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An empirical investigation of COVID-19 pandemic on Small and Medium sized Enterprises (SMEs): A survey in some selected local Government Areas of Bauchi State Nigeria

Murtala Saidu Jibril[1], Abdullahi Ahmad Mohammad[2], Hamza Dahiru[3], Tasi'u Tijjanni Sabi'u[2]
[1] Abubakar Tatari Ali Polytechnic, Bauchi, Nigeria
[2] Department of Economics, Northwest University, Kano, Nigeria
[3] Katsina Ministry of Budget and Economic Planning

Abstract
The study empirically investigated COVID-19 Pandemic on Small and Medium-sized Enterprises (SMEs): A Survey Bauchi State Northeastern Nigeria. Materials and Method: In this study, survey and filled questionnaire research design was used which was administered to the respondents who were the owners of small and medium size businesses/firms in Bauchi State, Nigeria. The variables used were changes made to employment or payroll for business/firm, continue to pay some or all employees who were told not to work as a result of the Coronavirus pandemic while they were not working, paying a portion of health insurance premiums for some or all employees who were told not to work as a result of the Coronavirus pandemic, work remotely as a result of the Coronavirus pandemic, increase the amount of paid sick leave provided to employees, loan or grant tied to re-hiring or maintaining employees on the payroll and loan or grant tied for maintaining production level which were used as metrics after COVID-19 while growth of sectors after COVID-19 were used as proxy of growth. The population of the study is the entire small businesses in Bauchi. The study used regression with the aid of STATA/R. Results shows most of the variables have a negative and insignificant effect of COVID-19 on the well-being (growth) of small and medium size businesses in Nigeria. The study recommended that Government should ensure such financial assistance to small and medium size businesses continue for full recovery from the negative effect of COVID-19. The Government should encourage small and medium size businesses by exempting them from multiple and excessive taxations that could retard their growth so that they can quickly survive.

Keywords: COVID-19 pandemic, small & medium size enterprise, bauchi state -nigeria

Introduction

The COVID-19 outbreak has already ravaged human health, distorted the livelihood of millions of people, and negatively impacting the global economy (Craven *et al*. 2020; Amare *et al.,* 2020). Confirmed cases of the novel Coronavirus named COVID-19, which was initially reported in December 2019 in the Chinese province of Hubei and subsequently declared a pandemic by the World Health Organization in March 2020. Now over 28 million worldwide, with 1,344,403 in Africa, and over 55,829 in Nigeria as at September 2020. The presence of the virus in Nigeria was initially reported on February 27, 2020, when an Italian citizen visiting Nigeria tested positive for the virus, caused by SARS-CoV-2 in 9 March 2020. The second case of the virus was reported at Ewekoro, Ogun State, which happens the Nigerian citizen who had contact with the Italian index case. The rampant and the rapid spread of the novel coronavirus led countries around the world into an acute health crisis. Similarly, apart from the human impact, there lingers the substantial economic, business, and commercial impacts across the globe.

SMEs contribution stands at 48% of national GDP and also accounts for 84% of employment. We define SMEs as Micro-enterprises that are small businesses with less than 10 employees and have less than 5 million Naira in assets excluding lands and buildings. Not surprisingly, a vast majority of micro-businesses are sole proprietorships. Moreover, SMEs, have more distributed ownerships with 65% as sole proprietorships, 21% as private limited liability companies, 6% as faith-based ownerships, and 5% as partnerships (NBS, 2017). Since Nigeria has a large number of micro-enterprises, any health crisis like COVID19 and economic shocks will inadvertently affect various sectors and livelihoods of the populace.

SMEs were struggling with many challenges, which include disruptions in logistics, restrictions on labor mobility, and declines in market sales and revenue the challenges are varied by industry. For instance, exporting firms suffered more than others, as a result of the decline in external demand and a lack of key parts that kept the market afloat. Also, SMES in the residential service sector were hit hard because of contraction in demand. Agricultural enterprises reported acute problems with logistical disruptions. Shortly after the benign rein of the COVID-19, authorities eased lockdown restrictions in July, 2020. Consequently, many SMEs had reopened for business activity. Though the supply-side challenges subsided, lack of demand become another as the dominant challenge. Many SMEs, particularly exporting firms, do not run to full capacity, basically due to low demand. In addition, our *ex post* analysis shows that around 18 percent of SMEs closed down mitigate further losses.

COVID-19 has spread to almost all countries worldwide. Many countries have resorted to lockdown policies similar to Nigeria, which made millions of SMEs to shut down. The governments in these countries want to unravel what impact COVID-19 is having on SMEs as these businesses struggle to reopen into a new normal. Therefore, the study on the impact on SMEs in Nigeria will shed light on other countries as well. It is widely anticipated that a second wave

of COVID-19 will strike again in this year. In the presence of a vaccine, we expect more easing of lockdowns. The wide spread of the COVID-19 results to world health crisis. Moreover, putting aside human impact, there are also a great deal of economic, business, and commercial impacts being experienced globally. Since viruses know no borders, the consequence will continue to ravage the world.

The study conducted by KPMG, (2020) has shown that 94 percent of global and local businesses in Nigeria have been impacted and are already seeing COVID-19 disruptions**.** Segal and Gerstel (2020) show that the slowdown of economic growth is starting from March 2020 onwards without a precise ending date and many countries entering a recession. Seth *et al*., (2020) forecasted impact of the COVID-19 pandemic will have a likely severe impact on small and medium scale enterprise. More so, the transmission channels and to what degree it will be is not clear and not well documented in the literature. On this premise we seek to examine the impact of the COVID-19 pandemic on micro-enterprises in Nigeria, and to unravel the coping and survival strategies developed and utilized by the entrepreneurs and also identify factors influencing coping strategies. To our best knowledge, there is no data on COVID-19 impact on micro-enterprises in Nigeria. Therefore, this indicates that no much Empirical evidence in this area of importance in Nigeria economy.

Objectives of the Study

The central and accompanying objectives of the study is to investigate the impact of COVID-19 restrictions on small and medium-sized enterprises (SMEs), and explore how effective is government response in terms relief and rescues package that comprises of soft loans, and bailout on maintaining employment status for Firms.

Methods of Data Collection and Analysis

The study collected data from various SMEs of different categories through direct and designed google form questionnaires which resulted in 120 responses across the selected local government areas of Bauchi State. The study uses average growth rate of each affected SMEs to determine the effect of the pandemic using logistic regression and other complementary econometric methods for robustness checks to disentangle the impact of coronavirus on the SMEs. First, the conducted a surveyed of 120 SMEs in Bauchi State, Nigeria were filtered accordingly. Therefore, the questionnaire was developed based on previous studies carried out by Belas *et al*., 2021[4]. The data was coded and entered into STATA for filtering to make it set analysis. Stata/R applied to further analyze the data. Descriptive statistics used to summarize the data for demographic characteristics; the impact of the pandemic on SMEs; firm's action; and firm perceptions.

Literature Review

Adiyoh, I. S., Ze, T., Tougem, T. O., & Dalibi, S. G. (2020) [1]. Analysed Effect of COVID-19 Pandemic on Small and Medium Scale Businesses in Nigeria. The review revealed that the COVID-19 pandemic has had an influence on the performance and survival of SMEs in Nigeria which resulted in reduction in revenue, reduced staff salaries as well as SMEs inability to repay loans, rents and government is not doing enough to contain the spread of the pandemic. The COVID-19 influences small and medium-size family and non-family firms' risk-taking on the study "effect of the COVID 19 on small and medium-sized family firms' risk-taking in Iraq" (Shafeeq Nimr Al-Maliki *et al*., 2022) [15]. COVID-19 has a significantly bad influence on profitability, operational, economic, and access to finance. In the study's findings, outside funding aids have played an important role in SMEs' skill to persist and succeed through technological novelty than in their real output. (Du *et al*., 2022). Impact of COVID-19 restrictions on small and medium sized enterprises (SMEs), has been examined both the short-term and mid-term based on two waves of phone interviews with a previously surveyed large SME sample in China (cgdev.org, 2022).

Business owners in Lokoja are aware of Covid-19 and its mode of spread. It is also revealed that income of SMEs reduced, prices of materials inputs increased and some workers in SMEs are laid-off. Equally, the demand for the products of SMEs has declined due to restrictions in movement (Enemona Negedu Ameji *et al.,* 2020) [8]. COVID-19 had a higher impact on the most vulnerable firms (small, young and less productive), and they also found more useful government policy support. Nonetheless, there were some exceptions: public loan guarantees had more difficulties reaching firms with less pre-existing debt; and furlough schemes were not able to fully protect jobs in firms with a higher share of temporary workers, which find firing more useful. While uncertainty is the key factor hindering firms' activity, we use the announcement of the Pfizer vaccine on November 9th 2020 as a natural experiment to provide evidence that the vaccine announcement improved significantly firms' subjective recovery expectations (Fernández-Cerezo *et al.,* 2022) [11]. Small and large businesses are suffering challenges and this unprecedented coronavirus crisis has caused destruction for many businesses in the globe and it is challenging to survive with reduced revenue, jobs lost and life slowing down and weak marketing performance even difficult to keep a calm head and their business alive. To support these businesses, the government should use different mechanisms by cooperating with wealthy peoples and other non-governmental organizations. Besides, small business owners should manage expectations and communicate with staff, suppliers, banks, and customers throughout this coronavirus frightening. Reduce expenses be open to their employees about their finances and keep marketing, use different alternatives to deliver their product, and recover from the crisis (Engidaw, 2022) [9].

Mass layoffs and closures had already occurred just a few weeks into the crisis. Second, the risk of closure was negatively associated with the expected length of the crisis. Moreover, businesses had widely varying beliefs about the likely duration of COVID-related disruptions. Third, many small businesses are financially fragile: The median business with more than $10,000 in monthly expenses had only about 2 weeks of cash on hand at the time of the survey. Fourth, the majority of businesses planned to seek funding through the Coronavirus Aid, Relief, and Economic Security (CARES) Act. However, many anticipated problems with accessing the program, such as bureaucratic

hassles and difficulties establishing eligibility (Bartik *et al*., 2020) [3].

The pandemic on the number of active small businesses in the United States using nationally representative data from the April 2020 CPS - the first month fully capturing early effects from the pandemic. The number of active business owners in the United States plummeted by 3.3 million or 22 percent over the crucial two-month window from February to April 2020. The drop-in business owners were the largest on record, and losses were felt across nearly all industries and even for incorporated businesses. African-American businesses were hit especially hard experiencing a 41 percent drop. Latinx business owners fell by 32 percent, and Asian business owners dropped by 26 percent. Simulations indicate that industry compositions partly placed these groups at a higher risk of losses. Immigrant business owners experienced substantial losses of 36 percent. Female-owned businesses were also disproportionately hit by 25 percent (Fairlie, 2020) [10]. Both Countries confirmed that the pandemic has a negative impact on the financial performance of SMEs. The government economic measures may help the enterprises to recover, said 40.0% of Czech entrepreneurs, but only 30% of Slovak entrepreneur (Belas *et al*., 2021) [4]. COVID-19 negatively affected production, revenue, and employment and, notably, the gender gap in the labor force at the beginning of the pandemic (February to June 2020) and COVID-19-related movement restrictions. (1) Larger firms, older firms, and male-owned firms were more likely to remain open during the early stages of the pandemic with many of these heterogeneities persisting through the end of 2020. (2) At businesses that remained open, concerns about demand shocks outweighed concerns about supply shocks though the relative importance of supply shocks grew over time. (3) In response to the pandemic, almost a quarter of the firms reduced their prices with price reductions concentrated among businesses facing financial constraints and demand shocks; almost no firms raised prices. (4) Only a quarter of small businesses had access to formal sources of financing at the start of the pandemic, and access to formal financing affected how firms responded to the pandemic. (5) Increased household responsibilities affected the ability of managers and employees to focus on their work, whereas increased business responsibilities impacted their ability to take care of their household members (Alekseev *et al*., 2022) [2].

Model Specifications

The study employs Multiple Regression Model to analyses the behavior of variables which was presented as follows:

$$\Delta OUTGRO_{t-1} = \alpha + \beta_1 SIZE_t + \beta_2 EXPR_t + \beta_3 \Delta EMPoPAY_t + \beta_4 PAYCON_t + \beta_5 PAYINSUR_t + \beta_6 REMOTEW_t + \beta_7 SIKLEAV_t + \beta_8 LGEMPLMAN_t + \beta_9 LGPRODMAN_t + \epsilon_t \ldots\ldots\ldots (1)$$

Where:

$\Delta OUTGRO_{t-1}$ = Changes in Output for SMEs; $SIZE$ = Size of the Firms by Number of Employees ; $EXPR$ = Firm Experienced; $\Delta EMPoPAY$= Changes, Made to Employment or Payroll for Business/Firm; $PAYCON$ = Pay Some or all Employees while they were not Working; $PAYINSUR$ = Paying a Portion of Health Insurance Premiums for Employees; $REMOTEW$ = Opportunities for Employees to Work Remotely; $SIKLEAV$ = Increase the Amount of Paid Sick Leave Provided to Employees; $LGEMPLMAN$ = Loan or Grant Tied to Rehiring or Maintaining Employees on the Payroll and $GPRODMAN$ = Loan or Grant Tied for Maintaining Production Level.

The Multiple Regression Model above seeks to test the relationship between the variables and the null hypothesis is tested by H0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \lambda\ \beta_6 = \beta_7 = \beta_8 = \beta_1 = 0$

Empirical Results

Table 1: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
OUTGROW	1.015	0.216	0.745	1.423
SIZE	0.795	0.315	0.176	1.477
EXPR	0.615	0.507	0.176	1.477
EMPoPAY	0.851	0.548	0.176	1.602
PAYCON	0.894	0.210	0.176	1.176
PAYINSUR	0.697	0.381	0.176	1.301
REMOTEW	1.006	0.357	0.176	1.398
SIKLEAV	1.089	0.243	0.176	1.301
LGEMPLMAN	0.933	0.134	0.698	1.176
LGPRODMAN	0.961	0.118	0.700	1.176

Source: Author Compiled from the Data

Mean is the average value of the series which is gotten by dividing the total value of the data series by the number of observations. The total Observations from the data set is 110. Therefore, the above table we see that the mean value for OUTGROW (Logged Growth of an Output), SIZE, EXPR, EMPoPAY, PAYCON, PAYINSUR, REMOTEW, SIKLEAV, LGEMPLMAN & LGPRODMAN are 1.015, 0.795, 0.615, 0.850, 0.893, 0.697, 1.005, 1.089, 0.933 and 0.961 respectively.

The study uses Jarque-Bera Probability which measures the combination of Sleekness and kurtosis in the data set. The probability greater than 0.05 is normally distributed otherwise is not, the variable shows these data are normally distributed while INFL 0.001 and FDI 0.000 are not normally distributed.

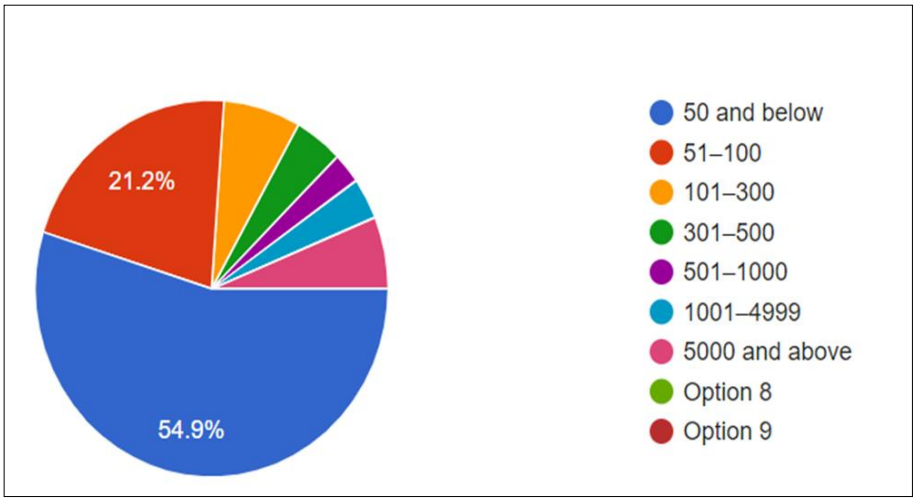

Fig 1: Depicts Size of Firms by Number of Employees

From the picture above, it shows that the small Businesses/Firms with Employees 50 and below has a larger share of 54.9% followed by medium size Businesses/Firms with 21.2%.

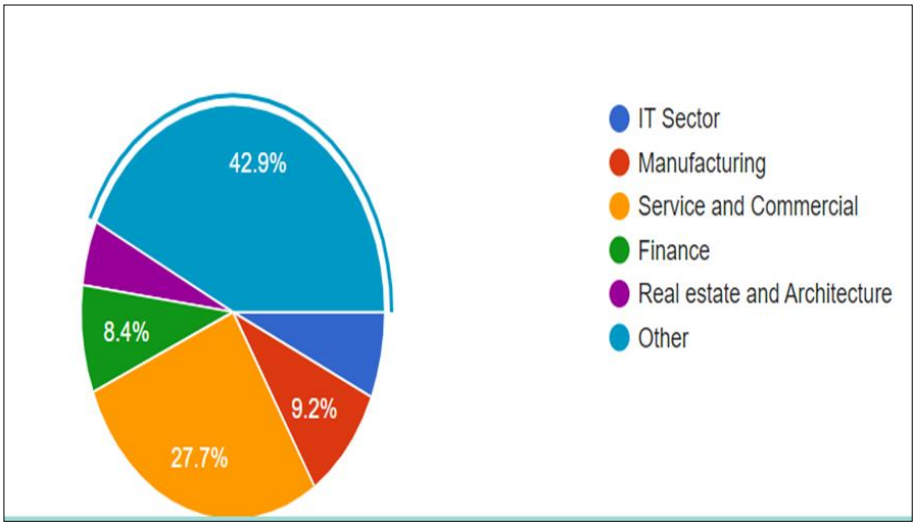

Fig 2: Depicts categorises of Firms

Fig.2 shows that others businesses that are not specified represents 42.9% of the total response, 27.7% for service and commercial businesses, 9.2% for manufacturing and 8.4% for finance respectively.

Table 2: Presents Result from Multiple Regression

OUTGROW	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
SIZE	.007	.067	0.10	0.92	-.130	.144
EXPR	-.037	.051	-0.73	0.46	-.140	.064
EMPPAY	-.026	.045	-0.52	-.125	0.60	.073
PAYCON	-.065	.105	-0.62	0.534	-.273	.142
PAYINSUR	.075	.058	1.28	0.203	-.041	.191
REMOTEW	-.057	.066	-0.88	0.383	-.188	.073
SIKLEAV	.092	.101	0.92	0.362	-.108	.292
LGEMPLMAN	-.179	.212	-0.85	0.400	-.600	.242
LGPRODMAN	.201	.241	0.84	0.405	-.277	.681
CONST	.991	.228	4.34	0.000	.538	1.44

Source: Author ‘s Compiled from the Data

Result Discussion

The table 2 above shows the results of variables against average growth of an output post covid-19, where the size by number of employees has a direct impact, which is similar with Belas *et al*., 2021[4]. The years of experience exhibit inverse relationship, changes made to employment or payroll for business/firms were inversely related with firms, SMEs continue to pay some or all employees who were told not to work as a result of the Coronavirus pandemic while they were not working inversely affects growth.

Hence, Businesses/Firms continue paying a portion of health insurance premiums for some or all employees who were told not to work as a result of the Coronavirus pandemic have a direct relationship with the growth of the SMEs, businesses/firms offer more opportunities for employees to work remotely as a result of the Coronavirus pandemic affects growth negatively. Businesses/firms increases the amount of paid sick leave provided to employees during the COVID affects SMEs growth positively. Businesses/Firms received a Coronavirus-related loan or grant tied to re-hiring or maintaining employees on the payroll does affect SMEs negatively. Businesses/Firms received a Coronavirus-related loan or grant tied for maintaining production level effects SMEs positively. But all the variables are not statistically significant. The result of the study was assessed in terms of size of the SMEs, pay leave, Sickle allowance and Government intervention to maintain employment and production level. Such interventions were assessed on post COVID with the help of average growth in output of the selected SMEs based on the study parameters. It found that most of the SMEs were positively affected by the various intervention of the Government. The findings are similar to Adiyoh, I. S., Ze, T., Tougem, T. O., & Dalibi, S. G. (2020) [1] on Analyse Effect of COVID-19 Pandemic on Small and Medium Scale Businesses in Nigeria. Which revealed that the COVID-19 pandemic has had an influence on the performance and survival of SMEs in Nigeria which resulted in reduction in revenue, reduced staff salaries as well as SMEs inability to repay loans, rents. And the study carried out by Belas *et al.,* 2021[4] which found that COVID-19 has negatively affected production, revenue, and employment and, notably, the gender gap in the labor force at the beginning of the pandemic.

Conclusion and Recommendation

The study concluded that COVID-19 has negatively affect the well-being of small and medium size enterprises by limiting their growth in terms of reduction in output, reduction on sales, reduction in employment, customers patronage and decline in other business opportunities.

Hence, COVID-19 on the affects well-being of small and medium size businesses in Bauchi State which manifested in the area of Service and Commercial businesses, manufacturing and finances which requires to be opened always for their survival in Bauchi State. These businesses/firms were making increase in performance despite the COVID-19 restrictive policies of government of Nigeria and the world in general.

The revival programs of government such as Loans, Survival Fund, NG-CARES were making production level restoring. The study recommended that Government should ensure such financial assistance to small and medium size businesses continue for full recovery from the negative effect of COVID-19. The Government should encourage small and medium size businesses by exempting them from multiple or excessive taxations that could retard their growth so that they can quickly survive.

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