

# Trends in the development of micro and small enterprises and the challenges of TVET programs in Ethiopia: Implication for curriculum development

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## Abstract

This study aimed to examine the development trends of micro and small enterprises and the challenges of Technical and Vocational Education and Training (TVET) interventions in Ethiopia, focusing on Bahir Dar City. For this purpose, a mixed methods research approach involving both quantitative and qualitative data from archives and interviews with officers, trainers, and enterprise owners was employed. The results of the study revealed an increase in enterprise enrollment from 2008 to 2021. However, the overall development progress remained notably low, as indicated by the limited proportions of enterprises reaching maturity stages. Moreover, the planning and implementation of TVET programs were found to be misaligned with the needs of various employment sectors, primarily due to lack of occupational standards, inadequacies in trainer availability, and deficiencies in skills and resources. This study proposed strategies to improve current performance and to address systemic challenges sustainably, including training on curriculum development.

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## Introduction

In response to the increasing demand for skills, both developed and developing nations are implementing Technical and Vocational Education and Training (TVET) policies that concentrate on skills development within the Micro and Small Enterprise (MSE) sector. Micro and Small Enterprises, also known as small and medium-size enterprises (SMEs), encompass a diverse array of business activities, including small-scale manufacturing, trades, and services typically functioning within domestic markets. Their contribution to a healthy business environment, economic efficiency, and economic development, especially in

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developing nations is widely acknowledged (OECD, 2002; UNCTAD, 2001). These enterprises have gained prominence compared to larger industries due to their lower start-up costs and management expenses while often relying on more intensive labor, resulting in cost-effective production.

In 2006, the United Nations Educational, Scientific and Cultural Organization (UNESCO) expanded the definition of Technical and Vocational Education and Training (TVET) to encompass informal vocational learning obtained in workplace settings (Catts, Falk, & Wallace, 2011). Research indicates that micro and small enterprises typically do not prioritize formal training or qualifications. Instead, they emphasize the informal sharing of work skills and knowledge among employees, actively seeking immediate learning opportunities to address urgent business challenges (OECD, 2002; Storey, 2000; Yamada et al., 2018). As a result, it is advised that training providers develop programs that are specifically tailored to the unique requirements of different roles within both start-ups and established businesses.

The literature suggests that human capital is a crucial factor in the growth of enterprises. The survival, competitiveness, and sustainability of businesses are believed to hinge on continuous investment in human resources, the development of technical skills, and the provision of technology extension services (ILO, 2007; Shelly, 2018; UNCTAD, 2001). Empirical research indicates a positive correlation between management skills training and enterprise performance (OECD, 2002; UNCTAD, 2001). According to Shelly (2018), entrepreneurial training fosters creative thinking and assists small business owners in their ability to manage limited resources, marketing challenges, and financial constraints.

The common approach for developing the curriculum for technical and vocational occupations has been job analysis. This process seeks to identify occupational tasks and establish the necessary standards of knowledge, skills, and behaviors for effective performance. These benchmarks, known as occupational standards, inform needs assessments of enterprises and guide the content and resources allocated for training (ILO, 2022; Norton, 1997). Job analysis has been employed in multiple countries to rectify discrepancies between TVET skills supply and local economic demands.

### **Statement of the Problem**

Until recently, the Ethiopian education system did not prioritize technical and vocational occupations. Skills in crafts and trades were traditionally acquired through apprenticeships, relying on observation, modeling, and hands-on practice. However, the importance of informal training methods—such as inheritance, observation, and practice—had not been widely acknowledged by the public or within the economic sector (Edukans Foundation, 2012; MOE, 2008).

Technical and vocational education began to get attention in Ethiopia's education system following the introduction of the 1994 education and training policy (TGE, 1994). This was further reinforced by the national TVET strategy in 2008, which aimed to connect TVET initiatives with the development of micro and small enterprises. TVET institutions were tasked with creating training programs tailored to various enterprises and skill levels, developing technologies suitable for different work environments, and establishing

comprehensive curricula that include training guides, manuals, and a robust monitoring and evaluation system (FDRE, 2016, p.34-35).

Several studies have examined the performance of micro and small enterprises in Ethiopia (Gemechu & Teklemariam, 2016; Ginja, 2016; Yodit, 2015; World Bank, 2009). These studies generally reported that enterprises performed poorly in various contexts and identified contributing factors such as limited financing, raw materials, market access, and management skills. They also highlighted the necessity of TVET interventions to address these management skill deficiencies. On the other hand, research on TVET interventions revealed mismatches between the supply and demand of skills within enterprises (Dereje, 2017; FDRE, 2016; Gebeyehu, 2014; ILO, 2019; MOE, 2020; Sebsib & Yimer, 2018; Yamada et al., 2018) These studies also reported that TVET training was overly theoretical and did not adequately address the specific challenges faced by MSEs.

In response to these challenges, the Ethiopian Ministry of Education has initiated reforms in TVET with an emphasis on Competency Based Training (CBT). Nonetheless, the established TVET standards set international benchmarks for training delivery and qualifications, which do not align well with on-the-job training that takes place in the informal sector, where a significant portion of the workforce is engaged. For instance, Yamada et al. (2018) found that Ethiopian garment firms emphasized production skills and design while TVET standards focused more on kaizen and literacy and numeracy.

Despite numerous studies that have highlighted these mismatches, there has been a scarcity of scholarly research aimed at identifying the specific types and areas of skills where misalignments occur. This study, therefore, aims to bridge this gap by exploring the development trends of micro and small enterprises as well as the challenges associated with technical and vocational education and training interventions. In light of this purpose, the study aimed to answer the following key research questions: (1) what are the trends of enterprise development in Bahr Dar city administration? (2) Are TVET programs in alignment with the employment needs and priorities of enterprises? (3) What challenges do TVET interventions face when implemented in micro and small enterprises?

## **Theoretical Framework**

This study employs the Work Process Analysis (WPA) framework, utilizing the DACUM (Developing a Curriculum) approach. The WPA framework focuses on enhancing the curriculum by integrating workplace observations to inform educational content (Spöttl & Loose, 2014, 2018). A work process constitutes a comprehensive sequence of tasks aimed at achieving a specific operational goal always resulting in a tangible output.

The WPA methodology comprises three main steps: (1) assessing the overall occupational impact to identify the competencies required for managing and shaping work tasks; (2) conducting a vocational educational scientific task analysis to pinpoint the critical structures necessary for competency development; and (3) performing a work process analysis to uncover the generic skills essential for acquiring work-process knowledge (Spöttl & Loose, 2014, 2018). The methodology, which begins with work-process analysis to design qualifications, draws on a holistic review of actual work processes and contributes to the establishment of work-process-based occupational standards, eventually leading to a well-

rounded and contextually relevant occupational competence. Within the scope of work-process analysis, two primary methods are commonly employed: workplace observation and expert interviews or action-oriented specialized interviews (Becker, 2008).

DACUM has proven effective in analyzing occupations across professional, technical, skilled, and semi-skilled levels. The competency profile generated serves as a foundational resource for various outputs, including the creation of training programs and the formulation of operational procedures for quality initiatives. The ILO (2022) recommends the DACUM as a suitable methodology for developing occupational standards and curricula grounded in skill needs assessments.

In this study, the DACUM approach is utilized to identify the competencies necessary for a training curriculum tailored to a specific occupation. In doing so, the WPA techniques are incorporated within the DACUM as a framework for curriculum development. The purpose is to create a competency profile for a job, detailing all required duties, tasks, skills, knowledge, and tools essential for performing the job at a specified proficiency level.

## Methods

### Research Approach and Design

This study utilized a mixed research approach, incorporating both quantitative and qualitative methods. Specifically, a sequential parallel design was adopted to effectively gather and analyze data from archival sources and curricular documents. The process began with a document analysis aimed at examining trends in enterprise development and TVET interventions. This was followed by reflective interviews to understand the current status, challenges, and opportunities.

### Sampling

The study focuses on small and medium enterprises located in Bahir Dar city. According to data from the city's department of enterprise development, a total of 3,079 SMEs were registered across six sub-cities from 2008 to 2021, encompassing various sectors, including services, manufacturing, construction, urban agriculture, and trade.

In this research, three sectors (services, manufacturing, and urban agriculture) were selected from four sub-cities—Atse Tewodros, Fasilo, Tana, and GisheAbay—using simple random sampling to ensure both substantial representation and a balanced inclusion of sub-cities. The sample comprised 1,825 enterprises which represented 60.05% of the total population of SMEs in Bahir Dar city administration. This sample included 1,162 enterprises in services, 543 in manufacturing, and 120 in urban agriculture, resulting in a completion rate of 59.27% for the necessary data profiles.

### Data Gathering

Data gathering involved the use of document analysis and interviews. The document analysis focused on archival materials while interviews were conducted with officers, trainers, enterprise operators, and workers.

### *Document Analysis*

Data on trends in enterprise development was sourced from the city's Department for Technical-Vocational and Enterprises Development (TVED). Between 2008 and 2021, a total of 3,079 micro and small enterprises were established across five occupational categories and six sub-cities (see Table 1).

**Table 1**

*Population of Micro and Small Enterprises in 6 Sub-cities by Occupational Category*

Sub-cities	Services	Manufacturing	Construction	Urban Agriculture	Trades	Total
Gishe Abay	304	133	64	31	39	571
Atse Tewodros	172	214	173	54	69	682
Fasilo	408	102	81	11	20	622
Dagmawi Menelik	182	100	123	21	-	426
Belay Zeleke	108	29	38	4	-	179
Tana	290	117	147	24	21	599
Total	1464	695	626	145	149	3079

The TVED compiled profiles of MSEs which included details on enrollment years, occupations, and developmental stages categorized as start-up, growth, and maturity. It was noted that a micro and small enterprise is expected to reach maturity within five years of operation, thereby transitioning to a small enterprise. The subjects were divided into three enrollment periods: 2008-2013, 2014-2018, and 2019-2021, allowing for analysis of their business longevity and current development stages. The current stages (start-up, growth, or maturity) were assessed for each enrollment period and occupation type using frequency and percentage.

Data regarding TVET intervention programs were collected from the industry extension services unit at Bahir Dar polytechnic college. While several private TVET colleges also offered enterprise training programs, they primarily focused on introductory entrepreneurship training for unemployed individuals. In contrast, Bahir Dar polytechnic college provided industry extension services for established enterprises.

Relevant data for the college's programs in the years 2021 and 2022 included information on organizational structure (key stakeholders and their relationships), staff profiles, enrollment figures, occupations, and components of delivery for Industry Extension Services (IES). The participation rate in IES was analyzed by occupation using numerical data and percentages. Additionally, the composition of new enrollments at the polytechnic college in 2022 (totaling 74) across three occupational categories—services, manufacturing, and urban agriculture—was examined. This analysis highlighted the relevance of IES to specific employment needs.

### *Interviews*

The interviews involved five key stakeholders, including a TVED officer, an IES programmer, and three trainers with the aim of identifying the challenges associated with

TVET interventions. The interviews included guiding questions such as, “What conditions facilitate or hinder enterprise development? What procedures were followed for needs assessment? What challenges existed in aligning training with enterprise needs?” The interviews aimed to explore the participants’ experiences with regard to job analysis and needs assessments, as well as opportunities for enhancing practices.

An interpretative and process-oriented qualitative evaluation approach (Kardorff, 2004) was utilized to define the goals and framework for the interviews. The interviews served as a consultative process where the relevance and efficiency of goals were assessed within a social context, allowing key stakeholders to share their interpretations. Quantitative data were also presented to encourage reflection among practitioners and to identify improvement strategies. Ultimately, the interview data were categorized into 'challenges,' 'opportunities,' and 'solutions.' The reliability of the data collected was strengthened by the fact that each participant held significant roles in administering, programming, or delivering enterprise training.

A structured interview was also conducted with 15 operators and workers from various enterprises to assess their ratings of the importance or relevance of IES components. The participants were selected through stratified random sampling from different employment sectors in three specific occupations, totaling 74 individuals who took part in IES programs in 2022. Ratings were collected for each component, categorizing their responses as relevant or important, partly related or important, and unrelated or not important. The findings were analyzed and presented using means and percentages. Additionally, the participants identified priority areas for IES intervention within their respective jobs.

## **Data Analysis**

The data collected through document analysis and interviews were analyzed using both quantitative and qualitative methods. Descriptive statistics, mainly frequencies and percentages, were employed to analyze the quantitative data, while the qualitative data were analyzed thematically. Using these analysis methods, the development trends of micro and small enterprises were explained in the context of institutional factors highlighting the constraints and opportunities they present for various occupations. TVET programs and activities are also discussed focusing on their participation rates and alignment with the needs of enterprises.

## **Results**

### **Trends in Enterprise Development from 2008 to 2021**

This study assessed enterprise achievement by evaluating the number of years in operation and their current stages of development. Records by the city’s Technical-Vocational and Enterprises Development Department (TVED) documented the history of enterprises from their inception, including initial and current capital, as well as the number of employees. Each enterprise's stage of development in 2022 was classified as 'start-ups', 'growth', or 'maturity', based on criteria such as job creation, capital, profitability, and the adoption of new technologies.

According to the TVED, a micro and small enterprise is anticipated to reach the maturity stage within five years of operation, thereby qualifying as a 'small enterprise'. Establishment years were categorized into three enrollment periods: 2008-2013, 2014-2018, and 2019-2021 focusing the analysis on enterprises with 5 to 10 years of operation. The results of the analysis detailing the enrollment years and stages of development in 2022 for the three sampled occupations are presented in Table 2.

**Table 2**

*Trends in Enterprise Development across Three Occupations (2008-2022)*

Occupations	Years of Establishment	Registered Total	Progress in 2022					
			Start ups		Growth		Maturity	
			No	%	No	%	No	%
Services	2008- 2013	252	160	63.49	66	26.19	26	10.31
	2014- 2018	430	321	74.65	87	20.23	22	5.11
	2019-2021	480	472	98.33	8	1.66	-	-
	Total	1162	953	82.09	161	13.85	48	4.13
Manufacturing	2008- 2013	67	16	23.88	18	26.65	25	37.31
	2014- 2018	183	101	55.19	57	31.15	19	10.38
	2019-2021	293	243	82.93	7	2.54	43	14.96
	Total	543	360	66.29	83	15.28	91	16.75
Urban Agriculture	2008- 2013	26	7	26.92	14	53.84	5	19.23
	2014- 2018	36	18	50	10	27.77	8	22.22
	2019-2021	58	52	89.65	2	3.44	4	6.89
	Total	120	77	64.16	26	21.66	17	14.16

Table 2 indicates that, in the service sector, only 26 out of 252 enterprises registered between 2008 and 2013 (10.31%) achieved maturity by 2022. For those registered between 2014 and 2018, the maturity rate was notably lower at 5.11% (22 out of 430). The percentages of enterprises in the 'growth' stage for these enrollment periods were 26.19% and 20.83%, respectively. This data highlights a concerning trend, as 63.49% of the 2008-2013 cohort and 74.65% of the 2014-2018 cohort remained as startups, indicating no growth over a span of 5 to 14 years.

In contrast, the manufacturing sector exhibited similar trends but with considerably more favorable outcomes. In this sector, 37.31% of enterprises from the 2008-2013 enrollment period (67 enterprises) reached maturity by 2022 while 26.65% advanced to growth stages. Additionally, 14.96% of startups from 2019 to 2021 achieved maturity. However, 46.8% of enterprises registered between 2008 and 2018 (a total of 117 out of 250) were still classified as startups.

The urban agriculture sector which included animal production, crop agriculture, and natural resource management such as nurseries and gardening, had some noteworthy results. Among the 26 enterprises from the 2008-2013 enrollment period, 19.23% attained maturity by 2022, and 53.84% moved into growth stages. For the 2014-2018 cohort, 22.22% reached maturity and 27.77% were in growth stages. Notably, 6.88% of enterprises that started

between 2019 and 2021 achieved maturity while 40.32% of all enterprises registered between 2008 and 2018 (totaling 25 out of 62) remained as startups.

The enrollment periods from 2008 to 2018 were particularly examined to compare years in business with development stages in 2022. The findings reveal that although enterprise registration has increased significantly over the years (from 345 in 2008 to 1,480 in 2021), the proportions achieving growth or maturity stages remained strikingly low across all sectors and sub-cities included in this study. Specifically, the growth and maturity rates for the enrollment periods of 2008-2018 were 21.1% and 10.5%, respectively.

Moreover, substantial variations were noted in the growth rates across the three sectors. Manufacturing enterprises performed notably better, with 37.31% of the 2008-2013 cohort achieving maturity by 2022, compared to only 19.96% in urban agriculture and a mere 10.31% in services. For the 2014-2018 enrollment period, 17.6% of manufacturing enterprises attained maturity while urban agriculture had 20.22% and services only 5.11%. Lastly, for the 2019-2021 startups, only the manufacturing sector (14.96%) and urban agriculture (6.88%) showed some maturity levels, while overall, the proportions registered from 2008 to 2021 stood at 16.75% for manufacturing, 14.16% for urban agriculture, and only 4.13% for services.

Interviews conducted at the city's TVET department and the IES unit of Bahir Dar polytechnic college sought insight into the varying growth rates across occupations. It became clear that government interventions, such as technical assistance, financial support, and land access, particularly targeted the manufacturing sector. While there were expectations for services to progress similarly and benefit from these supports, it was noted that the manufacturing sector confronted challenges related to raw material supply (e.g., cement for producing cement blocks). Conversely, MSEs in the services sector faced infrastructure limitations often operating under makeshift conditions lacking electricity and water.

According to the TVET officer, the urban agriculture sector, which encompasses animal production and horticulture, benefited from accessible consumer markets for animal products and vegetables in Bahir Dar. However, those involved in animal production often struggled with feed shortages. Additionally, financial loan systems for several enterprises proved unsustainable. The TVET officer illustrated the financial strain, citing the following example:

A 10 million Birr cash credit invested upon in the year 2021, for instance, had to ensure its 97% returned by the end of the year, and then plan for 2022. This implied that in the absence of efficient mechanisms of collecting revenues, as it was often the case, a financial firm would not allow credits for applicants in the consecutive years.

The above qualitative data highlighted the lack of effective revenue collection mechanisms often leading financial institutions to hesitate in granting credits for future years.

### **TVET Intervention Programs for Micro and Small Enterprises**

Bahir Dar polytechnic college, along with several private TVET colleges, offers enterprise training programs. Notably, the private institutions primarily focus on entrepreneurship in response to large employment demand. This study focused on Bahir Dar



polytechnic college, which features an academic unit led by an assistant dean specifically for Industry Extension Services (IES). The IES provides support across 18 different employment fields involving assessment, consultation, and training.

The IES comprised five core components: Accounting, kaizen, entrepreneurship, technical skills, and technology use. Accounting training covers fundamental bookkeeping procedures, cash management (both sales and expenditures), financial reporting, and credit sales management. Kaizen training aims to enhance organizational efficiency, manage waste, and promote workplace ethics and safety. The entrepreneurship component, on the other hand, includes training on starting a business, resource allocation, marketing strategies, and performance evaluation. Lastly, the technical skills and technology use segment focused on relevant concepts, skills, and innovative technologies applicable to specific jobs and workplaces, emphasizing task accuracy, product specifications, and adherence to occupational standards. A summary of the trainer profiles across different occupations and employment fields is presented in Table 3.

**Table 3**

*Staff Profiles and Occupational Distribution (Year 2022)*

Occupations	Particular Employment	Number of MSEs	Number of staff	*EPL
Manufacturing	Food production	46	3	B
	Textile weaving	33	2	B
	Wood work	38	2	B
	Metal work	73	5	2B/3C
	Sewing	51	3	A/C/B
	Mechanical Engineering	8	1	B
Construction	Construction	66	10	9B/1A
	Road construction	63	5	3B/2C
	Water technology	7	1	B
Services	ICT	15	2	B
	Electricity	17	4	B
	Hotels	51	3	B
	Auto mechanic	20	2	B
	Women's' Beauty salon	13	1	C
	Municipality	10	1	B
Urban Agriculture	Animals Breeding	84	4	3A/1B
	Crop agriculture	14	1	B
	Natural Resources	6	1	B
	Management			
Total	18	619	51	

Source. College archive

Note. EPL=Education Preparation Level, A- Levels= Masters Degrees; B-Levels= Bachelor's degrees; C-Levels=Diploma

The industry extension services unit employed a total of 51 trainers. The ideal workload for each trainer is recommended to be 20 enterprises, yet current allocations were significantly lower, with just 6 in natural resources management and 4 in electricity. These trainers visited enterprises on-site to evaluate their performance, monitor standards and

challenges, and plan tailored training and consultation for both individual and group micro and small enterprises. According to the TVET curriculum, trainers were expected to possess at least a C-level qualification (Diploma) in relevant fields, along with practical training and industry experience (MOE, 2013). The academic qualifications of the trainers showed that 5 (9.8%) hold Master's degrees, 39 (74.47%) have Bachelor's degrees, and 7 (13.74%) had Diplomas.

However, interviews with college officials and trainers indicated that trainers with the necessary practical training and industry experience were scarce in the job market. To address this gap, on-the-job training and experience at enterprise workplaces had been implemented.

### *Enrollment of Trainees in IES for 2021 and 2022*

Interviews conducted with the city's department for technical-vocational and enterprise development revealed that Bahir Dar polytechnic college received candidate lists from sub-city enterprise administration offices. These offices were responsible for monitoring the status and progress of enterprises and for recommending training after consulting with relevant stakeholders. During their visits to workplace locations, trainers identified skill gaps and subsequently planned training based on these needs. Enrollment criteria stipulated that the enterprise to be operational and demonstrate interest in the proposed training program.

Bahir Dar polytechnic college maintained a database of the industry extension services conducted across various occupations in different years. Tables 4 and 5 provide a summary of the applications received and enrollments for various occupations in 2021 and 2022.

**Table 4**

#### *Participation for Enterprises and Trainees in 2021*

Occupations	Number of Candidates		Number Enrolled		% Enrolled/ Candidates	
	MSEs	Trainees	MSEs	Trainees	MSEs	Trainees
Manufacturing	309	1247	293	1148	94.82	91.98
Constructions	158	542	114	449	72.15	82.84
Services	158	542	114	449	72.15	82.84
Urban Agriculture	79	236	64	208	81.01	81.13
Total	676	3905	589	2906	87.13	74.49

Table 4 shows the participation rates of enterprises, entrepreneurs, and their workers in IES for the year 2021. The data on applications and admissions reveal the alignment or discrepancies between the demand for training and the available resources. In that year, 589 enterprises participated in IES, representing 87.13% of the 676 enterprises that were nominated by the city's TVED department. A total of 2,906 enterprise operators were enrolled out of 3,905 candidates, resulting in a participation rate of 74.49%. On average, there were 4.93 trainees per enterprise.

**Table 5***Enrollment Figures for Enterprises in 2022*

Sector	No. of Trainers	Fields of Employment	Number of MSEs Applications			Number Currently Enrolled			Total Enrolled (%)
			Archive	New	Total	Archive	New	Total	
Manufacturing	16	6	266	23	289	226	24	250	86.5
Construction	16	3	179	14	193	127	12	139	72
Services	13	6	146	14	160	112	14	126	78.75
Urban Agriculture	6	3	68	36	104	68	36	104	100
Total	51	18	659	87	746	533	86	619	82.97

Table 5 illustrates that the total number of applications and admissions in 2022 included an archived population from 2021 as well as new candidates from the current year. In 2022, the total enrollment at the college reached 619, with 746 applications submitted. The participation rate for the IES was 82.97% across the four occupations studied. However, the data did not specify the number of entrepreneurs involved in the programs.

According to the data presented in Tables 4 and 5, Bahir Dar polytechnic college served a total of 1,208 enterprises over two consecutive years (589 in 2021 and 619 in 2022), which represents 48.59% of the total 2,486 enterprises across the four occupations in BDCA. IES participation differed among the sampled occupations with rates of 20.65% in services, 95.93% in manufacturing, and 86.66% in urban agriculture.

It was noted that the polytechnic college had to accommodate both candidates from previous years and new applications each year. The demand for training from the TVET increased from 676 MSEs in 2021 to 746 in 2022. Based on 2021 data, the college had an enrollment capacity of 2,909 trainees. The participation rate of MSEs met the demand, standing at 86.88% (596/686) in 2021 and 82.97% (619/746) in 2022. Overall, it appears that the polytechnic college effectively utilized its capacity to support enterprises and their operators.

### **Alignment of Training with Enterprise Needs**

The training initiative implemented various delivery methods for the five IES components. Occupational groupings were utilized for training in accounting, kaizen, and entrepreneurship while technical skills and technology training were tailored to specific fields of employment outlined in Table 6. In each instance, both managers and employees participated in the training.

This study examined the alignment of TVET interventions concerning their relevance to the demand side of the participating enterprises. Two types of measures were employed to evaluate this alignment: i) the employment composition within occupational sectors, and ii) the satisfaction levels of trainees and entrepreneurial firms.

Analyzing new enrollments at the polytechnic college in 2022 (Total=74; see Table 5), we gathered data on the employment compositions across three occupations (services, manufacturing, and urban agriculture) from registrar records and trainers. Table 6 provides a detailed breakdown of the composition of each occupational group, along with the specific employment activities of micro and small enterprises.

**Table 6***Composition of Employment in Trainee Groups*

Occupations	No of MSEs	Employment Fields	Examples of Employment Activities	No of Employment Activities
Manufacturing	24	Food production	Bakery, <i>enjera</i> , alcohols, oil production	9
		Textile weaving	Cotton fibers spinning, textiles weaving,	
		Wood work	Timber, Wood furniture	
Services	14	Metal work	metal and glass works	8
		ICT	Printing/photocopy, business Promotions	
		Hotels	Cafeteria/ <i>jebena</i> coffee, laundry	
		Auto mechanic	garages	
Urban Agriculture	36	Municipality	sanitation, security, greenery/gardening	10
		Animals	poultry, dairy farms, fish farms/	
		Breeding	harvest, bees farms, beef fattening, sheep breeding	
		Crop agriculture	vegetables farms, fruits farms	
		Natural Resources Management	Green nursery, organic fertilizers production	

The data presented in Table 6 indicates that various occupational groups comprised as many as 8 to 10 different types of employment activities which were assumed to share common elements addressed by IES training. For example, the manufacturing sector included businesses involved in oil production, weaving, and baking, while the urban agriculture sector comprised enterprises engaged in poultry farming, vegetable cultivation, and nurseries.

It is crucial to recognize that each employment type had distinct characteristics regarding workplace organization, skills, and technologies required. Training in kaizen and entrepreneurship, for instance, was provided to occupational groups with a focus on specific disciplinary standards and practices. However, the workplace organization and business development strategies applicable varied widely depending on whether the activities were related to food production, furniture making, hospitality, municipal services, livestock breeding, or horticulture.

Moreover, there were notable limitations regarding training in technical skills pertinent to baking, oil production, poultry farming, beekeeping, and beef cattle fattening. Consequently, when training was tailored to occupational groups, it was unlikely that the diverse needs of various enterprises would be sufficiently addressed. In contrast, the range of employment activities among MSEs in BDCA, as detailed in the MSE profiles, was significantly broader than what was encompassed by the IES programs.

Furthermore, during a structured interview, 15 trainees evaluated the significance of various elements of IES training based on their specific job roles. The participants were categorized according to 9 distinct employment activities across the three selected occupations. Table 7 presents the distribution of the participants' ratings, categorizing them as relevant, partly relevant, and not relevant.

**Table 7***Participants' Ratings of the Relevance of IES Components*

IES Components	Relevant		Partly Relevant		Not Relevant	
	No	%	No	%	No	%
Accounting	4	26.66	6	40	5	33.33
Kaizen	5	33.33	5	33.33	5	33.33
Entrepreneurships	5	33.33	6	40	4	26.66
Technical Skills	3	20	5	33.33	7	46.66
Technology Use	2	13.33	5	33.33	8	53.33
Mean Average	3.8	23.33	5.4	36.0	5.8	38.66

The participants' assessments of the importance of training mirrored how well it applied to their jobs. As illustrated in Table 7, only 3.8 (25.33%) of respondents felt that the content of the training programs was relevant to their employment needs. In contrast, 5.4 (36.0%) rated the content as 'partly relevant', while 5.8 (38.66%) deemed it 'not relevant' and indicated that they did not find the training significant. Dissatisfaction was particularly evident in the areas of technical skills (46.6%) and technology use (53.3%). This was primarily due to the unique technical and technological demands of different jobs which were not uniformly addressed across occupational groups.

Furthermore, participants expressed a desire for training programs to focus on their immediate skill shortages rather than offering generalized business development strategies that were assumed to apply to all careers. Consequently, the IES training seemed to benefit certain employment sectors while putting others at a disadvantage. One entrepreneur noted: "I attended the training programs not because I found them useful, but to ensure my attendance might be acknowledged in any future requests we would make to the TVED offices."

Participants were also asked to prioritize the various components of the IES program. Most entrepreneurs placed a high priority on technical skills and technology use, while ranking kaizen, entrepreneurship, and accounting lower.

In an interview, representatives from the IES unit at Bahir Dar polytechnic college acknowledged that both staff and institutional resources limited the quality and quantity of the training offered to participating enterprises. The participants mentioned that out of the numerous applications received annually, only a small portion was accepted with the rest deferred. These deferred candidates were then incorporated into the following year's admissions along with a selected number of new applications.

Additionally, they raised concerns about the availability of qualified trainers for various employment sectors. The college had trainers specializing in approximately 18 fields; however, the range of employment types was much broader. To meet demands, they implemented occupational groupings and relied on the trainers available. It was also noted that many trainers possessed academic backgrounds or experiences tailored to specific occupations, which could create challenges in addressing the specific needs for technical skills and technology applications.

## **Constraints of TVET Intervention**

In this study attempts were made to explore the challenges associated with TVET interventions through the viewpoints of key stakeholders, including MSE administrators, IES programmers, and trainers. The participants, especially those from the IES, highlighted several significant obstacles to effective TVET intervention practices in BDCA, which are discussed as follows.

### ***Mismatch of Occupational Standards and Trainer Skill Deficiencies***

One of the primary barriers highlighted, which aligns with previous results, was the misalignment between the occupational standards (OS) established in the formal TVET curriculum and the employment needs of local enterprises. Additionally, institutions largely lacked the capacity to address these issues. To rectify the misalignment between the skills provided by TVET programs and the enterprise requirements, the TVET system was expected to revise existing occupational standards or create new ones by involving skilled workers from relevant industries (FDRE, 2016). However, despite the established policy framework for OS development or revision, this study found no initiatives undertaken in BDCA to address this concern.

Job analysis or task analysis was commonly employed to formulate OSs, conduct needs assessments, and allocate training aligned with enterprise-specific requirements. This procedure identified occupational tasks and the competencies (knowledge, skills, and work behaviors) necessary for effective performance. The culmination of task analyses and competency matrices formed the occupational standards that serve as benchmarks for assessing enterprise needs and developing training content, methods, and resources.

Sector officers understand the necessity of aligning policy directives with curriculum adjustments to address discrepancies. As explained by the IES programmer at Bahir Dar polytechnic college, industries were expected to play an integral role in developing the OSs pertinent to their products or services, which subsequently informed curriculum design and revisions for training programs. The evaluation of these training programs should also align with the standards established by the industry.

Nevertheless, the current climate presented challenges in developing occupational standards due to the need for skilled resources and stakeholder collaboration. Formal input from enterprises or sector ministries remained scarce, and government institutions responsible for training (e.g., in agriculture) had pursued separate TVET programs without efforts to create unified standards or share responsibilities with IES.

In the context of BDCA, enterprise trainers adapted training content from the formal TVET curriculum (MOE, 2013). In interviews, the training officer from the TVED and trainers at the polytechnic college reported having little orientation or experience in curricular development for enterprises. In this regard, the TVED officer had the following to say: “Although I am an expert in curriculum development, I have not engaged in any activities in this area, and I am uncertain how to proceed. I would like to participate in relevant training if such opportunities exist”.

### ***Lack of Structural Support for Industry Extension Services***

The interviews revealed that the ineffectiveness of TVET interventions can be attributed to a misalignment with the needs of enterprises, highlighting a design-related issue

coupled with significant challenges in implementing the necessary design processes. It is essential to clarify that a policy framework is inadequate unless combined with appropriate structural support, personnel, and resources to address the issue sustainably. In this regard, the IES programmer at Bahir Dar polytechnic college described the issues as follows:

The IES has not received adequate structural support to implement its initiatives. For example, until 2020, the IES trainers had to manage teaching loads across both regular TVET programs and IES, in the Amhara national regional state, only receiving separate staff assignments afterwards. Trainers conducted site visits to enterprises to identify specific skill gaps or technical shortages that could inform training and consultation efforts. However, inadequate travel and per diem allowances hindered these activities.

Additionally, as the participant reported, while promotion mechanisms were established for TVET trainers in academic programs, IES staff were not included which left trainers feeling insecure in their positions. Despite working under challenging conditions, many skilled trainers maintained motivation in their roles although several have since left the polytechnic college for alternative employment opportunities.

During interviews, the IES officer underscored the vital role that micro and small enterprises play in job creation, economic development, and self-reliance. Youth motivation to enter the MSE sector was significant with university graduates pursuing careers in technical and vocational fields. However, there was waning confidence among entrepreneurs in the government's capacity to provide adequate support."

This participant stated that "the influx of youth, including university graduates, into the MSE sector is noteworthy in this regard". Nonetheless, as the participant pointed out, there had been a significant drop in entrepreneurs' confidence on government intervention, especially regarding expected support.

## Discussion

This study sought to explore the trends in MSE development and the challenges of TVET interventions in Bahir Dar city, Ethiopia. The results of the study revealed that, from 2008 to 2021, there was substantial increase in enrollment both in quantity and occupational diversity. Yet, actual development progress remained modest considering the duration of activity. For example, during the maturity stage from 2008-2013, only 10.31% in services, 37.31% in manufacturing, and 19.23% in urban agriculture achieved maturity. Conversely, 52.04% of those registered between 2008 and 2018 remained in the startup phase. These findings indicate that enterprises had not achieved significant improvements in terms of capital, profit, productivity, employment, or market access.

Research on the development of MSEs in Ethiopia has consistently identified low enterprise growth levels and highlighted external and internal constraints affecting performance (Admasu, 2012; Brixiova & Asaminew, 2010; Gemechu & Teklemariam, 2016; Ginja, 2016; Yodit, 2015). For example, Yodit (2015) found out that while the number of textile and leather manufacturing MSEs in the Gulele and Addis Ketema sub-cities increased, 30% experienced stagnation or decline, hindered by a lack of managerial and technical skills. Similarly, Admasu (2012) reported that SMEs involved in textiles, food processing, and

woodworking within the Arada and Lideta sub-cities suffered low performance in capital growth, employment, and market expansion. These studies pointed towards a tendency for enterprises to remain traditional, often producing subpar products confined to local markets with limited technical innovation, underscoring the need for TVET interventions.

As many studies disclosed, human capital is a crucial factor for enterprise growth. The survival, competitiveness, and sustainability of businesses depend on continuous investment in human resources, skill development, and technological support (ILO, 2007; Shelly, 2018; UNCTAD, 2001). Empirical evidence has also shown that training positively influences enterprise performance, assisting small enterprises in adapting to dynamic markets, optimizing limited resources, and reducing failure rates, particularly in their foundational years (OECD, 2002).

In light of this, TVET institutions in Ethiopia are engaged with delivering technical and managerial skills training suitable for varying enterprise levels, introducing innovative technologies tailored to specific work environments, and developing curricula that include manuals, training guides, and monitoring systems (FDRE, 2016; MOE, 2008). The education and training roadmap (MOE, 2020, 2018) also reinforced initiatives to formulate standards for enterprise occupations which serve as a foundation for assessing training needs and delivery methods.

In this study, the effectiveness of TVET intervention in relation to industry extension services (IES) and their alignment with enterprise needs was assessed. The results of the study showed that during 2021 and 2022, IES programs, which encompassed training in accounting, entrepreneurship, technical skills, and technology use, engaged 1,208 enterprises across four sectors, comprising 48.59% of the total 2,486 enterprises in Bahir Dar city. Participation rates varied across sectors, with 95.93% in manufacturing, 86.66% in urban agriculture, and 20.65% in services. Total enrollment based on demand was 86.88% in 2021 and 82.97% in 2022, indicating that the polytechnic college was leveraging its capabilities to support enterprises and their operators effectively. However, the alignment of TVET interventions faced challenges due to the absence of standards for enterprise operations which could inform needs assessments and training content planning. Trainers typically relied on the TVET curriculum (MOE, 2013) designed for formal employment, which did not adequately apply to training the informal workforce.

In this study, job analysis procedures were utilized to establish occupational profiles and develop curricula based on skill needs assessments (ILO, 2022; Tjahjono, 2015). This approach involved delineating occupational tasks and competency matrices relevant to knowledge application, skills, and work behavior necessary for effective needs assessments and training delivery. Nonetheless, achieving this goal proved challenging due to the scale and diversity of informal employment in the city, which demanded structured resources and training expertise.

In addition to the lack of occupational standards, trainers were expected to identify skill gaps and technological needs to tailor training for target enterprises (FDRE, 2016; MOE, 2008). However, the IES was implemented by categorizing entrepreneurs according to 'occupation categories' or 'employment fields' which limited the integration of managerial and technical training across different jobs. Grouping by target occupation was beneficial for aligning with employment activities and stages of enterprise growth. However, due to limited



resources and personnel, specific IES training could not be effectively tailored to particular occupations or clusters. Sporadic visits failed to adequately identify immediate needs or address urgent skill shortages.

Moreover, many trainers possessed academic qualifications or work experiences pertinent to specific sectors but not others. Feedback from participants regarding IES program relevance further supported these limitations, with only 25.33% rating it as 'relevant,' 36.0% as 'partly relevant,' and 38.66% stating it was 'not relevant.' Trainee dissatisfaction was especially pronounced regarding technical skills (46.6%) and technology utilization (53.3%).

Previous studies have also similarly reported the shortcomings of the Ethiopian TVET system in effectively meeting the requirements of the enterprise sector. For example, Sebsib and Yimer (2018), Dereje (2017), and Gebeyehu (2014) pointed out that TVET practices for small-scale enterprises were overly theoretical, often reflecting the preferences of trainers, and lacked a focus on addressing the challenges faced by MSEs. Yamada et al. (2018) specifically noted discrepancies between TVET offerings and the needs of domestic garment workers indicating that while firms emphasized production skills, TVET standards prioritized accounting knowledge and kaizen principles.

Disparities between TVET supply and enterprise demands were attributed to differing expectations regarding performance criteria, which in turn influenced job training content selection and the qualifications of assessors, as well as limited collaboration between TVET and industry sectors. The ILO's report on the state of skills in Ethiopia (1919-2019) echoed these observations, highlighting the TVET system's struggles as stemming from a supply-driven training approach and curricula focused on formal employment, neglecting the situations of vulnerable workers in the informal sector (ILO, 2019, p.43).

The present study also noted significant differences in growth rates among the three sectors examined. The proportion of enterprises achieving maturity was notably higher in manufacturing compared to others, with 16.75% in manufacturing, 14.16% in urban agriculture, and only 4.13% in services for the sample registered between 2008 and 2021. Interview data suggested that participation rates in IES varied by sector, primarily determined by the MSE administration's allocations favoring manufacturing while urban agriculture gained focus in recent years due to its exemplary performance in animal production and support from the National Green Initiatives promoting employment in greening activities.

It is essential to acknowledge that enterprise growth and performance are influenced by numerous factors beyond training, including external elements such as infrastructure, market conditions, input availability, financing, and regulations, alongside internal factors like management quality, motivation, and commitment (OECD, 2002). For sustainable growth, small enterprises require reliable infrastructure services, access to affordable short- and long-term financing, advisory assistance, and awareness of market opportunities. Frequently, small businesses grapple with inadequate entrepreneurial skills and deficiencies in accounting, production management, and strategic planning. The current study underscores the necessity for policy interventions to address both external factors and training needs. Abdelkrim et al. (2019) also highlighted the effectiveness of combining access to credit and training as a support mechanism for MSEs in urban Ethiopia, indicating that providing financial resources alongside training could enhance risk-taking behavior in both men and

women. The World Bank (2009) further emphasized the need for concurrently improving access to finance and land while offering managerial training to mitigate risks associated with mismanagement.

Previous studies in Ethiopia identified constraints in the TVET system's services for MSE occupations. These include inadequate occupational information, limited stakeholder involvement, and deficiencies in capacity and competence (Edukans, 2012, 2009). Other reports highlighted negative public perceptions regarding MSEs, occupational learning, and TVET research (Edukans, 2012, 2009; FDRE, 2016). However, the results of the present study revealed an increase in youth enrollment in MSE occupations, including university graduates.

The study also explored considerable concerns regarding the status and challenges of MSE development and TVET interventions, indicating potential opportunities for enhancing current practices. The governance of the TVET system lacks a cohesive platform for coordinating among various stakeholders and initiatives, which has diminished the overall effectiveness of the TVET skills ecosystem. Historically, TVET and MSE development were overseen by separate ministries until the Ministry of Labor and Skills assumed in 2018 to oversee linkage and coordination between the two sectors. Currently, the technical-vocational and enterprises development department in Bahir Dar city is inadequately organized to achieve education-industry coordination objectives, given the scale and diversity of informal employment in the city and the associated skill and resource needs. Furthermore, opportunities for obtaining formal input from sector ministries (such as agriculture and TVET) to creating uniform standards or shared responsibilities are limited. The lack of an integrated system dedicated to conducting regular skills assessments and translating this data into program development remains a significant challenge.

## Conclusions and Implications

This study examined the challenges associated with the development of micro and small enterprises and the interventions of technical and vocational education and training in Bahir Dar city. In Ethiopia, the development of MSEs is deemed essential for addressing unemployment and fostering the country's transformation and renaissance. Consequently, there is an urgent need to mobilize public support and to develop the skills and mindsets of MSE operators to yield positive outcomes. However, the results of this study suggest that sustained efforts in this regard have been lacking.

While there has been a notable increase in youth participation in the MSE sector, overall development trends remain sluggish. The involvement of the industry extension services suffers from a disconnect between planning and implementation, stemming from the lack of enterprise-focused trainings that accommodate diverse employment needs. Consequently, this study proposes strategies that aimed at improving performance in a sustainable manner in Bahir Dar city through addressing design challenges.

The technical-vocational and enterprise development department of Bahir Dar city needs to be equipped with the necessary structural support, resources, and expertise to fulfill its objectives concerning training-industry coordination and the establishment of occupational

standards. Strengthening the IES unit at Bahir Dar polytechnic college is essential, along with assigning specialized trainers for various fields of employment and developing mechanisms for their ongoing professional growth.

Additionally, Bahir Dar polytechnic college could adopt an alternative strategy by grouping trainees based on employment sectors (e.g., nursery and gardening or food, bakery, and restaurant) rather than following the occupational categories used by enterprise administration. This staffing strategy would allow a trainer to focus on 20 MSEs per term, using model enterprises to establish provisional training that meet consultation standards.

International best practices indicate that developing job-analysis procedures for occupational standards and curricula can be implemented quickly and cost-effectively. Therefore, it is crucial to train MSE administrators and TVET providers in effective curriculum development practices such as occupation modeling and task analysis. This could involve launching pilot projects for modeled occupations, creating a local resource base for training, and facilitating information sharing among regions and institutions.

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