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# Impact of the COVID-19 Pandemic on SME Debt in a Sub-Saharan Context: The Case of Cameroon

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## Abstract

Following the confinement imposed by the Cameroonian authorities after the contamination of some people by the Coronavirus, several companies in general and SMEs in particular have experienced great difficulties due to a partial or total cessation of their activities. The objective of this study is to evaluate the impact of the Covid-19 pandemic on the indebtedness of Cameroonian SMEs. Through statistical and econometric analyses carried out on a sample of 450 Cameroonian SMEs, the results obtained highlight the significant influence of the Covid-19 health crisis on the better development of Cameroonian SMEs' activities. This suggests that the Cameroonian government and/or financial partners should provide financial assistance to SMEs in order to alleviate the cash flow difficulties caused by the Covid-19 pandemic.

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*Index terms*— pandemic; debt; covid-19; containment; SMEs.

## 1 I. Introduction

ince the first infections in Wuhan, China, Covid-19 has continued to spread around the world. According to simulations by the International Monetary Fund (IMF), global economic growth will be grossly insufficient and the world economy will be in negative territory as early as the first half of 2020. This global health crisis will lead to partial or total lockdowns, land, sea and air border closures, business closures and significant trade restrictions in some more developed to less developed countries, with serious negative consequences for their overall economic activity.

As Cameroon has not been spared by the covid-19 pandemic, many companies have been weakened. According to studies conducted by the Interpatronal Group of Cameroon (GICAM), on more than 250 companies surveyed between May 22 and June 22, 2020, i.e. 25% of large companies and 75% of SMEs, it appears that the incidence of the covid-19 pandemic has brutally affected 61.5% of companies and left about 10.8% of companies regardless of their size. A careful analysis of the consequences of this pandemic reveals that the most affected sectors are: accommodation and food services (88.9%), agri-food (80.0%), financial services and insurance (71.4%) and computer and telecommunication services (70.0%).

Difficulties in accessing finance remain one of the main obstacles to the creation, survival and growth of SMEs in general, and innovative SMEs in particular. The Covid-19 health crisis poses enormous difficulties for SMEs to be able to carry out their activities serenely. As a result, these SMEs and many entrepreneurs are facing a double shock: a dramatic fall in demand for goods and services, and a tightening of credit conditions that is severely affecting their cash flow.

While the financing structure, and more specifically the debt ratio of a company, is influenced by many factors, its size, growth, industry or collateral are examples of factors that can influence a company's debt ratio (Laura, 2015). This makes it more difficult for smaller companies with less collateral to borrow, especially if the economic environment is not favorable. The more collateral a business has to provide to banks, the more likely it is to be able to take on debt.

# 1 I. INTRODUCTION

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44 Speaking of debt, Traoré (2005) theoretically defines it as all the aid requested by a government from partners  
45 (bilateral, multilateral, financial institutions, financial markets, etc.) to finance development actions that could  
46 not be covered by the national budget.

47 For Honoré and Royer (2003), the indebtedness of the enterprise corresponds to all the capital brought by its  
48 financial, industrial or commercial partners and which it uses for its investments in fixed assets and its working  
49 capital requirements (WCR). The analysis of indebtedness is based on distinctions between long and short term,  
50 limited or unlimited duration, operating or financial debt (Abor, 2007; Colot et al., 2010).

51 The objective of this study is to assess the impact of the Covid-19 pandemic on the indebtedness of  
52 Cameroonian SMEs. Thanks to statistical and econometric analyses conducted on a sample of 450 Cameroonian  
53 SMEs, the results obtained highlight the significant influence of the Covid-19 health crisis on the better  
54 development of the activities of Cameroonian SMEs.

55 In this article, we will first examine the literature review and the elaboration of the hypothesis, then the  
56 methodology used in this study and finally, we will comment and discuss the results obtained and end with a  
57 conclusion. Review of the Literature and Formulation of the Hypothesis A health crisis is an epidemic that  
58 spreads over a large geographical area and affects a significant proportion of the population: among the many  
59 parameters that transform a disease into a pandemic, one must consider the incubation time before the first  
60 symptoms, the time before the contagious phase, the intensity of the contagiousness of the biological agent, the  
61 degree of immunity of the population and the mode of transmission (Nkoa, 2020).

62 To avoid contagion in Covid-19, several measures have been taken to this effect, namely: border closure;  
63 containment; barrier measures; wearing of masks; social distancing; working remotely through information and  
64 communication technologies; etc.

65 According to Ntererwa and Lukundji (2020), financial leverage refers to the impact of the financial structure of  
66 the firm on the profitability of equity. Under certain conditions, the use of debt can increase the return on equity  
67 through a so-called "leverage" effect. It is therefore necessary to show the part of the return on equity that comes  
68 from the economic activity of the company (ROI) and the part that is attributable to the method of financing  
69 (financial leverage). Leverage can be defined as the positive impact that the judicious use of debt can have on  
70 the financial profitability of the company. The leverage effect is all the more important as the debt/equity ratio  
71 (called the Gearing ratio) amplifies the profitability differential (economic profitability-cost of debt) ??Modigliani  
72 and Miller, 1958).

73 Indeed, it appears that in the long run, only sufficient economic profitability guarantees a satisfactory level  
74 of return on equity, because if the debts contracted to invest cost less (interest rate) than they yield (economic  
75 profitability), the financial profitability is impacted upwards. If a company can borrow capital at a cost of 6%  
76 and, thanks to this financing, its activity grows and it achieves a profitability of 9%, the leverage effect is positive  
77 ??Modigliani and Miller, 1958).

78 If this is not the case, it is called a sledgehammer effect. The interest of the leverage effect is to highlight the  
79 origin of the profitability of equity, to know if it is a favorable financial construction or a true operational/economic  
80 performance born of a judicious exploitation of the production tool ??Stiglitz, 1972; ??odigliani and Miller, 1958).  
81 This being the case, it should not be forgotten that while debt can be a source of improvement in the profitability  
82 of equity capital, it can also be a source of weakening the solvency of the company, or even of jeopardizing the  
83 continuity of its operations.

84 As a reminder, the more guarantees a company provides to banks for access to credit, the more likely it is to  
85 be able to incur debt.

86 Indebtedness refers to a situation marked by an accumulation of debts (Imane, 2016). In the business world,  
87 debt is often directly related to investments made, which require a certain amount of long-term debt ??Modigliani  
88 and Miller, 1958; ??aura, 2015). Debt can be obtained through loans or bank credits ??Stiglitz, 1972). SMEs  
89 rely heavily on debt despite measures to facilitate their access to capital markets.

90 Since the work of Modigliani and Miller (1958), there have been many theoretical debates and empirical works  
91 on the issue of debt. Arbitrage theory is one of the first lines of progress of this school, known as neoclassical.  
92 This theory puts forward the following idea: the firm substitutes equity for debt or debt for equity until the value  
93 of the firm is maximized.

94 A firm always seeks the level of debt that allows it to minimize its cost of capital, and thus maximize its value  
95 ??Laura, 2015). This debt ratio is, according to the trade-off theory, the one that balances the fiscal benefits of  
96 any additional debt (perpetual rent from tax savings) with the costs of potential financial distress (bankruptcy  
97 costs caused by debt). We have:  $EV = VNE + tD - VA$ , where  $EV$  = Value of the indebted firm;  $VNE$  = Value  
98 of the non-indebted firm;  $tD$  = Tax savings and  $VA$  = Amount of bankruptcy costs.

99 The analysis of the impact of the Covid-19 health crisis on SME debt has so far received relatively little  
100 empirical attention. In this sense, many existing studies have first focused on the digital mechanisms in the  
101 management of the Covid-19 health crisis and the challenges to bridge the digital divide in the world (Thiam  
102 and Ndiaye, 2020); on the spillover effects of the health crisis (Oudda et al., 2020). The others address the health  
103 and/or financial crisis aspect either on credit rationing or on the behavior of financial intermediaries (Achibane  
104 and Chakir, 2019; Hervé, 2010; Aissata, 2012; Akilimali, et al., 2020).

105 Hence the almost total absence of studies on the impact of the Covid-19 health crisis on the indebtedness of  
106 Cameroonian SMEs. In view of this situation, which weighs on the activities of SMEs, this study will focus on

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107 the following question: what is the impact of the Covid-19 health crisis on the indebtedness of Cameroonian  
108 SMEs?

109 The objective of this study is to assess the impact of the Covid-19 pandemic on the indebtedness of Cameroonian  
110 SMEs. In order to answer our research question formulated above, we opted for a hypotheticaldeductive approach,  
111 as it consists in formulating a research hypothesis in order to deduce its observable future consequences, as well  
112 as its past consequences, in order to highlight its validity. To answer our research question above, we used a  
113 research hypothesis.

## 114 **2 III. Covid-19 Pandemic and SME Debt:**

115 Empirical Validation in the Cameroonian Context

116 In this section, we will first describe the sampling, the data collection procedure, then define the variables  
117 selected for the study and finally specify the estimation method selected.

### 118 **3 a) Sampling and Data Collection**

119 The population of this study is composed of Cameroonian Small and Medium Enterprises (SMEs).

120 The official definition of the SME in the Cameroonian context comes from Law n°2015/010 of 16 July  
121 2015 modifying and completing certain provisions of Law n°2010/001 of 13 April 2010 on the promotion of  
122 SMEs. This text sets out references that make it possible to divide enterprises into different groups: Very  
123 Small Enterprise (VSE); Small Enterprise (SE) and Medium Enterprise (ME). According to these references,  
124 the SME group includes enterprises with a permanent workforce of between 21 and 100 people and an annual  
125 turnover excluding tax of no more than three (03) billion CFA francs. For data collection, we used a research  
126 questionnaire administered to the managers of Cameroonian SMEs. We selected the regions of: Littoral; Centre;  
127 West; Adamaoua; North and East for the distribution of the research questionnaire. The survey started in May  
128 2020 and ended in December of the same year. Out of the four hundred and ninety-eight (498) questionnaires  
129 randomly proposed to SME managers, only four hundred and seventy (470) were sent to us, i. e. a return rate  
130 of 94.37%. Of this number, twenty (20) questionnaires had to be discarded for various reasons (indecipherable,  
131 incomprehensible, etc.). It is clear that 95.74% of the questionnaires that arrived were usable. In sum, 450 SMEs  
132 belonging to the primary, secondary and tertiary sectors were validated in the framework of our study.

### 133 **4 b) Definitions and Measures of Variables**

134 We used some variables to analyze the link between the Covid-19 pandemic and the indebtedness of Cameroonian  
135 SMEs. Control variables were also introduced to test the relationship between the Covid-19 pandemic and these  
136 control variables.

#### 137 **5 i. The Endogenous Variable**

138 The covid-19 pandemic is the dependent variable. The measure of this variable is evaluated through the speed  
139 of sales of SMEs. This variable is binary and takes the value 1 if the speed of sales of SMEs is increasing at the  
140 time of the covid-19 pandemic and 0 otherwise.

#### 141 **6 ii. The Exogenous Variable**

142 The indebtedness ( $X_1$ ) of SMEs is the independent variable. A quantitative variable, it expresses the weight of  
143 external capital committed by the firm's creditors. For this study, and according to Cassar and Holmes (2003), the  
144 indebtedness of SMEs is measured by the short-term debts (STD) on the total of the balance sheet (STD/Total  
145 of the balance sheet).

#### 146 **7 iii. Control Variables**

147 We retained three (03) control variables, namely: the age of the SME; the sector of activity; and the manager-  
148 shareholder/owner network. ? The age of the SME ( $X_2$ ), is a quantitative variable and is measured by the  
149 Neperian Logarithm of the age of the SME expressed in number of years (M'hamid et al., 2011). ? The sector  
150 of activity ( $X_3$ ), is a dichotomous variable that takes the value of 1 if the SME operates in a high-tech sector  
151 and 0 otherwise (Amal and Faten, 2010). ? The manager-shareholder/owner network ( $X_4$ ), is a dichotomous  
152 variable that takes the value of 1 if the manager belongs to the same religious, cultural and professional networks  
153 as the owner or shareholders and 0 otherwise (Moungou and Niyonsaba, 2015).

## 154 **8 Source: From the Author based on the Literature c) Econo- 155 metric Model**

156 For our study, we used the logistic regression model. The choice of this model is justified by the fact that  
157 the variable Y to be predicted is dichotomous (1 or 0) and not continuous. The most distinctive point of this  
158 regression is the fact that the relationship between the predictor variables,  $X_1$ ,  $X_2$ ,  $X_3$ , ...,  $X_n$  and the variable  
159 Y to be predicted is non-linear. Logistic regression analysis allows the prediction of group membership probability

160 using the maximum likelihood method, as it provides better estimators when the distribution of disturbances is  
 161 known. The use of SPSS version 20 and Stata/SE version 15.1 will be useful for the analysis of the collected  
 162 data. Thus, the following research model is selected.

163 Model: Test of the relationship between the covid-19 pandemic; SME debt and control variables.

164 As our logistic regression model has several predictors, it is therefore formulated as follows: The coefficients ?  
 165 0, ? 1, ? 2, ? 3, ? 4 represent the constant and the linear combination of the predictors.  $P(Y) = e^{(? 0 + ? 1 X 1 + ? 2 X 2 + ? 3 X 3 + ? 4 X 4)} / (1 + e^{(? 0 + ? 1 X 1 + ? 2 X 2 + ? 3 X 3 + ? 4 X 4)})$  or  $P(Y) = 1 / (1 + e^{-(? 0 + ? 1 X 1 + ? 2 X 2 + ? 3 X 3 + ? 4 X 4)})$

## 168 9 d) Presentation and Interpretation of Results

169 The objective here is to present, on one hand, the correlation matrix between the dependent variable and the  
 170 exogenous variables, and on the other hand, the results of the logistic regression between the dependent variable  
 171 and the exogenous variables.

## 172 10 Source: From the Author based on the Survey

173 The table above shows that there is a positive and significant correlation at 1% level between the Covid-19 health  
 174 crisis and the indebtedness of Cameroonian SMEs. Similarly, there is a positive and significant correlation at 1%  
 175 level between the sector of activity and the Covid-19 health crisis, and a positive and significant correlation at  
 176 1% level with the managershareholder/owner network.

## 177 11 Table 4: Logistic Regression Results

## 178 12 Source: From the Author based on the Survey

179 According to the results obtained above, the LAMBDA likelihood ratio statistic is equal to 224.09. The associated  
 180 critical probability is 0. The associated critical probability is 0. The model is therefore globally significant, as  
 181 there is indeed a relationship between one or more explanatory variables and the explained variable.

182 As the data are individual and not aggregated, the pseudo-R<sup>2</sup> does not need to be close to 1 (or 100%) to  
 183 be excellent. Its value of 37.89% is already satisfactory. Our regression model as discussed above is as follows:  
 184  $P(Y) = 1 / (1 + e^{-(-3,013282 + 3,22012 X 1 + 0,0345872 X 2 + 0,6373508 X 3 + 0,5789432 X 4)})$  e is the base of  
 185 natural logarithms; Y = The covid-19 pandemic; ? 0 = The constant; X 1 = The indebtedness; X 2 = Age of  
 186 the SME; X 3 = The sector of activity; X 4 = The manager-shareholder/owner network.

187 We conducted a binary logistic regression on the impact of the Covid-19 health crisis on the indebtedness  
 188 of Cameroonian SMEs. The results of this regression show that the Covid-19 health crisis has a positive and  
 189 significant influence on the indebtedness Our results are in line with those found by Ntererwa and Lukundji  
 190 (2020), who show that the advent of the Covid-19 health crisis led SME ownermanagers to go into debt to cope  
 191 with the various fluctuations in their business.

192 These results show that despite the Covid-19 health crisis, Cameroonian SMEs have encountered enormous  
 193 difficulties in repaying their debts to financial institutions, which are unfortunately not contractual.

194 Following this Covid-19 health crisis situation, the SMEs that were forced to respect the barrier measures by  
 195 closing down their activities, notably: bars, restaurants, party halls, etc., and having the credit outstanding,  
 196 showed us that they had been forced to liquidate some of their assets to repay the credit in order to avoid the  
 197 strong recession.

198 As for the other variables (the age of the SME; the sector of activity; and the manager-shareholder /owner  
 199 network), we note that the Covid-19 health crisis does not significantly influence them.

## 200 13 IV. Conclusion

201 The objective of this study was to assess the impact of the Covid-19 pandemic on the indebtedness of Cameroonian  
 202 SMEs. Through statistical and econometric analyses carried out on a sample of 450 Cameroonian SMEs, the  
 203 results obtained show a positive and significant influence of the Covid-19 health crisis on the better development  
 204 of Cameroonian SMEs' activities. Hence the acceptance of our research hypothesis.

205 The results of this study reveal that the Covid-19 health crisis was the cause of several problems that prevented  
 206 businesses from operating as they should, namely: border closure; containment; barrier measures; wearing of  
 207 masks; social distancing; etc.

208 Through this study we can suggest to financial institutions, after having noted the delay in the repayment of  
 209 credits granted to SMEs, to use certain strategies to make them more solvent.

210 Through this study we can suggest that financial institutions, after having noticed the delay in the repayment  
 211 of credits granted to SMEs, should use certain strategies to make them more creditworthy.

212 If, despite this, nothing is paid, they should take more effective collection measures, such as sending reminders  
 213 or using external collection services. If there is still no proof of good faith, these financial institutions must take  
 214 more binding legal measures.

215 In terms of managerial implications, it would be interesting for the government to provide more subsidies to  
 216 SMEs during the Covid-19 health crisis. For example, the state should consider a policy of supporting SMEs

217 by exempting them from taxes due to the Covid-19 health crisis. The Cameroonian government should also  
 218 respond to certain measures aimed at supporting sales and combating the depletion of SMEs' working capital,  
 219 then improve SMEs' access to liquidity, and finally help SMEs to maintain their level of activity.

220 The results of this study remind us that the Covid-19 health crisis caused a number of problems that prevented  
 221 businesses from operating effectively. These problems include: border closures; containment; barrier measures;  
 wearing masks; social distancing; working remotely through information and communication technologies; etc.

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Logistic regression                                Number of obs   =    450
                                                       LR chi2(4)      =   224.09
                                                       Prob > chi2     =    0.0000
Log likelihood = -183.67542                        Pseudo R2       =    0.3789
  
```

y	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
x1	3.22012	.5617775	5.73	0.000	2.119057	4.321184
x2	.0345872	.0405794	0.85	0.394	-.0449468	.1141213
x3	.6373508	.4693088	1.36	0.174	-.2824777	1.557179
x4	.5789432	.3678293	1.57	0.116	-.1419889	1.299875
_cons	-3.013282	.4645408	-6.49	0.000	-3.923765	-2.102799

. mfx

Marginal effects after logit  
 y = Pr(y) (predict)  
 = .62535163

variable	dy/dx	Std. Err.	z	P> z	[ 95% C.I. ]		X
x1	.7544322	.13998	5.39	0.000	.480078	1.02879	.753333
x2	.0081033	.0095	0.85	0.394	-.010517	.026723	6.36222
x3*	.1532052	.11427	1.34	0.180	-.070757	.377167	.744444
x4*	.1383376	.08877	1.56	0.119	-.035643	.312318	.7

(\*) dy/dx is for discrete change of dummy variable from 0 to 1

Figure 1: S

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Regions	Littoral	Centre	West	Adamawa	North	East	Total
Questionnaires Administered	207	130	45	40	39	37	498
Questionnaires Received	203	117	42	36	37	35	470
Usable Questionnaires	201	110	40	34	33	32	450

Source: From the Author based on the Survey

Figure 2: Table 1 :

222 1  
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Variables	Abbreviations	Definitions of Variables
The Covid-19 Pandemic	Y	Variable is binary taking the value 1 if the speed of sale of SMEs is increasing at the time of the covid-19 pandemic and 0 otherwise.
SME Debt	X <sub>1</sub>	The indebtedness of SMEs is measured by short-term debt (STD) to total assets (STD/Total assets).
The Age of the SME	X <sub>2</sub>	Quantitative variable measured by the Neperian Logarithm of the age of the SME expressed in number of years.
The Sector of Activity	X <sub>3</sub>	Quantitative variable measured by the Neperian Logarithm of the age of the SME expressed in number of years.
X <sub>4</sub> = The Manager-shareholder/owner network	X <sub>4</sub>	Quantitative variable measured by the Neperian Logarithm of the age of the SME expressed in number of years.

Figure 3: Table 2 :

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Y	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>
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Figure 4: Table 3 :

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