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Determinants of micro and small enterprise performance in Afar, Ethiopia: The moderating role of government support

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Article

Keywords: Business plan skills, government support, financial stability, micro and small enterprises, operational efficiency, pastoral entrepreneurship, Afar Region

Posted Date: September 29th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-10806581/v1

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Additional Declarations: No competing interests reported.

Abstract

Micro and small enterprises (MSEs) play an important role in employment creation and local economic development, yet their performance in pastoral and resource-constrained settings remains poorly understood. This study examines the determinants of MSE performance in Ethiopia's pastoral Afar Region and addresses the limited empirical evidence on how business planning skills, infrastructure availability, technology adoption, and working premises relate to operational efficiency and financial stability, as well as whether government support moderates these relationships. A convergent parallel mixed-methods design was employed, combining quantitative analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM) with qualitative evidence from key informant interviews and focus group discussions. The findings show that business planning skills and government support have significant positive direct effects on both operational efficiency and financial stability. In contrast, infrastructure availability, technology adoption, and working premises do not have statistically significant direct effects. None of the eight tested interaction effects involving government support is statistically significant, providing no empirical evidence that government support moderates the relationships between the examined determinants and MSE performance. These findings suggest that MSE development interventions in pastoral settings should prioritize practical business-planning capabilities and accessible, context-sensitive government support while accounting for pastoral mobility, environmental uncertainty, market constraints, and institutional conditions. The study contributes context-specific evidence from an under-researched pastoral economy by distinguishing operational efficiency from financial stability and integrating quantitative structural modeling with qualitative evidence to provide a more nuanced understanding of MSE performance.

1. Introduction

Micro and small enterprises (MSEs) are widely recognized as important contributors to employment creation, income generation, poverty reduction, livelihood diversification, and inclusive economic development, particularly in developing economies where formal employment opportunities remain limited (Abate and Sheferaw 2023; Endris and Kassegn 2022; Hansen-Addy et al. 2024). Their contribution is especially significant in marginalized and resource-constrained regions, where MSEs can provide alternative income sources, strengthen household resilience, and facilitate participation in local markets. However, enterprise performance is not determined by entrepreneurial effort alone. Rather, it is shaped by the interaction of firm-level capabilities, access to productive resources, market conditions, infrastructure, and the broader institutional environment (Engidaw 2021a, 2021b; Wube and Atwal 2023).

These issues are particularly important in pastoral economies, where livelihoods are strongly influenced by climatic variability, seasonal mobility, natural-resource dependence, and communal resource-management systems. Pastoralism remains an important livelihood system in the Horn of Africa, including Ethiopia, and pastoral households face considerable exposure to environmental and socioeconomic risks (Davies and Bennett 2007; Mebratie 2021). In the Afar Region, recurrent drought, environmental vulnerability, weak infrastructure, limited market integration, and restricted access to

productive resources create substantial challenges for livelihood security and economic development (Asfaw et al. 2023; Davies and Bennett 2007; Mebratie 2021). In this context, MSEs can provide an important mechanism for livelihood diversification and resilience by reducing exclusive dependence on livestock-based activities and creating opportunities for income generation, local trade, and broader economic participation (Davies and Bennett 2007; Mebratie 2021).

Nevertheless, MSEs operating in Afar face a distinctive combination of internal and external constraints. Internal constraints include inadequate managerial capabilities, weak business-planning practices, limited record-keeping, and insufficient innovation capacity, while external constraints include restricted access to finance, infrastructure, technology, markets, suitable working premises, raw materials, and training opportunities (Engidaw 2021a, 2021b; Teka 2022). These constraints may reinforce one another, limiting the ability of enterprises to transform available capabilities and resources into sustained operational efficiency and financial stability. Evidence from Ethiopia indicates that internal business capabilities and external environmental conditions are important determinants of MSE performance, although their effects may vary according to the socioeconomic and institutional context in which enterprises operate (Alene 2020; Engidaw 2021a, 2021b; Wube and Atwal 2023). Consequently, findings derived primarily from urban, semi-urban, or agrarian settings cannot necessarily be generalized to enterprises operating within pastoral economies such as Afar.

The Ethiopian Government has established policies and support mechanisms intended to strengthen MSE development through access to finance, training, infrastructure, technology, market opportunities, and other business-development services (Musabayana et al. 2022; Nakku et al. 2020; Park et al. 2020; Zhang and Ayele 2022). Government support can therefore influence enterprise performance by improving the conditions under which firms acquire and utilize productive resources. Similarly, NGOs and development organizations have implemented interventions involving livelihood diversification, entrepreneurship development, capacity building, financial support, and market access. However, institutional support should not necessarily be conceptualized only as a direct determinant of enterprise performance. Institutional theory emphasizes that organizational activities and outcomes are influenced by the institutional structures, rules, norms, and support mechanisms within which enterprises operate (North 1990; Scott 2014). From this perspective, the effectiveness of enterprise resources and capabilities may depend on the institutional environment in which they are deployed. Government and NGO support may therefore strengthen or weaken the relationships between enterprise-level determinants and performance depending on the accessibility, relevance, consistency, and contextual appropriateness of the interventions provided. Empirical studies have similarly demonstrated that government support can influence SME performance and can alter the strength of relationships between firm-level capabilities and performance outcomes (Chen et al. 2023; Nakku et al. 2020; Otache and Usang 2022; Park et al. 2020; Zulu-Chisanga et al. 2021).

Despite the growing literature on MSE development, important gaps remain in the Ethiopian context. Existing studies have predominantly examined MSE constraints and performance in urban, semi-urban, or agrarian environments, whereas empirical evidence from pastoral economies—particularly Afar—

remains comparatively limited (Abate and Sheferaw 2023; Endris and Kassegn 2022; Teka 2022; Wube and Atwal 2023). Moreover, much of the existing research has focused on the direct effects of individual enterprise determinants without adequately examining how internal capabilities, external enabling conditions, and institutional support interact within an integrated analytical framework. The moderating role of government support has received comparatively limited attention, particularly within pastoral MSE settings. Consequently, it remains unclear whether institutional support merely improves MSE performance directly or whether it also changes the extent to which enterprise capabilities and external resources are translated into improved performance. This issue is particularly relevant in Afar, where pastoral mobility, environmental uncertainty, dispersed settlements, weak infrastructure, and institutional constraints create conditions that differ substantially from conventional enterprise environments (Davies and Bennett 2007; Mebratie 2021). Afar-specific research has predominantly focused on pastoral livelihoods, household resilience, and financial behavior rather than on the integrated determinants of MSE performance (Asfaw et al. 2023; Mebratie 2021).

The present study addresses these gaps by developing and empirically testing an integrated framework of MSE performance in the Afar Region. Specifically, the study examines the effects of business planning skills, infrastructure availability, technology adoption, and suitable working premises on two dimensions of MSE performance—operational efficiency and financial stability—while examining government support as a moderating mechanism rather than solely as an independent determinant. The emphasis on business planning is supported by evidence that planning can contribute to small-firm performance under appropriate contextual conditions (Brinckmann et al. 2010; Campagnolo et al. 2022), while infrastructure, technology, and other external conditions have also been identified as important dimensions of enterprise performance (Engidaw 2021b; Hassan et al. 2024; Kádárová et al. 2023; Wube and Atwal 2023). The study therefore moves beyond a simple direct-effects model by investigating whether government support changes the strength of relationships between enterprise determinants and performance outcomes (Chen et al. 2023; Nakku et al. 2020; Otache and Usang 2022; Park et al. 2020; Zulu-Chisanga et al. 2021).

This integrated approach provides a more context-sensitive explanation of MSE performance within a pastoral economy and builds on Ethiopian evidence concerning internal business factors, external conditions, innovation, and institutional support (Alene 2020; Ayinaddis 2023; Engidaw 2021a, 2021b; Wube and Atwal 2023; Beta and Gezahegn 2025). The study contributes to the literature in three principal ways. First, it generates empirical evidence from an under-researched pastoral setting in Ethiopia, thereby extending the geographical and contextual scope of MSE performance research. Second, it integrates internal enterprise capabilities, external enabling conditions, and institutional support within a unified analytical framework rather than examining these factors exclusively through separate direct relationships. Third, it clarifies the conditional role of government support in shaping the relationship between enterprise-level determinants and MSE performance. The findings are expected to provide useful evidence for policymakers, regional authorities, NGOs, and development practitioners seeking to design more integrated, context-specific, and sustainable interventions for MSE development in Afar and comparable fragile pastoral economies.

For transparency, the present study builds on previous research on MSEs in Afar, Ethiopia, which examined the moderating role of NGO support (Abubeker et al. 2025). However, the two studies address substantially different determinants and institutional mechanisms. The previous study focused on access to finance, market access, raw material availability, and training opportunities, with NGO support examined as the moderating variable (Abubeker et al. 2025). In contrast, the present study focuses on business planning skills, infrastructure availability, technology adoption, and suitable working premises, with government support examined as the moderating variable. Accordingly, although both studies form part of the broader research programme on MSE performance in Afar, the present study addresses a distinct set of determinants and examines a different institutional support mechanism.

General Objective

The general objective of this study is to examine the extent to which government support directly and indirectly enhances the operational efficiency and financial stability of Micro and Small Enterprises operated by pastoralist entrepreneurs in the Afar Region of Ethiopia.

Specific Objectives

1. To evaluate the direct effects of business plan skills, infrastructure availability, technology adoption, availability of working premises, and government support on the operational efficiency and financial stability of pastoralist-operated MSEs in the Afar Region.
2. To examine the moderating effects of government support, particularly how it interacts with business plan skills, infrastructure availability, technology adoption, and availability of working premises in influencing the operational efficiency and financial stability of MSEs in the Afar Region.

2. Related Literature Review

2.1 Study Area and MSE Context in Afar Region

The study was conducted in the Afar National Regional State of northeastern Ethiopia, a predominantly pastoral region characterized by arid and semi-arid conditions, recurrent climatic shocks, geographical dispersion, limited infrastructure, and weak integration with formal markets and services. Pastoral livelihoods are strongly influenced by mobility, environmental variability, communal resources, and adaptive strategies, creating an economic environment that differs substantially from relatively settled urban and agrarian settings (Engidaw 2021b; Musabayana et al. 2022; Brinckmann et al. 2010). These contextual characteristics are important because they shape entrepreneurs' access to productive resources, markets, infrastructure, and institutional services.

Micro and small enterprises (MSEs) increasingly contribute to livelihood diversification in such settings by providing opportunities for income generation, employment, trade, and local market participation beyond livestock-based activities. However, Ethiopian MSEs commonly face constraints related to finance, infrastructure, working premises, marketing, entrepreneurial capabilities, and institutional

services (Hair et al. 2021; Hansen-Addy et al. 2024; Hasani et al. 2023; Wube and Atwal 2023). These constraints may be more pronounced in pastoral areas because geographical dispersion and environmental uncertainty increase the challenges of accessing formal financial institutions, markets, infrastructure, technology, and business-development services (Musabayana et al. 2022; Brinckmann et al. 2010).

Enterprise activity is also embedded in social relationships and customary institutions. Trust, reciprocity, networks, and community relationships can facilitate access to information, labour, informal finance, customers, and mutual assistance, particularly where formal institutions are limited (Otache and Usang 2022; Zimmerman 2000). However, such informal mechanisms may not fully substitute for formal finance, infrastructure, technology, markets, and business-development services required for sustained enterprise development.

Consequently, MSE performance in the Afar Region cannot be adequately explained by enterprise-level resources alone. As illustrated in Fig. 1, Geographical Location of the Afar National Regional State within Ethiopia, the region's distinctive pastoral setting, geographical dispersion, environmental uncertainty, and limited access to formal economic and institutional services create conditions in which enterprise outcomes are shaped by the interaction of entrepreneurial capabilities, external resources, social relationships, and institutional support. This contextual complexity provides the rationale for integrating Empowerment Theory, Agency Theory, Social Capital Theory, and Institutional Theory to develop a more comprehensive explanation of MSE performance in the pastoral context.

Figure 1. Geographical location of Afar National Regional State, Ethiopia. The map shows the location of Afar National Regional State within Ethiopia and provides the geographical context of the study area. **Source**: Developed by the authors based on administrative boundary data, no copyrighted material was reproduced.

2.2 MSE Operating Environment and Performance

MSE performance is influenced by both internal capabilities and the external environment in which enterprises operate. Ethiopian evidence identifies finance, infrastructure, working premises, technology, markets, skills, and institutional support as recurrent factors affecting enterprise sustainability, growth, and performance (Hansen-Addy et al. 2024; Hasani et al. 2023; Hair et al. 2021; Wube and Atwal 2023; Abubeker et al. 2025).

Infrastructure affects enterprise activity by influencing transaction costs and access to markets and services. Roads facilitate the movement of inputs and products, electricity supports production and service delivery, and telecommunications facilitate information exchange and business communication. Ethiopian studies identify infrastructure as an important determinant of MSE performance, while evidence from the Ethiopian entrepreneurial ecosystem also indicates that the broader business environment and access to supporting services are relevant to enterprise outcomes (Hasani et al. 2023; Zimmerman 2000). Working premises similarly provide space for production, storage, customer

interaction, security, and business administration, and inadequate working space has been identified as a recurrent constraint on MSE sustainability and growth (Wube and Atwal 2023; Hair et al. 2021).

Technology adoption can improve communication, information access, marketing, record management, transaction processing, and other business activities. Evidence from Ethiopian MSEs indicates that innovation and technology-related capabilities are associated with improved enterprise performance, although their benefits depend on the conditions under which enterprises operate (Campagnolo et al. 2022; Zimmerman 2000). Ethiopian evidence further indicates that innovation orientation is positively associated with firm performance among micro and small manufacturing enterprises, reinforcing the relevance of technology- and innovation-related practices to business outcomes (Campagnolo et al. 2022).

Business planning represents an important entrepreneurial capability because it enables entrepreneurs to establish objectives, assess market conditions, anticipate risks, allocate resources, and coordinate activities. Evidence suggests that business planning and entrepreneurial capabilities can improve enterprise performance, although their effectiveness may depend on the availability of resources and the surrounding business environment (Chrisman et al. 2015; Asfaw et al. 2023; Hansen-Addy et al. 2024). Ethiopian evidence further demonstrates that internal business factors, including managerial and entrepreneurial characteristics, are associated with firm performance (Hansen-Addy et al. 2024).

In this study, these factors are examined against two dimensions of MSE performance: operational efficiency and financial stability. Performance is multidimensional and can include efficiency, productivity, profitability, growth, continuity, and resilience (Teka 2022). Operational efficiency reflects effective resource utilization, productivity, continuity, and the efficient conduct of business activities, whereas financial stability reflects financial resource management, cost control, liquidity, sustainable returns, and the ability to continue operations. Distinguishing these dimensions is particularly relevant in resource-constrained environments because operational continuity and financial stability may not change simultaneously (Teka 2022).

2.3 Theoretical Literature Review

2.3.1 Integrated Theoretical Perspective

No single theory adequately explains MSE performance in a pastoral and resource-constrained economy. Entrepreneurs require capabilities to make and implement decisions; resources and infrastructure provide conditions for business activity; social relationships facilitate access to otherwise scarce resources; and institutions determine the rules, services, and opportunities within which enterprises operate.

Accordingly, this study integrates four complementary theories. Empowerment Theory explains how knowledge, skills, resources, and opportunities strengthen entrepreneurs' capacity to act (Zimmerman 2000). Agency Theory explains decision-making, information asymmetry, control, and resource allocation

under uncertainty, with recent SME research demonstrating the continued relevance of agency-based explanations to resource and performance relationships (Jensen and Meckling 1976; Minola et al. 2021). Social Capital Theory explains how trust, reciprocity, and networks facilitate access to information and resources; empirical evidence from SMEs shows that social interactions, trust, and business networks facilitate knowledge access and contribute to enterprise outcomes (Boateng et al. 2022; Woolcock 2000). Institutional Theory explains how formal rules, policies, organizations, and informal norms shape economic opportunities and constraints, while empirical evidence demonstrates the importance of government policies and institutional conditions for SME performance (North 1990; Musabayana et al. 2022).

The integrated logic is therefore:

Business capabilities and resources → entrepreneurial capacity and resource utilization → operational efficiency and financial stability.

Government support adds two theoretically distinct pathways: **Government support → operational efficiency and financial stability**, and

Government support × determinant → performance, whereby institutional conditions may strengthen or weaken the effectiveness of enterprise capabilities and resources. Empirical evidence supports the relevance of government support to SME performance and demonstrates that its effects can depend on enterprise-level and institutional conditions (Otache and Usang 2022; Zhang and Ayele 2022).

2.3.2 Empowerment Theory

Empowerment Theory conceptualizes empowerment as the development of capacity, control, participation, and influence over decisions affecting individuals and communities (Zimmerman 1995, 2000). Applied to MSEs, the theory suggests that entrepreneurs perform more effectively when they possess the knowledge, skills, resources, and opportunities required to make and implement business decisions. Recent evidence from Ethiopia similarly highlights the importance of entrepreneurial capabilities in improving MSME performance within resource-constrained and uncertain environments (Beta and Gezahegn 2025).

This perspective directly supports the role of business planning skills. Planning enables entrepreneurs to establish objectives, anticipate risks, organize activities, and allocate scarce resources, thereby increasing their capacity to exercise control over enterprise decisions. Evidence from small firms confirms that business planning is positively associated with firm performance, although the strength of this relationship depends on contextual conditions (Brinckmann et al. 2010). The theory also explains the relevance of technology adoption, because technology can expand access to information, communication, markets, financial services, and business-management tools. However, these benefits depend on entrepreneurs' ability to use technology and access complementary resources (Hassan et al. 2024).

Empowerment Theory further supports government support because training, information, financial facilitation, infrastructure, and business-development services can expand entrepreneurs' effective opportunities and capacity to act (Zimmerman 2000). Government support may therefore improve performance directly and potentially increase the capacity to convert other resources into productive outcomes. Empirical evidence shows that government support can contribute to SME performance and that complementary government support services can strengthen the effects of available enterprise resources (Nakku et al. 2020; Park et al. 2020).

2.3.3 Agency Theory

Agency Theory focuses on delegation, information asymmetry, monitoring, incentives, and control (Jensen and Meckling 1976). Although originally developed to explain owner–manager relationships, its underlying mechanisms are relevant to MSE entrepreneurs who allocate scarce resources under uncertainty and incomplete information. Agency-related mechanisms remain relevant to small-business decision-making, particularly where information, monitoring, and resource constraints affect the alignment between business decisions and enterprise outcomes (Minola et al. 2021; Brinckmann et al. 2010).

Business planning is particularly consistent with Agency Theory because planning requires entrepreneurs to identify objectives, estimate resource requirements, anticipate risks, and establish procedures for implementation. These processes can reduce uncertainty and improve resource-allocation decisions (Brinckmann et al. 2010). The same mechanism is relevant to financial stability because effective financial outcomes depend on control, monitoring, cost management, and informed resource allocation (Jensen and Meckling 1976; Minola et al. 2021).

Agency Theory also helps explain why government support may produce different outcomes across enterprises. Government programs involve relationships between institutions providing support and enterprises receiving and utilizing it. Information asymmetry, administrative procedures, targeting, and implementation constraints can influence whether available support is effectively converted into enterprise benefits. Evidence on government support for SMEs similarly indicates that the effectiveness of support can vary according to enterprise conditions and the mechanisms through which support is delivered (Nakku et al. 2020; Park et al. 2020).

2.3.4 Social Capital Theory

Social Capital Theory emphasizes networks, trust, reciprocity, norms, and social relationships as mechanisms that facilitate collective action and access to resources (Putnam 2000; Woolcock 2000). This perspective is particularly relevant to Afar, where economic activities are embedded in community and clan-based relationships. Empirical research on SMEs similarly indicates that social relationships, trust, and business networks can facilitate access to information and resources and contribute to enterprise outcomes (Boateng et al. 2022; Tiwasing et al. 2023).

Social relationships may provide informal finance, labor, information, customers, and reciprocal assistance when formal markets and institutions are limited. At the same time, relationships connecting entrepreneurs to external institutions can provide access to resources beyond immediate community networks (Woolcock 2000). Empirical evidence further indicates that social networks and interactions can facilitate knowledge and resource access among SMEs, supporting their business activities and performance (Boateng et al. 2022; Tiwasing et al. 2023).

Social capital is not directly measured as an independent construct in this study. It is therefore treated as a contextual theoretical lens rather than the basis for a separate hypothesis. Its principal relevance is to explain how informal networks and institutional linkages can shape the ability of MSEs to access resources and respond to constraints.

2.3.5 Institutional Theory

Institutional Theory explains how formal and informal institutions shape incentives, constraints, opportunities, and economic behavior (North 1990; Scott 2014). Institutions include regulatory arrangements, policies, organizations, infrastructure systems, support programs, norms, and customary practices. Empirical research on entrepreneurship and MSEs confirms the importance of the institutional environment, including government policies and business-support conditions, in shaping enterprise performance (Musabayana et al. 2022; Wube and Atwal 2023).

This perspective is especially relevant to Afar because MSEs operate within both formal institutions—such as government programs, financial systems, infrastructure arrangements, and regulations—and informal institutions involving customary norms, trust, reciprocity, and community practices. These institutional conditions form part of the environment within which MSEs access resources and conduct their activities (Wube and Atwal 2023).

Institutional Theory provides the strongest theoretical foundation for government support as both a direct determinant and a moderator. Government institutions can directly reduce constraints by facilitating access to finance, training, infrastructure, information, markets, technology, and business-development services (Nakku et al. 2020; Zhang and Ayele 2022). At the same time, institutional conditions can determine whether entrepreneurs are able to transform existing capabilities and resources into performance. Thus, government support can alter the strength of the relationships between business planning, infrastructure, technology, working premises, and enterprise performance. Empirical evidence indicates that government support can influence SME performance and can also affect the strength of relationships between enterprise-level factors and performance (Otache and Usang 2022; Park et al. 2020).

2.4 Empirical Literature and Hypothesis Development

2.4.1 Business Plan Skills and MSE Performance

Business planning provides a mechanism for setting objectives, anticipating risks, coordinating activities, and allocating resources (Brinckmann et al. 2010). Empowerment Theory suggests that planning strengthens entrepreneurial control and capacity, while Agency Theory indicates that planning can reduce uncertainty and improve resource allocation (Jensen and Meckling 1976; Zimmerman 2000).

Empirical research identifies planning and entrepreneurial capabilities as relevant to business performance, although their effects vary across contexts (Brinckmann et al. 2010). Ethiopian studies similarly identify entrepreneurial capability among important determinants of MSE performance (Alene 2020; Engidaw 2021a). In Afar, planning may be particularly important because entrepreneurs must allocate scarce resources and respond to environmental and market uncertainty.

H1a

Business plan skills positively influence the operational efficiency of MSEs in the Afar Region.

H1b

Business plan skills positively influence the financial stability of MSEs in the Afar Region.

2.4.2 Infrastructure Availability and MSE Performance

Infrastructure influences business performance by affecting transaction costs, market access, mobility of inputs and products, information flows, and continuity of operations (Engidaw 2021b). Ethiopian evidence identifies infrastructure as an important MSE constraint, while empirical evidence from Lalibela indicates that infrastructure factors are associated with MSE industry performance (Engidaw 2021b).

The expected relationship is therefore two-dimensional: infrastructure may improve operational efficiency by reducing disruptions and transaction costs and financial stability by facilitating market access and reducing operating expenses.

H2a

Infrastructure availability positively influences the operational efficiency of MSEs in the Afar Region.

H2b

Infrastructure availability positively influences the financial stability of MSEs in the Afar Region.

2.4.3 Technology Adoption and MSE Performance

Technology can improve information access, communication, marketing, record management, and transaction efficiency. Recent empirical evidence demonstrates that technology adoption can contribute to SME performance and business sustainability, although the benefits of technology adoption depend on the conditions under which it is implemented (Kádárová et al. 2023; Kurniasari et al. 2023). Evidence

further indicates that technology adoption, together with complementary organizational resources, is associated with improved business performance (Hassan et al. 2024).

Thus, technology is expected to improve both operational and financial outcomes, although its effectiveness may be context dependent.

H3a

Technology adoption positively influences the operational efficiency of MSEs in the Afar Region.

H3b

Technology adoption positively influences the financial stability of MSEs in the Afar Region.

2.4.4 Availability of Working Premises and MSE Performance

Suitable working premises provide the physical conditions required for production, storage, customer service, security, and enterprise organization. Ethiopian evidence identifies work-premises factors among the external factors associated with MSE industry performance, while inadequate working premises remain an important constraint affecting enterprise activities (Engidaw 2021b).

Accordingly, suitable premises are expected to support operational continuity and financial sustainability.

H4a

Availability of suitable working premises positively influences the operational efficiency of MSEs in the Afar Region.

H4b

Availability of suitable working premises positively influences the financial stability of MSEs in the Afar Region.

2.4.5 Government Support and MSE Performance

Government support encompasses training, business-development services, financial facilitation, market linkage, infrastructure provision, information, and technology-related assistance. Institutional Theory predicts that effective institutions reduce constraints and facilitate productive economic activity. Empirical evidence indicates that government support and related support services are associated with SME survival, growth, and performance (Nakku et al. 2020; Park et al. 2020).

Empirical evidence from Ethiopia indicates that external factors, including infrastructure, financial factors, marketing factors, work premises, and political-legal conditions, are relevant to MSE industry performance (Engidaw 2021b). Government support is therefore expected to produce direct performance benefits by improving access to resources and services.

H5a

Government support positively influences the operational efficiency of MSEs in the Afar Region.

H5b

Government support positively influences the financial stability of MSEs in the Afar Region.

2.4.6 Moderating Role of Government Support

The study extends the direct-effect model by examining whether government support changes the strength of relationships between enterprise determinants and performance. Institutional Theory provides the primary basis for this proposition because institutional arrangements determine the conditions under which capabilities and resources can be converted into productive outcomes. Empowerment Theory complements this argument by emphasizing that institutional interventions can increase entrepreneurs' capacity and access to resources. Social Capital Theory further suggests that government programs can create linking relationships between entrepreneurs and institutions controlling resources and services.

Business planning may generate stronger outcomes when entrepreneurs can access government-supported training, finance, market information, or business-development services. Similarly, technology may generate greater benefits when connectivity, digital services, and institutional support are available. Infrastructure and working premises may also be more productive when government institutions facilitate access and utilization.

However, the theoretical argument does not imply that moderation must always be positive. Institutional effectiveness depends on accessibility, coordination, implementation quality, and contextual relevance. This distinction is important because the study empirically tests moderation rather than assuming that government support strengthens every relationship. Empirical research demonstrates that government support can moderate the relationship between enterprise capabilities and performance, while other evidence shows that the effectiveness of government support depends on the support services accompanying it (Otache and Usang 2022; Park et al. 2020).

H6a

Government support positively moderates the relationship between business plan skills and operational efficiency.

H6b

Government support positively moderates the relationship between business plan skills and financial stability.

H7a

Government support positively moderates the relationship between infrastructure availability and operational efficiency.

H7b

Government support positively moderates the relationship between infrastructure availability and financial stability.

H8a

Government support positively moderates the relationship between technology adoption and operational efficiency.

H8b

Government support positively moderates the relationship between technology adoption and financial stability.

H9a

Government support positively moderates the relationship between availability of suitable working premises and operational efficiency.

H9b

Government support positively moderates the relationship between availability of suitable working premises and financial stability.

2.5 Integrated Theoretical Logic and Conceptual Framework

The four theories provide complementary explanations of MSE performance, with Empowerment Theory emphasizing entrepreneurial capabilities, Agency Theory highlighting planning, control, and resource allocation, Social Capital Theory explaining resource access through networks and relationships, and Institutional Theory emphasizing the role of institutional conditions and government support (Jensen and Meckling 1976; North 1990; Putnam 2000; Scott 2014; Woolcock 2000; Zimmerman 2000). Recent empirical evidence from Ethiopia similarly demonstrates that enterprise performance is associated with

entrepreneurial capabilities and the broader political–legal and business-support environment (Abate and Sheferaw 2023; Wube and Atwal 2023). As shown in Fig. 2, business plan skills, infrastructure availability, technology adoption, and working premises are hypothesized to influence operational efficiency and financial stability, while government support has both direct effects on MSE performance and moderating effects on the relationships between these four determinants and performance. Evidence from SME research also supports the relevance of government support as both a performance-related factor and a condition that can influence relationships between enterprise-level factors and performance (Nakku et al. 2020; Endris and Kassegn 2022).

Figure 2. Conceptual framework of the determinants and moderating factor of MSE performance. The framework illustrates the proposed direct relationships of business planning skills, infrastructure availability, technology adoption, and working premises with operational efficiency and financial stability, and the moderating role of government support.

Source

Developed by the authors based on the literature review, 2025

Overall, this framework provides a structured basis for examining how key resource-related determinants—both directly and in interaction with institutional support mechanisms—shape the performance trajectories of MSEs in fragile pastoral settings. It highlights the interconnected roles of resource endowments, support systems, and contextual constraints in determining enterprise outcomes, thereby offering valuable insights for policy formulation and targeted development interventions.

2.6 Research Gap and Theoretical Contribution

Three principal gaps emerge from the reviewed literature. First, much Ethiopian MSE research has focused on urban, manufacturing, or relatively settled environments, whereas considerably less attention has been given to pastoral economies characterized by mobility, environmental uncertainty, geographical dispersion, and distinctive informal institutions. Recent Ethiopian research on MSEs has predominantly examined metropolitan and conventional enterprise settings, including manufacturing, construction, and urban agriculture, demonstrating the continuing geographical and contextual concentration of the evidence base (Wube and Atwal 2023). Findings from conventional MSE settings may therefore not fully explain enterprise performance in Afar.

Second, previous studies have examined determinants such as finance, infrastructure, working premises, technology, entrepreneurial capability, and institutional support, but these factors are often examined separately rather than through an integrated theoretical explanation. Recent Ethiopian evidence demonstrates the importance of finance, training, raw materials, experience, and other enterprise-related factors, while research on the entrepreneurial ecosystem emphasizes the role of government and other institutional actors in MSE performance (Abate and Sheferaw 2023; Wube and Atwal 2023). The present study addresses this fragmentation by combining four complementary theoretical perspectives and linking specific theories to specific constructs and performance mechanisms.

Third, although government and other institutional actors are recognized as important components of the entrepreneurial ecosystem, insufficient attention has been given to distinguishing government support's direct contribution to MSE performance from its conditional influence on determinant–performance relationships. Recent evidence indicates that government support can contribute to SME performance and that the effectiveness of support can depend on complementary support services and enterprise conditions (Otache and Usang 2022; Park et al. 2020; Nakku et al. 2020). The present framework explicitly incorporates both effects.

The study therefore contributes a context-sensitive theoretical and empirical framework in which entrepreneurial capability, external resources, institutional support, and social mechanisms jointly explain MSE performance. Its specific contribution is not to assume that all conventional enterprise resources necessarily produce uniform effects, but to examine whether their effects differ according to the institutional conditions in which pastoral MSEs operate.

3. Methods

3.1 Research Design and Study Period

This study employed a convergent parallel mixed-methods design guided by a pragmatic research philosophy to examine the determinants of micro and small enterprise (MSE) performance in Ethiopia's Afar Region, with particular emphasis on the moderating role of government support. The quantitative component constituted the principal strand and employed a structured questionnaire and Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine the relationships between business planning skills, infrastructure availability, technology adoption, availability of working premises, government support, and MSE performance. The qualitative component complemented the survey through Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) to obtain contextual explanations of institutional support, enterprise constraints, and entrepreneurial experiences in pastoral and semi-urban settings. The two strands were analyzed separately and integrated during interpretation through triangulation and joint comparison of findings. The convergent design was considered appropriate because MSEs in Afar operate under conditions characterized by mobility, low literacy, environmental variability, weak infrastructure, and institutional constraints.

The temporal scope of the study was defined by field data collection conducted from June to July 2025 in the Afar Region, Ethiopia. During this period, the quantitative questionnaire was administered and the qualitative KIIs and FGDs were conducted.

3.2 Target Population and Sampling Procedure

The target population comprised MSE operators in the Afar Region operating in pastoral, rural, peri-urban, and urban settings. The quantitative sampling frame was primarily constructed from official enterprise registries maintained by the Afar Regional Labor and Skills Bureau and supplemented with

woreda-level trade-office records and MSE development-agency information to improve coverage of enterprises in remote pastoral communities. The resulting population comprised 11,631 active MSEs.

A stratified random sampling procedure was employed for the quantitative component. The population was first stratified according to relevant enterprise characteristics and geographic settings to ensure adequate representation of MSEs operating under different economic and pastoral conditions. The required sample size was determined using Yamane's (1967) formula at a 5% margin of error, resulting in 387 MSE owners/managers. The sample was proportionally allocated across the identified strata, after which enterprises were selected from the sampling frame. The final sample comprised 267 micro enterprises and 120 small enterprises.

For the qualitative component, purposive sampling was used to select information-rich participants with direct knowledge of MSE activities and institutional support. KIIs and FGDs included MSE operators, government officials, NGO representatives, community elders, youth entrepreneurs, and women entrepreneurs. This approach enabled the qualitative strand to capture institutional and socio-cultural perspectives that could not be adequately represented through the structured survey alone.

3.3 Instrument Development, Validation, and Pre-testing

The quantitative questionnaire was developed from previously validated measurement approaches and adapted to the socio-economic and pastoral context of Afar. The study's constructs were measured using multi-item five-point Likert scales, ranging from 1 = strongly disagree to 5 = strongly agree. Items were contextualized to account for pastoral mobility, seasonal market conditions, low literacy, informal business practices, and infrastructure constraints.

The study focused on four independent variables: business planning skills, infrastructure availability, technology adoption, and availability of working premises. Government support was specified as the moderating variable, while MSE performance was measured through operational efficiency and financial stability. These constructs were operationalized using observable indicators reflecting enterprise planning, access to and adequacy of infrastructure, use of technology, suitability of business premises, government assistance, resource utilization, business continuity, liquidity, profitability, and resilience to shocks.

Content validity was addressed through expert and contextual review before field administration. The validation involved local advisors, community members, development practitioners, and academic supervisors, with attention to cultural appropriateness, gender sensitivity, linguistic accessibility, and alignment with pastoral practices. Feedback was incorporated through iterative refinement of wording, translation, and contextual examples.

A pilot study was conducted with 40 MSE respondents and three trial KIIs and FGD in districts excluded from the main study. The pilot was used to assess item clarity, linguistic appropriateness, cultural relevance, and respondent comprehension. Reliability testing produced Cronbach's alpha coefficients

ranging from 0.72 to 0.84, with managerial skills and NGO-support measures demonstrating particularly strong reliability; access to finance was comparatively weaker in the broader dissertation instrument.

Exploratory Factor Analysis (EFA) was conducted using Principal Axis Factoring with Promax rotation. The analysis supported the theoretical structure of the measurement instrument, and weak or cross-loading items were reviewed during instrument refinement. Importantly, EFA was treated as preliminary evidence of construct validity rather than as definitive confirmation. Final construct reliability and validity were subsequently assessed using indicator loadings, Cronbach's alpha, Composite Reliability (CR), and Average Variance Extracted (AVE) in the PLS-SEM measurement model, consistent with Hassan et al. (2024) and Kraus et al. (2021).

3.4 Data Collection Procedures

Quantitative and qualitative data were collected using culturally and linguistically adapted instruments. The questionnaire was administered through face-to-face interviews by trained enumerators, an approach adopted to address literacy constraints and ensure consistent interpretation of the measurement items. Enumerators were selected based on fluency in Afar Af and Amharic and familiarity with pastoral norms and local livelihood practices. They received four days of training covering ethical conduct, voluntary participation, confidentiality, questionnaire administration, translation, and culturally appropriate communication.

The qualitative component used semi-structured KIIs and FGDs to explore institutional support, enterprise constraints, market conditions, coping mechanisms, and experiences of MSE operators. Instruments were translated into Afar Af and Amharic, with translation and contextual adaptation undertaken to improve conceptual consistency. Field activities were scheduled with consideration of pastoral mobility and market-day patterns.

3.5 Variable Operationalization and Measurement

The study examined four independent variables: business planning skills, infrastructure availability, technology adoption, and availability of working premises. Business planning skills represented the extent to which MSE operators formulate, use, and implement business plans and goals. Infrastructure availability reflected the accessibility and adequacy of facilities and utilities necessary for business operations. Technology adoption represented the use of appropriate technologies to improve business efficiency and market-related activities. Availability of working premises reflected the suitability and accessibility of premises for conducting enterprise activities.

Government support was specified as the moderating variable and represented government-provided assistance relevant to MSE development, including training, financial assistance, infrastructure-related support, and enterprise development services. MSE performance was operationalized through two dimensions: operational efficiency, reflecting effective resource utilization, continuity, productivity, and adaptation; and financial stability, reflecting liquidity, profitability, financial continuity, and resilience to shocks.

All constructs were measured using five-point Likert-type items and treated as latent variables in the PLS-SEM analysis. The measurement approach was designed to provide consistent operationalization while retaining sensitivity to the specific conditions of MSEs operating in Afar's pastoral economy.

3.6 Data Analysis

Quantitative data were analyzed using SPSS Version 27 and SmartPLS Version 4. SPSS was used for data screening, descriptive statistics, and preliminary analysis, while SmartPLS was used to assess the measurement and structural models and test the hypothesized direct and moderating relationships. Measurement-model assessment included indicator loadings, Cronbach's alpha, Composite Reliability (CR), convergent validity through Average Variance Extracted (AVE), and discriminant validity.

Qualitative data were analyzed using NVivo 12 through thematic analysis, involving familiarization, coding, categorization, theme development, and validation. The quantitative and qualitative findings were subsequently integrated through triangulation and joint interpretation to enhance contextual validity and explanatory depth.

3.7 Ethical Considerations and Informed Consent

The study was conducted in accordance with established ethical principles for research involving human participants and received ethical approval from the University of Gondar prior to data collection. To facilitate access to the selected micro and small enterprises (MSEs) and support the fieldwork, the Afar National Regional State Labor and Skills Bureau, through the Micro and Small Enterprise Development Directorate, provided an official facilitation letter to the concerned offices and selected MSEs. Before data collection, trained enumerators explained the purpose, procedures, and voluntary nature of the study to prospective participants in a language they understood. Oral informed consent was obtained from all participants before their participation. Oral consent was considered appropriate because many participants had limited educational and literacy levels, making verbal communication more effective for ensuring that the study information, participants' rights, and consent requirements were clearly understood.

Participation was entirely voluntary, and participants were informed that they could decline to participate or withdraw from the study at any time without penalty or adverse consequences. Confidentiality and anonymity were maintained throughout the research process, and collected information was securely handled and used solely for academic purposes. The institutional facilitation provided by the Afar National Regional State Labor and Skills Bureau, through the Micro and Small Enterprise Development Directorate, was limited to supporting access to the selected MSEs and facilitating data collection and did not substitute for individual informed consent. Particular attention was given to linguistic accessibility, gender-sensitive facilitation, respect for local socio-cultural norms, and culturally appropriate engagement with MSE operators and pastoral communities.

4. Findings

4.1 Quantitative Findings

4.1.1 Demographic Profile of Respondents

Table 1 summarizes the demographic characteristics of the 384 valid respondents (*n* = 384), obtained from 387 distributed questionnaires, representing a 99.22% response rate. Frequencies (*n*) and percentages (%) are reported for each categorical characteristic.

Male respondents constituted 64.6% of the sample, while females accounted for 35.4%. The largest age group was 21–30 years (39.8%), followed by 31–45 years (24.5%), under 20 years (21.1%), and above 45 years (14.6%). Regarding education, 40.1% had below-high-school education, 35.2% had completed high school, 19.8% had no formal education, and 4.9% had college-level education.

Business experience varied across the sample. Respondents with 6–10 years of experience represented the largest proportion (38.0%), followed by those with 1–5 years (31.0%), more than 10 years (19.5%), and less than one year (11.5%). Overall, the profile indicates a relatively young owner-manager sample with varied business experience and generally limited formal educational attainment. These characteristics provide relevant contextual information for interpreting the subsequent analysis of entrepreneurial capabilities, institutional support, and MSE performance.

Table 1
Demographic characteristics of MSE owner-managers

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	248	64.6
	Female	136	35.4
Age	Under 20 years	81	21.1
	21–30 years	153	39.8
	31–45 years	94	24.5
	Above 45 years	56	14.6
Education	No formal education	76	19.8
	Below high school	154	40.1
	High school	135	35.2
	College	19	4.9
Business experience	< 1 year	44	11.5
	1–5 years	119	31.0
	6–10 years	146	38.0
	> 10 years	75	19.5
Total	Valid respondents	**384**	**100.0**
Note: *Values are presented as frequency (n) and percentage (%).*			

Source

Field survey data, 2025.

4.1.2 Descriptive Statistics

Table 2 summarizes the descriptive characteristics of the study constructs based on the 384 valid observations (*n* = 384). The mean scores indicate moderate levels across the measured constructs, with values ranging from 2.818 for operational efficiency to 3.077 for working premises. Standard deviations (s.d.) ranged from 0.678 to 1.153, indicating variation in respondents' assessments across the constructs.

Distributional characteristics were assessed using skewness and kurtosis. The reported ranges indicate no pronounced departure from the observed response distributions. Because PLS-SEM does not require multivariate normality, these statistics were used to characterize the data rather than as a strict

normality assumption for model estimation. The descriptive results also indicate that operational efficiency (M = 2.818) and financial stability (M = 2.915) were assessed at broadly moderate levels, providing the descriptive context for the subsequent measurement and structural model analyses.

Table 2
Descriptive statistics of study constructs

Construct	*n*	Mean	s.d.	Skewness range	Kurtosis range
Business planning skills (X_1)	384	3.018	1.060	0.004–0.105	−0.716–−0.409
Infrastructure availability (X_2)	384	2.922	1.153	−0.678–0.763	−0.853–0.534
Technology adoption (X_3)	384	2.951	1.082	0.006–0.073	−0.696–−0.441
Working premises (X_4)	384	3.077	1.077	−0.044–0.083	−0.707–−0.547
Government support (M_1)	384	2.878	0.678	−0.103–0.256	−0.052–0.873
Operational efficiency (Y_1)	384	2.818	0.786	−0.081–0.281	−0.325–0.309
Financial stability (Y_2)	384	2.915	0.678	−0.109–0.144	−0.188–1.151

Note: *M = mean; s.d. = standard deviation. Skewness and kurtosis are reported as ranges across the indicators comprising each construct.*

Source

Field survey data and PLS-SEM output, 2025.

4.2 Data Screening and Preliminary Diagnostics

The 387 returned questionnaires were screened for completeness and consistency. Three questionnaires were excluded, leaving 384 valid observations for the subsequent analyses (*n* = 384). No missing observations requiring imputation were identified.

Collinearity was examined at both the measurement and structural levels using variance inflation factor (VIF) statistics. VIF was selected as an appropriate diagnostic for identifying redundancy among predictor variables and assessing the potential instability of estimated coefficients. As reported in Table 3, most outer-model VIF values were within a moderate range, although Infrastructure Availability showed a relatively elevated maximum VIF of 6.839. The inner-model results revealed greater collinearity, particularly for Government Support and its interaction terms. The highest values occurred for $M_1 \times X_1$ (VIF = 294.945) and $M_1 \times X_2$ (VIF = 248.369), while $M_1 \times X_3$ (VIF = 25.730) and $M_1 \times X_4$ (VIF = 25.559) also showed substantial inflation. Elevated VIF values were additionally observed for Government Support (VIF = 38.252), Business Planning Skills (VIF = 8.826), and Infrastructure Availability (VIF = 11.732) in the inner model.

These diagnostics indicate considerable collinearity in the structural specification, particularly among the moderation terms. Accordingly, the corresponding interaction estimates should be interpreted cautiously because high collinearity can increase coefficient instability and reduce the precision of estimated effects. The final sample and these preliminary diagnostics provide the basis for interpreting the subsequent measurement, structural, and moderation analyses.

Table 3
Collinearity Assessment

Model	Predictor	Maximum VIF
Outer model	Business planning skills (X_1)	3.547
	Infrastructure availability (X_2)	6.839
	Technology adoption (X_3)	3.034
	Working premises (X_4)	3.645
	Government support (M_1)	4.006
	Operational efficiency (Y_1)	4.518
	Financial stability (Y_2)	3.941
Inner model	$X_1 \rightarrow Y_1/Y_2$	8.826
	$X_2 \rightarrow Y_1/Y_2$	11.732
	$X_3 \rightarrow Y_1/Y_2$	1.108
	$X_4 \rightarrow Y_1/Y_2$	1.092
	$M_1 \rightarrow Y_1/Y_2$	38.252
	$M_1 \times X_1 \rightarrow Y_1/Y_2$	294.945
	$M_1 \times X_2 \rightarrow Y_1/Y_2$	248.369
	$M_1 \times X_3 \rightarrow Y_1/Y_2$	25.730
	$M_1 \times X_4 \rightarrow Y_1/Y_2$	25.559

Note: *VIF = variance inflation factor. Values represent the maximum VIF obtained for the indicated predictor across the specified endogenous constructs.*

Source

PLS-SEM output, 2025.

4.3 Measurement Model Assessment

The measurement model was assessed using indicator loadings, Cronbach's alpha (α), composite reliability (CR), average variance extracted (AVE), and the heterotrait–monotrait ratio (HTMT). The assessment was based on the 384 valid observations (n = 384). Indicator loadings were examined to assess item reliability, while Cronbach's alpha and CR were used to evaluate internal consistency. AVE was examined to assess convergent validity, and HTMT was used to evaluate discriminant validity.

As shown in Table 4, the constructs exhibit acceptable internal consistency and convergent validity. The indicator loading ranges, Cronbach's alpha, and CR values provide evidence of adequate measurement reliability, while the AVE values meet the commonly applied criterion for convergent validity. Accordingly, the measurement indicators demonstrate satisfactory reliability and convergence for the subsequent structural analysis.

Discriminant validity was assessed using the HTMT criterion (Table 5). Most construct pairs showed relatively low HTMT values; however, several pairs exceeded commonly applied threshold values. In particular, the HTMT ratios between Business Planning Skills and Government Support (X_1–M_1 = 0.987), Government Support and Operational Efficiency (M_1–Y_1 = 1.021), Government Support and Financial Stability (M_1–Y_2 = 1.038), and Operational Efficiency and Financial Stability (Y_1–Y_2 = 1.028) exceeded 0.90. Three of these ratios were also above 1.00. These results indicate substantial empirical overlap between the affected constructs and mean that discriminant validity is not fully established for these construct pairs.

Consequently, the structural and moderation results involving these constructs should be interpreted cautiously. In particular, the close association between Government Support and the two performance dimensions, and between the two performance dimensions themselves, should be considered when interpreting the estimated structural relationships. The measurement results therefore provide evidence of adequate reliability and convergent validity but indicate limitations in discriminant validity that should be acknowledged when evaluating the subsequent model results.

Table 4
Reliability and Convergent Validity

Construct	Loading range	Cronbach's α	Composite reliability (CR)	AVE
Business planning skills (X_1)	0.867–0.894	0.940	0.952	0.769
Infrastructure availability (X_2)	0.647–0.875	0.851	0.895	0.632
Technology adoption (X_3)	0.874–0.887	0.928	0.946	0.776
Working premises (X_4)	0.878–0.899	0.946	0.957	0.786
Government support (M_1)	0.792–0.895	0.945	0.954	0.724
Operational efficiency (Y_1)	0.835–0.913	0.951	0.960	0.774
Financial stability (Y_2)	0.796–0.897	0.935	0.947	0.720

Note: *n = 384. α = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted. Values are based on the PLS-SEM measurement model.*

Source

Field survey data and PLS-SEM output, 2025.

Table 5
HTMT Discriminant Validity Matrix

Construct	X_1	X_2	X_3	X_4	M_1	Y_1	Y_2
X_1 Business planning skills	—	0.647	0.051	0.055	**0.987**	—	—
X_2 Infrastructure availability		—	0.071	0.626	0.615	—	—
X_3 Technology adoption			—	0.052	0.057	—	—
X_4 Working premises				—	0.043	—	—
M_1 Government support					—	**1.021**	**1.038**
Y_1 Operational efficiency						—	**1.028**
Y_2 Financial stability							—

Note: *n = 384. HTMT = heterotrait–monotrait ratio. Bold values indicate HTMT ratios exceeding 0.90.*
Source: *PLS-SEM output, 2025.*

4.4 Structural Model and Hypothesis Testing

The structural model was evaluated using **partial least squares structural equation modeling (PLS-SEM)** with a nonparametric bootstrapping procedure based on **5,000 resamples** and **384 valid observations (n**

= 384). Statistical inference for the structural paths and interaction effects was based on **two-tailed tests at α = 0.05**. The bootstrap procedure was used because PLS-SEM does not require multivariate normality for parameter estimation or significance testing. The hypotheses tested the direct relationships between the four determinants and the two MSE performance dimensions, as well as the moderating effects of government support. Path coefficients (β), bootstrap *t*-statistics, and *p*-values were used to evaluate the hypothesized relationships.

The model produced an SRMR of 0.050. The coefficient of determination was $R^2 = 0.968$ for operational efficiency and $R^2 = 0.971$ for financial stability. Although these values indicate high explained variance within the estimated model, they should be interpreted cautiously in light of the substantial collinearity identified in the structural model and the discriminant-validity limitations reported in Section 4.3. Thus, the R^2 values should not be interpreted in isolation as evidence of exceptional predictive performance.

The direct-effect estimates are presented in Table 6. Business planning skills (X_1) had positive relationships with both operational efficiency and financial stability, with $p < 0.001$ for each relationship. Government support (M_1) also showed positive relationships with operational efficiency ($p = 0.004$) and financial stability ($p < 0.001$). By contrast, infrastructure availability (X_2), technology adoption (X_3), and working premises (X_4) did not provide evidence of direct effects on either performance dimension at the α = 0.05 level, with *p*-values ranging from 0.134 to 0.594. Accordingly, the hypotheses concerning X_1 and M_1 were supported, whereas those concerning X_2, X_3, and X_4 were not supported.

Table 6
Direct structural relationships

Structural path	β	*t*	*p*	Decision
$X_1 \rightarrow Y_1$	0.283	9.273	< 0.001	Supported
$X_1 \rightarrow Y_2$	0.097	3.658	< 0.001	Supported
$X_2 \rightarrow Y_1$	0.019	0.570	0.568	Not supported
$X_2 \rightarrow Y_2$	−0.036	1.200	0.230	Not supported
$X_3 \rightarrow Y_1$	−0.005	0.533	0.594	Not supported
$X_3 \rightarrow Y_2$	−0.015	1.497	0.134	Not supported
$X_4 \rightarrow Y_1$	0.012	1.108	0.268	Not supported
$X_4 \rightarrow Y_2$	0.009	0.948	0.343	Not supported
$M_1 \rightarrow Y_1$	0.202	2.920	0.004	Supported
$M_1 \rightarrow Y_2$	0.337	5.459	< 0.001	Supported

Note: *n = 384; β = standardized path coefficient; t = bootstrap t-statistic; p = two-tailed bootstrap p-value; α = 0.05. The structural model was estimated using PLS-SEM with 5,000 bootstrap resamples.* **Source**: *PLS-SEM structural model output, 2025.*

The moderation analysis examined whether government support altered the relationships between each of the four determinants and the two MSE performance dimensions. As shown in Table 7, none of the eight interaction terms reached the prespecified α = 0.05 threshold. The corresponding *p*-values ranged from 0.180 to 0.947. Therefore, the results provide no statistical evidence that government support moderates the relationships between business planning skills, infrastructure availability, technology adoption, or working premises and either operational efficiency or financial stability.

Table 7
Moderating effects of government support

Structural path	β	*t*	*p*	Decision
$M_1 \times X_1 \rightarrow Y_1$	−0.208	1.342	0.180	Not supported
$M_1 \times X_1 \rightarrow Y_2$	0.010	0.081	0.935	Not supported
$M_1 \times X_2 \rightarrow Y_1$	0.106	0.702	0.483	Not supported
$M_1 \times X_2 \rightarrow Y_2$	0.112	0.746	0.456	Not supported
$M_1 \times X_3 \rightarrow Y_1$	0.004	0.067	0.947	Not supported
$M_1 \times X_3 \rightarrow Y_2$	0.051	0.968	0.333	Not supported
$M_1 \times X_4 \rightarrow Y_1$	−0.025	0.396	0.692	Not supported
$M_1 \times X_4 \rightarrow Y_2$	−0.052	0.951	0.341	Not supported

Note: *n = 384; β = standardized interaction coefficient; t = bootstrap t-statistic; p = two-tailed bootstrap p-value; α = 0.05. Interaction effects were estimated using PLS-SEM with 5,000 bootstrap resamples.*
Source: *PLS-SEM structural model output, 2025.*

Taken together, the structural analysis provides evidence for positive direct relationships of business planning skills and government support with both dimensions of MSE performance, whereas the estimated direct relationships involving infrastructure availability, technology adoption, and working premises did not meet the α = 0.05 criterion. The moderation analysis likewise did not provide evidence of a government-support interaction for any of the four determinants across either performance outcome.

4.5 Qualitative Findings

The qualitative analysis drew on 84 KIIs and eight FGDs involving 96 participants. The participants included MSE owners/operators, government officials, NGO representatives, community leaders/elders, youth entrepreneurs, and women entrepreneurs. The qualitative analysis followed iterative familiarization, coding, theme development, and validation using NVivo.

Four closely related themes emerged: (1) business planning and enterprise capability; (2) infrastructure and operational constraints; (3) technology and working-premise limitations; and (4) institutional and community support.

Theme 1: Business Planning and Enterprise Capability

Participants consistently emphasized planning, budgeting, record keeping, and experience-based decision-making as important for maintaining operations and financial control. This qualitative evidence converges strongly with the quantitative finding that Business Plan Skills significantly predict both operational efficiency and financial stability. The triangulation similarly identifies business planning as the most robust internal determinant.

Theme 2: Infrastructure Constraints and Adaptive Responses

Participants described poor roads, unreliable electricity, weak telecommunications, and transportation difficulties as persistent constraints. Nevertheless, enterprises frequently adapted through flexible sourcing, informal transport arrangements, community networks, and seasonal adjustments. This helps explain why Infrastructure Availability was qualitatively recognized as an important constraint but did not produce a statistically significant direct relationship with either performance dimension.

Theme 3: Technology and Working Premises

Technology adoption was constrained by affordability, limited digital literacy, and weak network connectivity. Similarly, enterprises frequently operated from temporary or informal premises. The qualitative evidence therefore confirms the existence of structural constraints but suggests that entrepreneurs often compensate through low-cost and informal adaptations. The participants similarly reports incremental innovation, mobile tools, digital payments, and product diversification as contextual adaptations whose measurable performance effects remain limited.

Theme 4: Government Support and Institutional Environment

Government support emerged qualitatively as an important enabling mechanism through training, market facilitation, licensing, infrastructure-related assistance, and access to enterprise-development services. However, participants also identified bureaucratic delays, limited outreach, and difficulties accessing formal financial services. These findings converge with the significant direct effects of Government Support on both operational efficiency and financial stability.

The qualitative evidence also highlighted clan-based trust, informal credit, savings groups, and community cooperation as mechanisms through which entrepreneurs manage resource constraints. These informal mechanisms provide an important contextual explanation for how enterprises continue operating despite weaknesses in formal institutional and physical support systems.

4.6 Integration of Quantitative and Qualitative Findings

The mixed-methods findings demonstrate both convergence and divergence. Strong convergence was observed for Business Plan Skills and Government Support: survey evidence demonstrated significant positive relationships, while qualitative accounts explained how planning, budgeting, training,

information, and institutional assistance translated into improved operational and financial management.

Conversely, Infrastructure Availability, Technology Adoption, and Working Premises were not statistically significant, although qualitative participants identified these factors as important constraints. This divergence does not necessarily indicate contradiction. Rather, the qualitative evidence suggests that enterprises employ adaptive strategies—informal networks, flexible sourcing, seasonal adjustment, and community-based support—that may partially offset the measurable effects of structural constraints. It concludes that internal capabilities and adaptive strategies can partially compensate for infrastructural and institutional limitations.

5. Discussion

5.1 Business Plan Skills and MSE Performance

Business Plan Skills demonstrated the strongest and most consistent relationship with MSE performance, positively affecting both operational efficiency ($\beta = 0.283$, $p < 0.001$) and financial stability ($\beta = 0.097$, $p < 0.001$). This finding indicates that enterprises capable of planning activities, allocating resources, anticipating risks, and managing business priorities are better positioned to maintain operations and financial control under uncertain conditions. The qualitative findings reinforce this interpretation by showing that entrepreneurs use seasonal and experience-based planning to respond to pastoral mobility, changing markets, and resource constraints. This result is consistent with evidence that business planning is associated with enterprise performance, although the strength of the relationship may vary according to contextual conditions (Brinckmann et al. 2010; Campagnolo et al. 2022).

5.2 Infrastructure Availability and MSE Performance

Infrastructure Availability did not have a statistically significant effect on either operational efficiency or financial stability. This finding should not be interpreted as evidence that infrastructure is unimportant. Rather, the qualitative evidence indicates that entrepreneurs frequently compensate for infrastructure deficiencies through flexible transport arrangements, informal networks, alternative sourcing, and other adaptive practices. Thus, the insignificant statistical coefficient may reflect adaptation and heterogeneity among enterprises, rather than the absence of infrastructure constraints.

This finding is better interpreted through the institutional and contextual perspective of MSE operation: the effect of infrastructure depends on the broader institutional and socio-economic environment in which enterprises operate (North 1990; Scott 2014). Recent evidence from African SMEs similarly indicates that the effects of business-environment conditions on enterprise performance can vary according to institutional and firm-level contexts (Zulu-Chisanga et al. 2021). In Afar, informal institutions and community networks may partially compensate for deficiencies in formal infrastructure.

5.3 Technology Adoption and Working Premises

Technology Adoption and Working Premises also showed statistically insignificant effects on both performance dimensions. The qualitative evidence provides important contextual interpretation. Limited affordability, digital literacy, telecommunications, and reliable infrastructure restrict the extent to which technology can be transformed into measurable productivity gains. Similarly, many enterprises operate through flexible or temporary premises, making conventional measures of physical business location less directly relevant to performance.

These findings demonstrate that the availability of a resource does not automatically translate into performance benefits. Its effectiveness depends on complementary capabilities, institutional conditions, affordability, and contextual fit. This interpretation is consistent with evidence that the relationship between digitalization and SME outcomes depends on how digital technologies are integrated within enterprises and their operating conditions (Hassan et al. 2024; Kádárová et al. 2023).

5.4 Government Support and MSE Performance

Government Support had significant positive effects on operational efficiency ($\beta = 0.202$, $p = 0.004$) and financial stability ($\beta = 0.337$, $p < 0.001$). The stronger coefficient for financial stability suggests that institutional interventions may be particularly important in helping enterprises manage financial constraints, access support, and sustain operations.

The qualitative findings provide mechanisms underlying these relationships. Participants identified training, market facilitation, licensing support, financial assistance, and enterprise-development services as valuable interventions, while also reporting bureaucratic delays and uneven accessibility. These findings are consistent with evidence that government support can contribute to SME performance in developing economies and that the effectiveness of support may depend on the form and institutional context of the intervention (Nakku et al. 2020; Park et al. 2020; Zhang and Ayele 2022).

5.5 Moderating Role of Government Support

The moderation results show that Government Support did not significantly moderate the relationships between Business Plan Skills, Infrastructure Availability, Technology Adoption, or Working Premises and either operational efficiency or financial stability. All eight interaction effects were statistically non-significant ($p > 0.05$), indicating that the proposed moderating role of Government Support was not empirically supported in the relationships examined.

These findings suggest that, within the study model and context, Government Support functions more clearly as a direct enabling factor than as a mechanism that alters the effects of the four determinants on MSE performance. Government interventions may contribute to enterprise performance through the direct provision or facilitation of training, information, finance, infrastructure, and other institutional services, without necessarily strengthening the contribution of individual enterprise resources or capabilities. This interpretation is consistent with evidence that the effectiveness of government support depends on the type, accessibility, and implementation of the support provided (Park et al. 2020; Nakku et al. 2020).

5.6 Integrated Mixed-Methods Interpretation

The central contribution of the mixed-methods evidence is that the quantitative and qualitative strands explain different aspects of the same MSE-performance phenomenon. Quantitative analysis identifies the statistically measurable relationships, while qualitative evidence explains the mechanisms and contextual conditions underlying those relationships.

The strongest convergence concerns Business Plan Skills and Government Support. In contrast, the divergence surrounding infrastructure, technology, and working premises demonstrates that statistically insignificant relationships can coexist with substantial lived constraints. Entrepreneurs in Afar appear to employ informal institutions, community networks, flexible resource arrangements, and seasonal adaptation to compensate for structural deficiencies. MSE performance therefore emerges from the interaction of internal capabilities, external conditions, institutional support, and socio-cultural context.

Overall, the findings indicate that Business Plan Skills and Government Support are the most clearly supported determinants of MSE performance in the article's specified model, whereas Infrastructure Availability, Technology Adoption, and Working Premises do not demonstrate statistically significant direct effects. The qualitative evidence nevertheless confirms that structural constraints remain important because entrepreneurs actively develop adaptive mechanisms to cope with them.

The study therefore contributes a context-sensitive explanation of MSE performance in Afar: enterprise capability and institutional support generate measurable performance benefits, while informal social systems and adaptive practices help entrepreneurs compensate for structural limitations. This interpretation is consistent with broader evidence showing that enterprise performance can vary according to internal capabilities and the institutional and operating environment in which enterprises function (Zulu-Chisanga et al. 2021; Nakku et al. 2020).

6. Conclusion, Implications and Future Research Direction

6.1 Conclusion

This study concludes that business plan skills and government support are the most prominent determinants of MSE performance in the Afar Region. Business plan skills significantly enhance both operational efficiency and financial stability, highlighting the importance of entrepreneurs’ capacity to plan, allocate resources, manage risks, and respond to uncertainty. Government support likewise demonstrates significant positive direct effects on both performance dimensions; however, its moderating effects are largely insignificant, indicating that its contribution operates mainly through direct provision and facilitation of support rather than consistently strengthening the effects of other determinants. In contrast, infrastructure availability, technology adoption, and working premises show no significant direct effects on operational efficiency or financial stability. Nevertheless, the qualitative evidence confirms that these factors remain important contextual constraints, with MSEs often relying

on adaptive practices and informal mechanisms to sustain operations. Thus, the absence of significant direct effects should not be interpreted as evidence that these structural conditions are unimportant in the pastoral context.

Overall, the findings indicate that improving MSE performance in Afar requires an integrated approach that combines entrepreneurial capability development, effective institutional support, and improvements in the broader operating environment. Accordingly, interventions should prioritize practical, context-specific training in business planning, budgeting, financial management, and adaptive decision-making; strengthen direct government support through training, financial facilitation, market access, information, and enterprise-development services; and progressively improve infrastructure and connectivity while supporting affordable and context-appropriate technology adoption. Such interventions should be designed specifically around pastoral realities, including geographical dispersion, enterprise mobility, seasonal market conditions, and environmental uncertainty, to ensure that support is accessible, flexible, and responsive to the conditions under which MSEs operate.

6.2 Theoretical Contribution

The findings support an integrated application of Empowerment Theory, Agency Theory, Social Capital Theory, and Institutional Theory to explain MSE performance in pastoral settings. Together, the theories indicate that performance reflects entrepreneurial capability, resource-allocation decisions, social relationships, and institutional conditions.

Empowerment Theory is supported by the significant effect of business plan skills, suggesting that entrepreneurs' capacity to plan, allocate resources, anticipate risks, and respond to uncertainty contributes to operational efficiency and financial stability (Zimmerman 2000).

Agency Theory further explains this relationship by emphasizing decision-making, resource allocation, information, and control under uncertainty. Stronger planning capabilities can therefore improve resource-use decisions and business management (Jensen and Meckling 1976).

Social Capital Theory provides a contextual explanation for the qualitative evidence on trust, reciprocity, community networks, and informal support. Although social capital was not directly tested as an independent construct, these relationships can facilitate information, mutual assistance, and resource access where formal systems are limited (Putnam 2000; Woolcock 2000). Recent SME evidence likewise indicates an association between social capital and enterprise performance (Boateng et al. 2022; Tiwasing et al. 2023).

Institutional Theory provides the strongest explanation for the significant direct effect of government support. Government support can improve access to training, finance, information, markets, and other productive resources. However, its limited and selective moderating effects indicate that institutional support does not uniformly strengthen determinant–performance relationships; its effectiveness depends on accessibility, implementation, coordination, and contextual fit (North 1990; Scott 2014).

Recent evidence from African SMEs similarly indicates that institutional and regulatory conditions can have context-specific effects on enterprise performance (Zulu-Chisanga et al. 2021).

Overall, the findings extend the application of these four theories to a pastoral MSE context, showing that enterprise performance is better explained by the combined influence of entrepreneurial capability, decision-making, social mechanisms, and institutional support than by physical resources alone.

6.3 Practical and Policy Implications

The findings suggest that MSE development interventions should prioritize business planning, financial management, practical training, and direct institutional support rather than relying exclusively on physical-resource provision. Government programs should strengthen accessible enterprise-development services, simplify procedures, improve outreach to remote enterprises, and align support mechanisms with pastoral mobility and seasonal market conditions.

For MSE owners, strengthening planning, budgeting, record keeping, and adaptive decision-making is particularly important. For policymakers and development organizations, infrastructure and technology interventions should be accompanied by complementary training, affordability measures, market access, and institutional facilitation. Such integrated approaches are more consistent with the realities of pastoral enterprise development than standardized urban-oriented interventions. Evidence from developing economies similarly indicates that government support, institutional conditions, and enterprise resources jointly influence SME performance (Nakku et al. 2020; Park et al. 2020).

6.4 Limitations and Future Research Directions

This study has several limitations. First, its focus on MSEs in the Afar Region, a predominantly pastoral and resource-constrained setting, may limit the generalizability of the findings to other Ethiopian regions and contexts. Second, the cross-sectional design limits conclusions about temporal and causal relationships among the study variables. Third, the reliance on self-reported measures of operational efficiency and financial stability may introduce response and recall bias. Finally, the model examined a focused set of determinants; therefore, the insignificant direct effects of infrastructure availability, technology adoption, and working premises should be interpreted within the Afar context rather than as evidence that these factors are universally unimportant. The selective moderating effects of government support also indicate that its influence varies across determinant–performance relationships.

Future research should employ longitudinal and comparative designs to examine how MSE performance and government support evolve over time and across pastoral and non-pastoral settings. Studies should incorporate objective financial and operational indicators alongside survey measures and examine additional factors such as access to finance, market access, social capital, entrepreneurial experience, and environmental uncertainty. In particular, directly measuring social capital would enable its proposed role in facilitating information and resource access to be empirically tested. Further research should also investigate the conditions under which government support strengthens or weakens determinant–

performance relationships, with particular attention to accessibility, implementation quality, coordination, and contextual fit.

Declarations

Funding:

The authors received no financial support for the research, authorship, and/or publication of this article.

Consent for publication:

Consent for publication was not applicable to this study because the manuscript does not contain any personally identifiable information, individual-level identifying details, or identifiable images of participants. The findings are presented in aggregated form to protect the privacy and confidentiality of all participants.

Author Contribution

AAA conceptualized the study, conducted data curation, formal analysis, investigation, methodology development, project administration, resource management, software analysis, funding acquisition, and prepared the original draft of the manuscript. AAA also contributed to manuscript review and editing.GTS contributed through supervision, validation of the research process, critical review, and intellectual guidance throughout the study.ATT contributed through supervision, validation of the research process, and critical revision of the manuscript for important intellectual content.

Acknowledgement

The authors sincerely thank all study participants for their valuable contributions to this research. The authors gratefully acknowledge the University of Gondar for granting ethical approval and the Afar National Regional State Bureau of Labour and Skills Development, together with the relevant local administrative authorities, for their cooperation and support in facilitating the data collection process. The authors also gratefully acknowledge Samara University and the Dar Al-Fiker Foundation for their financial support, which significantly facilitated the fieldwork and data collection for this study. Special thanks are extended to the micro and small enterprise owners and managers, government officials, NGO representatives, and community leaders in the Afar Region for generously sharing their time, experiences, and insights through the interviews, surveys, and focus group discussions. Their cooperation, participation, and support were instrumental to the successful completion of this study.

Data Availability

The datasets generated and/or analysed during the current study are not publicly available due to ethical and confidentiality considerations concerning data collected from human participants, but are available from the corresponding author on reasonable request, subject to appropriate ethical and confidentiality requirements.

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Figures

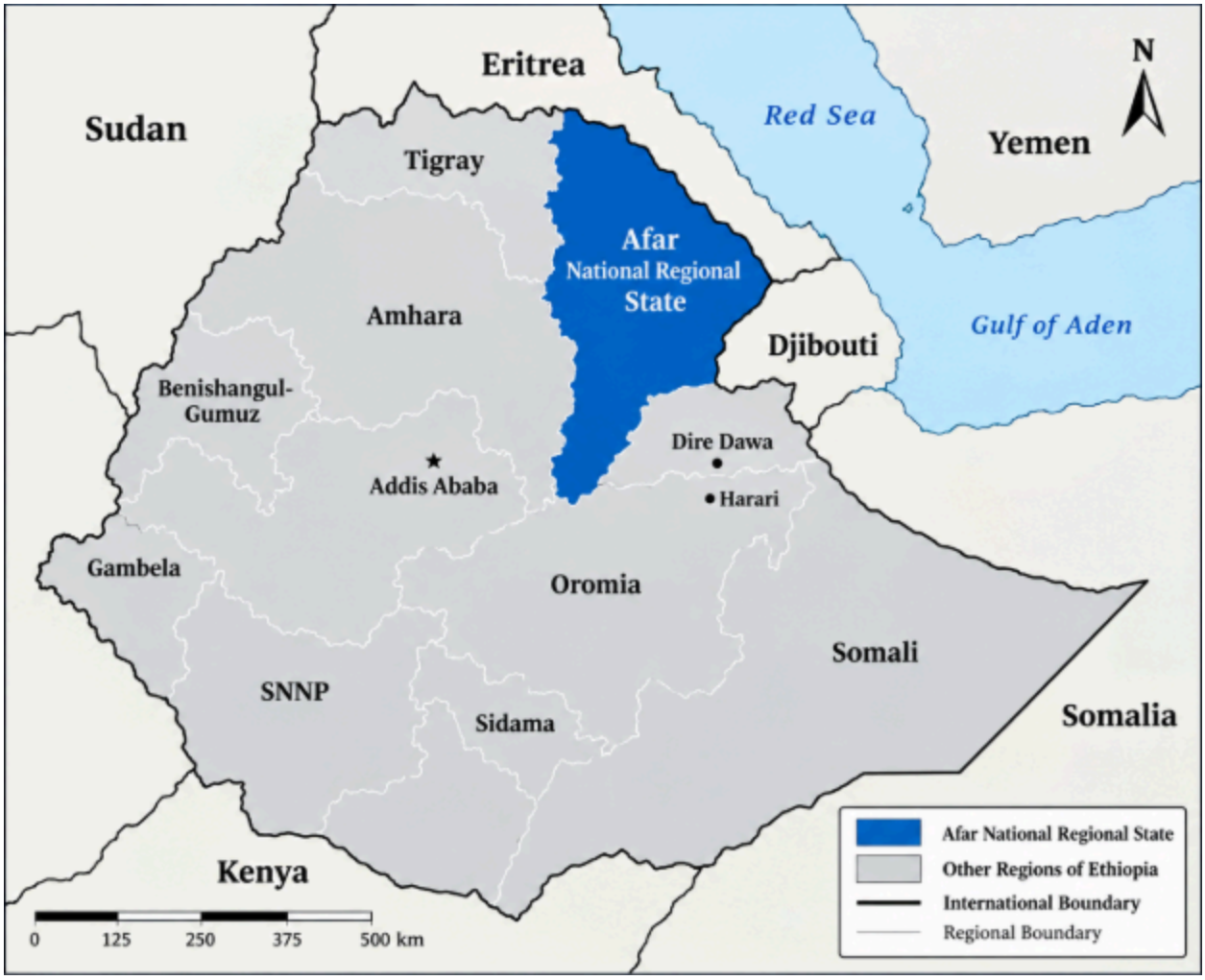


Figure 1

Geographical location of Afar National Regional State, Ethiopia. The map shows the location of Afar National Regional State within Ethiopia and provides the geographical context of the study area. **Source:** Developed by the authors based on administrative boundary data, no copyrighted material was reproduced.

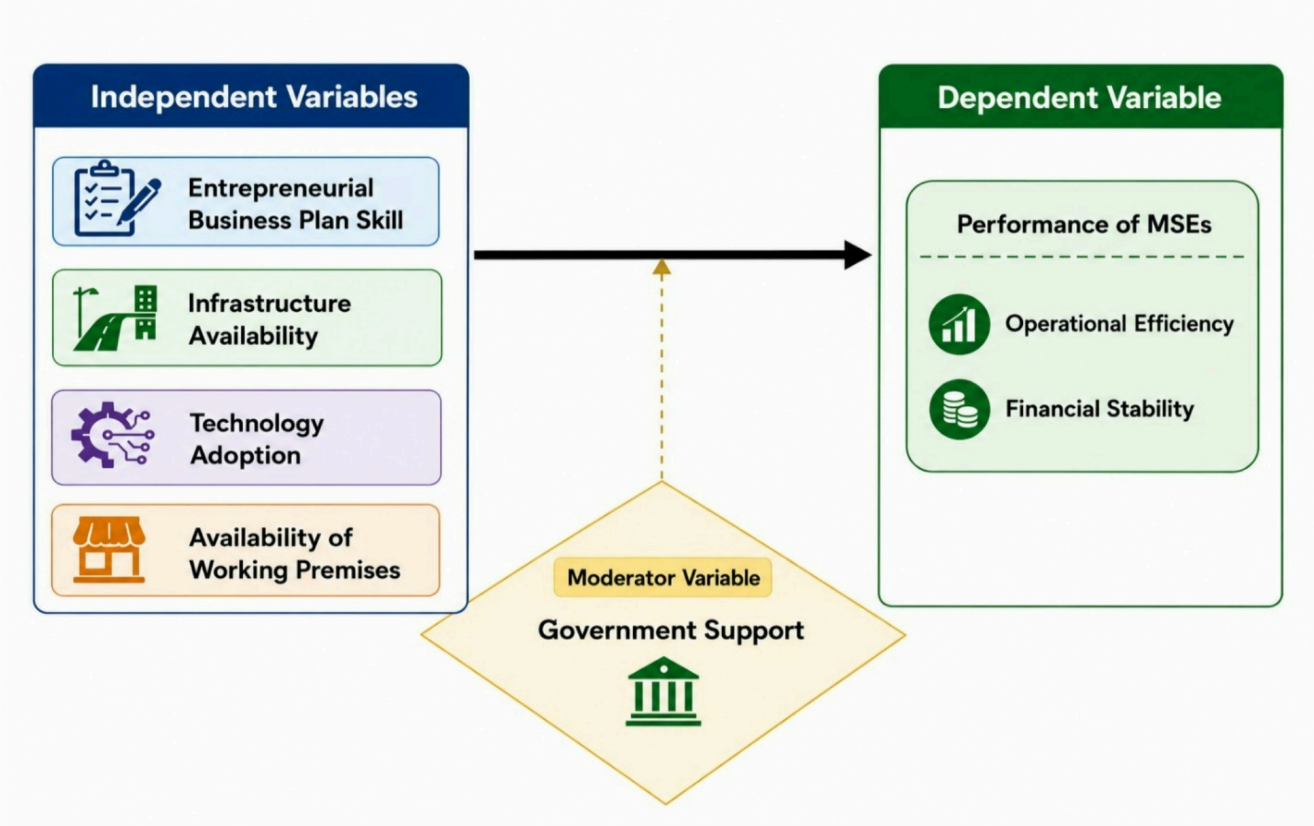


Figure 2

Conceptual framework of the determinants and moderating factor of MSE performance. The framework illustrates the proposed direct relationships of business planning skills, infrastructure availability, technology adoption, and working premises with operational efficiency and financial stability, and the moderating role of government support.

Source: Developed by the authors based on the literature review, 2025

Supplementary Files

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- Data.zip