

# Examining significant factors in micro and small enterprises performance: case study in Amhara region, Ethiopia

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**Abstract** Furniture manufacturing micro and small enterprises are confronted with several factors that affect their performance. Some enterprises fail to sustain, some others remain for long period of time without transforming, and most are producing similar and non-standard products. The main aim of this manuscript is on improving the performance and contribution of MSEs by analyzing impact of significant internal and external factors. Data was collected via a questionnaire, group discussion with experts and interviewing process. Randomly selected eight representative main cities of Amhara region with 120 furniture manufacturing enterprises are considered. Data analysis and presentation was made using SPSS tools (correlation, proximity, and *T* test) and impact-effort analysis matrix tool. The correlation analysis shows that politico-legal with infrastructure, leadership with entrepreneurship skills and finance and credit with marketing factors are those factors, which result in high correlation with Pearson correlation values of  $r = 0.988$ ,  $0.983$ , and  $0.939$ , respectively. The study investigates that the most critical factors faced by MSEs are work premises, access to finance, infrastructure, entrepreneurship and business managerial problems. The impact of these factors is found to be high and is confirmed by the 50% drop-out rate in 2014/2015. Furthermore, more than 25% work time losses due to power interruption daily and around 65% work premises problems challenged MSEs. Further, an impact-effort matrix was developed to help the MSEs to prioritize the affecting factors.

**Keywords** Micro and small enterprises · Furniture manufacturing · Factors · Correlation · Impact-effort analysis

## Introduction

Since 2001, micro and small enterprises (MSEs) in Ethiopia have been confronted with several factors that affect their performance. Major factors include financial problems, lack of qualified employees, lack of proper financial records, marketing problems and lack of work premises, etc. Besides, environmental factor affects the business which includes social, economic, cultural, political, legal and technological factors. In addition, there are also personal attitudes or internal factors that affect the performance of MSEs, which are related to the person's individual attitude, training and technical know-how (Werotaw 2010). These factors were supported in the study undertaken by Heslina et al. (2016) as entrepreneurial characteristics have significant influence on business performance through business growth strategy and entrepreneurial competence. Olughor (2015) also pinpointed that the role of innovation, which is part of entrepreneurial characteristics, in small and medium enterprises, is essential for the development of business performance.

Furniture manufacturing micro and small enterprises (FMMSEs) are mostly low technology enterprises, which are labor intensive. Even though furniture manufacturing MSEs in Ethiopia have a large economical share in national GDP, some enterprises fail to sustain, and some others remain for a long period of time without transforming into middle level enterprise. When we see most of the furniture manufacturing MSEs, they are producing similar and non-standard products and are not showing competitive

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performance improvement. Thus, the aim of this paper is to conduct a study that identifies the major factors that affect performance and examines the factors' correlation and impact using statistical tools.

## Literature review

Micro and small enterprise development projects can serve four major objectives: poverty reduction, empowerment of women, employment generation and enterprise development as an end in itself (FDRE 2010; UN Economic Commission for Africa 2008; Moyi 2013; Markos et al. 2015; Brenda and Gregory 2015). Habtamu et al. (2013) noted MSEs do serve as a means of bringing economic transition by using the skill and the talent of people without requiring high-level training, much capital and sophisticated technology. For people in developing countries, small and micro enterprises are the sources of income, employment, skill development, goods and services delivery, etc. (Anne 2014; Semistatus and Rainer 2014; Markos et al. 2015). MSEs are one of the priorities among the programs addressing African development (UN 2008), and are seen as a means of achieving smooth transition from tradition to modern industrial sector and have a huge contribution to the growth and development of the country in terms of employment generation with a relatively low capital cost (Stephen and Wasuu 2013). In light of this, GFDRE has recognized the contributions of MSEs to the national development efforts, and MSEs' strategy was formulated and implemented since 1997 (MSE 2011). During the first MSEs' development strategy (1997–2002) more than 1.5 million people were employed. But plenty of studies indicated that there are many internal and external challenges facing MSEs in their operations which hold back their growth in Ethiopia (MoUDC 2011). A hard look at various studies has revealed a number of deterrents to the growth and survival of the MSEs.

MSEs in Ethiopia have also been confronted with a number of challenges that obstructed their success. Mekonnen et al. (2013) had pinpointed that inadequate infrastructure facilities, inadequate finance, poor managerial and technical skills, and inadequate working premises were the major challenges to MSEs' successful operations followed by marketing problems, low support from respective institutions, inadequate supply of raw materials, and regulatory issues. According to Commission on Legal Empowerment of the Poor (2006) study, most MSEs in Ethiopia face critical constraints both at the operation and start-up level. Some of these constraints include lack of access to finance, access to premise, infrastructure, training in entrepreneurial and management skills, information on

business opportunities, and social and cultural factors particularly related to deficient entrepreneurial culture and excessive corruption. Devereux and Sharp (2006) as cited in Zeleke (2009), and Mbonyane and Ladzani (2011) identified that lack of access to finance is the most influential factor from among all adverse factors hindering the growth and development of the MSE sector in most countries. Furthermore, Haftu et al. (2009) found that lack of finance and working space rank high as the major constraints faced by a large proportion of the enterprises. This result is supported by Hailemichael (2014) and Amasu (2012) that working premises, marketing and financial factors were the major factors significantly affecting performance of MSEs in Addis Ababa.

## Problem description

The study conducted by Ethiopian CSA discloses that the contribution of small enterprises in creating job opportunities and in the development of our economy is vital (CSA 2007). However, their contribution is very low as compared to that of other countries' due to various reasons. The productivity of furniture manufacturing MSEs is not competitive enough and mostly follows the usual production process. Though these shortcomings may be result of different factors, there is no well conducted and documented studies on the field. Generally, there are external (contextual) and internal factors, which are still affecting performance of furniture manufacturing MSEs. Therefore, this study is designed to identify and analyze the main factors that affect the performance of these furniture manufacturing MSEs.

## Objective of the study

The study has a general objective of identifying significant factors affecting the performance of the furniture manufacturing MSEs and examining the factors' impact and correlation. It is also to conduct impact-effort analysis on the identified factors of the field for prioritization in addressing them.

## Methodology

Data was collected from both regional and cities administration selected technical and vocational enterprise development departments with the involvement of concerned officials and MSE operators. During data collection time, physical observation of the general work area and way of doing the business has been done on the selected

enterprises. Besides, a questionnaire was prepared by the researchers for randomly selected enterprises at an average of 15 furniture manufacturing MSEs under each town of the selected eight cities in the Amhara region. Totally, 120 MSEs were observed and each individual enterprise's owners/managers were made to respond to questionnaires prepared for them, especially related to the challenges enterprises face. Discussion was also done with the enterprise owners and MSEs coordinators on each selected area through interview questions. This is basically designed in order to get additional information regarding the working condition, the performance level and the challenges that MSEs are faced with. Focussed group discussion with selected groups from MSEs office experts in the area at urban level and sub-city level was also accomplished and valuable information was collected to reinforce the data analysis process.

To analyze collected primary and secondary data, statistical process control application package called SPSS has been used for correlation and impact analysis with its correlation module and hierarchical clustering approach respectively to find out the factor correlations and their impact among factors for MSEs. Correlation analysis was applied based on the factors Pearson correlation ' $r$ ' value and Statistical significance  $p$  value. Factors having a strong positive  $r$  value and statistically significant with a significance level of 0.05 and 0.01 (or with confidence level of 95 and 99%) has been selected as variables that should be considered for impact cluster analysis. Proximity test was the most valuable tool used to identify how much factors have a proximity distance with other factors related to it. Based on small proximity distance between factors, important findings were found for the cluster impact analysis. Finally, impact-effort matrix made by combining separate impact and effort analysis results which indicates how much effort those factors will require and impacts made for the MSE's.

## Data analysis, presentation and discussion

### General information

According to the interview finding, most of the enterprises (65%) have been staying in business for about 2–5 years. This trend of metal and woodwork manufacturing MSEs indicates that most of the enterprises have been established during the first GTP period. Business ownership is sole proprietorship (83%), which indicates that most of them are working individually. The main reason may be that those enterprises are mostly informal and difficult to work in partnership or the team working culture is not well developed in the region. With regard to finance,

(54%), (25%) and (12%) of the respondents said that personal savings, family and friends/relatives' investments, respectively, are their sources to start their enterprises. Micro finance institutions contributed only (9%). This implies that personal savings were found to be the main source. The rationale shows that MSEs' owners have faced difficulty in getting warranty to borrow money, which they need especially during the start of their business.

### Indicators for presence of challenge for furniture manufacturing MSEs

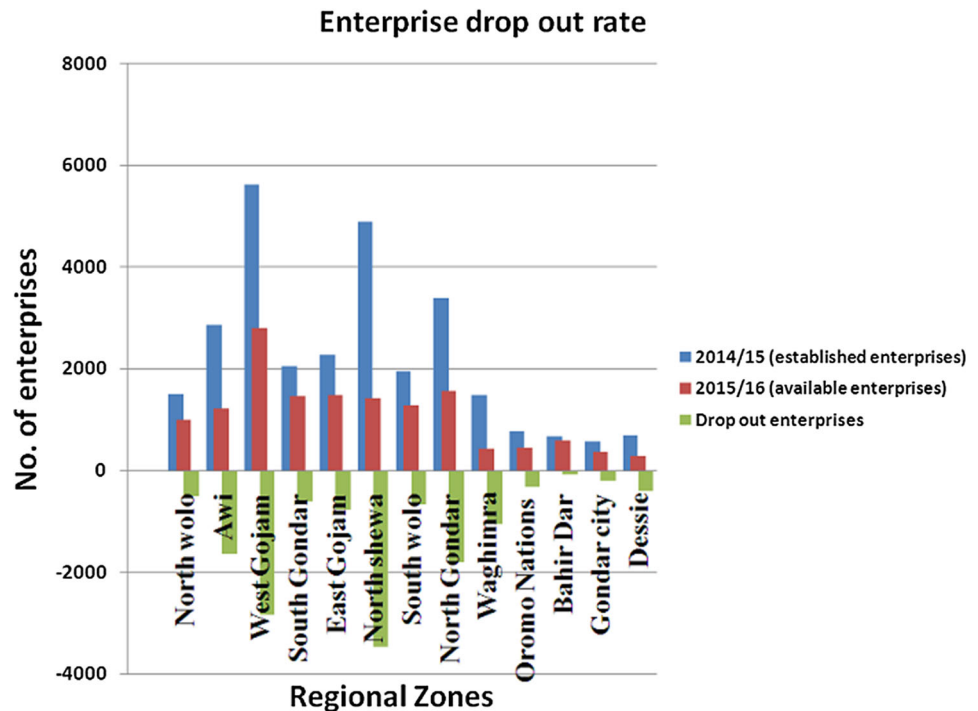
To evaluate whether the furniture manufacturing MSEs are faced with different challenge or not and to estimate the extent of these challenges, it could be necessary to analyze how many of them are transformed to the next step or how many of them quit from their work or we could see what is their yearly financial transaction. In the survey, it has been found that most MSEs are very informal and it is very difficult to know their yearly financial transaction. But, it could be easy to analyze how many of them are transformed and how many are sustained in their business. From such analysis, we could see the yearly dissolving rate. For instance, as shown in Fig. 1, manufacturing MSEs show that 50% of the enterprises established in 2014/15 have been dropped out from the business in Amhara region. This shows that there is a critical challenge in the area. The challenge may be from internal or from external source.

Unless MSEs are supported and motivated, through promotion and appreciation, MSEs cannot bring their dreamed result. As indicated in Fig. 1, most of the MSEs dropped out or had been stagnant at the same level for more than 10 years. They also have no savings and excess resources which they can utilize to get technical, managerial, and other business development services. This can be a clear indication of how much these micro and small enterprises are starving for external support as the challenges are not resolved through their own effort only. A survey conducted on those selected cities confirmed that majority of MSEs (34.4%) employed a single worker, followed by 33.8% and 24.1% MSEs employing 3–6 persons and 2 persons, respectively. The remaining 6.2% of the surveyed MSEs were reported to be self-employed as compared to only 1.6% MSEs employing more than five persons. This shows that in addition to dissolving, most existing enterprises could not employ more labor.

### Factor correlation analysis

Questionnaire data analysis started with data processing step in which collected data based on a questionnaire from

**Fig. 1** MSEs (manufacturing sector) drop-out rate in Amhara region (2014/15)



each selected district of the Amhara region were arranged according to their numerical values with Excel. From the questionnaire, enterprise owners were expected to fill values starting from 1 to 5 based on listed factor impact level on their respected enterprise performance. So that in the data processing time, average values are computed to know factors' impact in each district. For this purpose, SPSS software has been used as a tool to do analysis on those values. As it is described, the main objective of this research is to analyze the challenges faced by MSEs. Aligned with this objective, questionnaire was targeted to assess and identify the factors' impacts in related to selected district enterprises. For this purpose, factor correlation analysis and factor cluster impacts are used as they are the most valuable SPSS analysis steps used to identify each factor related impact with respect to different enterprises.

#### *Pearson's product correlation coefficients*

Even if there are so much indications as MSEs in Amhara region are tied up with complex circumstances that hinder enterprises from transformation, this study finds as factors affecting enterprises have correlation and impacts they convey are associated. Factors which are statistically significant and having the correlation magnitude strongly positive are selected for analysis. In this study, Pearson's product moment correlation coefficient was used to determine whether there is significant relationship between the listed factors on the questionnaire. The listed factors used

in the questionnaire are those major factors summarized from the literature, previous researches and those considered factors commonly by majority of the community. These include politico-legal, working premises, technological, infrastructure, marketing, finance and credit, leadership, and entrepreneurial skill, raw material and overseas products which in turn are the most important variables used in the correlation analysis for the performance of MSEs. Some of the factors are internal factors in the MSEs and the others are external. However, majority of the above identified factors are not solely internal or external because, to solve such challenges and improve the performance of MSEs, involvement of both the MSEs and external stakeholders like Government, training institutes, financial institutions and other related ones are required strongly. Moreover, the factors are believed to have a direct impact on the each other. Accordingly, the researcher here is not going to prioritize the factors comparing the internal and external ones rather this study is going to prioritize the factors among both internal and external considering their impact on the performance of MSEs and effort required to address them.

According to the correlation analysis of factors, Table 1 in the appendix, Entrepreneurship skill factor correlated with technology and marketing related factors with Pearson correlation of ( $r = 0.933^*$ ,  $p = 0.021$ ) and ( $r = 0.883$ ,  $p = 0.047$ ). This implies that, Entrepreneurship skill is a key for technology innovation and market success. When enterprises became capable to use new technologies from TVET's and external sources, they will become more



**Table 1** Correlation of selected factors

Correlations					
Factors	Politico-legal factors	Infrastructure factors	Technology and related factors	Marketing and related factors	Entrepreneurship skills and related factors
Politico-legal factors					
Pearson correlation	1				
Sig. (2-tailed)					
Infrastructure factors					
Pearson Correlation	0.988**	1			
Sig. (2-tailed)	0.002				
Technology and related factors					
Pearson correlation	0.309	0.383	1		
Sig. (2-tailed)	0.612	0.524			
Marketing and related factors					
Pearson Correlation	0.823	0.825	0.745	1	
Sig. (2-tailed)	0.087	0.085	0.149		
Entrepreneurship skills and related factors					
Pearson correlation	0.589	0.659	0.933*	0.883*	1
Sig. (2-tailed)	0.296	0.227	0.021	0.047	
Finance and credit factors					
Pearson correlation	0.867	0.828	0.542	0.939*	0.684
Sig. (2-tailed)	0.057	0.083	0.346	0.018	0.203
Working area and related factors					
Pearson correlation	0.886*	0.905*	0.274	0.641	0.484
Sig. (2-tailed)	0.045	0.035	0.656	0.243	0.408
Leadership and related factors					
Pearson correlation	0.606	0.653	0.937*	0.929*	0.983**
Sig. (2-tailed)	0.279	0.232	0.019	0.023	0.003

\* Correlation is significant at the 0.05 level (2-tailed)

\*\* Correlation is significant at the 0.01 level (2-tailed)

entrepreneurial and this will help them get better market. The Pearson correlation value also indicates the magnitude how much these factors have a strong positive impact with each other. For instance, more market shares will trig enterprises to become technology seekers and more idea innovators which lead to become good entrepreneurs and ice breaker for other enterprises involved in the business.

In Table 1, we can see also that a strong positive relationship was found between infrastructure factors ( $r = 0.988$ ,  $p = 0.002$  which is  $p < 0.01$ ) and politico-legal factors which are statistically significant at 99% confidence level. This implies at 1% level of significance it was discovered that infrastructure factors are mostly determined by a very strong political and legal commitment by regional and federal government leaders. According to the correlation factor, politico-legal factor has strong positive relation with infrastructure and this is revealed in leadership problems such as a limited initiation from high to low level leaders. Most of the leaders have a

seasonal behavior which changes rendering to the government motto and state of affairs. Moreover, political leaders luck continuity in their plans and decision, and this totally affects leader’s decision on work place premise and infrastructure related problems.

Working area is correlated with both politico-legal factors and infrastructure factors with Pearson correlation values ( $r = 0.886^*$  and  $r = 0.905^*$ ) and with  $p$  values of 0.045 and 0.035, respectively. Here both  $p$  values are less than 0.05 and they are statistically significant at 95% confidence level. This implies that at a 5% level of significance it was discovered that the working area problem plays a significant role in determining the performance of MSEs since it is strongly affected by the related politico-legal and infrastructure factors. There are some indicators such as “shed” (work space) problems and infrastructure hitches like water and electric power, rent seeking behavior of some enterprises, and concept and factual gaps from enterprises about transformation. These are some pointers

as to how the politico-legal factor affects infrastructure and working area conditions, and how it is a very strong factor for success of enterprises.

There is substantial statistically significant relationship between leadership and related factors with technology, marketing and entrepreneurship related factors with Pearson correlations of 0.937\*, 0.929\*, and 0.983\*\* and with  $p$  values of 0.019, 0.023, and 0.003, respectively. This would imply that the healthier the leadership, the better the performance of MSEs would be and is reflected on factors revealed in technology, marketing, and entrepreneurship development. Technology innovation, distribution and implementation need a strong leadership to get its ultimate use for market success and entrepreneurship. This will not come true unless there is a strong leadership from enterprise owners, local enterprise officers, and regional and federal officers working on MSEs. From the survey, most of the enterprises seek technology hoping it will help them from their lack of skill with the help of continues follow-ups and trainings. As a result, they can be profitable in the market winning quality breaches and productivity problems.

Finance and Credit correlated with marketing and related factors with a Pearson correlation value of  $r = 0.939^*$  and correlation is significant at the 0.05 level with  $p = 0.018$ . This relation is statistically significant at 95% confidence level. As it is known, finance and marketing are considered as two faces of a coin. Enterprises' market-related problems will not be solved unless their finance-related problems are solved. It will be meaningless expecting our enterprises market success without establishing a proper financial institute which shall lent currency without challenging guaranty requirements. Moreover, a 20% initial saving requirement is difficult for some enterprises. The current practice of arbitrary tax drop into an enterprise which is done without an appropriate and reasonable judgment fades the enterprise's power in market share and confidence in delivering a quality product. As the magnitude of correlation revealed, it is a very positive correlation between finance and market and there shall be a systematic and structural approach in solving problems related to them.

### Impact analysis

Factors correlation is not only fair enough to display factor impact effort analysis for selected enterprises. How much those factors are related with their value from the questionnaire is also important. According to the factors proximity matrix prepared (Table 2), researchers select factors which have proximity distance between 0 and 1 to be sure that selected factors correlation is really have visible impact on MSEs. Based on this fact, the following general possibilities can be produced.

Infrastructure factors have a proximity distance of 0.531 with politico-legal factors. This proximity relation gives a possibility that solutions for politico-legal factors lead for solutions for infrastructure-related problems. In reverse, solved infrastructure problems exhibit a good politico-legal structure in the region. This idea has been proved in the correlation matrix. As per the responses of the MSEs' owners in the questionnaire, one of the indications for the infrastructure problem is that 25% of their work time is lost daily due to power interruption.

Finance and credit factors have a proximity distance of 0.983 with politico-legal factors and 0.357 with infrastructure and related factors. This also indicates the possibilities that finance, political leadership and commitment, and infrastructure are tied as an impact for the success of enterprises. It is obvious that all the financial fund and rent problems and water and electric power problems have a possibility to be solved by committed political leadership and management.

Working area and related factors have a proximity distance of 0.535 and 0.494 with infrastructure and finance, respectively. From the study, researchers had seen that working area problems are vast and have different status in different districts. But most of enterprises at each district agreed with this common problem. Infrastructure! This is the critical problem which currently affects enterprises and locks their success with expectation of future better "shed" with water availability and consistent electric power. But this has not come true and it seems they will stay in their expectation room unless government takes any positive action with regard to the infrastructure and related factors. Due to lack of facilities in the sheds built by the government, around 65% of MSEs did not start work and because of this, they are faced with high amount of rent cost and limited production capacity. The impact of this factor is also one of the causes for the 50% drop-out rate which is often mentioned above.

An interesting possibility of this matrix indicates also financial problems had a small distance with working area and infrastructure and related problems. How? This may be solved with further study, but in this research, we can infer a suggestion that maybe enterprises will stand on their feet by themselves if the credit and funding institutions work properly with less complicated crediting systems and structures.

Raw material and related factors also have an insignificant distance with infrastructure and finance-related factors with a proximity distance of 0.552 and 0.779, respectively. It is clear that financial problem is the most hindering problem related to raw material and related problems. The possibility here is that enterprises with limited fund and credit, and without or with inconsistent water and electric power in work places will not meet their



**Table 2** Factors proximity matrix

Proximity matrix										
Case	Matrix file input									
	GF1	GF2	GF6	GF7	GF8	GF9	GF10	GF3	GF4	GF5
Politico-legal factors (GF1)	0.000									
Infrastructure factors (GF2)	0.531	0.000								
Finance and credit factors (GF6)	0.983	0.357	0.000							
Working area and related factors (GF7)	1.471	0.535	0.494	0.000						
Leadership and related factors (GF8)	2.442	3.030	3.578	5.375	0.000					
Overseas products and related issues (GF9)	24.886	25.106	28.417	30.264	13.755	0.000				
Raw material and related issues (GF10)	1.746	0.552	0.779	1.077	3.602	25.174	0.000			
Technology and related factors (GF3)	1.816	0.566	0.632	1.112	2.729	22.540	0.381	0.000		
Marketing and related factors (GF4)	0.914	0.154	0.278	0.842	2.563	24.087	0.407	0.211	0.000	
Entrepreneurship skills and related factors (GF5)	2.454	2.934	3.772	5.324	0.085	12.806	3.373	2.677	2.569	0.000

target in the market. In addition, they could not purchase quality raw materials that can lead them to better production and strong resistant to market fluctuation.

Technology with infrastructure, finance and credit, and raw-material-related issues have a proximity distance of 0.566, 0.632, and 0.381, respectively. As described in this paper, raw material has a possibility to be related with finance and credit factors, but technology also has a proxy with this factor. This indicates that there will be a possibility of solving raw material and financial factors using technologies which will trig to product or service innovation, and later lead them to success.

Marketing and related factors have a possibility to be related with politico-legal factors, infrastructure factors, finance and credit factors, working area and related factors, raw material and related issues, and technology and related factors with a proximity distance of 0.914, 0.154, 0.278, 0.842, 0.407, and 0.211, respectively. Marketing and related factors are almost connected with other factors and they have very valuable impacts for the success of enterprises, but the proximity distance depicts that all raw material, technology, working area, finance and credit, infrastructure, and politico-legal factors’ solution will be an important significant factor for market share and related issues.

Entrepreneurship skills and related factors also have a possibility to be connected with a proximity distance of 0.085 with leadership and related factors. This is a very important possibility for enterprise owners’ to develop their entrepreneurial skill which is mostly limited and affected by the commitment of local and regional leaders. Leaders should identify gaps which face enterprises and prepare for solutions. There will no such serious challenge that will come on elevation for entrepreneurs if there is good governance and leadership starting from enterprise owners to local and regional enterprise officers.

The proximity indicates the possibilities that enterprise’s factors have in relation and infers for fast generalization based on the fact and proximity they have. Like the proximity indication, studying each and every factor independently will be exhaust and make this research lose a point for impact analysis. So that clustering a group of factors together and studying their impact and the required effort will be a wise approach to get good solution for the problems enterprises have with regard to these factors. In addition to proximity distance, SPSS allowed us to prepare agglomeration schedule and it will help to analyses by classifying cases based on their similarity with other cases. Table 3 shows cluster combination stages and the coefficient or proximity distance from the respective factor.

The agglomeration schedule shows the order and distances at which items and clusters combine to form new clusters. It also shows the cluster level at which an item joins a cluster. Coefficients indicate the level of distance those variables had; for instance,

**Table 3** Agglomeration schedule (cluster combination and coefficient of factors)

Stage	Cluster combined		Coefficients
	Cluster 1	Cluster 2	
1	GF8	GF5	0.085
2	GF2	GF4	0.154
3	GF2	GF6	0.263
4	GF2	GF3	0.366
5	GF2	GF10	0.432
6	GF2	GF7	0.558
7	GF1	GF2	0.754
8	GF1	GF8	1.732
9	GF1	GF9	5.986

**Table 4** Agglomeration schedule and correlation test for selected variables

Stage	Cluster combined		Coefficients	Correlation PC	Significance <i>p</i> value	Remarks
	Cluster 1	Cluster 2				
1	GF4	GF3	0.211	0.745	0.149	Positively correlated but insignificant
2	GF4	GF10	0.333	0.691	0.196	Positively correlated but insignificant
3	GF4	GF6	0.448	0.939*	0.018	Positively correlated and significant
4	GF4	GF7	0.621	0.641	0.243	Positively correlated but insignificant
5	GF4	GF9	9.113	0.239	0.699	Positively correlated but insignificant

**Table 5** One sample test for individual factor's impact analysis

One-sample test						
Factors	Test value = 0					
	<i>t</i>	Sig. (2-tailed)	Mean difference	95% Confidence interval of the difference		
				Impact level	Lower	Upper
Politico-legal factors	11.692	0.000	3.42400	Impact seven	2.6110	4.2370
Infrastructure factors	23.129	0.000	3.58474	Impact five	3.1544	4.0151
Technology and related factors	24.979	0.000	3.62667	Impact four	3.2236	4.0298
Marketing and related factors	27.442	0.000	3.57556	Impact six	3.2138	3.9373
Entrepreneurship skills and related factors	9.078	0.001	3.01911	Impact nine	2.0957	3.9425
Finance and credit factors	19.096	0.000	3.73667	Impact two	3.1934	4.2799
Working area and related factors	20.834	0.000	3.86978	Impact one	3.3541	4.3855
Leadership and related factors	8.726	0.001	3.02889	Impact eight	2.0651	3.9926
Overseas products and related issues	2.573	0.062	1.95111	Impact ten	−0.1539	4.0562
Raw material and related issues	22.043	0.000	3.72074	Impact three	3.2521	4.1894

- GF8 (Leadership and related factors) and GF5 (Entrepreneurship skills and related factors) has combined with having proximity distance of 0.085 which is very approximate to zero. In addition to that this factor has a *p* value of 0.003, and the factors correlation is significant with 99% confidence interval or significant at the 0.01 level (2-tailed). The Pearson correction factor shows 0.983 which is almost one and we can conclude those factors are strongly correlated to each other and their relation is positive. Due to these perspectives, those factors are grouped into cluster one.
- From the agglomeration schedule, it is shown that GF2 has been combined with GF4, GF6, GF3, GF10 and GF1. But by the Pearson correlation matrix test, GF2 (infrastructure and related factors) is combined in cluster two with GF1, which is a politico-legal factor with a Pearson correlation factor of 0.988\*\* and a significance level of 0.002. As depicted in Table 3, GF1 and GF2 have a proximity distance of 0.754.
- Since the leading factors from agglomeration schedule have been combined and formed a cluster with others, researchers have to search proximities from the proximity matrix and compare it with correlation factor to

check the significance of their relationship. But this will be a very complex step and there are  $(4!) = 24$  combinations that could be done for the test. Hence, it was decided to do another agglomeration schedule with SPSS and test factors correlation (see Table 4). According to this perspective, GF4, GF6, GF3, GF10, GF7, and GF9 have been selected into the hierarchical clustering step and all procedural steps that have been applied for clustering are considered.

Based on Table 4 argument, GF4 and GF6, which are marketing and finance factors have been combined in cluster three with a proximity distance of 0.448. Except GF9 (overseas products and related issues) with its proximity 9.113 and  $-0.036$  negative correlation with marketing, others can be combined with this cluster because they have a highly strong positive correlation with each other.

The final cluster is GF9 which is overseas products and related issues. As shown in the proximity matrix, this factor has not indicated any sign of proximity with others and also significance but it has some positive and negative correlations which makes it a very important factor for the success of small and medium enterprises.



According to the correlation, technology and related factor is strongly correlated with entrepreneurship skills and related factors with a Pearson correlation factor 0.933\* and correlation is significant at the 0.05 level (2-tailed) with *p* value of 0.021. Therefore, technology and related factor should be combined with cluster one. Working area and related factors also had a strong correlation factor with politico-legal factor and infrastructure and related factor with Pearson correlation values of 0.886 and 0.905, respectively, and correlation is significant at the 0.05 level (two-tailed) with *p* values of 0.045 and 0.035, respectively. Hence, working and related factor should be in cluster two.

Now factors have combined into clusters and they are ready for analysis. As described in the current paper, this cluster will help to come to a general conclusion on those grouped clusters and it will be very important to propose a solution. But the magnitude of each factor affecting enterprises and the related impact level should be resolved tapped on the cluster. For this purpose, SPSS one-sample *T* test is very applicable to this issue. One-sample test procedure tests whether the mean of a single variable differs from a specified constant. Since any factor which has a mean difference of more than zero has a significant impact for the enterprises, researchers test whether the average impact score for a group of factors differs from 0 at the 95% confidence level. As represented in Table 5, based on the mean difference, working area and related factors, finance and credit factors, raw material and related factors, technology and related factors and infrastructure factors are the main challenges faced by MSEs according to the data from the questionnaire and analysis. However, this result shall be validated later by the analysis made with the additional data gained via guided interview and group discussion from enterprise owners and government experts.

Table 6 below indicates the impact analysis result for factors in cluster considering only the information gathered on the performance of MSEs through questionnaire. The result implies that cluster three which contains market, finance and raw material factors show with highest impact level and factors in cluster one which includes leadership, entrepreneurship, technology and related factors show lowest impact level to MSEs performance. However, the researchers need to validate this later considering the current real situation of the MSEs and interview and discussions made with experts. Because the researchers did not believe that factors in cluster two have less impact.

*Analysis of factors/challenges through impact-effort matrix (expert based analysis)*

It is known that factors which require much amount of effort may not have that much impact on MSEs' transformation or vice versa. But individual factors by themselves

**Table 6** Impact analysis for factors in cluster

Cluster name	Factor code	Factor impact	Impact point	Cluster impact	Distance/coefficient	Correlation
Cluster one	GF8 leadership and related factor	Impact eight	2	2.25 (low impact)	0.085	B/n GF8 and GF5 <i>p</i> value = 0.003
	GF5 entrepreneurship skills and related factors	Impact nine	1			
Cluster two	GF3 technology and related factors	Impact four	6	4.25 (high impact)	0.754	Pearson correlation = 0.983 B/n GF2 and GF1 <i>P</i> = 0.002
	GF2 infrastructure and Related factor	Impact five	5			
	GF1 politico-legal factors	Impact seven	3			
Cluster three	GF7 working area and related factors	Impact one	9	4.75 (high impact)	0.448	Pc = 0.988 B/n GF4 and GF6 <i>p</i> = 0.018
	GF4 marketing and related factors	Impact six	4			
	GF6 finance and credit factors	Impact two	8			
	GF10 raw material and related issues	Impact three	7			
Cluster four	GF9 overseas products and related issues	Impact ten	0	0 (low impact)	No significant proximity with others	Pc = 0.939*

**Table 7** Analysis of the individual factors with their explanation, impact level and effort required

No.	Factors	Explanation	Impact/effect	Effort required/ remedies	Effort level	Impact level
1	Politico-legal factors	Tax rate, legal procedures and process, bureaucracy, government Performance purchasing system etc.	Minimizes efficiency Not motivate to start this type of business Force to drop out	Controlling and monitoring to reduce bureaucracy and corruption in bid system Policy review to reduce tax Systematic study and fair tax allocation Develop strategy for better service delivery Awareness creation and make reachable the rules and regulations	Difficult	Medium
2	Infrastructure factors	Road, electric, water access to work area	Productivity minimized Market access limited	Construction of infrastructure Needs investment and well planned service delivery especially in power distribution Try to make scheduled power interruption	Difficult	High
3	Technology and related factors	Availability of required technology in the market Technical capacity to choose and operate the technology Incapable to get new technology because of insufficient capital	Produce only similar and less quality products Productivity minimized Competitiveness reduced	Needs investment and creation of financial access Needs certain effort in identifying technologies and technical training about technologies Make availability of required technology in the market	Difficult	High
4	Marketing and related factors	Market opportunity and network Market strategy development skill Promotion and market information Customer handling	limited Sales volume shortage of customer limited product range less competitive	Advertisement, promotion, networking with potential customers. Create Market access Product display rooms, Make market forecasting Promoting Products and improve Customer handling	Easy	Low
5	Entrepreneurship skills and related factors	Business development skills Business management skills motivation, training, experience sharing	Less product modification or innovation More dependent behavior & less competent Inability to search market options Customer handling limitation Less creativity	Delivering repeated and relevant training Initiating promoters by facilitating experience sharing Motivating enterprise owners	Easy	High
6	Finance and credit factors	Access to finance is limited More interest rate Bureaucracy in getting finance Financial management skill	Less production capacity Less competent due to inability to purchase required technology Limited resource/ production facility	Improve saving culture for the community Search different mechanisms of financial access Expand MFIs and their capacity Adjust interest rate Minimize Bureaucracy in getting fund from credit institute and gov't Minimize Guaranty prerequisites	Difficult	High



**Table 7** continued

No.	Factors	Explanation	Impact/effect	Effort required/ remedies	Effort level	Impact level
7	Working area and related factors	Very small area High rent rate Location is far from market Limited infrastructure access	Difficult to produce effectively Less market accesses High rent expense	Needs construction of suitable sheds for MSEs to work and sell. This needs large financial demand Need decision of infrastructure expansion Needs land	Difficult	High
8	Leadership and related factors	In ability to manage all the activity Weak organizational structure No responsibility and accountability No experienced workers No long term Strategic plan	Could not maintain good performance Idle worker and resources Leads to unnecessary costs	Regular leadership training Experience sharing	Easy	High
9	Overseas products and related issues	Cheap uncontrolled entrance of similar products from abroad	Less competent with imported product in quality and price Decrease market share	Work to create competent enterprise, with quality and price Make promotion to local products Policy review on imported products	Easy	Less
10	Raw material and related issues	Shortage and cost of raw material Accessibility Quality of raw materials	Limits production capacity Limits sales volume Product quality reduced	Develop networks with suppliers and enterprises	Difficult	Medium

may take less amount of effort and will have an extreme impact. According to this postulation, each factor impact level and the required effort have been identified in Table 7. Note that effort and impact values for each factor are given by researchers’ judgment based on the study and current situations of the MSEs. Based on this result, an impact-effort matrix has been developed and it is shown in Fig. 2. Accordingly, the priority focus in the process of solving MSEs’ challenges is to improve their performance through developing entrepreneurship skill and knowledge, leadership/business management skill and Technology and related issues as it need less effort but bring high impact in achieving the goals of MSEs. This impact-effort matrix helps to focus on the priority challenges in solving the factors separately with the different levels of efforts required.

MSEs, in solving the problems, should focus on the internal factors, which mainly include the poor attitudinal behavior, poor entrepreneurial skill and less leadership skill. Though external factors have great impact, addressing the internal factors are believed to promote the overall performance of the enterprises by more than 30%. These internal factors could be resolved by forming a network between actors (mainly MSEs development office, TVETS and higher education), delivering

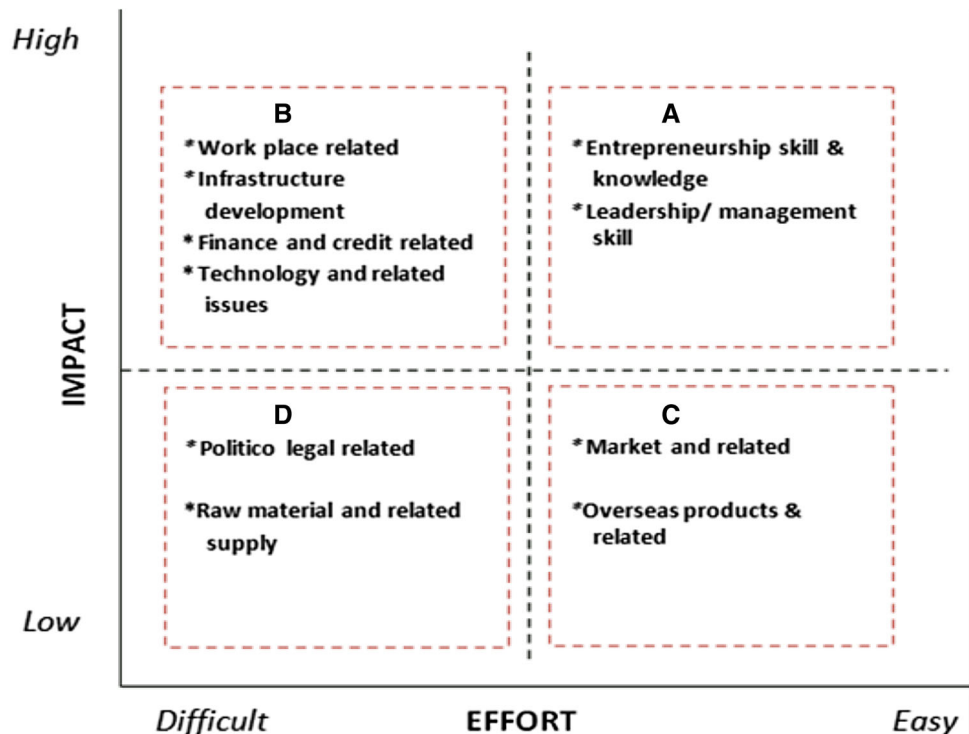
repeated training and providing close consultancy work to MSEs. However, to solve the overall challenges including the external factors of MSEs and bring total performance improvement, it needs to develop and use a strategic approach.

**Conclusion**

It is known that a lot of effort has been made by the government to improve the performance and contribution of MSEs in poverty reduction, industrial transformation, and reduction of unemployment and overall economic development. Despite MSEs playing a great role so far, the performance and the impact on economic development are not based on the expected level. MSEs are still facing severe constraints in their activities and their promotion and development are, therefore, hampered.

In this study, internal and external factors affecting the performance of MSEs are examined and identified with their impact level. Among the ten factors which are preliminarily selected for examination, the factors which show strong positive relationship (highly correlated) are politico-legal with infrastructure, leadership with entrepreneurship skills and finance and credit with marketing factors, with

**Fig. 2** Impact-effort matrix for the factors



Pearson correlation values of  $r = 0.988$ ,  $0.983$ , and  $0.939$ , respectively.

From the impact analysis made, it is revealed that factors which are highly correlated have a high impact on each other, and addressing one of the correlated factors leads to reduction of challenges by the other factor on the performance of MSEs. Work premises, access to finance, infrastructure, entrepreneurship and business managerial problems are found to be the most critical factors. The study found that these factors took majority of the share for the causes of 50% drop-out. The study also shows that even though working areas are built, around 65% of the MSEs did not start work due to lack of facilities in the sheds. Moreover, due to infrastructure problem of daily power interruption, 25% of their work time is lost.

Though internal and external factors have impact on each other, internal factors need less effort to address. It is shown that addressing internal factors could promote the overall performance by more than 30%. Therefore, MSEs are recommended to focus and strive on solving the internal factors by themselves rather than waiting third party solutions as of the external factors. Moreover, by applying the impact-effort matrix analysis tool could help MSEs to prioritize affecting factors.

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