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Analysis of growth and constraints of agricultural micro- and small-scale enterprises in North Wollo Zone, Amhara Regional State, Ethiopia

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Abstract: The development of Micro and Small Enterprises (MSEs) in Ethiopia has been hindered by multiple politico-legal, infrastructural, marketing, and financial obstacles. Even though the country's economy is endowed with resources for agriculture and dependent on it, the contribution of agriculture enterprise is relatively limited and realizes a low growth rate and inefficient. Hence, the study aimed to analyze the growth of agricultural micro- and small-scale enterprises in North Wollo Zone, Amhara Regional State, Ethiopia. To achieve the objectives of this study, primary data was collected from 271 randomly selected agricultural MSEs. The study employed descriptive and econometric models for the data analysis. Likert scale analyses were used to identify constraints, while multiple regression models were used to examine determinants of agricultural MSEs in the study area. The Likert-scale result showed that financial constraints are the main obstacle to the

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PUBLIC INTEREST STATEMENT

Micro and Small Enterprises (MSEs) are widely recognized for their contribution to economic growth, employment and inclusive economic development. However, the seasonality and risk of agriculture significantly hurt the development of agricultural enterprises. Evidence from Ethiopia showed that the relative performance of agricultural MSEs are very limited in job creation and growth. As a result, this study aimed to analyze the growth of agricultural MSEs in North Wollo Zone, Ethiopia. The study found that shortage of working capital, insufficient loans, increased input prices, lack of adequate and reliable input supply, and absence of sustainable government support are perceived as the major challenges of MSEs in the study area. The results of a Multiple regression model revealed that enterprise manager education, number of employees, number of training, credit use, record keeping, and access to reliable market positively affected the growth of MSEs, while association ownership structure negatively affected it.

growth of agricultural MSEs in the study area. In addition, shortage of working capital, insufficient loans, increased input prices, lack of adequate and reliable input supply, and absence of sustainable government support are perceived as the major challenges of MSEs in the study area. Multiple regression model results showed that enterprise manager education level, number of employees, number of training, credit use, record keeping, and access to reliable market positively affected the growth of MSEs, while association ownership structure negatively affected it. Therefore, the study recommends skill development training and youth education programs, small business financial inclusion, and a reliable market linkage for the growth of agricultural MSEs.

Subjects: Economics; Finance; Business, Management and Accounting

Keywords: agricultural Enterprise; Ethiopia; finance; growth; performance

1. Introduction

1.1. Background of the study

Small and Medium Enterprises (SMEs) attributed significant contributions to GDP (Gross Domestic Product) and the overall growth of the world. It accounts for two-thirds of all jobs throughout the world (ILO, 2015) and makes up 90% of the private sector in developing countries (Runde et al., 2021). The sector has a massive contribution to employment in Africa, which is struggling with poor economies and unemployment due to a lack of jobs (Muiruri, 2018). Micro and Small-Scale Enterprises (MSEs) were thought to be marginal and unproductive, contributing little to a country's economic growth. However, in recent decades, their importance in terms of job creation and income generation has been widely recognized, and policymakers have given primary attention. In Ethiopia, MSE development is a strategic tool for job creation in urban centers (FMSEDA, 2011), which aimed at improving their income and creating fair resource distribution; ensuring balanced nutritional security of citizens (FDRE, 2016). It played a significant role in domestic employment and inclusive GDP in developing countries such as Ethiopia (Abagissa, 2021). During 2019/20, 111,547 new MSEs were established, which employed about 1.6 million people. The National Bank of Ethiopia (NBE) reported that these enterprises received 7.7 billion Birr in loans during the fiscal year (NBE, 2020). As a result, the sector is increasingly recognized as a viable option for enhancing the country's growth and alleviating poverty (Lee, 2012). The contribution to economic growth, employment formation, and income generation for the local community is also vital (Ayalu et al., 2022).

Entrepreneurship support programmes that do not prioritize innovative and competitive firms when distributing resources can dissuade firms from being entrepreneurial and pushing forward in the market (Biru et al., 2020). Entrepreneurship programs for inclusive development in Ethiopia are hindered by the politicization of entrepreneurship, inefficiency and low levels of service capacity, lack of entrepreneurship education and youth negligence (Kebede, 2022). The political instability, corruption, and COVID-19 have a substantial effect and are hurting the growth of SMEs in Ethiopia (Abdissa et al., 2022). Societal norms and values are still hurting entrepreneurial behaviors (Kansheba, 2020). Small businesses often run under multiple obstacles, and high levels of uncertainty in the business environment (Fatoki, 2018) hinder their contribution to the national income, employment, and export performance (Belete, 2018). The contribution of MSEs in reducing unemployment and poverty is limited (Engida et al., 2017) due to the politico-legal, infrastructural, marketing, and financial challenges of enterprises (Melkamu & Moges, 2021). The escalating development of small firms is offset by a strange rate of firm failure in Ethiopia (Page & S €oderbom, 2015). The risk of MSEs' dropout is high during the first two to four business operation

years and longer in microenterprises than in small enterprises after establishment (Woldehanna et al., 2018). The existence of poor coordination between institutions and financial constraints are the most critical bottlenecks to startup MSEs (Dechasa, 2014; Tewolde & Feleke, 2017). The cost and difficulty of using financial services (Eton et al., 2021), poor management skills of MSE operators, lack of capital, lack of land and high competition due to an overcrowded market is a persisting problem (Abagissa, 2021).

Small and micro-manufacturing enterprises accounting for 60.5% are under financial hurdles in the Amhara region and are financially constrained (Melesse, 2019). This resulted in a 50% of Amhara region manufacturing MSEs in 2014/15 dropped out of the business (Zegeye et al., 2016). According to (Nuriye & Jafri, 2014), nearly half of MSEs' jobs were created in the construction sector, followed by the manufacturing and service sectors, respectively, and high growth rates in the construction and manufacturing sectors. In addition, Habtamu et al.'s (2013) findings showed that MSEs that are engaged in the manufacturing sector have a higher chance of growth than others. However, the performance of urban agriculture is very little for both job creation and growth (Nuriye & Jafri, 2014). The seasonal nature of agricultural income, fear of agricultural risk, and lack of initial capital were the top three factors hindering youth participation in agricultural enterprise (Tarekegn et al., 2022). Although the average efficiency of MSEs is relatively low, the lowest technical efficiency goes to the urban agriculture sector (Ayele, 2021). Even though the study area has a high potential for agriculture, the contribution of agricultural MSEs to employment and the economy is limited. Previously conducted studies on MSE employment growth in Woldia city (Kefale & Chinnan, 2012) and on the growth of MSEs in North Wollo and Waghimira Zone (Kassa, 2021) failed to examine the capital growth of agricultural MSEs in North Wollo Zone. Hence, this study aimed to analyze the growth and constraints of agricultural MSEs in North Wollo Zone, Amhara Regional State, Ethiopia.

The objectives of the study are:

(1) To identify factors affecting the capital growth of agricultural MSEs in North Wollo Zone.
(2) To identify opportunities and challenges in the development of agricultural MSEs.

1.2. Operational definitions

1.2.1. Basic definitions of the terms used in the study

There is no commonly agreed definition of microenterprises, small enterprises, and medium enterprises. The number of employees and/or annual turnover are used as a threshold by different governments and international organizations (WTO, 2016). Small and medium enterprises are defined according to size (number of employees), turnover, activity, ownership, and legal status (Hussain, 2000). In Ethiopia, FDRE (2016) and FMSEDA (2011) define micro and small enterprises.

1.2.2. Enterprise

A system of carrying on a business (Collin, 2006) or a synonym for a business. (Statt, 2004)

1.2.3. Micro enterprises

Enterprises employing up to 5 persons including enterprise owners and family members, with total assets of not more than ETB 100,000 for the industrial sector (including manufacturing, construction, urban agriculture, and mining) and total assets of not more than ETB 50,000 for the service sector (retail trade, transport, hotel, tourism, and information technology and maintenance services).

1.2.4. Small enterprise

Enterprises employing 6–30 persons and with total assets of from ETB 100,001 up to ETB 1,500,000 for the industrial sector and with total assets of at least ETB 50,001 and up to ETB 500,000 for the service sector.

2. Research methodology

2.1. Types, sources, and methods of data collection

The study used primary and secondary data sources to obtain both qualitative and quantitative data. Primary data were collected using pretested semi-structured questionnaires and checklists designed for sample enterprises and key informants, respectively. The questionnaire was tested in South Wollo Zone (Haik town) by experts working in the sector, enterprise managers, and employees in the enterprise before the startup of data collection, and appropriate modifications were made accordingly. Secondary data was collected from enterprises' annual financial statements, reports, and business plans and different published and unpublished sources, such as the North Wollo Zone Enterprise Directive office, Woreda Enterprise Development Office, NBE, CSA, EEA, reports, and bulletins.

2.2. Sampling procedure and sample size

This study solely focused on agricultural MSEs due to the small size of agricultural MSEs and associated limited employment contributions in the study area that doubted the growth potential of the sector. The desired sample size was selected proportionally from different agricultural MSEs (dairy MSEs, animal production and fattening MSEs, poultry MSEs, and fruit and vegetable production MSEs) using a simple random sampling technique.

To determine the desired sample size from the total population, the researchers used (Yamane, 1967) sample determination formula as follows:

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

$$n = \frac{831}{1 + 831(0.05)^2} = 271$$

Where, n = sample size, N = the total number of agricultural MSEs in the North Wollo Zone, and e is the level of precision (i.e. 5 %). Accordingly, out of 831 agricultural MSEs registered in North Wollo Zone, 271 samples were selected (Table 1).

2.3. Methods of data analysis

Both descriptive statistic and econometric models were employed to analyze the data obtained from agricultural MSEs. Business performance evaluation methods can be traditional that are assessed

Table 1. Sample size distribution

Sector	Total population	Sample
Dairy MSEs	118	38
Animal production and fattening MSEs	450	147
Poultry MSEs	108	35
Fruit and vegetable production MSEs	155	51
Total	**831**	**271**

through financial indicator analysis only or the modern method that uses both financial and non-financial performance information to evaluate business activities both quantitatively and qualitatively (Narkunienė et al., 2018). The economic performance of enterprises was evaluated in terms of profitability and growth. According to (Wolday, 2015), MSE growth is the most important performance indicator, and it may be dynamic, innovative, and perform well without growing vertically from micro-to-small or small-to-medium enterprises. On the other hand, enterprises may upgrade and raise their capacity without growing vertically.

The econometric model used to analyze factors affecting the growth of agricultural MSEs depends on whether the dependent variables are dummy, continuous, or censored at a certain level. Linear regression is designed for the analysis of dependent variables that are measured on a ratio scale or an interval scale (Becker & Walstad, 1987). There are many authors such as Addisu (2016), Demisew (2018), Fikadu (2015), and Kagnew et al. (2018) used multiple regression to identify factors that affect the growth of MSEs. A multiple linear regression model is appropriate to analyze the factors affecting the growth of agricultural micro- and small-scale enterprises since all sample enterprises have a positive average capital growth during the survey year

According to (Greene, 2011) the regression model is specified as follows.

$$Yi = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 .... + \beta_n X_n + \varepsilon_i \quad (2)$$

where Yi = annual average capital growth

$\beta_1 - \beta_n$= coefficients of explanatory variables

$X_1 - X_n$ = explanatory variables

ε_i= disturbance term

The OLS estimation inference is valid so long as the assumptions of the classical linear regression model hold. The degree and implications of the violations of the assumptions depend on the assumptions violated. In most cases, econometricians test for and take a remedy for heteroscedasticity, multicollinearity, endogeneity, and model misspecification problems.

2.4. Definitions and hypothesis of variables

2.4.1. Dependent variables

2.4.1.1. Enterprise capital growth (lnKgrow). The dependent variable represents the average annual capital growth of agricultural MSEs that is measured in terms of change in capital per age of enterprise.

2.4.2. Independent variables

The independent variables are those factors affecting the capital growth of agricultural SMEs (Table 2).

3. Results and discussion

The results and discussion section of the study are presented in two parts. First, an econometric analysis of factors affecting the growth of agricultural MSEs is presented. Finally, the challenges and opportunities in the development of agricultural MSEs in the study area were analyzed through Likert-scale statistics.

3.1. Econometrics result

The dependent variable used to analyze the performance of micro- and small-scale enterprises was average capital growth, which is a continuous variable. Hence, the assumption of the

Table 2. Description and hypothesis of explanatory variables

Variables	Definition of variables	Expected effect	Supporting empirical evidence
Number of employees	Continuous (number)	+ve	(Abraham, 2018)
Enterprise ownership structure	Dummy (1 if association or 0 otherwise.)	±ve	(Bhaumik et al., 2016; Dagmawit & Yishak, 2016; Shibia & Barako, 2017)
Educational level of manager	Continuous (years)	+ve	(Abraham, 2018; Chimucheka, 2017)
Number of training	Continuous (number)	+ve	(Kelemu, 2018; Tekle et al., 2016).
Credit use	Dummy (1 if credit user and 0 otherwise)	±ve	(Abraham, 2018; Esubalew & Raghurama, 2020; Mamo, 2022)
Financial record-keeping	Dummy (1 if enterprise keeps financial records and 0 otherwise)	+ve	(Kaleleoul, 2016)
Market access	Dummy (1 if enterprises have secured product market and 0 otherwise)	+ve	(Ebabu Engidaw, 2021; Sohns & Diez, 2018).
Access to input	Dummy (1 if MSEs have sufficient access to inputs and 0 otherwise)	+ve	(Ayalu et al., 2022; Getnet, 2019)
Access to infrastructure	Dummy (1 if the enterprises have basic infrastructure access and 0 otherwise.)	+ve	(Haftom et al., 2014)
Working premise	Dummy (1 if the enterprises have a convenient working premise and 0 otherwise).	+ve	(Abraham, 2018; Alene, 2020)
Owners' aspiration	Dummy (1 if of owners aspire for growth and 0 otherwise).	+ve	(Indarti, 2020; Mohammed, 2014; Mühlböck et al., 2017)
Frequency of extension contact	Continuous (number)	+ve	(Altalb et al., 2015)

Source: Own summary

regression model was tested as follows before the model was applied to estimate the determinants of average capital growth of agricultural MSEs in the study area. The most expected problems in cross-sectional data and assumptions that affect the BLUE estimates of the parameters were normality assumption; multicollinearity, heteroscedasticity, and model specification were tested.

3.1.1. Tests for normality

The normality assumption assumes that the residual has a normal distribution. It is hypothesized that the null hypothesis shows that the data follows a normal distribution and only rejects this hypothesis if the test is significant. The skewness/kurtosis test and Shapiro–Wilk test for normality were applied to test the normality of the data. These test results were insignificant, showing that the data have a normal distribution.

3.1.2. Multicollinearity test

Another assumption that is made when using the OLS estimation method is that the explanatory variables do not have a strong correlation with one another. The variance inflation factors (VIFs) were computed for all explanatory variables to test the presence or absence of a multicollinearity problem in this study. Accordingly, the mean VIF was 1.75 in this model, which is too small and indicates that no multicollinearity was detected (Appendix Table 1).

3.1.3. Test for heteroscedasticity

The assumption for the classical linear regression model is that the disturbances are homoscedastic, which means that the variance of the error term is consistent. The Breusch–Pagan test was applied, and the test result indicates the presence of a heteroscedasticity problem (Appendix Table 2). Outliers were checked using the box plot graph, there were no serious problems with outliers, and no data got lost due to outliers. The remedial for heteroscedasticity is robust regression applied in this study.

3.1.4. Omitted variable test

Whether there is an omitted variable in the model or not was tested before using a regression model. The most commonly used test, Ramsey RESET test, was used and the result indicated that (prob > $F = 0.5026$) there was no omitted variable in the model (Appendix Table 3). This shows that important variables to estimate the determinants of average capital growth were included.

The coefficient of determination R2 is the most popular measure of the goodness of fit of a linear regression model. The value of R square is 0.8319, which indicates that the model explains 83.19% of the variation in the dependent variable (Table 3).

Table 3. Regression results on determinants of MSEs capital growth

Variables	Coefficient	Robust Std. Err.	T
Manager education level	0.082***	0.109	7.45
Ownership structure	−0.228***	0.061	−3.73
Number of employee	0.018**	0.007	2.46
Number of training	0.286 ***	0.03	9.39
Credit use	0.169 ***	0.061	2.76
Record keeping	0.4***	0.072	5.57
Market access	0.177***	0.057	3.10
Access to input	0.043	0.059	0.73
Access to infrastructure	0.02	0.050	0.41
Working premise	0.024	0.061	0.36
Owners' aspiration	0.075	0.062	1.22
Frequency of extension contact	0.018	0.038	0.47
Constant	7.59	0.098	77.45
Number of Obs. = 271		*R*-squared = 0.8319	
F(12, 258) = 131.85		Prob > *F* = 0.0000	

Source: Own survey (2021).

3.1.5. Manager education level

The level of enterprise manager education positively and significantly affected the average capital growth of agricultural MSEs at a 1% significance level. The regression result indicated that the 1-year increase in the education level of MSE managers could raise the annual average capital by 8.2%, keeping other factors constant. The positive effect of manager education on the growth of agricultural MSEs in the study area might be as education increases the financial and managerial abilities of entrepreneurs. Empirical studies showed that the quality of education increases entrepreneurial capabilities to upgrade their enterprises (Hampel-Milagrosa et al., 2015; Mor et al., 2020), and enhances the managerial capability, especially in the survival of the early stages of the enterprise (LeBrasseur & Zinger, 2012). The finding of this study is consistent with that of Shibia and Barako (2017) who found that entrepreneur education positively affects MSE growth, consistent with a resource-based theory of firm growth. The financial skills of managers attained through education promote venture growth and survival, which would create a competitive advantage for the business (Agyapong & Attram, 2019).

3.1.6. Enterprise ownership structure

The model results showed that MSEs established in an association are less likely to achieve capital growth than privately owned enterprises at the 1% significance level. The result indicates that association-owned agricultural MSEs decreased the annual average capital by 22.8%, holding other factors constant (Table 3). This may be due to the fact that association ownership increases shareholders' dividends, which reduces the capital growth of the enterprise. The association-owned enterprise might be self-seeking and focus on current dividends rather than the growth of the enterprise. This finding is consistent with (Arega et al., 2016) who revealed that MSEs established in non-cooperative form have better growth than those working in cooperatives. In contrast, the finding is oppositely consistent with a recent study conducted in Ethiopia, and MSEs owned by partnership grow faster than enterprises owned by sole proprietorship as partnership increases firm's resources and capabilities and improves internal decision-making processes leading to higher growth rates (Shitaye, 2022).

3.1.7. Number of employees

The number of employees positively and significantly affected the average capital growth of agricultural MSEs at 5% significance level. The results revealed that an increase in enterprise employees by one leads to an increase in annual average capital by 1.8%. This might be due to the fact that the agriculture sector is labor-intensive and seasonal production should be managed with sufficient employee size before the season runs out and production is disrupted. The finding associated with the efficient use of a proper number of employees improves the financial performance of agricultural MSEs (Abraham, 2018). Similarly, firm size in number of employees positively and significantly affects the performance of enterprise (Doucouré & Diagne, 2020). This study finding is consistent with a study that revealed MSEs that start business larger in size in terms of employment grow faster than their counterparts (Shitaye, 2022).

3.1.8. Number of training

The number of training in the enterprise positively and significantly affected the average capital growth of agricultural MSEs at 1% significance level. The result indicates that additional training for members/employees of MSEs increases the enterprises' average annual capital by 28.6%, holding other factors constant. This finding is linked with evidences that revealed that training helps to develop relevant skills and knowledge (Alene, 2020), help entrepreneurs to look differently and get new ideas (Haider et al., 2017) that together increase MSEs productivity (Mano et al., 2012) and improves MSEs performance (Alene, 2020; Rankhumise & Letsoalo, 2019; Semegn & Bishnoi, 2021) such as capital accumulation growth of MSEs (Mamo, 2020, 2022), and boosts SME growth (Ipinnaiye et al., 2016). The effect of training on business performance is more magnificent than treating them with credit alone (Araar et al., 2019).

3.1.9. Credit use

The use of credit increases the capital growth of agricultural MSEs at 1% significance level. The regression results showed that the use of credit increases the average annual capital by 16.9%, holding other factors constant (Table 3). The positive effect of credit use on the growth of agricultural MSEs might be due to its role in enhancing financial capabilities for full-capacity production, and firms' engagement in innovative activities. The finding is in line with the fact that financial access has a positive impact on enterprises' growth performance (Baruah & Bezbaruah, 2020) and positively contributed to MSEs' capital growth (Meressa, 2020). Additionally, MSEs' credit fosters the growth of micro and small enterprises (Adhikary et al., 2019; Mamo, 2022; Semegn & Bishnoi, 2021).

3.1.10. Record keeping

Keeping records of micro and small enterprises has a positive and significant effect on average annual capital growth at 1% significance level. The regression result showed that business record-keeping increases the average annual capital of enterprises by 40%. This might be due to keeping enterprise records helps the manager to manage financial performance through immediate coping solutions and efficiently administer the enterprise assets. This finding allies with the fact that the use of formal financial record and business record management increases MSE growth performance (Khadim & Choudhury, 2019; Mamo, 2022; Mintah et al., 2022). Inventory management practices can enhance the competitive advantage of MSEs (Atnafu et al., 2018) and business efficiency (Girmachew & Girma, 2019).

3.1.11. Market access

Access to a reliable product market has a positive and significant effect on the average capital growth of agricultural MSEs at 1% significance level. The result indicated that the existence of a secured product market increases the average annual capital of agricultural MSEs by 17.7%, holding other factors constant. This might be due to the perishable nature of agricultural products, the presence of a reliable product market to supply their product before its quality deteriorates is critical for the growth of agricultural MSEs. Forward linkage of MSEs with customers or other resellers improves their capital growth potential (Gutu & Abebe, 2020; Meressa, 2020). Subcontracting with large-scale industries positively contributed to the performance of SMEs in terms of sales, market share, and product success (Nwokocha et al., 2019).

3.2. Constraints of agricultural micro and small enterprises

In Ethiopia, MSEs have been challenged by a vicious circle of problems. The findings from different empirical studies revealed that financial factors, marketing factors, political–legal variables, lack of adequate infrastructure, technological factors and personal characteristics are the major factors that commonly determine the sustainability and growth of MSEs in Ethiopia (Teka, 2022). Many challenges constrain the development of agricultural MSEs in North Wollo Zone, Amhara regional state of Ethiopia. In this section, these challenges were explained qualitatively using Likert scale statistics. These barriers to agricultural micro- and small enterprise development in the study area are classified into six categories such as financial factors, marketing factors, policy and legal factors, personnel and management factors, infrastructure factors, and working premises factors. This study used the five-scale Likert scale response by dividing the factor effects as low, moderate, and high by using the group mean as a benchmark.

3.2.1. Financial-related factors

Finance is the main obstacle to business operation and growth constraints for a large section of agricultural MSEs in the study area. The severity of financial constraints in agricultural MSEs is due to the large capital needed to startup and cope with the associated risks. Shortage of working capital (4.4) and insufficient loans (4.17) are perceived as the major financial constraints, while inadequacy of credit-providing institutions (3.95) and inconvenience of loan repayment period (3.8) are moderate financial constraints for the growth of agricultural MSEs in the study area (Table 4). Surprisingly, respondents are not sure that the high collateral required to get a loan (2.8) and high interest for the

Table 4. Financial-related factors of MSEs

1. Finance-related challenges

Items	Likert response (%)					
	SD	D	N	A	SA	Mean
1. Inadequacy of credit providing institutions for MSEs	-	15	15	30	40	3.95
2. Working capital shortage	-	5	10	25	60	4.4
3. Lack of sufficient loan	-	3	22	30	45	4.17
4. High collateral requirement	15	30	20	30	5	2.8
5. High interest rate of loan	25	27	18	20	10	2.63
6. Repayment period not suitable	-	17	13	40	30	3.83
Group mean						**3.63**

Note: Where SD- Strongly agree, D-Disagree, N-Undecided, A-Agree, SA- Strongly agree

Source: Own survey (2021)

loan (2.63) are constraints because the majority of enterprises mainly cooperatively organized enterprises used revolving funds at a low-interest rate and with no collateral requirement. The results of this study in line with different empirical studies revealed that access to finance appears to be the biggest barrier in doing business (Meressa, 2020; Rankhumise & Letsoalo, 2019), especially for female entrepreneurs (Adetiloye et al., 2020), and a large number of MSEs manage their working capital poorly and faced a tight shortage of finance (Abera & John, 2022). The problem of access to finance for enterprises is due to the existence of inadequate loan size, poor lending procedures, lack of collateral, cost of borrowing, and institutional framework (Endris & Kassegn, 2022; Meressa, 2020; Oshora et al., 2021; Zhang & Ayele, 2022).

3.2.2. Marketing related factors

Micro and small enterprises generally face difficulties in accessing new markets as they have limited resources, experience, and market information. This study explored marketing problems such as increased input price (4.66), and lack of adequate and reliable input supply (4.55) were the major problems in the growth and development of agricultural MSEs in the study area. This problem is too high in agricultural enterprises, which use improved inputs from private organizations at a high cost and have limited market networking. Moreover, a lack of market information (3.9), an absence of a reliable product market (3.59), a lack of an efficient distribution channel (4.04), an absence of linkage between enterprises (3.96), low product quality (3.8), and variety selection in purchasing (3.8) are moderate constraints, which hinders the performance of

Table 5. Marketing-related factors of MSEs

2. Market-Related Challenges

Items	Likert scale (%)					
	SD	D	N	A	SA	Mean
1. Lack of market information		5	20	55	20	3.9
2. Absence of product promotion		19	11	40	10	2.81
3. Lack of adequate and reliable input supply			4	32	62	4.5
4. High prices of raw materials			2	30	68	4.66
5. Absence of reliable product market		24	16	37	23	3.59
6. local product demand is limited	14	37	15	21	13	2.82
7. Lack of efficient distribution channel		10	16	34	40	4.04
8. Poor customer relationship and handling	28	22	10	35	5	2.67
9. Poor linkage among different enterprises		14	16	30	40	3.96
10. Low product quality		25	30	35	20	3.8

(*Continued*)

Table 5. (*Continued*)

2. Market-Related Challenges

Items	Likert scale (%)					
	SD	**D**	**N**	**A**	**SA**	**Mean**
11. Variety selection problem in purchasing		20	15	25	40	3.85
12. Strong competition	10	37	15	18	20	3.01
Group mean						**3.8**

Note: Where SD- Strongly agree, D-Disagree, N-Undecided, A-Agree, SA- Strongly agree

Source: Own survey (2021)

enterprises (Table 5). This finding is consistent with empirical evidence that revealed market linkage practices were inefficient, which has a significant impact on the growth of MSEs (Ensermu Gudeta & Tulu, 2022; Ferejo et al., 2022).

3.2.3. Policy and legal factors

The encouraging and supportive policy is key to the development of MES, such as the number of enterprises and employment in the sector. The limited capacity of the government to deliver efficient and effective support services are the challenges identified by MSEs in the study area. The Likert-scale analysis finding indicated that the absence of sustainable government support was a major challenge with a mean of 4.24, while complex loan procedures (3.63) and political instability (3.63) were moderate challenges to the development of agricultural MSEs in the study area (Table 6). Due to this, most small businesses are reluctant to expand their business to minimize tax and regulatory authority's attention (Bischoffa & Wood, 2013). Hence, MSMEs are more vulnerable in giving bribes to sustain their information and invisible status (Lakuma et al., 2019).

3.2.4. Personnel and management related factors

Enterprise members or employee and management factors affect the growth and development of micro and small enterprises. The results in Table 5 show the absence of a clear division of duties and responsibility (4.21) and the absence of strategic planning (4.23) were the major constraints on the growth of agricultural MSEs in the study area. Inefficient information exchange (3.61) and the existence of feasibility study problems were moderate constraints for agricultural enterprises. In addition, internal business challenges are members' motivation and drive to achieve a vision of the enterprise. Accordingly, 37% of the respondents agreed that there is no motive among members for the business they engaged in, while 22% strongly agree with the absence of motive among members (Table 7). The majority of the SMME owners were found to lack knowledge and application of financial management practices (Brijlal et al., 2014) and inadequate managerial knowledge and skills constrain the long-term economic growth of SMEs (Faal, 2020). In addition, the linkages between education and training strategies and SME enterprise development strategies are still weak (Mukherjee, 2018).

Table 6. Policy and legal-related factors of MSEs

3. Policy and legal-related challenges

Items	Likert scale (%)					
	SD	D	N	A	SA	Mean
1. Complex Loan procedures	-	17	23	40	20	3.63
2. Absence of encouraging policy	-	37	23	25	15	3.18
3. Absence of sustainable government support	-	21	10	38	40	4.24
4. Bureaucracy in enterprise registration	-	32	18	38	12	3.3
5. Existence of political intervention	-	21	14	44	16	3.4
6. High tax levied	12	58	20	10	-	2.28
7. Political instability	-	17	23	40	20	3.63
8. Absence of technical trainings	24	30	18	22	6	2.56
Group mean						**3.34**

Where SD- Strongly agree, D-Disagree, N-Undecided, A-Agree, SA- Strongly agree

Source: Own survey (2021)

3.2.5. Infrastructure related factors

The Likert-scale findings found that the lack of appropriate dry waste and sewerage system (3.41) and insufficient and interrupted water supply (3.8) are moderate infrastructure challenges to the growth and development of agricultural micro and small enterprises in the study area (Table 8). The findings of this study are supported by evidence that found infrastructure has more effect on industry performance (Deksiso, 2018; Ebabu Engidaw, 2021). Due to absence and poor infrastructure, more than 25% of work time losses are due to power interruptions daily (Cherkos et al., 2017). The lack of critical infrastructure, and inadequate access to basic infrastructure services increased the operational costs of MSMEs, reduced productivity, and their competitiveness (Endris & Kassegn, 2022; Mukherjee, 2018).

Table 7. Personnel and management factors of MSEs

4. Personnel and management-related challenges

Items	Likert scale (%)					
	SD	D	N	A	SA	Mean
1. Absence of clear division of duties and responsibility	-	10	2	45	43	4.21
2. Inefficient and poor information exchange	-	23	17	36	24	3.61
3. Lack of necessary job skill	27	25	8	30	10	2.71
3. Absence of strategic planning	-	-	11	55	34	4.23
4. Absence of motivation and drive	10	31	10	37	22	3.2
5. Feasibility study problems	12	18	5	25	40	3.63
Group mean						**3.58**

Where SD- Strongly agree, D-Disagree, N-Undecided, A-Agree, SA- Strongly agree

Source: Own survey (2021)

3.2.6. Working premises factors

The findings of this study revealed that the inconvenience of the working premise is the main challenge than access with a mean score of 3.66. Accordingly, 38% of respondents agreed that working premise inconvenience is a challenge for their enterprise, while 23% strongly agreed with it (Table 9). Therefore, it is possible to conclude that the inconvenience of the working premises is the main factor that affects the performance of agricultural MSEs in the study area. The findings of this study are consistent with other empirical evidence that found that many MSEs suffer from a lack of suitable working premises, although this is a critical factor for the growth of most enterprises (Meressa, 2020). Not only the availability of working premise but also the conveniences for the activity of enterprises, particularly for agricultural MSEs that require wider areas, productive lands, and favorable agroecology is a problem in the study area. Evidence showed that firms established in capital cities are more likely to grow due to the large population, which contributes to higher customers and markets (Kosa et al., 2018).

Table 8. Infrastructure factors of MSEs

5. Infrastructure challenges

Items	Likert scale (%)					
	SD	**D**	**N**	**A**	**SA**	**Mean**
1. Absence of electric power supply	10	40	5	20	25	3.1
2. Frequent power interruption	-	20	38	30	12	3.34
3. Insufficient and interrupted water supply	-	10	25	40	25	3.8
4. Absence of road	15	25	5	30	25	3.25
5. Lack of appropriate dry waste and sewerage system	-	33	15	30	22	3.41
Group mean						**3.38**

Where SD- Strongly agree, D-Disagree, N-Undecided, A-Agree, SA- Strongly agree

Source: Own survey (2021)

4. Conclusions and recommendations

Micro- and Small-Scale Enterprises (MSEs) are recognized for their importance in terms of job creation and income generation. They played a significant role in domestic employment and inclusive GDP growth of Ethiopia. However, the sector development in Ethiopia is hindered by the politicization of entrepreneurship; lack of entrepreneurship education and youth negligence; political instability, corruption, and COVID-19. The seasonality and risky nature of agriculture and lack of initial capital were the main constraints hindering youth participation in agricultural enterprise. In addition, evidence from Ethiopia showed that agricultural MSEs have achieved limited economic contribution and are relatively inefficient. Therefore, this study aimed to investigate the growth of agricultural MSEs in North Wollo Zone, Amhara Regional State, Ethiopia.

The study collected qualitative and quantitative data from primary and secondary sources. Through random sampling techniques, out of 831 agricultural MSEs registered in North Wollo Zone, 271 samples were selected proportional to the enterprises in each subsector. Likert scale analysis was employed to evaluate respondents' level of perception of MSEs' challenges in the study area. A multiple linear regression model is applied to analyze factors affecting the growth of agricultural MSEs since the average annual capital of sample enterprises increased. The results showed that finance is the main obstacle to business operation and growth constraint for the majority of agricultural MSEs, which comprises shortage of working

Table 9. Working premise-related factors of MSEs

6. Working premise challenges

Items	Likert scale (%)					
	SD	**D**	**N**	**A**	**SA**	**Mean**
1. Absence of own premises	10	25	10	45	10	3.2
2. Working place not adequate	25	20	15	30	10	2.8
3. Current working place is not convenient	4	25	10	38	23	3.66
4. High rent for working premise	20	27	17	30	5	2.7
Group mean						**3.09**

Where SD- Strongly agree, D-Disagree, N-Undecided, A-Agree, SA- Strongly agree

Source: Own survey (2021)

capital (4.4), and insufficient loans (4.17) are the major financial constraints in the study area. The study found that marketing problems such as increased input price (4.66) and lack of adequate and reliable input supply (4.55) were the major problems in the growth and development of agricultural MSEs in the study area. In addition, the absence of sustainable government support (4.24), the absence of a clear division of duties and responsibility (4.21), and the absence of strategic planning (4.23) were the main factors that affected the performance of agricultural MSEs in the study area. Multiple regression results showed that enterprise manager education level, number of employees, number of training, credit use, record keeping, and access to reliable market positively affected the growth of MSEs, while association ownership structure negatively affected it.

Based on the findings of this study, the following recommendations were provided:

(i) Technical and vocational college should focus on enhancing skill development training and youth education programs for the growth of enterprise thereby developing the sector.

(ii) The financial sector and the government should collaboratively ensure financial inclusion of MSEs and unlock their financial challenges.

(iii) Enterprise development offices and lending institutions should provide basic financial skills training and monitor the financial bookkeeping practice of the enterprises.

(iv) Enterprise development office should create a reliable product market linkage as agricultural products are perishable and risky.

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Abbreviation

ACSI	Amhara Credit and Saving Institution
MSEs	Micro and Small-scale Enterprises
CSA	Central Statistical Agency
MSMEs	Micro, Small, and Medium Enterprises
MFI	Micro-Finance Institutions

Availability of data and materials
The datasets used and/or analyzed during the current study will be available from the author on reasonable request.

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APPENDICES

Appendix Table 1. Multicollinearity test

Variable	VIF	1/VIF
Number of training	3.00	0.333756
Manager education level	2.73	0.366517
Frequency of extension contact	2.30	0.434628
Record keeping	2.19	0.456253
Credit use	1.50	0.664943
Ownership structure	1.50	0.665197
Number of employee	1.50	0.667381
Working premise	1.43	0.697248
Access to input	1.36	0.737245
Market access	1.22	0.820906
Access to infrastructure	1.14	0.880094
Owners' aspiration	1.12	0.890848
Mean VIF	1.75	

Note: Sources: Survey result (2021)

Appendix Table 2. Heteroscedasticity test

Breusch-Pagan/Cook-Weisberg test for heteroscedasticity Ho: Constant variance
Variables: Fitted values of ln(average capital growth)
chi2(1) = 6.27
Prob > chi2 = 0.0123

Note: Sources: Survey result (2021)

Appendix Table 3. Model specification test

Ramsey RESET test using powers of the fitted values of quantity supplied
Ho: model has no omitted variables (ln(average capital growth))
F(3, 255) = 0.79
Prob > F = 0.5026

Note: Sources: Survey result (2021)