Innovations

The Economic Burden and Survival Strategy for Micro and Small Enterprises during Covid-19 in Sidama Region, Ethiopia

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Abstract

This paper is intended to examine the economic challenges and possible solutions of the COVID-19 pandemic in the case of Micro and Small Enterprises in the Sidama Region, Ethiopia. The study adopted a purposive sampling procedure to target the specific study area. The sample size for the study was 317. A two-limit Tobit regression model was used for analyses. The result of the study indicated that change in firm's expenditure and the workers' size after the onset of the pandemic, relationship with other firms, land access, market chain, internal challenges, members' size, and their sense of ownership were statistically significant affecting percentage sales. Moreover, training, relationship with other firms, members' size, and their social relationship and expenditure after the onset showed a statistically significant effect on percentage employment. The study also depicted that the demand for most of the enterprises' output is declining and thus firing out most of their employees. Some enterprises even shut down due to the adverse effect of the pandemic. However, the enterprises engaged in urban agriculture were least affected and enterprises producing soup and sanitizer were positively affected by the pandemic. The governmentis, therefore, recommended to work on building the capacity of the firms and other appropriate measures to reduce such shocks.

Keywords: *1.COVID-19, 2.pandemic, 3.percentage sale, 4.percentage employment, 5.Firm, 6.enterprise*

JEL Codes: D21, D22, J63, L1.

1. Introduction

The impact of the COVID-19 outbreak has differential outcomes in terms of job losses caused by the economic downturn, businesses and schools lock down, travel bans, and related negative effects on the national economy of the global community in the short and long terms. As the virus infects people regardless of wealth, the poor are most affected due to longstanding segregation by income and race, reduced economic mobility, and the high cost of medical care. The livelihoods of low-income communities are more likely exposed to the virus, have higher mortality rates, and suffer economically. Bhatia, et al., (2020), mentioned that if the containment of the virus delays, it will lead to a large reduction in economic growth.

According to Iwuoha, J.C. and Jude I., (2020), tourism, air transport, and the oil sectors are severely affected and it stressed that the invisible impacts of Covid-19 are expected in 2020 regardless of the duration of the pandemic. The tourism sector contributes much more to GDP in countries like Seychelles, Cape Verde and Mauritius while it also employs more than a million people in each of Nigeria, Ethiopia, South Africa, Kenya, and Tanzania. Nicola et al. (2020) noted that the restrictions relating to the supply and demand conditions contributed to the crisis and closure of most economic sectors.

Epidemics and economic crises can have a disproportionate impact on certain segments of the population, which can trigger worsening inequality. Based on past trends and current information on the COVID-19 pandemic and insights from previous crises, several groups can be identified: Unprotected workers, including the self-employed, casual, and gig workers are likely to be disproportionately hit by the virus as they do not have access to paid or sick leave mechanisms and are less protected by conventional social protection mechanisms and other forms of income smoothing (Narula, 2020).

Among others, the impact on millions of Small and Micro Enterprises (SMEs) is threatening long-term economic development and social welfare around the world. In response to this challenge, many countries are fully dedicated to supporting the competitiveness of SMEs. Currently, SMEs represent 90 percent of employment worldwide and are described as the engine of global economies (Ataguba, 2020).According to Bartik et al.(2020), the damage to countries' economies and their impacts on small businesses will be much greater if the crisis lasts for many months. Fairlie(2020)elaborated a picture ofthe adverse effects of the pandemic onmarkets and businesses in Iraq and worldwide.Several businesses have been locked globally and are likely to be severe as per the finding of the study. Cajner et al.(2020) showed in their study that unemployment is rising dramatically to 21 percentin U.S. states and that job loss are disproportionately concentrated in fewer employees and lower wages.

In Ethiopia, SMEs are among the most affected sectors in this global pandemic. At the end of February 2020, the PM office has declared school lockdown while the lockdown of higher institutions was announced the following week after universal education closed at the beginning of March 2020. These lockdowns throughout the country put thousands of SMEs to the survival challenge. In addition, the country has designed the new COVID-19 emergency response plan that encompasses mainly fighting direct health-related impacts with less attention to SMEs. The time to time status documentation of SMEs cannot be found in respective offices in Ethiopia. With these diverse effects of the COVID-19 pandemic, it is very time to examine the magnitude and intensity of economic challenges in SMEs. It also requires knowing how they are operating during the pandemic along with contemplating ways of mitigation policy interventions that are needed to continue recovery their normal operation.

Since the economic burden and the possible solutions for such SMEs have yet not been studied during the pandemic in the study area, the following pertinent research questions are addressed in this study: How

COVID -19 pandemic affected the operations of SMEs? What are the key factors affecting the coping mechanisms of SMEs during COVID-19? What is the income and employment trend of SMEs during the COVID -19 pandemic?

In this study, therefore the researcher tried to investigate various kinds in terms of size, financial strength and business type, employment, revenue and growth, management factors of the SMEs to design the required intervention policies.

1. Objective of the Study

The general objective of this study is to assess the economic burden and survival strategy for SMEs during the COVID-19 pandemic. And more specifically it is aimed at; to analyze how SMEs' operations are affected by the pandemic, estimating key factors affecting the coping mechanism of SMEs during the pandemic, and evaluating the income and employment trend of SMEs during the pandemic in the study area.

2. Methods

3.1. Study Design

3.1.1. Study Type

In this study, a mixed approach that has comparisons between quantitative and qualitative data was adopted. Different scholars support the idea of the mixed approach by mentioning it's advantageous over using a single method (Creswell et al., 2005). Therefore, this study employed descriptive analysis and an appropriate econometric model to analyze the data that has been collected during the survey.

3.1.2. Sample Size

The study design is a survey which is adopting Yamane's (1967) formula and computed 317 samples from a total number of 1522 SMEs(Hailu, 2020) that are engaged in different economic sectors such as trade, service, manufacturing, and urban agriculture in selected areas of Sidama region. The total sample size is then distributed among Yirgalem(110), Leku town(44), Meneheria(54), Bahl Adarash(21), and Mehal Ketema(39) proportionately.

3.1.3. Sampling Procedure

The study primarily selected Yirgalem and Leku town and Hawassa city from the Sidama region by purposive sampling method based on the availability of a larger number of SMEs relative to other administrative areas of the region. And next proportional sampling technique was used to get samples from each study area. Then, certain percentages of the enterprises specified to each town and selected sub-cities of Hawassa city based on their business activities of and number of SMEs in consultation with the regional SMEs coordination unit principals. Finally, a systematic random sampling method was employed to distribute the questionnaires conveniently to sampled enterprises based on their size and business activities.

Based on Yamane's(1967) formula, the total sample size from the whole selected stud areas was 317.

3.2. Study Methodology

The interview schedule, questionnaire, direct observation and focus group discussions (FGD) methods were used for the collection primary data. The interviewees were purposely selected from the sub city offices based their depth engagement with the work, in consultation with the city administration.

The questionnaire captured closed and open-ended questions. Through secondary data, the researchers used websites, journals, different books, media and the likes. The researchers also made exhaustive visits to the enterprises to triangulate the data collected from both primary and secondary sources.

3.2.1. Data Management and Analysis

STATA 15 statistical software was used to analyze the data that was collected. The analysis of the study was conducted using both descriptive statistics and an econometric regression model.Descriptive statistics including mean, percentages, and frequency of occurrence was used to have a clear picture of the characteristics of the sample units. It was applied to compare and contrast different categories of the sample units concerning the desired characteristics. Chi-square and t-tests were used to test for the significance of the discrete and continuous variables, respectively.

As to the econometric model, Tobit, PSM, DID or IV regression procedures can be used. As we follow self-reported economic burdens and survival strategies of sample firms, we can measure the indices in terms of income and employment that provides a score intended to summarize an individual's firm performance status amid COVID-19. Measuring performance status can be subject to a dynamic effect (its magnitude: increasing, constant, and decreasing). So that the researcher wanted to examine the performance of SMEs and measuring COVID-19 shocks in terms of income and employment.Thus, the Tobit regression model has an advantage over other models in that, it reveals both the probability of change in firms' performances and intensity of the change in income (computed as the percentage change in the amount of sale) and employment condition (number of job losses) due to the effect of the COVID-19 pandemic.

A two-limit Tobit was originally presented by Rosetti and Nelson (1975) can be mathematically represented as: $y^* = \beta' x_i + \varepsilon_i, \quad \varepsilon \sim N\,[0,\delta^2]$

Denoting Yi as the observed dependent (censored) variable

$$Y_i = \begin{cases} L & \text{if } Y_i^* \le L \\ Y_i^* = \beta X + \varepsilon_i & \text{if } L < Y_i^* < U \\ U & \text{if } Y_i^* \ge U \end{cases}$$

Where, Y_i= the observed dependent variable, in the case of this study it represents a change in income and employment amid covid-19.Y_i^* = the latent variable (unobserved for values smaller than zero and greater than 100).X_i = is a vector of explanatory variables (factors affecting the coping mechanism ofSMEs in terms of change in income or employment). L and U are threshold values (L =0 and U =100). β_i= Vector of unknown parameters. ε_i= Residuals that are independently and normally distributed with mean zero and a common varianceδ^2, and i= 1, 2 . . ., n (n is the number of observations).

It may not be sensible to interpret the coefficients of a Tobit in the same way as one interprets coefficients in an uncensored linear model (Johnston and Dinardo, 1997). Hence, one has to compute the derivatives of the estimated Tobit model to predict the effects of changes in the exogenous variables. The Tobit coefficients do not directly give the marginal effects of the associated independent variables on the dependent variable. Nevertheless, their signs indicate the direction of change in the probability of coping mechanism of SMEs, as the respective explanatory variable change (Maddala, 1985**).**

Before running the Tobit model, the hypothesized explanatory variables were checked for the existence of multi-co linearity. The technique of Variance Inflation Factor (VIF) was also employed to detect the problem of multi - co linearity for continuous explanatory variables (Chatterjee and Price, 1991) where, the value of VIF greater than 10 is often taken as a signal for the existence of multi- co linearity problem in the model. According to Gujarati (2004), VIF can be defined as:VIF_i=$(1-R_i^2)^{-1}$. Where VIF_i = Variance Inflation Factor and R_i^2 is the square of multiple correlation coefficient between X_i and the other explanatory variables. The larger the value ofVIF_i, the more collinear the variable X_i is. As a rule of thumb, if the value of VIF_i exceeds 10 then this is an indication of severe multicollinearity among the variables.

3.2.1.1 The dependent variable of the model

In this study, the dependent variable is the percentage change in sales and employment rate (number of job losses) after the outbreak of COVID-19. Thus, the value of the dependent variable ranges between 0 and 100, and a two-limit Tobit regression model is a more appropriate econometric model. It takes a value of greater than zero up to infinity. Conversely, the enterprise whose performances (income and employment) were not affected due to COVID -19 Pandemic and remain the same as they were doing before was censored at zero(Greene, 1993).

3.2.2. The independent variables and hypothesis

Major variables expected to have a relation with the enterprise's income and employment conditions were: demographic, the firm's characteristics, socio-economic, and institutional factors (Grum, 2020; Shigehiro, 2021; Abioye, 2021; Ibrahim, 2021) as shown in table one.

Table 1: Variable Code, Type and Definition of Variables, and Hypotheses

Variable code	Variable Type	Definition of Variables	Hypotheses
Sex	Dummy	Sex of the respondent	Male - positive and Female – negative
Age	Categorical	Age of the respondent	Positive
Educ	Categorical	Educational level of the respondent	Positive
Exper	Categorical	Experience of the enterprise	Positive
Location	Dummy	Location of the enterprise	positive- down town
Size	Categorical	Size of the enterprise	Positive
Totmembr	Continuous	Total number of members	Positive
Expdaftr	Categorical	Expenditure after the onset	Positive
Emplaftr	Categorical	Employment after the onset	Positive
Loan	Dummy	Loan access	Positive
Training	Dummy	Training access	Positive
Marktchn	Categorical	Market chain access	Positive
Land	Dummy	Land access for working	Positive
Costrnt	Categorical	Constraints faced by the enterprise	Negative
Socialrl	Dummy	Social relation of membersamong each other	NoSocialrl - Negative and withSocialrl-Positive
Owershp	Dummy	Sense of ownership by members	No Owershp- Negative
Coflict	Dummy	Conflict within the enterprise	Negative

Relabfr	Dummy	Members relation to each other before joining the enterprise	No Relabfr–Negative
Rlnothr	Dummy	The enterprise's interaction with other enterprises	No Rlnothr–Negative

Source: Author's computation based on literatures (2021)

4. Results and Discussion

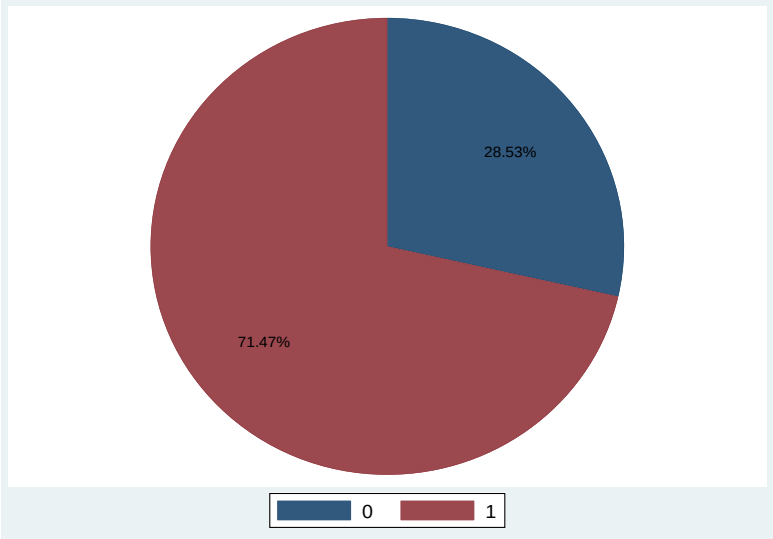
Out of the total 317 questionnaires distributed, five were uncollected and the survey response was collected only from 312 survey respondents. Thus the response rate was 98.4percent.

4.1 Descriptive Analysis

4.1.1 Demographic Characteristics

The respondents' sex is depicted in the pie chart below in figure one. It can be seen from the chart that the majority of the respondent (223 respondents or 71%) were male. This implies that females are not in the front line of the enterprises and are dominated by the leadership of the male.

Figure1: Sex of the Respondents



Source; Own survey result(2021)

Regarding the respondents' educational status, the majority (78%) were grade ten complete and above (Table 2). This indicates that they have enough preparedness in terms of education to capture the training given to them and the issues related to their businesses. The data also depicted that the majority (about 70%) of the respondents were managers and owners of the enterprises. Since the data were collected from the responsible individuals of the enterprises and thus this, in turn, may increase its reliability. 290(92%) age of respondents was found between 18 and 40 years old category. And 236(76%) respondents' experience was under the category of between one and five years. One can see from the data that the lion share of the respondents are under workforce and have some experience for their job.

The maximum size of total members in the enterprises is 17 while the minimum is one. The mean value for the total membership is 3.64(Table 3). The mean value of the membership indicates that those females are approximately having the same size in number in the enterprises with that of males. According to the interview which was held with the town (city) and sub-cities administration officers, a lot has been done to capacitate women and increase their participation in SMEs.

Table 2: The Respondents' Demographic Conditions

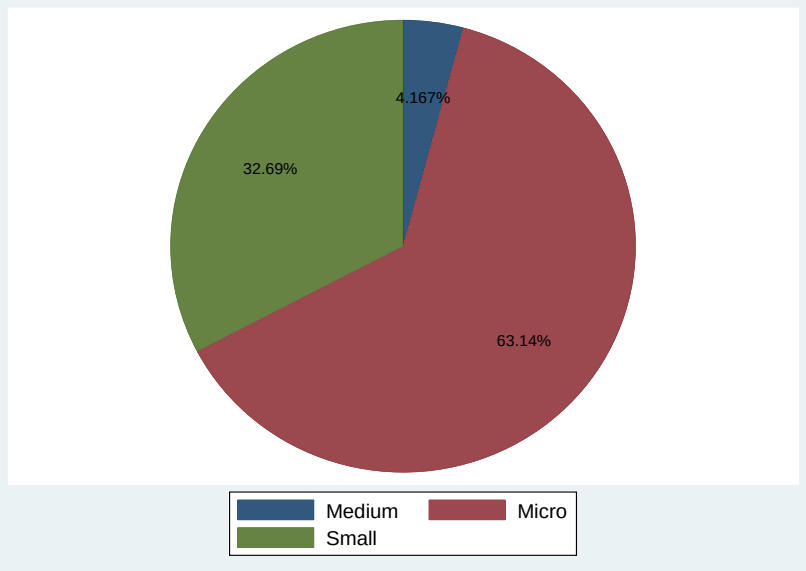
Explanatory variable		
Education		
Read and write	4	1.28
Primary (4-5 grade)	7	2.24
Junior(5-8 grade)	57	18.27
High School(10grade)	81	25.96
Vocational(10+1/10+2)	53	16.99
Diploma (10+3)	52	16.67
Degree	58	18.59
Position		
Manager	174	55.77
Owner	43	13.78
Accountant	28	8.97
Member	65	20.83
Other	2	0.64
Age		
<18	0	0.00
18-30	190	60.90
31-40	100	32.05
>40	22	7.05
Experience		
[<1	20	6.41
1-5	236	75.64
6-10	50	16.03
>10	6	1.92

Source; Own survey result(2021)

4.1.2 General Information about the Enterprises

Out of the total survey questionnaire collected, the majority (81.2%) replied as their enterprises were engaged in different manufacturing activities, services, and trade. 163(51.4%) of the surveyed enterprises were from Hawassa city and the remaining 105(33.7%) and 44(14.1%) were from Yirgalem and Leku towns respectively (Table 4). The respective government officers informed us that the dominant sectors in the area are manufacturing enterprises and thus almost 34 percent of the sample was taken from these enterprises. Moreover, the micro-level enterprises dominate the small enterprises and also have frequent communication with the respective government coordination unit and are easily accessible as respondents (Figure 2).

Figure 2: Size of the Enterprises



Source; Own computation from the survey data(2021)

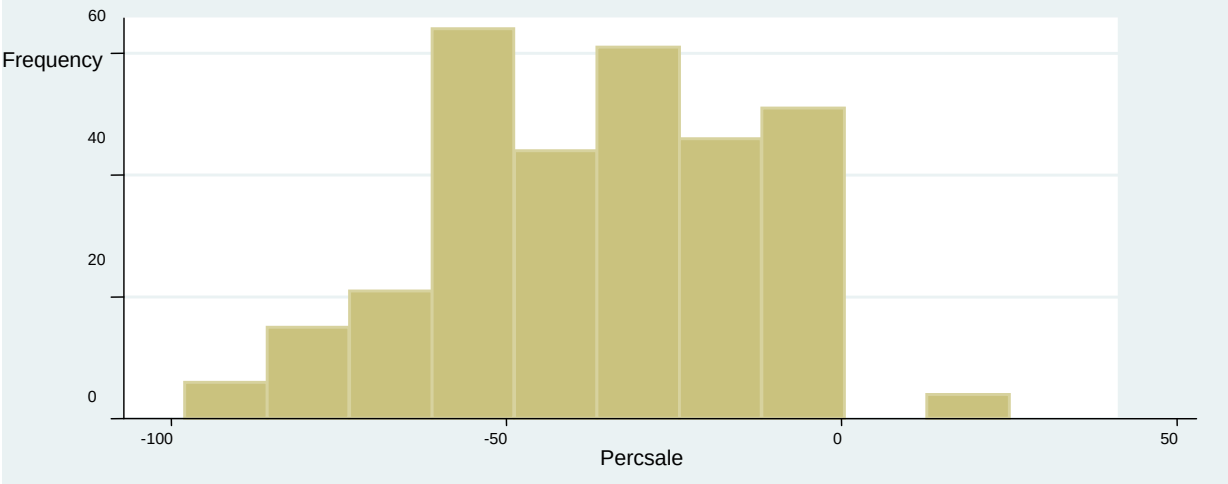
Table five implied that the enterprises faced less land access from the government for working and displaying (selling) which needs further intervention and some improvements. Moreover, about half of the enterprises have not accessed loans. On the other hand, the majority of the enterprises got training related to their businesses. The researcher got elaboration from the interviewees and open-ended questions of the respondents that some enterprises do not have the interest to ask for loans since they wanted to work on their source of capital. One can judge from the data (Table 6) that the working environment concerning social relation, the information chain, ownership feeling of their businesses, the written principle of the enterprise, conflict management, and members' relation with each other of the majority of the enterprises is smooth and suitable for work.

4.1.3. Factors Affecting the Enterprises' Conditions amid COVID -19

47 percent of the respondents replied that they are interested and benefited most from management and financial skill training. The majority of respondents (69%) responded also that access to market, availability of working area, and access to finance played a significant role in affecting their enterprises' conditions amid COVID19. In addition, some enterprises have been affected by more than one type of factor (Table 7). Almost 237(76%) and 242(78%) enterprises showed a decreasing trend in their overall operations and productions respectively due to the pandemic. Moreover, the researcher understood from the focus group discussion that, a reduction in the growth pattern of the enterprises is associated with a fall in demand for their output amid COVID 19. Almost 61 percent of them survived amid the pandemic by the government support, and by improving the quality of their products and (33%) not survived at all (Table 8).

The average sales value by all observations shows that there is a 36 percent reduction due to the COVID-19 pandemic effects. The study also implies that there is an observation that has a 300 percent increment in the number of employees during the pandemic (Table 9). This positive effect may be because the firm uses all the opportunities created to expand its size during the pandemic. The focus group discussion result revealed also that those enterprises which are engaged in the production of soup and sanitizer were more privileged amid the pandemic. And the -100 minimum value of percentage employment indicates that there is at least an observation that was forced by the pandemic to fire all of its employees (Figure 3). But the average value of the employees' condition is about 28 percent reductions as depicted in table nine.

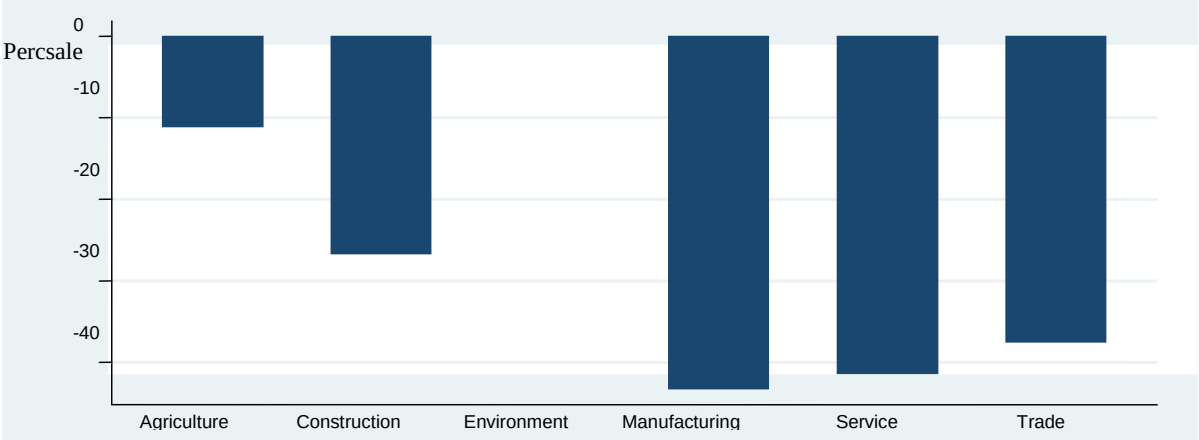
Fig. 3: Histogram Displaying Percentage Sale(Percsale) After the Pandemic



Source; Own survey result(2021)

Except for environment beautifying firms, all types of enterprises faced reductions in percentage sales of their outputs during the Corona as shown in figure four below. The enterprises categorized under manufacturing activities have shown the most reductions where as the enterprises under urban agriculture have shown the least reduction. The revenue conditions of the environment beautifying firms are not affected by the pandemic. The most likely reason for this is that their budget source is the local government which operates through long-term planning and thus doesn't immediately fluctuate in the short run.

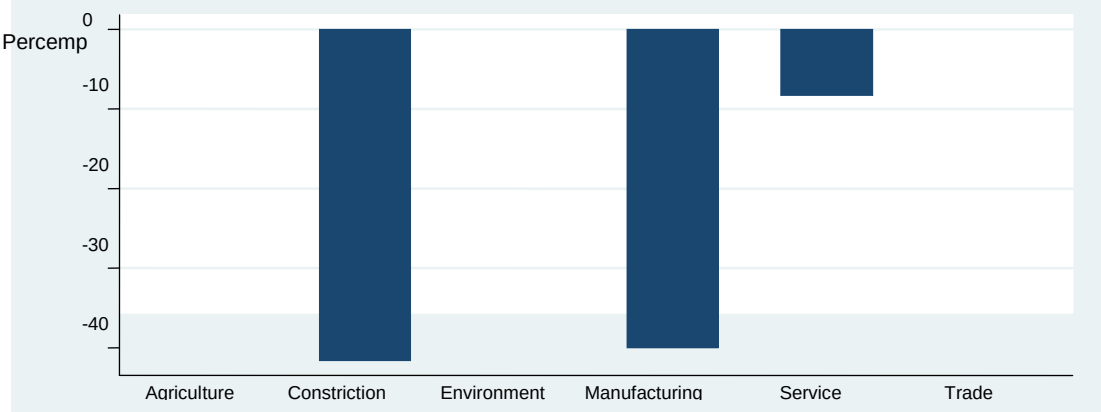
Fig. 4: Percentage Sale(Percsale) in Relation to Enterprise Type



Source; Own survey result(2021)

On the other hand, there was no percentage reduction in the number of employees (Percemp) amid the pandemic among trade, environment revamping, and urban agriculture enterprises. Looking at those enterprises engaged in construction, there are maximum percentage reductions in the number of their employees (Figure 5).

Fig. 5: Percentage Employment(Percemp) in Relation to Enterprise Type



Source; Own survey result(2021)

4.1.4. T- Tests and Chi-square Test Statistics

4.1.4.1. T- Tests Statistics

The computed t-test values indicated that the mean difference of percentage sale between those respondents who gave positive(Yes) and negative(No) responses for the variables related with others (Relnothr), Ownership feeling (Ownshp), information chain (Infochan), and Social relationships (Socialrln) were 13.92 percent, 10.41 percent, 8.28 percent and 6.94 percent statistically significant respectively.

The t test values for relationships with others (Relnothr) and information chain (Infochan) were found to be statistically significant at a one percent significance level (Table 10).The mean difference in percentage employment between those enterprises who had external relation and those without external relation was found to be 25.39 percent and between those with information chain access and those without information access was 20.91 percent. These values in the mean difference are statistically significant (Table 11).

4.1.4.2. Chi-square Test Statistics

Chi-Square tests (Tables 12 and 13) were used to examine the presence or absence of difference between the two groups of enterprises (whose percentage sale change is ≥ 50% and < 50%). The Chi-Square test was used to examine the existence of statistically significant differences between the categorical variables of the two categories. Accordingly, categorical variables were considered and six of them namely; enterprise type, location of the enterprise, loan accessed, land accessed, market chain access, and relationship of the firm with other firms were found to be statistically significant at a five percent probability level.

4.2. Econometric Analysis

4.2.1. Multicollinearity Test Results

Prior to using the hypothesized explanatory variables in the Tobit model, it was found essential to look into the problem of multicollinearity among variables. The VIF was used to see the degree of multicollinearity among the continuous variables (Table 14) and there was no multicollinearity problem on both percentage sale (percsale) and percentage employment (percemp) along with the continuous independent variables. As per the contingency coefficient test by percsale and percemp also, there was no multicollinearity problem along with the discrete and categorical independent variables.

4.1.2 Tobit Regression Analysis

The values of the dependent variable in this work lie between 0 and - 100. Those firms which have not been negatively affected by the pandemic showed 0 for the value of percentage changes while whose percentage sales (employment) affected by the pandemic may extend at most reduction of 100 percent. Beyond 100 percent reduction, enterprises almost shut down, thus did not exist. That means those firms with 100 percent sales (employment) reduction have already shut down their businesses. Thus, no respondent is included in the data with such nature(equal to and grater than 100%). Those firms (both affected and not affected firms) are complaining about their business problems in general for various reasons. As a result the value of the dependent variable less than 0 is rare. Less than 0 value of the dependendet variable means that in the presence of the pandemic, the firms are performing better than what they were doning before the onset. Those firms scoring positive changes in percentage sales (employments) are exceptional and thus have been treated as special cases. The value of the dependent variable is thus 0 and 100.

4.2.2.1 The Tobit regression results of percentage sale change

The Tobit regression results in table 15 revealed the likelihood ratio chi-square of 86.69 with a p-value of 0.0000 tells us that our model as a whole is statistically fit (significant). The variables expected to affect the percentage sales of the enterprises amid the pandemic are of the expected sign. The variables namely; Totmembr, Expdaftr, Emplaftr, Loan, Training, Marktchn, and Land have a positive relationship with the percentage sale change where as Costrnt, Socialrl, Owershp, Coflict, Relabfr, and Rlnothr are negatively related to percentage sale change.

Table 15: Estimation of percsale after the pademic on Tobit model

Tobit regression — Number of obs = 312; LR chi2(13) = 86.69; Prob> chi2 = 0.0000; Log likelihood = -1387.7123; Pseudo R2 = 0.0303

PercsaleCoef	Std. Err.	t	P>t	[95% Conf.	Interval]
Totmembr	1.087726	.599258	1.82	0.071	-.0915717	2.267024
Expdaftr	.0001327	.0000333	3.98	0.000	.0000671	.0001982
Emplaftr	.9828759	.4094882	2.40	0.017	.1770318	1.78872
Loan	.3337205	2.963307	0.11	0.910	-5.49786	6.165301
Training	2.462583	3.771911	0.65	0.514	-4.960273	9.885439
Marktchn	2.346874	1.020091	2.30	0.022	.3394062	4.354341
Constrnt	-1.430711	.6801573	-2.10	0.036	-2.769213	-.0922094
Socialrln	-3.620591	3.855993	-0.94	0.349	-11.20891	3.967732
Ownrshp	-14.94466	5.980955	-2.50	0.013	-26.71476	-3.174562
Conflict	-3.19057	2.806111	-1.14	0.256	-8.7128	2.33166
Relanbfr	-.3680598	4.122393	-0.09	0.929	-8.480639	7.74452
RelnOthr	-9.546697	2.830138	-3.37	0.001	-15.11621	-3.977186
Land	9.437737	2.612619	3.61	0.000	4.296287	14.57919
cons	-28.15662	12.30801	-2.29	0.023	-52.37791	-3.93533
/sigma	21.0744	.8480807			19.40544	22.74337

*, ** and *** significant at 1, 5 and 10% level respectively

Source; Own survey result(2021)

As the marginal effect after Tobit regression on persale regression result indicated in table 16, eight explanatory variables have a statistically significant effect on percentage sale change amid the pandemic. Out of these, three variables namely; Expdaftr, Rlnothr, and Land affect at one percent significance level, four variables namely; Emplafter, Marktchn, Constrnt and Ownrshp affected at five percent significance level and the variable whereas Totmembr affects at 10 percent significance level.

Expenditure after the Onset of the Pandemic (Expdaftr)

Expenditure after the onset of the pandemic has a positive and significant influence on the intensity of access to a percentage sale change at a one percent level of significance. Those enterprises that had increased their expenditure to manage their businesses by one unit after the onset of the pandemic, showed a 0.01 percent increase in percentage sales. This implies that the firms' effort to increase their expenditures for various activities to offset the reduction in demand for the output related to COVID contributed to a positive increment in percentage sales.

Relationship With Other Similar Firms (Relnothr)

An enterprise that has no strong relationship with other similar firms indicated a reduction of percentage sales by 9.55 times than those with the strong relationship which is statistically significant at one percent level. This result revealed that by making strong relations with related businesses, firms can increase their access to information related to the market conditions amid the pandemic. The information access in turn could do a lot in increasing sales volume.

Access to Land (Land)

Access to land for running the enterprises activities enabled them to have increased the percentage sales 9.44 higher than those without access to land which is statistically significant at one percent level. Access to land may have contributed to the firms' performance positively in increasing the size of customers through displaying their outputs and reducing land rent cost thus investing the retained money for

different expenditures which may increase sales volume. Thus, access to land particularly amid the pandemic ha a significant role in firms' performance which is in line with Akbay et al.(2021).

Change the Number of Workers (Emplaftr)

Those enterprises that have not reduced their number of workers amid the pandemic showed 0.98 times higher percentage sales than those that reduced their number of workers. This difference in sales volume is statistically significant at a five percent level. Not reducing the number of workers means that maintaining access to increase both the quality and quantity of their products and also getting enough manpower for displaying them at different shops so as to increase sales volume.

Market Chain Access (Marktchn)

This is the market link between the SMEs and potential buyers' especially governmental organizations facilitated by concerned organizations. Those firms who got access to the market chain with customers to their outputs have increased their percentage sales by 2.35 times more than those without access. This difference in percentage sales change is statistically significant at the five percent level.

Constraints within the Enterprises (Constrnt)

Maintaining the existing customers or increasing the new ones amid the pandemic needs more effort and reducing other constraints by the enterprises. Those firms with more constraints within their enterprises have reduced their percentage sale by 1.43 times than those with less constraint which is statistically significant at a five percent level.

Sense of Ownership by Members of the Enterprises (Ownrshp)

Those firms which do not have a sense of ownership by members of the enterprises showed a reduction of their percentage sale by 14.94 times than those with a sense of ownership which is statistically significant at a five percent level. This implies that when members of the enterprises work in harmony and avoid carelessness and thus develop feelings of ownership to their business, they contribute everything they can do to maintain the existing and attract new customers to their products.

Total Number of Members of the Enterprises (Totmembr)

Those firms with the higher total number of members of the enterprises showed 1.09 times more percentage sales than those with fewer members which are statistically significant at the ten percent level. This is obviously related to the manpower requirement and entrepreneurial talents for their contribution of increasing or maintaining existing sales volume which is a related concept with the number of workers already mentioned above.

The Tobit Regression Results of Percentage Employment Change (percemp)

The Tobit regression results in table 17 revealed the likelihood ratio chi-square of 62.74 with a p-value of 0.0000 tells us that our model as a whole is statistically significant. The variables expected to affect the percentage employment change of the enterprises amid the pandemic are of the expected sign. Totmembr and Rlnothr are negatively related to percentage employment change and both are statistically significant at one percent significance level. Moreover, the variable training showed a negative sign with a ten percent significance level. On the other hand, Expdaftr and Socialrl have a positive relationship with the percentage employment change and both showed one percent statistical significance level. The marginal effect after Tobit regression on percemp result is also depicted in Table 18.

Table. 17: Estimation of percemp after the pademic on Tobit model

Tobit regression				Number of obs =	306
				LR chi2(12) =	62.74
Prob> chi2 = 0.0000					
Log likelihood = -1450.2874				Pseudo R2 =	0.0212

Percemp |	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Totmembr |	-3.2272	1.122578	-2.87	0.004	-5.436508	-1.017893
Expdaftr |	.0001996	.0000604	3.30	0.001	.0000806	.0003185
Loan |	3.900168	5.472783	0.71	0.477	-6.870627	14.67096
Training |	-12.86819	7.446404	-1.73	0.085	-27.5232	1.78682
Marktchn |	-1.14733	1.892135	-0.61	0.545	-4.871176	2.576516
Constrnt |	1.591952	1.29354	1.23	0.219	-9538198	4.137723
Socialrln |	24.49836	7.461489	3.28	0.001	9.813655	39.18306
Ownrshp |	4.855457	11.83359	0.41	0.682	-18.43382	28.14473
Conflict |	-5.931626	5.293751	-1.12	0.263	-16.35008	4.486825
RelnOthr |	-28.92058	5.279989	-5.48	0.000	-39.31195	-18.52922
Relanbfr |	-10.82316	7.986541	-1.36	0.176	-26.5412	4.894874
Land |	2.760075	4.996396	0.55	0.581	-7.07316	12.59331
cons |	9.353863	23.96645	0.39	0.697	-37.81369	56.52142
/sigma |	39.66038	1.725404			36.26467	43.05609

*, ** and *** significant at 1, 5 and 10% level respectively

Source; Own survey result(2021)

Total Number of Members of the Enterprises (Totmembr)

Those firms with a higher total number of members of the enterprises showed 3.23 times more reductions in the number of workers. This means that firms with higher members are more likely to reduce their employees due to the effect of the pandemic 3.23 times more than those with fewer members. The result generally implies that the pandemic has a greater effect on increasing the unemployment rate which is in line with Cajner et al.(2020) and Akbay et al.(2021).

Expenditure after the Onset of the Pandemic (Expdaftr)

Expenditure after the onset of the pandemic has a positive and significant influence on the intensity of access to a percentage employment change at a one percent level of significance. Those enterprises that had increased their expenditure to manage their businesses by one unit after the onset of the pandemic, showed a 0.0002 percent increase in percentage employment.

Strong Social Interaction (Socialrl)

The marginal effect value also indicated that the positive relation of the variable Socialrl with a percentage employment change and its one percent level of significance reveals that enterprises with strong social interactions indicate there are 24.49 times fewer reductions in the number of workers than those firms with weaker social interaction.

Relationship with other Similar Firms (Relnothr)

An enterprise that has no strong relationship with other similar firms indicated a reduction of percentage employment 28.92 times than those with strong Relationships.

Access to Training (training)

Lack of access to training is negatively related to a change in percentage employment at a ten percent level of significance. This value revealed that those firms without access to training showed 12.87 times more reductions in their employees than those with access to training.

5. Conclusion and Recommendation

This study revealed that the SME's in the study area have a competitive number of female participants compared to their male counterparts but they are fewer in managerial positions. One can also see from this study that the majority (81%) of enterprises engaged in manufacturing, service, and trade. Moreover, the micro-level enterprises dominate the other enterprises.

A significant portion of the enterprises didn't get land access from the government for working and displaying (selling) and about half of the enterprises did not access loans. On the other hand, the majority of the enterprises got training related to their businesses in the study area.

The study also revealed that the majority of the enterprises faced a downward shift in demand and the number of their employees has been negatively affected by the Pandemic which is in line with AKbay and Naji(2020); Bartik et al. (2020); Fairlie (2020); Farzanegan et al.(2020); Shigehiro and Lakshman(2021); Abioye(2021). Except for environmet beautifying firms, all types of enterprises faced reductions in percentage sales of their outputs during the Corona Epidemics.

The most likely reason for the survival of the environment beautifying firms amid the pandemic was that their budget source is from the local government. Since the government operates through long-term planning, this doesn't immediately fluctuate its budget allocation in the short run amid the pandemic. Several enterprises categorized under manufacturing activities have shown the most reductions in their demand conditions. But as a special case, those enterprises which are engaged in the production of soup and sanitizer were more privileged amid the pandemic. Since their products were most demanded by society to protect COVID-19 and thus they have used all the opportunities created to expand their businesses whereas the enterprises under urban agriculture have shown the least reduction. Since the majority of enterprises engaged in urban agriculture produce cow milk and milk by-products, the customers didn't reduce their demand for these items. Moreover, the enterprises categorized under trade, environment revamping, and urban agriculture showed no percentage reduction in the number of employees amid the pandemic. On the other hand, there were maximum percentage reductions in the number of employees under construction enterprises.

Generally, the study revealed that those enterprises which have got some subsidies, different types of assistance from different stakeholders, and better access to factors of production and demand conditions, were least affected by the pandemic. On other hand, the adverse effects of the pandemic are worsening and aggravating to those enterprises without such privileges.

Based on the findings of the study, the following policy interventions are suggested that could help address the performances of SMEs.

The study result indicated that the concerned bodies should play a role in facilitating in bringing a competitive number of female members to managerial positions in each enterprise. Despite the various efforts made by the government authorities to offset the negative effects of the pandemic, additional facilitation and intervention work should be done to help the firms to shift to new businesses areas which will be lessrisky and to reduce such demand shocks. In addition, the government should make the tax

deductions for the duration of the COVID-19Moreover, the government in collaboration with other concerned stakeholders should promote those factors which have positive contributions in helping some enterprises to cope with the crises amid the pandemic.

The previous efforts made by the concerned government authorities in helping the enterprises amid the pandemic through different activities is were well addressed by this study.

However, most enterprises are still suffering from a lack of demand for their products and thus firing out most of their employees and even some were shutting down. So, the government and other concerned bodies should give more attention and follow new directions to tackle the challenges of the enterprises before conditions aggravate.

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Appendices

Table 3: summary of the members of the enterprise

Variables	Observation	Mean	Stan. Dev.	Min.	Max.
Fmembr	312	1.56	1.71	0	16
Mmembr	312	2.08	1.46	0	10
Tomembr	312	3.64	2.15	1	17

Source; Own survey result(2021)

Table 4: The Enterprises' Business Activities in Relation to Their Respective Locations

Entreprise Type		Location								
		Hawassa City					Y/alem	Leku	Total	
		Addis Ketema	Bahl Adarash	Mehal Ketema	Menheria	Tabor			Freq.	%
Agriculture		15	0	0	1	6	15	5	42	13.46
Construction		0	0	0	0	0	4	2	6	1.92
Environment		0	3	1	6	2	0	0	12	3.85
Manufacturing		7	6	18	8	6	33	27	105	33.65
Service		4	3	11	21	1	28	8	76	24.36
Trade		5	9	9	18	3	25	2	71	22.76
Total	Freq	31	21	39	54	18	105	44	312	100.00
	%	9.94	6.73	12.50	17.31	5.77	33.70	14.10	100.00	

Source; Own computation from the surveyed data(2021)

Table 5: Training, Loan, and Land Accessibility by the Enterprises

Entreprise type		Training taken		Loan received		Land accessed from Government	
		Yes	No	Yes	No	Yes	No
Agriculture		38	4	31	11	19	23
Construction		6	0	0	6	0	6
Environment		4	8	0	12	0	12
Manufacturing		96	9	67	38	39	66
Service		58	18	40	36	39	37
Trade		60	11	33	38	44	27
Total	Freq.	262	50	171	141	141	171
	%	84.0	16.0	54.8	45.2	45.2	54.8

Source; Own survey result(2021)

Table 6: Summary of Factors Related to Members of the Enterprises

Explanatory variable	equency	ent
Social relation(Socialrln)		
Yes	265	84.94
No	47	15.06
Information chain(Infochan)		
Yes	198	63.46

No	114	36.54
Ownership feelimg(Ownrshp)		
Yes	297	95.19
No	15	4.81
Enterprise principle(princple)		
Yes	263	84.29
No	49	15.71
Conflict between members(conflict)		
Yes	111	35.58
No	201	64.42
Members relation before(Relanbfr)		
Yes	273	87.50
No	39	12.50
Members relation with other(Relnothr)		
Yes	212	67.95
No	100	32.05

Source; Own survey result(2021)

Table 7: Factors Affecting the Growth of the Enterprises

Explanatory variable	**equency**	**ent**
Types training most benefited you (Traintyp)		
Educational training on illitracy	91	29.45
Production skills	35	11.33
Management and financial skills	144	46.60
More than one type of training	39	12.62
Most significant factor for interprise growth(Groinput)		
Access to finance	47	15.06
Aavailability of working area	58	18.59
Sufficient input	30	9.62
Skilled labour	1	0.32
Innovation	27	8.65
Access to market	109	34.94
More than one type of factors	40	12.82

Source; Own survey result(2021)

Table 8: Respondents Attitude Towards the Growth of Their Enterprises

Explanatory variable		
The pattern of growth of your firm against COVID 19 (Growth)		
Decreasing	13	4.17
Increasing	237	75.96
Remained the same	57	18.27
Not identified	5	1.60
People attitude towards your goods and services amid COVID 19 (Attitude)		
Declining	242	77.56
Improving	7	2.24
Unchanged	63	20.19
Surviving mechanism with the increasing COVID-19 effects(Survival)		
government support	80	25.72
Co-financers	17	5.47
Quality Improvement	110	35.37
Not survived at all	104	33.44

Source; Own survey result(2021)

Table 9: Summary of the Effect of COVID 19 on the Dependent Variables

Variable	**Accessibilty**	**Observation**	**Mean**	**Std. dev.**	**t.value**	**P value**
Woking land acess(Land)	Yes	141	-39.73	25.60	-2.67	0.9960
	No	171	-32.78	22.37		
Relation with others(Relnothr)	Yes	212	-31.30	22.21	4.93	0.0000*
	No	100	-45.22	25.35		
Conflict each other(Conflict)	Yes	111	-34.63	26.15	0.61	0.2697
	No	201	-36.38	22.96		
Ownership feeling(Ownshp)	Yes	297	-35.26	24.15	1.63	0.0515***
	No	15	-45.67	21.92		
Information chain (Infochan)	Yes	198	-32.74	24.58	2.95	0.0017*
	No	114	-41.01	22.46		
Social relatioship (Socialrln)	Yes	265	-34.71	24.36	1.82	0.0345**
	No	47	-41.65	22.06		
Training received (Training)	Yes	262	-35.64	24.24	0.20	0.4193
	No	50	-36.40	23.72		
Loan acessed(Loan)	Yes	171	-34.71	21.46	0.85	0.1989
	No	141	-37.03	27.03		

Table 10: T Tests for Percentage sale (percsale)

Variable	Obs	Mean	Std. Dev.	Min	Max
Sale before COVID 19(Salebfor)	312	44777.47	63980.51	2000	450000
Sale after COVID 19(Saleaftr)	312	32592.21	59785.14	500	400000
Percentage sale (Percsale)	312	-35.76063	24.12016	-98	25
Expenditure before COVID 19(Expdbfor)	312	20725.64	43082.81	500	300000
Expenditure after COVID 19(Expdaftr)	312	16431.25	40349.16	250	300000
Percentage expenditure (Percexp)	312	-23.55044	29.20952	-80	100
Employment before COVID 19(Emplbfor)	312	5.628205	4.960962	0	48
Employment after COVID 19(Emplaftr)	312	3.900641	3.429548	0	26
Percentage employment (Percemp)	306	-27.60937	40.16944	-100	300

*,** and *** significant at 1, 5 and 10% level respectively
Source; Own survey result(2021)

Table 11: T Tests for Percentage Employment (percemp)

Variable	Accessibilty	Observation	Mean	Std. dev.	t.value	P value
Woking land acess(Land)	Yes	138	-28.89	49.40	-0.5060	0.6934
	No	168	-26.56	30.70		
Relation with others(Relnothr)	Yes	209	-19.56	29.00	5.3732	0.0000*
	No	97	-44.95	54.48		
Conflict each other(Conflict)	Yes	107	-27.50	35.08	0.0341	0.4864
	No	199	-27.67	42.74		
Ownership feeling(Ownshp)	Yes	293	-28.04	40.78	-0.8858	0.8118
	No	13	-17.95	20.93		
Information chain (Infochan)	Yes	196	-20.09	29.78	4.5046	0.0000*
	No	110	-41.00	51.44		
Social relatioship (Socialrln)	Yes	263	-30.35	42.02	-2.9940	0.9985
	No	43	-10.82	19.16		
Training received(Training)	Yes	259	-27.46	40.23	0.1538	0.4389
	No	47	-28.44	40.26		
Loan acessed(Loan)	Yes	169	-28.58	32.59	-0.4690	0.6803
	No	137	-26.41	48.00		

* 1 % significance level
Source; Own survey result(2021)

Table 12:Chi-Square Test result of the Variables Describing the Nature of Enterprises in Relation to the Percentage Sale Change

Variables	Category	≥ 50% percentage sale change(1)		< 50% percentage sale change(2)		X^2	Sig.
		N	%	N	%		
Enttype	Agriculture	8	7.9	34	16.0	16.6395	0.005
	Construction	1	01.0	5	2.4		
	Environment	5	0.5	7	3.3		
	Manufacturing	36	35.6	69	32.5		
	Service	36	35.6	40	18.9		
	Trade	15	14.9	56	26.4		
Size	Medium	6	5.9	7	3.3	1.3492	0.509
	Micro	61	60.4	136	64.5		
	Small	34	33.7	68	8.5		
Location	A/Ketema	13	12.9	18	8.5	49.9037	0.000
	B/Adarash	8	8.0	13	6.2		
	Leku	16	15.8	28	13.3		
	M/Ketema	23	22.8	16	7.6		
	Meneheria	25	24.8	29	13.7		
	Tabor	8	7.9	10	4.0		
	Y/Alem	8	7.9	97	46.0		
Training	Yes	79	30.2	22	44.0	3.6775	0.055
	No	183	69.8	28	56.0		
Loan	Yes	131	61.8	40	39.6	13.9376	0.000
	No	80	38.2	61	60.4		
Land	Yes	86	40.6	55	54.5	5.1737	0.023
	No	125	59.4	46	45.5		
Marktchn	Improving	27	26.7	52	24.6	10.0721	0.018
	Declining	1	0.9	7	3.3		
	Unchanged	20	19.8	18	8.5		
	Not at all	53	52.5	134	63.5		

Source; Own survey result(2021)

Table 13:Chi-Square Test Result of Socioeconomic Variables Associated with the Enterprises' Percentage Sale Change

Variables	Category	≥ 50% percentage sale change(1)		< 50% percentage sale change(2)		X^2	Sig.
		N	%	N	%		
Infochan	Yes	59	58.4	139	65.9	1.6397	0.200
	No	42	45.6	72	34.1		
Ownrshp	Yes	94	93.1	203	96.2	1.4708	0.225
	No	7	0.69	8	3.8		
Princple	Yes	35	66.3	76	36.5	0.2517	0.616
	No	69	33.7	132	63.5		
Conflict	Yes	34	33.7	77	36.5	0.2386	0.625
	No	67	66.3	134	63.5		
Relanbfr	Yes	87	86.1	186	88.2	0.2531	0.615
	No	14	13.9	25	11.8		
RelnOthr	Yes	51	50.5	161	76.3	20.8901	0.000
	No	50	49.5	50	23.7		

Source; Own survey result(2021)

Table 14: VIF of the Continuous Variables (X_j) by Percsale and Percemp

	Employment		Sales change	
Variable |	VIF	1/VIF	VIF	1/VIF
Totmembr |	1.66	0.601820	1.66	0.602170
Mmembr |	1.63	0.614278	1.59	0.627018
Percsale |	1.36	0.735192	1.13	0.882524
Percexp |	1.34	0.747795	1.12	0.889848
Loanamnt |	1.08	0.925685	1.08	0.924226

Source; Own survey result(2021)

Table 16: Margial Effect after Tobit Regression on Persale

Marginal effects after tobit
y = Linear prediction (predict)
= -35.766886

variable |	dy/dx	Std. Err.	z	P>|z|	[	95% C.I.]	X
Totmembr |	1.087726	.59926	1.82	0.070	-.086798	2.26225	3.63782
Expdaftr |	.0001327	.00003	3.98	0.000	.000067	.000198	16431.3
Emplaftr |	.9828759	.40949	2.40	0.016	.180294	1.78546	3.90064
Loan |	.3337205	2.96331	0.11	0.910	-5.47426	6.1417	1.45192
Training |	2.462583	3.77191	0.65	0.514	-4.93023	9.85539	1.16026
Marktchn |	2.346874	1.02009	2.30	0.021	.347532	4.34622	3.06731
Constrnt |	-1.430711	.68016	-2.10	0.035	-2.76379	-.097627	3.24038
Social~n |	-3.620591	3.85599	-0.94	0.348	-11.1782	3.93702	1.15064
Ownrshp |	-14.94466	5.98095	-2.50	0.012	-26.6671	-3.2222	1.04808
Conflict |	-3.19057	2.80611	-1.14	0.256	-8.69045	2.30931	1.64423
Relanbfr |	-.3680598	4.12239	-0.09	0.929	-8.4478	7.71168	1.125
RelnOthr |	-9.546697	2.83014	-3.37	0.001	-15.0937	-3.99973	1.32051
Land |	9.437737	2.61262	3.61	0.000	4.3171	14.5584	1.54808-

*, ** and *** significant at 1, 5 and 10% level respectively
Source; Own survey result(2021)

Table 18: Margial Effect after Tobit Regression on Percemp

Marginal effects after tobit
y = Linear prediction (predict)
= -29.380545

variable	dy/dx	Std. Err.	Z	P>|z|	[95% C.I.]		X
Totmembr	-3.2272	1.12258	-2.87	0.004	-5.42741	-1.02699	3.65686
Expdaftr	.0001996	.00006	3.30	0.001	.000081	.000318	16671.7
Loan	3.900168	5.47278	0.71	0.476	-6.82629	14.6266	1.44771
Training	-12.86819	7.4464	-1.73	0.084	-27.4629	1.72649	1.15359
Marktchn	-1.14733	1.89214	-0.61	0.544	-4.85585	2.56119	3.05229
Constrnt	1.591952	1.29354	1.23	0.218	-.94334	4.12724	3.24837
Social~n	24.49836	7.46149	3.28	0.001	9.87411	39.1226	1.14052
Ownrshp	4.855457	11.834	0.41	0.682	-18.3379	28.0489	1.04248
Conflict	-5.931626	5.29375	-1.12	0.263	-16.3072	4.44394	1.65033
Relanbfr	-10.82316	7.98654	-1.36	0.175	-26.4765	4.83017	1.12092
RelnOthr	-28.92058	5.27999	-5.48	0.000	-39.2692	-18.572	1.31699
Land	2.760075	4.9964	0.55	0.581	-7.03268	12.5528	1.54902

*, ** and *** significant at 1, 5 and 10% level respectively

Source; Own survey result(2021)