

## **AGRIBUSINESS ENTREPRENEURS COPING STRATEGIES IN COVID-19 ERA. A CMP APPROACH**

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### **ABSTRACT**

The study attempts to determine coping strategies of agribusiness entrepreneurs in the West Shoa Zone of Oromia, Ethiopia. A random sampling method was used to select 141-agribusiness entrepreneurs from the five agribusiness sectors. Agribusiness entrepreneurs pursued five broad coping strategies. More than one-third of agribusiness entrepreneurs pursue defensive strategies. CMP result also shows that agribusiness entrepreneurs with credit and COVID-19 stimulus tend to survive during COVID-19. As a result, the government should provide such institutional facilities for agribusiness entrepreneurs.

**KEYWORDS:** Agribusiness entrepreneur, COVID-19, CMP, Coping Strategies.

### **INTRODUCTION**

The global COVID-19 pandemic is an unprecedented crisis unlike any since the end of the Second World War. The pandemic affected every economic, social and political aspect of the globe and resulting in a loss of nominal gross domestic product of about USD 29 billion in Africa. The immediate implications of the crisis in Sub-Saharan Africa (SSA) are already very serious. The UN estimates COVID 19 will let the Ethiopian economy reduce by 4 percent, and 4 million employees could lose their jobs (United Nations Ethiopia, 2020). By 4 May 2020, Ethiopia had 250,000 confirmed cases, had conducted less than 3 million lab tests representing around 3 percent of the total population, and vaccinated less than a million population representing 1 percent of the total population. This strongly suggests that the number of COVID-19 cases has been surging exponentially in Ethiopia recently.

According to UNIDO, Ethiopia has fewer private enterprises in comparison to its population size and 'the lowest entrepreneurial activity rates' in Sub-Saharan Africa (UNIDO, 2019). Agribusiness enterprise takes a lion share in the countries manufacturing sector. In addition, food manufacturing is a vital part of the country's economy.

This study is timely and will provide insight into factors influencing agribusiness enterprise's coping strategy in the COVID-19 era, highlight the expected or available support from concerning stakeholders, and assist the policymakers in knowing how

best to support agribusiness post-COVID-19. Despite there is a growing number of studies that identify the impact of COVID 19 on business, particularly Micro Small and Medium Enterprise (MSME) in developed economies (Bartik et al., 2020; Fairlie, 2020; OECD, 2020) or developing economies (Beglaryan and Shakhmuradyan, 2020; Salamzadeh and Dana, 2020). There are no empirically and rigorous studies that analyze the coping strategy of agribusiness in the COVID-19 era.

## MATERIALS AND METHODS

### DESCRIPTION OF THE STUDY AREA

West Shoa zone is one of 21 -zones found in Oromia regions, the largest region in Ethiopia. The study sampled four urban districts purposively due to agribusiness enterprise clusters in these districts. The districts are Bako Tibe, Wolmera, Ambo and Holeta

### SAMPLING METHOD

The study purposively selects four districts from 20 total districts in West Shoa Zone. From 1439 total agribusiness enterprises, 142 agribusiness entrepreneurs were randomly selected from these districts (Table 1). Yamane (1967) sample size determination was used to sample respondents.

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

Where n is the number of sample size, N is the number of total population size and e level of precision, so based on this information, the sample size is:-

$$n = \frac{1439}{1 + 1439(0.08^2)} = 141$$

The sample size was also determined to five different types of SMEs by Proportion to Population sampling method (PPS).

**Table 1.** Number of sample respondents

Agribusiness Enterprise	Total population	Sample size
Retailers	710	69
Bakery	291	29
Butchery	277	27
Flour factories	112	11
Milk processing	49	5
Total	1439	

## METHOD OF DATA ANALYSIS

Descriptive and econometric analysis methods were used to analyze the data collected from respondents. Descriptive statistics such as tables, figures, and inferential statistics were used to analyze demographic, economic, and related information about sampled SMEs. Conditional Mixed Processing (CPM) econometric methods are used to examine determinants of coping strategies used by sample entrepreneurs.

Equation (1)

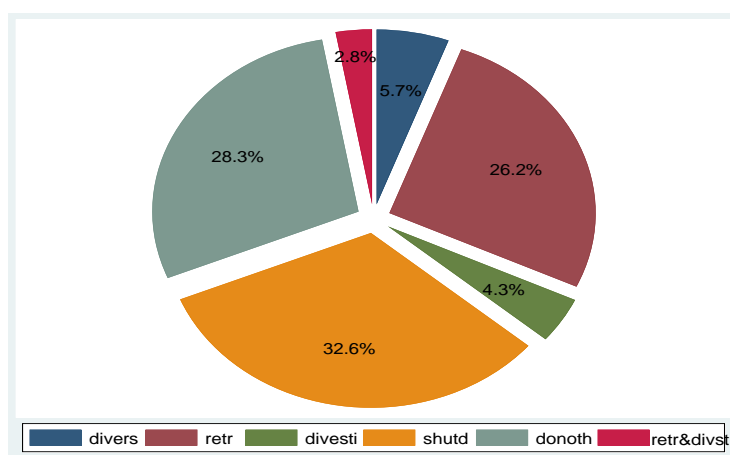
$$CS = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_5 + \beta_6x_6 + \beta_7x_7 + \beta_8x_8 + \beta_9x_9 + \beta_{10}x_{10} + \beta_{11}x_{11} + \mu_i$$

There were five continuous variables and six dummy variables in the model. The coefficients of the model were estimated using the maximum likelihood (ML) approach. In comparison to the ordinary least square method, the regression coefficients of ML were asymptotically efficient, unbiased, and regularly distributed.

## RESULTS AND DISCUSSION

Agribusiness enterprises in the study area pursue five broad coping strategies in the COVID-19 era. Figure 1. shows that almost two-thirds of agribusinesses pursue defensive strategies (32.6 percent pursue shutdown strategy, 26.2 percent pursue retrenchment, 4.3 percent divesture, and 2.8 percent pursue both retrenchment and divesture strategies). More than 28 percent of agribusiness do nothing in the COVID-19 era, and 5.7 percent of sampled agribusiness pursue a diversification strategy. The shutdown figure is relatively smaller when compared with Bartik et al. (2020) that founds 41.3 percent of businesses in the USA reported that they were temporarily closed because of COVID-19.

Error! Reference source not found.. Coping strategies



Sampled agribusiness enterprise characteristics related to coping strategies are shown in Table 2. Males own more than 58 percent of agribusiness enterprises, and 41 percent of agribusiness enterprises are owned by females. Moreover, business type and access to government stimulus are significant at 1 percent, and access to credit is significant at 10 percent. Among agribusiness retailers, 2.84 percent, 7.1 percent, 0.7 percent, 26.9 percent, and 11.4 percent pursue diversification, retrenchment, divestiture, and shutdown and “do nothing” strategies, respectively. Retailers than any other type of agribusiness-pursued shutdown strategy. Only 2.1 percent of bakeries or flour factories pursue a shutdown strategy. No, any single sampled butchery pursues a shutdown strategy. More ever, less than 2 percent of milk processers pursue a shutdown strategy. Similarly, ONE United Nations (2020) suggest that agro-food processing sub-sector will be relatively less impacted by COVID-19 and government COVID-19 stimulus package targeted only medium and large business.

**Table 2.** Descriptive statistics for agribusiness firms related to coping strategies (categorical variables).

Variable	Value	Total	Diversification	Retrenchment	divestiture	Shut down	do nothing	retrenchment and divestiture	chi
Sex	Female	41.13	2.84	10.64	1.42	17.02	9.22	0.00	6.75
	Male	58.9	2.84	15.60	2.84	15.6	19.2	2.84	
Business type	Retailers	48.94	2.84	7.1	0.7	26.9	11.4	0.00	48.7***
	Bakery	20.57	1.4	6.4	1.4	2.1	7.8	1.4	
	Butchery	19.15	0.7	9.9	1.4	0.00	5.7	1.4	
	flour factory	7.80	0.00	2.1	0.7	2.1	2.8	0.00	
	milk processing	3.55	0.7	0.7	0.00	1.4	0.7	0.00	
Credit	Yes	47.52	2.8	16.3	2.13	12.06	11.35	2.8	10.6*
	No	52.48	2.8	9.9	2.1	20.6	17.02	0.00	
Government stimulus	Yes	29.08	2.84	11.35	2.84	1.42	7.8	2.84	32.9***
	No	70.92	2.84	14.89	1.42	31.21	20.57	0.00	

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**Table 2**, almost 71 percent of sampled respondents did not have any access to the government COVID-19 stimulus package, and the larger number of this agribusiness (31.2 percent) pursue a shutdown strategy.

Ethiopian government passes USD 154 million or 0.15 percent of GDP (5 billion ETB) as COVID-19 stimulus package (IMF, 2021). Additional to this stimulus, the Ethiopian government also adds other stimulus instrumentals such as tax relief, loan deferral, and other subsidies. However, unfortunately, these stimulus packages were primarily targeted large and medium businesses. According to ONE United Nations (2020), a stimulus such as relief on debt (reductions in principal or extensions of maturity) and debt service (deferral or elimination for at least 1-2 years) could free up significant fiscal space and help maintain the fiscal stance. More than half of sampled agribusiness enterprise also did not have credit access. Agribusiness that did not have credit access tend to select shutdown strategy (20.6 per cent) than those agribusiness enterprise that have access to credit (12.06 percent).

**Error! Not a valid bookmark self-reference.** shows the means and slandered division for agribusiness enterprises related to COVID-19 coping strategies. The average experience of the owner of agribusiness was 4.3 years. Owners with larger experience (5.6 years) tend to pursue diversification strategies, and those with minimum experience (3.2 years) tend to pursue shutdown strategies. This might be because the owner with higher experience could establish good customer relations and a good capability to deal with such external shocks. On average agribusiness, owners attend 3.8 years of schooling. Owners with higher schooling years (4.2 years) tend to pursue retrenchment strategies, and those with lower experience (3.8 years) tend to do nothing in the COVID-19 era.

**Table 3.** Descriptive statistics for agribusiness firms related to coping strategies (continues variables)

Variable	Total	Diversification	Retrenchment	Divesture	Shutdown	Do nothing	R and Div
Experience	4.3	5.6	5.2	4.8	3.2	4.4	5
	(3.01)	4.2	3.8	1.7	2.3	2.5	3.4
Education	3.8	1.8	4.2	3.6	3.7	3.8	3.2

	(5.1)	3.3	5.2	7.5	5.7	4.4	4.5
employment	13.2	24.5	10.9	10.1	11.7	15.7	9.75
	(34.7 )	58.1	17.9	11.2	34.2	44.9	3.3
Total asset	18035.4	67885.5	8430.7	630.8	19521.7	19634.1	208.2
	79548.8	191571.2	39945.6	834.9	88973.1	69570.47	231.2
Distance	42.2	39.25	28.8	24.1	57.65	41.3	31.2
	(68.09)	(34.8 )	(17.6)	9.7	95.1	71.8	4.7

Sample agribusiness enterprises, on average, employ 13.2 laborers. These agribusinesses with a larger employer (24.5) tend to pursue diversification strategies in the COVID-19 era.

Agribusiness enterprises that are relatively far from the nearest town pursue a shutdown strategy. Since there is higher market infrastructure near the town, agribusiness proximate to such towns survive than other agribusinesses that are far from town.

## ECONOMETRIC ESTIMATES

CMP econometric model was used to identify determinants of coping strategies in the COVID-19 era. **Error! Reference source not found.** shows estimated coefficients, and

Table 5 shows the marginal effect of the estimates. From 11 hypothesized variables, eight are found to be significant that are the experience of owners, education of owner, retailer dummy, bakery dummy, flour factory dummy, access for credit, distance to the nearest town, and access for government COVID-19 stimulus package. Except for experience and government stimulus package, all significant variables are related positively with respective variables.

As shown in

Table 5 margin of experience indicated that the likely probability of pursuing retrenchment strategies increase by 1.8 percent, as the experience of the owner in agribusiness increased by one year but the likely probability of pursuing shutdown strategies decreases by 3.3 percent as the experience of owner increase by one year. The indirect relationship between experience and shutdown strategy might be due to owners with higher experience build better customer relation networks.

Education of owner related positively at 5 percent level of significance. The marginal effect shows that the likely probability of pursuing shutdown strategies increases by

almost 2 percent when the schooling year increase by one. This might be since more educated owners are more risk diverse; they tend to pursue a shutdown strategy rather than incurring further losses.

Agribusiness that are retailers tends to peruse shutdown strategy than other types of agribusiness. The likelihood of pursuing shutdown strategies increases by 56.75 in retailing than other types of agribusiness. This is due to most retailers in the study are found to be small and medium enterprises (SMEs).

**Table 4.** CMP coefficient estimates

VARIABLES	Diversification	Retrenchment	Shut down	Do nothing
Experience	0.036	0.0653***	-0.146**	-0.0205
	-0.0261	-0.0159	-0.061	-0.042
Education	-0.0276	0.0189	0.0866*	-0.0353
	-0.0802	-0.0353	-0.047	-0.0325
Retailers	28.85	-2.432	2.521*	0.793
	-129.1	-1.954	-1.451	-1.108
Bakery	28.86	-2.172	0.935	1.692*
	-129.1	-1.908	-1.281	-1.022
butchery	28.25	-1.572		1.317
	-129	-2.005		-1.115
Flour factory	-	-2.445	1.175	2.126**
		-2.073	-1.237	-0.897
employment	0.0174	0.00339	0.00346	-0.0068
	-0.0666	-0.0112	-0.00709	-0.00565
Total asset	5.54E-05	-9.33E-06	4.20E-06	6.24E-06
	-0.00024	-6.16E-06	-5.06E-06	-3.93E-06
Credit	-0.0556	0.307	0.0611	-0.371***
	-0.407	-0.27	-0.13	-0.0915
Distance town	-0.00451	-0.00333	0.00113**	-6.26E-05
	-0.01	-0.00438	-0.00054	-0.00053
stimulus	0.261	0.213	-1.517***	-0.261
	-0.457	-0.291	-0.434	-0.288
Constant	-30.41	1.062		

	-129.1	-1.945	
atanhrho_12		-16.04	-12.92
		-4,353	-544
Log. likelihood	-108.749		
LR chi2(21)	63.14		
Prob > chi2	0		
Observations	141	141	141

Significance level \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

According to the International Trade Centre (2020), SMEs are more likely to face severe resource constraints than larger firms, making it more difficult for them to survive when adversely affected by the COVID-19 crisis, with one-fifth (21%) of SMEs reporting that they intend to shut down permanently within three months. Smaller businesses are highly vulnerable, according to (Bartik et al., 2020), whereas closure rates for larger businesses may be lower. Furthermore, the government's COVID-19 stimulus program is exclusively aimed at large corporations and manufacturers.

Bakery and flour factories tend to pursue “do nothing” strategies. The margins show that the likely probability for pursuing “do nothing” strategies increase by 54.2 percent and 68 percent of bakery and flour factories, respectively.

**Table 5:** Margin estimates of coping strategies' pursuing by agribusiness firms in a covid-19 era

VARIABLES	diversification	retrenchment	shutdown	Do nothing
Experience	0.00345 (0.00242)	0.0180*** (0.00402)	-0.0327** (0.0130)	-0.00657 (0.0133)
Education	-0.00265 (0.00768)	0.00521 (0.00976)	0.0195** (0.00967)	-0.0113 (0.0103)
Retailers	2.763 (12.42)	-0.672 (0.540)	0.567** (0.273)	0.254 (0.360)
Bakery	2.765 (12.42)	-0.600 (0.528)	0.210 (0.272)	0.542 (0.334)
Butchery	2.706 (12.41)	-0.434 (0.556)	-	0.421 (0.364)
flour_factory	-	-0.675 (0.574)	0.264 (0.255)	0.680** (0.300)



Employment	0.00166 (0.00638)	0.000935 (0.00308)	0.000778 (0.00164)	-0.00218 (0.00186)
Totalasset	5.31e-06 (2.32e-05)	-2.58e-06 (1.71e-06)	9.44e-07 (1.07e-06)	2.00e-06 (1.29e-06)
Credit	-0.00533 (0.0391)	0.0847 (0.0738)	0.0137 (0.0298)	-0.119*** (0.0287)
dis_town	-0.000432 (0.000966)	-0.000920 (0.00121)	0.000254* (0.000135)	-2.00e-05 (0.000171)
gov_stimulance	0.0250 (0.0438)	0.0590 (0.0800)	-0.341*** (0.0848)	-0.0837 (0.0910)
Observations	141	141	141	141

Significance level \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This might be due to both bakery and flour factories have less social contact than other business types, such as retailers and butchery. One of the COVID-19 prevention methods (social distancing) can easily implement by bakery and flour factories than other agribusinesses. Manufacture does not normally require radically skew from their usual business operation due to COVID-19.

Agribusiness enterprises that have access to credit are indirectly related to “do nothing” strategies. If an agribusiness has access to credit, the likely probability of pursuing “do nothing” strategies decrease by almost 12 percent. This might be due to access to credit services relax liquidity constraints (Ngenoh et al., 2018) and thus enhances the pursue of strategies rather than doing nothing.

As the distance to the nearest town increase, the probability of pursuing shutdown strategies increase. The marginal effect shows that an agribusiness enterprise far away an hour from the nearest town, the probability of shutdown increase by 1.5 percent (0.025\*60). Since towns are relatively having a better physical and market infrastructure than rural, it creates an incentive to survive in such external business shocks.

Towns enhance the availability of information, and access to market information is necessary to act as an incentive to increase the level and intensity of coping with shocks (Ngenoh et al., (2018), Paganini et al., 2020)

Although the COVID-19 government stimulus package lacks uniformity and integrity, it significantly reduced the shutdown. As shown in the marginal effect, a government stimulus package decreases the probability of shutdown by 34.1 percent, and this

might be due to such subsidy might do more to maintain employment and keep businesses open in the long term (Bartik et al., 2020)

## CONCLUSION AND RECOMMENDATIONS

The study attempts to analyze coping strategies by agribusiness enterprises in COVID-19 era. One hundred forty-one agribusiness enterprises that are retailers, bakeries, butcheries, flour factories, and milk processors were randomly selected from the West Shoa zone of Oromia region, Ethiopia. Five broad strategies were pursued by sampled agribusiness.

The results show that small agribusiness, as retailers tend to pursue shutdown strategies due to lack of capital and poor access to government COVID-19 stimulus package. Therefore, the government COVID-19 stimulus package should also target small businesses that are a vital part of the country's economy.

The CMP estimates show that experience tends to reduce the shutting down of an agribusiness. So concerning stakeholders should assist the owner with less experience by designing training and workshops. The Government COVID-19 package also has a significant influence in reducing the shutdown of an agribusiness enterprise; as a result, it is important to design such a stimulus. Distance to nearest town used to capture market infrastructure also related with shutting down of agribusiness.

Due to this, an agribusiness that is far away from such market infrastructure should assist in doing business digitally and from brick and mortar shops shifted resources to e-commerce, including digital banking, digital payments platforms, and e-financial services. Expand and facilitate access to finance is also another important factor that promotes the survival of agribusiness

## REFERENCES

- Bartik, A. W., Bertrand, M., Cullen, Z., Glaeser, E. L., Luca, M., and Stanton, C. (2020). The impact of COVID-19 on small business outcomes and expectations. *Economic Science*, 117(30). <https://doi.org/10.1073/pnas.2006991117>
- Beglaryan, M., and Shakhmuradyan, G. (2020). The impact of COVID-19 on small and medium-sized enterprises in Armenia: Evidence from a labor force survey. *Small Business International Review*, 4(2).
- Fairlie, R. (2020). The impact of COVID - 19 on small business owners : Evidence from the first three months after widespread social - distancing restrictions. *J Econ*

Manage Strat, 29, 727–740. <https://doi.org/10.1111/jems.12400>

IMF. (2021). Policy Responses to COVID-19. <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#E>

International Trade Centre. (2020). SME Competitiveness Outlook 2020: COVID-19: The Great Lockdown and its Impact on Small Business.

Ngenoh, E., Kebede, S. W., Bett, H. K., and Bokelmann, W. (2018). Coping with Shocks and Determinants among Indigenous Vegetable Smallholder Farmers in Kenya. *Agricultural Sciences*, 9, 804–823. <https://doi.org/10.4236/as.2018.97057>

OECD. (2020). Coronavirus ( COVID-19 ): SME Policy Responses. July, 1–169.

Paganini, N., Adinata, K., Buthelezi, N., Harris, D., Lemke, S., Luis, A., Koppelin, J., and Karriem, A. (2020). Growing and Eating Food during the COVID-19 Pandemic : Farmers ' Perspectives on Local Food System Resilience to Shocks in Southern Africa and Indonesia. *Sustainability Article*, 12, 1–26.

Salamzadeh, A., and Dana, L. P. (2020). The coronavirus ( COVID-19 ) pandemic : challenges among Iranian startups The coronavirus ( COVID-19 ) pandemic : challenges among Iranian startups. *Journal of Small Business & Entrepreneurship*, 0(0), 1–24. <https://doi.org/10.1080/08276331.2020.1821158>

United Nations Ethiopia. (2020). One UN assessment: Socio-economic impact of COVID-19 in Ethiopia.

Yamane, T. (1967). *Statistics, An Introductory Analysis* (2nd ed.). Harper and Row.