of MSEs as major job creators in both developing and developed countries, Ethiopia, particularly the Tigray region, faces high unemployment rates exacerbated by prolonged conflict and drought conditions. Tigray, including towns like Aksum, has a significant number of unemployed individuals and MSEs, many of which are female-owned. The majority of MSE

employees are family laborers, highlighting the region's unemployment challenge (Tigray Regional State Bureau of Trade, Industry and Transport, 2008). Aksum, a central town in Tigray, has actively pursued the development of SMEs to stimulate economic growth and reduce unemployment (Aksum town, MSEs' Office, 2016).

This study aims to assess the contribution of microfinance to the financial and non-financial development of micro and small enterprises in Aksum town, addressing both the challenges and opportunities within this sector.

Problem Statement and Objectives

The significance of microfinance institutions (MFIs) as a pivotal component for the advancement of MSEs has been widely acknowledged (Cook and Nixson 2014). Access to finance is crucial for creating an economic environment conducive to the growth and prosperity of MSEs (Dalberg, 2011; Abdulnasir et al., 2018; Endris and Kassegn, 2022). Empirical evidence consistently demonstrates that the financial services offered by MFIs significantly contribute to the expansion of SMEs, with businesses that secure MFI loans and non-financial services experiencing growth in sales, revenue, and employment. Statistical data strongly suggest that SMEs benefiting from MFI support outperform those that do not (Paul, 2014).

Despite their critical role in national development, MSEs face numerous challenges, particularly in developing countries. Access to finance emerges as a primary obstacle, exacerbated by deficiencies in the financial system, including elevated administrative costs, stringent collateral requirements, and a lack of experience among financial intermediaries. World Bank Investment Climate Surveys have shown that improved access to finance positively impacts firm performance, facilitating market entry, growth, risk mitigation, innovation, and entrepreneurial endeavors. Firms with better access to capital are more adept at seizing growth and investment opportunities, thereby enhancing overall economic performance (Dalberg, 2011). The literature emphatically presents MFIs as a solution to these challenges. However, the extent of MFIs' contribution to both the financial and non-financial development of MSEs remains underexplored. While previous research has primarily focused on the financial progress of MSEs, the non-financial dimensions of development have received less attention. Additionally, there is an insufficiency of studies on this

topic in Aksum. A handful of studies (e.g. Tsega, 2014; Tadesse and Weldegebiel, 2019) conducted in Aksum do exist, but their areas of investigation are not the same as the current study.

This study aims to bridge these gaps by examining the impact of MFIs on the financial and non-financial development of MSEs in Aksum. It also considers other factors, such as the demographic characteristics of operators or employees and enterprise features, to identify determinants of MSE development. This study was intended to investigate the role of microfinance institutions in developing micro and small enterprises in Aksum Town. Specifically, the study tries: to investigate the extent to which microfinance helps MSEs' financial development in Aksum town; to examine the role of microfinance in MSEs' product development and market expansion in Aksum town; to explore whether microfinance helps MSEs apply new technologies in their businesses in Aksum town; to uncover non-microfinance factors that affect the financial and nonfinancial development of MSEs in Aksum town.

Review of Related Literature

The narrative of small business evolution remains one of the most debated topics within the sphere of economic development. The precise origins of micro and small enterprises (MSEs) are unclear, yet their role within economies has often been underestimated and misconstrued. This is largely because many governments have historically focused on attracting and promoting large enterprises, under the assumption that these are the primary drivers of economic growth. Furthermore, the contribution of microfinance institutions (MFIs) to the development of micro and small-scale enterprises has not received the attention it merits. While distinctions among micro, small, medium, and large enterprises may seem arbitrary, classifying businesses by scale is crucial for operational and promotional purposes, aligning with broader development objectives (Wasihun and, Paul 2010).

Definitions of MSEs vary significantly across countries, with no universal consensus (Amyx, 2005; Amenu, 2005). Definitions generally adopt either a quantitative approach, based on metrics such as employee numbers, sales turnover, and asset size, or a qualitative approach. However, these criteria are subject to variation based on a country's population and economic development stage, as well as the industry sector (Arinaitwe, 2006; Ali & Sims, 2001). In Ethiopia, MSEs are

categorized based on employee count and capital, with distinctions made between industry and service sectors. This nuanced classification reflects the specific economic context and development goals of the country (FeMSEDA, 2011).

Globally, MSEs are recognized for their crucial role in driving socio-economic development, particularly in developing countries facing high unemployment and poverty. They are pivotal in job creation, economic growth, and achieving developmental milestones, such as the Millennium Development Goals and the Sustainable Development Goals. Moreover, MSEs serve as incubators for future business leaders, offering valuable entrepreneurial experience (Allan & Fredah, 2009).

The path to small business development is multifaceted, requiring a holistic approach that spans macroeconomic policy, regulatory frameworks, access to finance, infrastructure, education, and skilled labor, among others. Successful MSE development strategies must be integrated into national development and poverty reduction plans, fostering dialogue and partnerships among stakeholders (OCED, 2004).

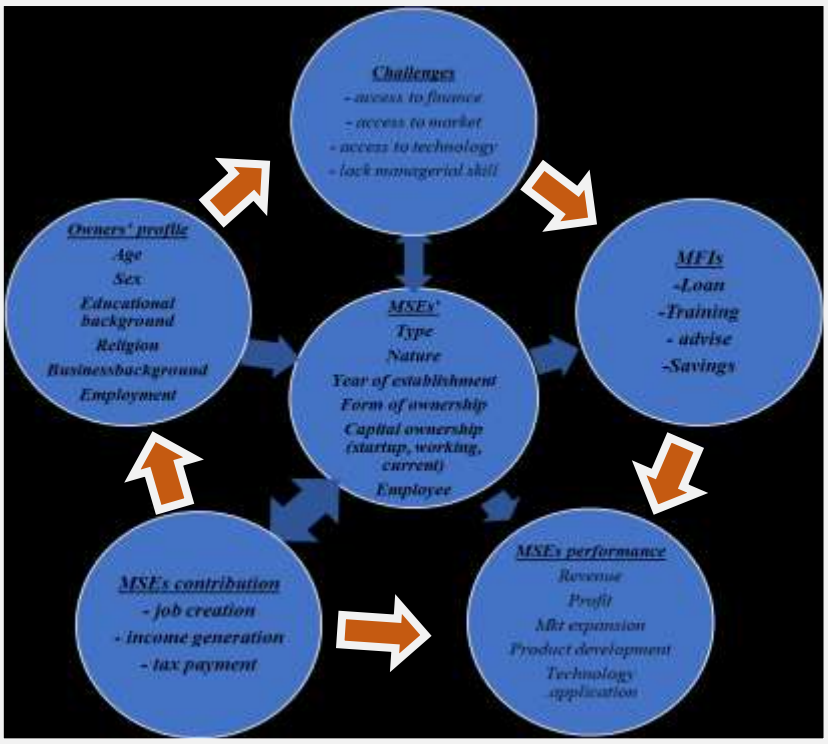
Ethiopia's proactive policies and plans aim to harness MSEs as a vehicle for reducing urban unemployment and laying the groundwork for industrial development. Despite these efforts, challenges such as access to capital and market constraints persist, underscoring the need for continued support and innovation (FeMSEDA, 2011; Ageba & Amha, 2004).

Initially established as rural finance providers, MFIs have expanded their reach and now play a crucial role in supporting SMEs excluded from formal banking systems. Despite their growth, MFIs in Ethiopia face challenges in effectively supporting MSEs, due to a focus on agriculture and limited financial product variety (Amha, 2002). However, the broader microfinance sector, offering diverse financial services, has been instrumental in supporting MSEs, addressing gaps in access to finance, and fostering growth (Hospe et al., 2002). Research in various contexts underscores the positive impact of MFIs on SME growth, highlighting increased revenue, profit, and productivity as key outcomes. These findings emphasize the importance of targeted financial support and the need for tailored credit solutions to address the unique challenges of SMEs and enhance their development potential (Wang, 2013; Salmoey et al., 2013).

The journey of MSE development is marked by numerous challenges, yet these enterprises are critical engines of job creation, income generation, and poverty reduction. This study's conceptual framework situates MSEs within a broader ecosystem, recognizing their diverse characteristics and aspirations for growth. By addressing their multifaceted needs and leveraging the support of MFIs, we can unlock the full potential of MSEs as catalysts for economic development.

Figure. 1:

Conceptual Framework for the Study



Source: Authors' construct (2017)

Methods of the Study

Study Area Description

This research was carried out in Aksum, a prominent town within the central zone of Ethiopia's Tigray Region. Positioned about 965 kilometers north of Addis Ababa, Aksum lies at coordinates 14°12′N 38°72′E, with an altitude of 2131 meters above sea level. Serving as the administrative heart of the central zone, Aksum is segmented into five *Kebelles, Hayelom, Nigste Saba, Maebel, Hawelti, and Kndeya*—and functions as a nucleus of economic, cultural, tourism, and political

endeavors in the region. The town, with an estimated population of 73,000 (38,690 women and 34,310 men) projected based on the CSA 2007 census, is home to 3,560 registered micro and small enterprises (MSEs) spanning diverse sectors (Abebe, 2014)

Table 1:

MSE in Aksum Town

No	Types of MSEs	Number of MSEs		Total
		Micro	Small	
1	Trade	845	830	1675
2	Manufacturing	595	416	1011
3	Construction	55	49	104
4	Urban Agriculture	83	188	271
5	Service	280	219	499
	Total	1858	1702	3560

Source: Aksum town, MSE Office (2016)

Research Design and Approach

The study harnessed both descriptive and explanatory research designs, aiming to accurately represent relevant phenomena and delineate causal relationships addressing the research queries. Conducted from February to mid-March 2017, this cross-sectional survey integrated quantitative and qualitative methodologies, centering on Aksum town and specifically targeting selected MSEs for data collection. The research's primary objective was to generalize findings across Aksum's MSE landscape

Data Types and Sources

Primary data were collected from MSE operators and heads of MSE and MFI offices through questionnaires, interviews, and focus groups, concentrating on the enterprises' development and challenges from 2015 to 2016. Secondary data were extracted from the annual reports of the microfinance office and the MSE organizing office, elucidating the SMEs' profiles and lending activities.

Sampling Technique and Sample Size

The study encompassed the entirety of Aksum's 3,560 MSEs, selecting a representative sample of 253 enterprises based on Glenn D. Israel's (1992) guidelines. This sample was considered sufficiently large and representative for the study's analytical purposes. Proportional sampling allocated the samples across sectors, with individual enterprises chosen through simple random sampling. The sample included both borrowers and non-borrowers from MFIs.

Data Collection Tools

A combination of questionnaires, interviews, and focus group discussions was employed to collect data. Questionnaires, developed in English, aimed to capture respondents' demographic details, business characteristics, and financial indicators. The questionnaires were filled in by owner-managers or hired managers who were available during data collection. Interviews with the heads of microfinance and MSE organizing offices, alongside focus group discussions with MSE operators, provided qualitative depth. Secondary data were gleaned from the annual reports of pertinent offices.

Data Analysis Methods

Quantitative data were analyzed using SPSS version 20, employing descriptive and inferential techniques to evaluate variations and significances. Qualitative data, after transcription and coding, were analyzed descriptively. Document analysis was conducted to assess secondary qualitative data, ensuring a comprehensive understanding of the research theme.

Model Specification

The model specification can be defined as the exercise of formally stating a model, i.e. the explicit translation of theory into mathematical equations, and involves using all the available relevant theory, research, and information that help to develop a theoretical model (Gujarati, 2007). The linear regression and binary logistic regression models were applied to set the objectives. The estimation method of the linear regression model is Ordinary Least Squares (OLS) (Gujarati, 2007).

Linear regression models for both revenue and profit growth of MSEs

$$Y\,\mathrm{i} = \beta o \;+\; \beta 1x1 \;+\; \beta 2x2 + \beta 3x3 + \beta nxn \ldots + \varepsilon \mathrm{i}$$

Where Y= stands for Revenue and profit growth, βo= stands for constant, βi = The coefficient for each variable, x1 = sex x2 = family background, $x3$ = Household size, $x4$ = level of Educational, $x5$ = Forms of Business Ownership, $x6$ = Work experience, $x7$ = Source of Capital, $x8$ = initial of capital, $x9$ = Marketing strategy, $x10$ = Current capital, $X11$ = Working capital, x12 = current employee, ε = Error.

Binary Logistic Regression Model for Non-financial Development of MSEs

Binary logistic regression is found to be a good model for analyzing the determinants of the probability of MSEs introducing new technology, new products, and market expansion through the maximum likelihood (ML) method of estimation. Therefore, the MSEs were first classified into those that introduced new technology, and new products, and expanded to different markets and those that did not at all. In doing so, those who introduced new technology, and new products, and expanded to different markets are assigned 1 and those who did not at all 0. The basic logistic model is presented in a series of equations as follows (Gujarati, 2007).

$$P_i = E(Y=1|X_i) = \frac{1}{1+e^{-(\beta_0+\beta_1X_1+\beta_2X_2+\ldots+\beta_nX_n)}} \qquad (1)$$

$$P_i = \frac{1}{1+e^{-Z_i}} \qquad (2)$$

$$Z_i = \beta_0 + \beta_i X_i \qquad (3)$$

Where,

P_i = the probability that MSEs will introduce either new technology, new product or market expansion

Z_i = is the function of a vector of n explanatory variables

If P_i represents the probability that an MSE will introduce either new technology, new product, or market expansion, $1-P_i$ is the probability that an MSE will not introduce either new technology,

new product, or market expansion. Adoption of either of the three non-financial development indicators is assumed in this study because it is difficult to find an adequate number of enterprises adopting all of them at a time. Considering all of them at a time and conducting the analysis is deemed a limitation of the current study and a suggested area for future research. The intercept and coefficients of the explanatory variables can be estimated using the maximum likelihood (ML) method (Gujarati, 2007).

Variable Identification, Definition, Measurement and Expected Effects

The variables for the analytical models were identified and defined their measurements established and their expected effects on the dependent variables hypothesized.

Table 2:
Description of Variables

Variables	Description of variables	Measurement	Expected Effect
Dependent variable Revenue growth, profit growth	A financial measurement of MSEs that measures The growth of revenue and profit from 2015 up to 2016 in terms of birr and percentage respectively.	Continuous	
New technology introduction, New product development, Market expansion	Non-financial measurement of MSEs that measures the introduction of new technology, new product, or expansion of market by MSEs. By explaining their agreement (1= Yes or 0= No)	Categorical	
Independent variable			
Age	The age of the operator/manager at the date of the interview that affects the dependent variable	Continuous	±
Sex	Gender of the operator/manager that affects the dependent variable (1= Male; 0= Female)	Categorical	±
Marital status	The marital status of the operator/manager will affect the dependent variable (1= Single; 2= Married; 3= Divorced; 4= Widowed)	Categorical	±
Religion	The religion of the operator/manager that affects the dependent variable (1= Orthodox; 2= Muslim; 3 Catholic; 4= Protestant; 5= other)	Categorical	±
Head of household	The status of the MSEs operators whether they are heads or not (1= head; 0= not)	Categorical	±
Family background	The family background whether they are employed or not affects the dependent variable (1= Business; 2= Employed; 3= Farming; 4= other)	Categorical	±
Size of household	Size of the MSEs operator's household in number	Continuous	±
Previous employee status	Background of MSEs operators' previous employment working experience (1= employed in private business; 2= employed in public; 3= unemployed; 4= other)	Categorical	±
Educational level	The educational level of respondents in years	Continuous	±
Training	The training of MSEs taken from different organizations (1= Yes; 0= No)	Categorical	±
Type of enterprise	MSEs classification based on their engagement area w/c is trade, manufacturing, construction, agri, and service (1= trade; 2= manufacturing; 3= service; 4= construction; 5= agri)	Categorical	±
Ownership of org.	Classification of MSEs in Sole, partnership, and cooperatives to differentiate their ownership (1= sole proprietorship; 2= partnership; 3= cooperative)	Categorical	±
Source of capital	The source of initial capital of the respondents that affect the dependent variable (1= own saving; 2= families and friends; 3= borrowing)	Categorical	±
Spending of the capital	The amount of money expended in terms of birr for different purposes	Continuous	±
Amount of initial capital	The capital where the respondents spend at the beginning affects the dependent variable	Continuous	±
Current employee	Currently the number of hired temporary employees by MSEs.	Continuous	±
Credit taken from MFI	the agreement explained by MSEs being a customer of MFI regarding loan (1= Yes; 0= No)	Categorical	±
Amount of loan	The amount of loan facilitated by MFI in terms of birr	Continuous	±
Saved in MFI	To know how many of the respondents are members of MFI regarding saving (1= Yes; 0= No)	Categorical	±

Results and discussions

Pre-analysis tests

This subsection delineates the preliminary analyses conducted to ascertain the statistical and scientific rigor of the models and their resultant outputs. It explicates the methodologies employed for validating the underlying assumptions of linearity, multicollinearity, and autocorrelation, thereby setting a foundation for subsequent analysis and discussion. To assess the assumption of linearity, a combination of goodness-of-fit measures and t-tests derived from model summaries was employed as indicated in Annex 1. The significance of the regression analysis was confirmed with a p-value of less than 0.05 (p=.000), indicating statistical significance. Furthermore, the examination of beta coefficients facilitated the delineation of relationships between dependent and independent variables. This was complemented by visual inspection of box plots, which corroborated the linearity of the data. Multicollinearity, the condition wherein two or more independent variables exhibit a high degree of correlation, poses a significant challenge to the integrity of statistical analyses (Lui, 2010). To mitigate this concern, this study utilized tolerance and Variance Inflation Factor (VIF) statistics as diagnostic tools. According to Katerina and Raykov (2018), a tolerance value below 0.1 typically signals severe collinearity issues; however, all independent variables in this analysis surpassed this threshold, indicating the absence of detrimental collinearity. Similarly, VIF values exceeding 10 would suggest cause for concern (Katerina and Raykov, 2018); yet, all predictors in this dataset remained below this critical value, affirming the lack of collinearity among them. Autocorrelation, which arises when residuals from different observations are correlated, was evaluated using the Durbin-Watson statistic. According to Durbin and Watson (1950, 1951), values within the range of 1.5 to 2.5 are considered acceptable, indicating no significant autocorrelation. In this study, the Durbin-Watson statistic for revenue growth and profit growth was found to be 1.898 and 2.294, respectively. These values suggest a normal level of correlation, devoid of autocorrelation issues.

Descriptive analysis

The demographic characteristics of the survey respondents were systematically categorized and analyzed using a combination of descriptive statistics and frequency distributions, alongside univariate and bivariate analyses as presented in Annexes 2, 3, and 4. This comprehensive

approach facilitated the examination of ten key demographic variables, encompassing age, household size, level of education, sex, and marital status, among others, structured according to their respective questionnaire designations (e.g., dummy, continuous, categorical, discrete).

The primary aim of this demographic analysis was to ascertain the influence of these characteristics on the development responses within Micro and Small Enterprises (MSEs). Our findings reveal a youthful entrepreneurial demographic, with the age of MSE operators ranging from 20 to 60 years (Mean = 32.6, Range = 40), indicating a predominantly productive age group at the helm of these enterprises. Educational attainment among these operators varied from a minimum of 4th grade to a degree level (Mean = 10.82, Range = 12), suggesting a substantial portion possess educational qualifications conducive to business management. Household sizes of respondents spanned from 1 to 9 members, with an average size of 2.32, indicative of relatively small household units. Gender distribution within the sample was notably skewed towards males, who constituted 74.3% (n = 188) of MSE operators, compared to females at 25.7% (n = 65), highlighting a gender disparity in MSE participation. Marital status was predominantly married (59.7%) and single (36%), reflecting the potential for MSEs to significantly contribute to familial economic development. Respondents were further categorized based on family background into four distinct groups: those from farming backgrounds (57.3%, n = 145), business families (31.6%, n = 80), employed individuals (6.7%, n = 17), and others (4.3%, n = 11), with the former two categories dominantly representing the entrepreneurial base of the MSEs. This demographic profile suggests a strong inclination towards entrepreneurship, likely influenced by familial occupational backgrounds. Employment history before engaging with MSEs indicated a majority were either unemployed (38.3%, n = 97) or employed in the private sector (32.8%, n = 83), underlining the role of MSEs in employment generation and economic transition.

The study also delved into the characteristics of MSEs, including financial and operational metrics such as initial capital, sources of capital, and employment trends. The initial capital ranged up to 300,000.00 Birr (Mean = 48,079.05 Birr), with funding sources predominantly comprising personal savings and microfinance contributions. The progression in capital and employment capacity, as evidenced by increases in current and working capital alongside employee counts, underscores the growth trajectory of MSEs within the surveyed population. Further, our analysis

confirmed the critical role of microfinance institutions (MFIs) in facilitating the startup and expansion of MSEs, with a significant portion of respondents (49.8%, n = 126) relying on MFIs for initial capital. The entrepreneurial motive was primarily driven by the desire for business ownership, with a substantial investment focus on equipment and input procurement. Employment creation emerged as a notable outcome, with MSEs employing a mix of permanent and temporary staff, thereby contributing to job creation within the community.

Contribution of MFI to MSE Financial Growth

The objective of this study is to elucidate the pivotal role of Microfinance Institutions (MFIs) in fostering the financial growth of Micro and Small Enterprises (MSEs), with a specific focus on revenue and profit growth as the primary indicators of financial development. The research methodology involved the collection and analysis of revenue, expense, and profit data from selected MSEs for the fiscal years 2015 and 2016. A detailed examination of the financial performance of these MSEs, alongside an exploration of the determinants influencing revenue and profit augmentation, was conducted and presented below. In the fiscal year 2016, the highest revenue reported was 1.5 million Birr, with a cumulative revenue of approximately 20.6 million Birr. The following year, 2016, witnessed a significant increase, with the highest revenue reaching 2 million Birr and total revenue escalating to approximately 29.1 million Birr. Consequently, the average revenue of the MSEs surged from 81,430.83 Birr in 2015 to 115,095.56 Birr in 2016. Similarly, profit metrics followed an upward trajectory; the highest profit in 2015 was 600,000 Birr, with a total profit of approximately 8.67 million Birr. In 2016, the highest profit rose to 800,000 Birr mirroring the trend in total revenue. The mean profit also increased from 34,269.9605 Birr in 2015 to 51,880.94 Birr in 2016. Quantitative analysis reveals that from 2015 to 2016, average revenue growth was 33,538.04 Birr, while profit growth averaged 17,609.98 Birr.

Table 3:

Revenue and profit growth of MSEs (from 2015 to 2016)

Indicator	No.	Min	Max	Mean	Std. Devi	Skewness	
Revenue growth	253	-24001	999,999	33,538.04	97500.3	6.934	0.153
Profit growth	253	-8001	299,999.00	17,609.98	35932.37	4.907	0.153

Source: Computed from Survey Data (2017)

Employing linear regression models to elucidate the factors influencing these financial metrics, it was found that the source of capital has a statistically significant impact on revenue growth. Specifically, diversifying capital sources to include both personal funds and borrowed capital was associated with an increase in revenue by 4,620.503 Birr, holding other variables constant. This underscores the importance of capital diversity in ensuring sufficient liquidity for operational and competitive needs, thereby enhancing revenue. This finding aligns with theoretical expectations and corroborates previous research by Gebrehiwot and Wolday (2003). Further, the analysis demonstrated that an increment in current capital by one Birr is associated with a revenue increase of 0.129 Birr, suggesting that adequate working capital is crucial for purchasing additional inventory, marketing efforts, and competitive positioning, which in turn, drives revenue growth. This result is consistent with the established hypothesis and parallels findings by Salmoey et al. (2013).

Table 4:
Linear regression for factors affecting revenue growth of MSEs in Aksum Town

	R Square = 0.259		
	Adjusted R Square = .241		
	Standard error of the Estimate = 84943.86619		
	F (7) = 14.335		
	P = 0.0000		
Variables	**Coefficients**		**T**
	Unstandardized		
	B	**Standard error**	
(Constant)	**-18192.913**	**17104.668**	**-1.064**
family background	**7767.267**	**5686.011**	**1.366**
source of capital	**4620.503****	**2151.31**	**2.148**
current capital	**.129*****	**0.018**	**7**
number of employees currently	**2117.143**	**1171.478**	**1.807**
amount of loan	**0.162**	**0.105**	**1.536**
amount of initial capital	**-0.228**	**0.143**	**-1.6**
**** statistically significant at 5%; *** statistically significant at 1%**			

Source: Computed from Survey Data (2017)

Regarding profit growth, the analysis identified the amount of loan as a significant determinant, with each additional Birr of loan increasing profit by 0.158 Birr. This suggests that access to loan capital enables enterprises to enhance their operational capabilities and market presence, subsequently elevating profit margins. This observation is in harmony with the predefined hypothesis and the study conducted by Minja (2015). The analysis also revealed that an increase in working capital by one Birr results in a profit augmentation of 0.050 Birr, reinforcing the critical role of adequate capital in enabling business expansion and profitability. This finding concurs with prior research by Salmoey et al. (2013). Moreover, the addition of personnel positively impacts profit growth, with each new employee contributing an increase of 1,260.327 Birr in profit. This effect is attributed to the broadening of enterprise capabilities through enhanced product promotion, market analysis, and customer engagement. Consistent with previous studies, this result validates the theoretical framework and findings by Wang (2013). Additionally, the analysis indicates that family background significantly influences profit growth, suggesting that individuals from entrepreneurial or agricultural backgrounds may experience higher profit increments

compared to their counterparts. Lastly, transitioning to a sole proprietorship was observed to significantly enhance profit growth by 2,225.969 Birr, highlighting the efficiency and flexibility advantages of this business model in optimizing profit outcomes.

Table 5:
Linear regression for determinants of profit growth of MSEs in Aksum Town

R Square = 0.379			
Adjusted R Square = .353			
Std. Error of the Estimate = 28903.88847			
F (11) = 14.746			
P = 0.0000			
Variables	Coefficients		T-test
	Unstandardized		
	B	Standard error	
(Constant)	-9670.215	10250.247	-0.943
sex of the respondent	-2975.772	4283.335	-0.695
size of the household	-906.752	864.875	-1.048
level of education	598.47	691.488	0.865
family background	4558.902**	1908.021	2.389
type of enterprise	2225.969**	1211.964	1.837
current capital	0.016	0.013	1.266
working capital	.050**	0.023	2.167
number of employees currently	1260.327***	390.804	3.225
amount of loan	.158***	0.037	4.258
saving in MFI	-5590.237	4094.631	-1.365
**** statistically significant at 5%; *** statistically significant at 1%**			

Source: Computed from Survey Data (2017)

The findings of this study corroborate the hypothesis that MFIs are instrumental in the financial growth of MSEs, primarily through revenue and profit growth. The results align with previous research (Gebrehiwot and Wolday, 2003; Salmoey et al., 2013; Wang, 2013; Minja, 2015), thereby contributing to the body of knowledge on the role of financial intermediation in the development of small enterprises.

Contribution of MFI to MSEs' Nonfinancial Growth

This section of the research delineates the assessment of MFIs roles in augmenting the non-financial growth of MSEs, focusing primarily on the adoption of new technologies, market expansion, and the initiation of (new) product developments. Data was analyzed utilizing both descriptive and inferential statistical methodologies; binary logistic regression analysis was employed to elucidate the factors influencing the non-financial proliferation of MSEs. The core aim was to scrutinize the determinants behind MSEs' adoption of innovative technologies, expansion into new markets, and development of new products, thereby evaluating MFIs' contributions towards the non-financial advancement of MSEs.

Table 6:
Non-financial growth of MSEs

Growth dimensions	Total Number	Yes		No	
		Frequency	%	Frequency	%
Introduction of new technologies	253	102	40.3	151	59.7
Having a market target outside of Aksum	253	58	23	195	77
New product development	253	108	42.7	145	57.3

Source: Computed from Survey Data (2017)

The empirical findings demonstrate that 40.3% (102 respondents) of the study population adopted new technologies, while 59.7% (151 respondents) refrained from such technological advancements. Considering the documented constraints faced by MSEs, the fraction that embraced technology adoption is notably substantial. Furthermore, the research uncovered that merely 23% of the participants had ventured into markets beyond Aksum town either before or during the research period. In addition, it was observed that 42.7% (108 respondents) engaged in new product development activities, including the addition of new product lines and enhancements in product design and quality, in contrast to 57.3% (145 respondents) who did not pursue new product development initiatives.

The results of the respective binary logistic regression analysis for the determinants of technology adoption, market expansion, and product development are presented and discussed below.

Table 7:
Binary logistic regression for determinants of new technology application by MSEs

Variable	Coefficient (B)	Standard error	Odds ratio (Exp(B))
HH size	0.222	0.091	1.249**
Level of education	0.214	0.08	1.238***
Previous employment status			
RC[1]9 (Gov't employee	-0.362	1.129	0.697
RC9(employed)	-2.492	1.02	0.083
RC9(NGO employee)	-0.44	1.667	0.644
RC9(unemployed)	-0.734	0.988	0.48
RC9(seasonal employee)	0	1.107	1
Type of enterprise			
BI1[2](trade)	-0.498	0.532	0.608
BI1(manufacturing)	0.691	0.589	1.996
BI1(construction)	-0.325	1.496	0.722
BI1(urban agriculture)	1.77	0.696	5.873**
BI6(service)	-1.623	1.678	0.197
current employee	0.084	0.074	1.088
Credit taken from microfinance	-0.48	0.493	0.619
Training from MFI	-1.76	0.559	.172***
Saved in MFI	0.495	0.539	1.641
Constant	-0.909	2.071	0.403
-2 Log likelihood = 209.448			
Cox & Snell R Square = .405			
Nagelkerke R Square = .546			
Chi-square (8) = 15.513			
Prob> chi-square = .050			

1] This is a result of variable coding generated by the software adopted for analysis representing the various forms of employment background of MSEs' operators.
[2] Variable coding generated for types of enterprises (sectors)
Source: Computed from Survey Data (2017)

The binary logistic regression analysis was performed to elucidate the factors influencing the adoption of new technologies. The model exhibited statistical significance, as evidenced by a Chi-square value of 15.513 with 8 degrees of freedom and a p-value of 0.050. Among the eight variables examined, five were identified as statistically significant predictors: household size, level of education, previous employment status (specifically, employment in the private sector), the category of enterprise (notably, urban agriculture), and participation in training programs. The analysis revealed that, with all other factors held constant, the likelihood of MSEs adopting new technologies increases by 24.9% for each additional household member, a finding that was statistically significant at the 5% level. This result corroborates the initial hypothesis and aligns with findings from Wolday (2003).

Furthermore, an increase in the level of education by one year enhances the probability of new technology adoption by 23.8%, with a statistical significance at the 1% level, ceteris paribus. The analysis also indicated that enterprises engaged in urban agriculture are 487.3% more likely to adopt new technologies compared to other sectors, significant at the 5% level, suggesting a higher propensity for technological adoption in this field, likely due to the increasing demand for advanced technologies such as advanced machinery, improved seeds, and intensified practices in urban agricultural practices. Lastly, participation in training programs offered by MFIs was found to decrease the likelihood of adopting new technologies by 72%, with a significance level of 1%, indicating that the training content may not have been adequately focused on promoting the application of new technologies. This finding suggests a need for further investigation into the relevance and efficacy of training content provided by MFIs in fostering technological adoption. It is well documented in the literature that microfinance institutions provide training to MSEs' operators (e.g. Godson, 2013; Haider et al., 2018; Santhosh, 2023), and such training enhances the performance and growth of the latter. However, training contents tend to exclude the use of technologies and focus on personnel management, business planning, inventory management, and basic accounting principles (Godson, 2013; Haider et al., 2018; Santhosh, 2023). Therefore, our finding is imperative in that the adoption of new technologies should be included in the training packages of MFIs.

Table 8:
Binary logistic regression for determinants of market expansion by MSEs

Variable	Coefficient (B)	Standard error	Odds ratio (Exp(B))
Level of education	0.224	0.069	1.251***
Type of enterprise			
BI1(trade)	-0.762	0.524	0.467
BI1(manufacturing)	-1.409	0.65	.244**
BI1(construction)	-0.611	1.2	0.543
BI1(urban agriculture)	1.087	0.629	2.965
Current employee	0.314	0.108	1.369***
Training	-1.615	0.564	.199***
Nature of ownership	-0.666	1.21	0.514
HH size	0.317	0.093	1.373***
Constant -2.107		1.803	0.122
-2 Log likelihood = 186.734			
Cox & Snell R Square = .294			
Nagelkerke R Square = .444			
Chi-square (10) = 13.786			
Prob> chi-square = .088			

Source: Computed from Survey Data (2017)

A binary logistic regression analysis was executed to discern the factors influencing market expansion among Micro and Small Enterprises (MSEs). The derived model demonstrated statistical significance, as indicated by a Chi-square value of 13.786 with 10 degrees of freedom, and a p-value less than 0.0001. Among the 10 evaluated variables, six were identified as statistically significant contributors to market expansion: household size, level of education, employment status, enterprise type (specifically, urban agriculture and manufacturing), and participation in training programs. The analysis revealed that, with all other factors remaining constant, an increase in household size by one member is associated with a 9.3% increase in the odds of MSEs expanding their markets, a result that was statistically significant at the 1% level. This finding supports the research hypothesis that possessing more labor (employees) paves the way to search and reach more distant market destinations. Further, the model indicated that for each additional year of education, the likelihood of MSEs expanding into new markets increases by 25.1%, with statistical significance at the 1% level, ceteris paribus. This suggests that

individuals with higher educational attainment possess a greater capacity to recognize and act upon the advantages of market expansion compared to those with lower educational levels. The model also indicated that training provided by MFIs is associated with a 19.9% decrease in the likelihood of MSEs expanding their markets, significant at the 1% level, suggesting that the training content may not adequately address market expansion strategies. This outcome, mirroring the findings related to new technology adoption, necessitates further investigation to ascertain the effectiveness and relevance of MFI-provided training in facilitating market expansion efforts among MSEs. The evidence presented under the narration for technology adoption has also explained this finding.

Table 9:
Binary logistic regression for determinants of new product development by MSEs

Variable	Coefficient (B)	Standard Error	Odds ratio (Exp(B))
HH size	0.156	0.086	1.168*
Level of education	0.168	0.076	1.183**
Previous employment status			
RC9 (Gov't employee)	0.067	1.105	1.069
RC9(employed)	-2.457	0.984	.086**
RC9(NGO employee)	-0.548	1.62	0.578
RC9(unemployed)	-0.675	0.955	0.509
RC9(seasonal employee)	-0.161	1.071	0.851
Type of enterprise			
BI1(trade)	-0.701	0.507	0.496
BI1(manufacturing)	0.512	0.561	1.668
BI1(construction)	-0.226	1.392	0.798
BI1(urban agriculture)	0.941	0.657	2.563
BI6(service)	-1.245	1.429	0.288
current employee	0.084	0.07	1.087
Credit taken from microfinance	-1.04	0.472	.354**
Training from MFI	-1.456	0.526	.233***
Saved in MFI	-0.065	0.504	0.937
Constant	0.133	1.847	1.142
Log-likelihood = 223.163			
Cox & Snell R Square = .383			
Nagelkerke R Square = .514			
Chi-square (8) = 15.096			
Prob> chi-square = .057			

Source: Computed from Survey Data (2017)

A binary logistic regression analysis was executed to ascertain the variables influencing the initiation of new product development among Micro and Small Enterprises (MSEs). The derived statistical model showcased significance, as evidenced by a Chi-square statistic of 15.096 with 8 degrees of freedom, and a p-value of less than 0.0001. Among the eight examined variables, six were identified as statistically significant: household size, level of education, prior employment as a private employee, savings in MFIs, receipt of any form of training, and receipt of training specifically from MFIs. The logistic regression revealed that holding all else constant, the likelihood of MSEs engaging in new product development increases by 16.8% with each additional household member, a finding statistically significant at the 1% level. This outcome aligns with the research hypothesis for the fact that MSEs usually use family labor and having more active family members contribute to the development of their enterprise. Additionally, the analysis demonstrated that for each additional year of education, the odds of MSEs initiating new product development increase by 18.3%, with statistical significance at the 1% level, suggesting that individuals with higher levels of education are more likely to undertake new product development compared to their less-educated counterparts.

The model also indicated that history of employment as we move from private employment to other forms of employment, the probability of new product development by 8.6%, significant at the 5% level, implying a lower tendency for new product innovation among those with employment experience other than private employment, when other factors are held constant. Furthermore, acquiring credit from MFIs was associated with a 35.4% decrease in the likelihood of new product development, significant at the 5% level. This result seems against the critical role of MFIs in the development of MSEs. However, several insights could be drawn. First, the study is cross-sectional and the impact of loans on new product development may take time as new product development takes a long time. Second, the loan size and support package MFIs provide to MSEs is usually small and limited where MSEs are forced to buy inventories rather than investing new product development efforts. On top of this, interest rates and repayment periods determine whether MSEs will allocate to new product development or short-term investments and sales. Training provided by MFIs was linked to a 23.3% reduction in the likelihood of new product development, significant at the 1% level, suggesting that the focus of MFI training may not align with promoting new product innovation, instead concentrating on aspects such as loan repayment

and interest rates. This finding underscores the need for a reassessment of the content and objectives of training programs offered by MFIs to better support new product development initiatives.

Conclusion and Implications

The study provides a comprehensive examination of the role of Microfinance Institutions (MFIs) in the financial and non-financial growth of Micro and Small Enterprises (MSEs). The study demonstrates a contribution to methodological advancement through the application of various statistical tests to validate assumptions of linearity, multicollinearity, and autocorrelation. These measures ensure the reliability of findings regarding the influence of MFIs on MSE growth. The use of a diverse set of diagnostic tools (e.g., tolerance, VIF statistics, Durbin-Watson statistics) and demographic analysis techniques provides a comprehensive understanding of the data structure and the demographic profile of MSE operators, contributing to the methodological literature in this field. Besides, the employment of linear and binary logistic regressions to address the research objectives demonstrates the methodological robustness of the study. The findings on the significant impact of source of capital, current capital, and employment on revenue and profit growth extend knowledge on financial management practices beneficial for MSEs, emphasizing the importance of diversified capital sources and sufficient working capital. Further, the findings underscore the critical role of MFIs in supporting the financial and non-financial growth of MSEs. Specifically, the amount of loans from MFIs is crucial in the profit growth of MSEs. However, the effectiveness of MFIs, with their contributions to new product development, market expansion, and technologies, is subject to their loan policy and training packages.

Based on the major findings, the researchers recommend that policymakers and MFIs should consider tailoring their programs to address the specific needs of MSEs more effectively, particularly in areas of training content that directly relates to technological innovation, market expansion strategies, and product development. This reinforces the belief that policies aimed at enhancing the accessibility and diversity of financial services offered by MFIs could foster MSE development. Moreover, the gender disparity observed in MSE participation indicates a need for targeted interventions to encourage female entrepreneurship, potentially through tailored financial products and support services. In addition, the positive association between educational attainment

and market expansion, new technology adoption, and new product development underscores the value of educational programs focused on business management and innovation for potential and current MSE operators. The findings on the significant impact of source of capital, current capital, and employment on revenue and profit growth extend knowledge on financial management practices beneficial for MSEs, emphasizing the importance of diversified capital sources and sufficient working capital calling for policies and support on these crucial elements.

Implications for Future Studies

This study which focused on assessing the impact of MFIs on the development of MSEs in Aksum town, encountered limitations related to time, financial resources, and geographical scope. Future research should aim to address these limitations by expanding the study's geographical coverage, incorporating a longitudinal perspective, and comparing the experiences of MSE operators with and without MFI loans. Specifically, future studies could explore the specific aspects of MFI training programs that might be redesigned to more effectively promote technological adoption, market expansion, and new product development among MSEs and investigate the long-term impacts of different financing structures on the sustainability and growth trajectories of MSEs, providing deeper insights into the optimal mix of personal savings, borrowed capital, and MFI support. To build upon the current findings, future research could adopt longitudinal designs to track the long-term impact of MFIs on MSE growth. Comparative studies across different regions or countries could provide insights into contextual influences on the effectiveness of MFIs. Such research would provide deeper insights into the nuanced role of MFIs in the MSE sector and contribute to more effective policy and program development.

Overall, the study underscores the complexity of factors influencing the growth of MSEs and the central role of MFIs in supporting this sector. It calls for continued research and policy efforts to optimize the financial and non-financial support systems for MSEs, with a particular focus on enhancing access to diversified capital sources, education, and training programs tailored to the needs of emerging entrepreneurs. Importantly, the findings offer valuable insights for policymakers, practitioners, and researchers interested in fostering the development of MSEs and their contribution to broader economic development.

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Annexes

Annex 1: Pre-analysis test of dependent variable with independent

Items	Revenue Growth			Profit Growth		
	Collinearity Statistics		**Autocorrelation**	**Collinearity Statistics**		**Autocorrelation**
	Tolerance	VIF	Durbin-Watson	Tolerance	VIF	Durbin-Watson
(Constant)						
family background	.933	1.071	1.898	.960	1.042	2.294
source of capital	.908	1.102		-	-	
current capital	.794	1.259		.199	5.028	
number of employees currently	.790	1.266		.822	1.217	
amount of loan	.808	1.238		.750	1.333	
amount of initial capital	.687	1.456		-	-	
Working capital	-	-		.210	4.771	
Type of enterprise	-	-		.975	1.025	
Sex	-	-		.943	1.061	
Household size	-	-		.950	1.052	
Level Education	-	-		.910	1.099	

Annex 2: Distribution of Respondents by age, HH size, and level of education

Variables	No.	Mini	Maximum	Mean	Std. Deviation
Age of the respondent	253	20	60	32.6	7.266
Size of the household	253	1	9	2.32	2.16
Level of education	253	4	16	10.82	2.76

Annex 3: Distribution of respondents by sex, marital, religion, family, and background

Variable		Frequency	Percent	Cumulative percent
Sex	Male	188	74.3	74.3
	Female	65	25.7	100
	Total	253	100	
Marital	Married	151	59.7	59.7
	Single	91	36	95.7
	Divorced	9	3.6	99.2
	Widowed	2	0.8	100
	Total	253	100	
Religion	Orthodox	233	92.1	92.1
	Muslim	20	7.9	100
	Total	253	100	
Family background	operated own business	80	31.6	31.6
	Employed	17	6.7	38.3
	Farmer	145	57.3	95.7
	Others	11	4.3	100
	Total	253	100	
Previous employment status	Gov't employee	28	11.1	11.1
	employee in private	83	32.8	43.9
	Employee in NGO	3	1.2	45.1
	Unemployed	97	38.3	83.4
	seasonal employment	32	12.6	96
	Others	10	4	100
	Total	253	100	

Annex 4: Distribution of MSEs by nature of ownership, source of capital, status of employee

Variable		**Frequency**	**Percent**	**Cumulative percent**
nature of ownership	sole proprietorship	247	97.6	97.6
	Partnership	6	2.4	100
	Total	253	100	
	own saving	151	59.7	49.8
source of capital	loan from microfinance	126	49.8	67.2
	support/credit from family	44	17.4	71.1
	credit from the MSE association	10	4	71.5
	two or more	1	0.4	99.6
	Others	71	28.1	100
status of employee	Permanent	64	25.3	47.1
	Temporary	54	21.3	86.8
	family member	14	5.5	97.1
	unpaid worker	1	0.4	97.8
	two or more	3	1.2	100
spend of initial capital	payment for premises rent	5	2	2
	purchase of equipment	84	33.2	35.2
	purchase of inputs	38	15	50.2
	for promotion	1	0.4	50.6
	two or more	125	49.4	100
reason of MSEs start	my vision to own a business	229	90.5	90.5
	I had no alternative source	14	5.5	96
	government policy	3	1.2	97.2
	my family business background	6	2.4	99.6
	Other	1	0.4	100