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THE IMPACT OF COVID ON GHANA'S BUSINESS SECTORS AND GEOGRAPHIC AREAS

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Abstract

Based on data collected by the Statistical Service of Ghana, in contrast to previous research showing that government funding strategies have been ineffective for recovering income on individual levels, the current study found that government support, the adoption of mobile money, and internet access had a positive effect on sales during the current COVID pandemic. This shows that, with lockdowns in place, firms able to pivot to or expand their internet and mobile sales or those with these features already in place were more likely to perform well. This has broader implications for West Africa as well as for countries seeking a path to best practices now and in future crises.

Keywords: Emerging economies, Ghana, COVID-19

JEL Classification: C63, F00

Introduction

An extensive amount of research has examined the impact of COVID-19 in a variety of contexts. The business world has faced supply chain disruptions, decreases in product demand, shortages in goods and services, and government-mandated closures (Stang, 2021). In developed countries such as the United States, impacts have varied depending on the nature of the business. For example, hiring increased by 6.9% for essential businesses compared to 4.4% for nonessential businesses; the former were also less likely to reduce employment (25.8% compared to 34.8%) and pay (9.5% v. 15.2%) (Bureau of Labor Statistics, 2021).

People living in poverty have been disproportionally impacted by the pandemic, and the effects of COVID-19 could thrust as many as a half a billion people into extreme poverty (Ojomo & Alton, 2020). Internationally, the pandemic has caused substantial setbacks of decades of decreasing poverty rates with an additional 124 million people now categorized as being in extreme poverty (Center for Disaster Philanthropy, 2021). This points to the critical importance of understanding emerging economies and how to help them innovate and build long-term sustainability rather than identifying only near-term and stopgap strategies. While initial studies show the devastating impact of the pandemic, further research is needed to inform practices moving forward. The current study examined business firms in Ghana to determine the impact of COVID-19 as a foundational step to determining viable solutions for sustainability.

Literature Review

The pandemic is testing the capacity of businesses to adapt, which depends to a great extent on supply chain resiliency, the spread of coronavirus variants, vaccination rates, and other factors. While some analysts forecast global economy recovery through 2022 with an expansion of 5.6% in 2021 and an additional 4.9% in 2022, the focus has been primarily on developed countries such as the U.S. and U.K. or BRIC economies (Brazil, Russia, India, China, South Africa) (Dynan, 2021). Other economists observe that the global rebound will be uneven due to the slow rollout of the COVID-19 vaccine, which is hampering recovery although efforts of developed nations to provide vaccines globally and assist with the needed infrastructure to administer the vaccine in developing countries may offset this (Obstfeld, 2021).

Economists have also compared previous pandemics with COVID-19. Post-pandemic recovery in the past (e.g., pre-World War II) was characterized by increased personal savings, a decreased labor force, lower interest rates, higher wages, loss of wealth, and decreased capital expenditures (Hunter et al., 2021). However, economic factors characterizing the current pandemic differ in a number of ways such as the presence of central banks, fiscal policies, work from home capabilities, and the rapid development of the vaccine. Countries with low capabilities for working from home and low vaccination rates are the most vulnerable economically. Emerging market countries have more in common with pre-World War II pandemic responses such as lower work from home rates, less government flexibility on spending (e.g., fiscal space), limited health support capabilities, and supply bottlenecks (which will impact developed economies that are dependent on goods from emerging markets). As such, emerging market outperformance trends over the past decades will be stalled.

The roll out of the COVID-19 vaccine has been slow in Africa with non-profit humanitarian relief organizations assisting with vaccination campaigns and training (Project Hope, 2021). Early projections for the number of Africans who would have access to the vaccine in 2021 was 20% of the population of 1.3 billion. In January 2020, Ghana had the second highest infection rate in the region (UNICEF, 2021). Deaths from the virus were 40% in January 2021 Project Hope, 2021). As of September 2021, cases were declining throughout Africa, which experienced a decline of 12%, the fourth largest decline in world regions (Center for Disaster Philanthropy, 2021).

At the onset of the pandemic in Ghana, the government committed $100 million for a preparedness and response plan (Kenu, 2020). Actions to prevent the spread of the virus were similar to those in other countries such as bans on public gatherings, closures of schools and places of worship, travel restrictions, mandatory quarantines, partial lockdowns, and educational campaigns. Three preventive measures occurred in urban marketplaces: improving hygiene, closures, and lockdowns in the most densely populated markets (Asante & Mills, 2020). However, these measures resulted in higher food prices, economic hardships, and hostile relocation and decongestion efforts to ensure physical distancing. Also, policy makers needed to adjust goals frequently due to changing conditions (Dzansi et al., 2021).

In spite of these efforts, Africa's GDP is expected to decrease from 3.2% to 1.8% due to the pandemic (Rajamani, 2021). In Ghana, the projected decrease is from 6.2% to 2.8% due to its market-based economy based on international trade and imports. Reduced trade and supply chain disruptions are reducing revenues and increasing unemployment, causing increased poverty for Ghana's population. Half

of the regions in Ghana have poverty levels over the national average, and prior to the pandemic, the country was one of the poorest areas in the world. Goals to eliminate poverty have been set back by an estimated seven years. Other studies concur, demonstrating that the pandemic significantly increased poverty levels and decreased living standards for nearly 4,000 households (Bukari et al., 2021).

Predominant business sectors in Ghana, such as agriculture and manufacturing and the service sector, have been significantly impacted due to lockdowns, dependence on raw material imports, supply chain disruptions, travel restrictions, and physical distancing (Rajamani, 2021). An estimated 58% of the population has experienced food deprivation and access to clean water, fuel, medicine, and cash. Initial impacts resulted in wage reductions for 24.7% of the workforce (770,000 employees), 42,000 layoffs, and work hour reductions for 700,000 people during partial lockdown (The World Bank, 2020).

A business tracker study in May and June of 2020 indicated that 244,000 firms pivoted to rely on digital solutions but this varied by sector – 56% of the agricultural sector and other industries utilized digital solutions compared to only 28% of accommodation and food sector firms (The World Bank, 2020). Nearly 131,000 business had challenges finding funding; decreases in sales were estimated at $115.2 million, predominantly in trade and manufacturing. This resulted in extensive uncertainty. The findings suggest a need for government policies to improve liquidity and increase awareness of government support programs and interventions. Supply chain re-establishment, credit schemes, access to foreign markets, and technology upgrades were also identified as critical strategies.

Other studies show that 42,000 people lost jobs and the tourist sector lost $171 million dollars due to lockdowns (Aduhene & Osei-Assibey, 2021). Additionally, the healthcare system was overwhelmed and necessitated the building of temporary structures. Employment dropped by 25% during the lockdown but recovered when it was lifted (Dzansi et al., 2021). Residential electricity usage increased by 10.4% and non-residential electricity usage decreased by 12.7%, reflecting more time at home and fewer social activities. Electricity costs were aided by a government subsidy for free or discounted electricity.

The pandemic has impacted societies, economies, and populations differently. For women, “the COVID-19 pandemic underscores society’s reliance on women both on the front line and at home, while simultaneously exposing structural inequalities across every sphere, from health to the economy, security to social protection” (UN Women, 2021, para 1). In Ghana, female-led households were impacted disproportionately with a 58% increase in poverty compared to male-led households

at 54% (Rajamani, 2021). Other studies concur, showing that female and rural inhabitants in Ghana have been most impacted by the pandemic while the middle and lower class decreased household consumption, suggesting that Ghana "needs to broaden its social protection programmes to assist both the new poor and existing poor (Bukari et al., 2021, para 1). Other research shows that in August/September, 2020, 75% of households lost income due to the pandemic with women having to depend on men's savings (Alvi et al., 2021).

Government funding has been largely ineffective; strategies for recovering income included using savings, borrowing, and selling assets (Alvi et al., 2021). Rural areas experienced water supply issues creating concerns over availability, the need to change activities, a lack of drinking water, and the inability to wash hands. Children experienced reduced access to needed goods and services, more poverty and food insecurities, increased violence and abuse due to economic instability and social isolation, increased mental and physical health problems, and deprivation of education and school meals (UNICEF, 2021). Physical punishments for children increased from 18% to 26% between March and June, 2020. Social protection and human capital development spending are needed strategies.

This literature review has provided a briefing on the impact of the COVID-19 pandemic in Ghana, specifically economic and socio-economic impacts as well as the need for better government interventions. It has also highlighted how the pandemic has affected specific populations such as the extreme poor, women, rural inhabitants, and children.

Methods

The COVID-19 business tracker data was collected following a two-stage stratified sampling with replacement. Firms were brought together from different sources for representativeness of the type of firms in Ghana. Thus, non-household enterprises were sampled from the Integrated Business Establishment Survey (IBES), with the household enterprises being sampled from the Ghana Living Standard Survey round-7 (GLSS-7). Further, firms were sampled from the National Board for Small Scale Industries (NBSSI) Database to compensate for the fact that IBES was last collected in 2014 so that firms established beyond 2014 are also included in the sample.

Stratification was performed on several variable levels. Among these were the 16 regions of Ghana, size of firms grouped into micro, small, medium, and large-size firms, and sectors which were also categorized by manufacturing, other industry and agricultural, wholesale and retail trade, food, and accommodation, and other services. This formed the first stage of the sampling process. Afterward, a simple

random sampling procedure was followed to select firms from each stratum. As indicated, the sampling was done with replacement such that replacement of firms was done when the non-response rate within the stratum surpassed 50 percent. Adjustments of weights were done to reflect the population weight after the fieldwork ended.

The survey was conducted through a telephone assisted personal interviews (TAPI). The study used the first two rounds of the data which followed the same firms I both rounds. The first round was conducted in May and June 2020 and collected data from 4311 firms. The second round saw some attrition with 3658 firms from the previous round being successfully interviewed in August 2020.

Results

This study analyses a multiple regression with log of sales as the dependent variable and whether the firm received government support, adopted mobile money and adopted internet services as the independent variables while controlling for the firm characteristics such as age of the firm (firm age), sector, size of the firm and the legal status of the firm. The descriptive statistics of the model are also presented in Table 1.

Description of Variables:

Expected to open (timeToReturnToFullOperations): When are you expecting this firm to open
Percentage of female (percentageFemale): Percentage of female workers
Percentage of workers permanently laid off (percentagePermanentlyLaidOff)
Percentage change in sales (salesChange1 March/April 2019 and 2020): Change in sales between March/April of 2019 and 2020
Percentage change in sales (salesChange2 August/September): Change in sales between August/September of 2019 and 2020
Age of business (businessAgeInYears): Age of business as at 1 January 2020
Administrative Region (region): 16 administrative regions of Ghana
Nationality of owner (Nationality)
Type of Business (businessType)
Sector of operation (Sector): subsector of operation
Description of work (descriptionOfWork)

Table 1: Descriptive Statistics of Variables in the model

$$InTsales = \beta_0 + \beta_1 government_{support_i} + \beta_2 mobile_{money_i} + \beta_3 internet_i + \beta_4 firm_{age_i} + \beta_5 sector_i + \beta_6 firm_{siz\ _i} + \beta_7 legal_{status_i} + \epsilon_i$$

	Mean	SD	Min	Max
lnTsales20	7.961	1.811	1.609	16.678
Government support	0.095	0.293	0	1
Mobile money	0.627	0.484	0	1
Internet	0.111	0.315	0	1
Young (0-4)]	0.133	0.340	0	1
Maturing (5-14)	0.505	0.500	0	1
Established (15+)	0.362	0.481	0	1
Manufacturing	0.391	0.488	0	1
Accommodation & Food	0.045	0.208	0	1
Other industry & Agric	0.039	0.194	0	1
Other Service	0.201	0.401	0	1
Trade	0.323	0.468	0	1
Micro (1-5)	0.561	0.496	0	1
Small (6-30)	0.387	0.487	0	1
Medium (31-100)	0.041	0.199	0	1
Large (100+)	0.010	0.100	0	1
Sole proprietor	0.837	0.369	0	1
Partnership	0.045	0.207	0	1
Limited liability	0.071	0.257	0	1
NGO	0.023	0.149	0	1
Associations	0.018	0.132	0	1
Other	0.006	0.079	0	1
N	3064			

Table 2 presents the results of the correlates of sales in 2020. Column 1 presents the individual effect of each variable on sales. Columns 2 through 5 shows the interaction of mobile money adoption, internet adoption and receiving government support. A joint test was run on the interaction terms with a null hypothesis that the interacted terms including their individual effects do not have any effect on sales. The null hypothesis was rejected at 5% level of significance as the probability value of the F-test of joint significance was less than the alpha value of 5% significance level. This implies that the interaction terms are important in explaining the sales showing the importance of the combination of the adoption of mobile money, internet and government support for businesses.

Table 2: Correlates of Sales

	(1)	(2)	(3)	(4)	(5)
VARIABLES	lnTsales	lnTsales	lnTsales	lnTsales	lnTsales
Government support	0.216**	0.340**	0.261**	0.230**	0.330**
	(0.0948)	(0.152)	(0.107)	(0.0946)	(0.157)
Mobile money usage	0.484***	0.502***	0.485***	0.547***	0.558***
	(0.0580)	(0.0606)	(0.0581)	(0.0597)	(0.0622)
Internet	0.615***	0.623***	0.652***	1.515***	1.544***
	(0.0903)	(0.0906)	(0.0991)	(0.224)	(0.244)
Gov't support* Mobile money		-0.202			-0.115
		(0.193)			(0.213)
Gov't support* Internet			-0.208		-0.216
			(0.228)		(0.605)
Mobile money* Internet				-1.063***	-1.063***
				(0.243)	(0.266)
Gov't support *Mobile money*Internet					0.0923
					(0.657)

Firm age [Young (0-4)]					
Maturing (5-14)	0.230***	0.229***	0.230***	0.220***	0.219***
	(0.0842)	(0.0842)	(0.0842)	(0.0840)	(0.0840)
Established (15+)	0.213**	0.214**	0.214**	0.207**	0.208**
	(0.0888)	(0.0888)	(0.0888)	(0.0885)	(0.0885)
Sector [Manufacturing]					
Accommodation & Food	0.222	0.227*	0.223	0.244*	0.247*
	(0.136)	(0.136)	(0.136)	(0.136)	(0.136)
Other industry & Agric	0.328**	0.323**	0.324**	0.332**	0.326**
	(0.148)	(0.148)	(0.148)	(0.148)	(0.148)
Other Service	-0.527***	-0.528***	-0.528***	-0.525***	-0.526***
	(0.0788)	(0.0788)	(0.0788)	(0.0785)	(0.0786)
Trade	0.558***	0.557***	0.557***	0.558***	0.557***
	(0.0656)	(0.0656)	(0.0656)	(0.0654)	(0.0654)
Firm Size [Micro (1-5)]					
Small (6-30)]	0.762***	0.761***	0.761***	0.754***	0.753***
	(0.0591)	(0.0591)	(0.0591)	(0.0589)	(0.0589)

Medium (31-100)	2.114***	2.110***	2.110***	2.126***	2.121***
	(0.149)	(0.149)	(0.149)	(0.148)	(0.148)
Large (100+)	4.055***	4.058***	4.045***	4.053***	4.048***
	(0.285)	(0.285)	(0.286)	(0.285)	(0.285)
Legal [Sole proprietor]					
Partnership	0.302**	0.306**	0.303**	0.291**	0.295**
	(0.132)	(0.133)	(0.132)	(0.132)	(0.132)
Limited liability	1.471***	1.467***	1.470***	1.439***	1.437***
	(0.117)	(0.117)	(0.117)	(0.117)	(0.117)
NGO	-0.0808	-0.0844	-0.0692	-0.138	-0.129
	(0.194)	(0.194)	(0.194)	(0.194)	(0.195)
Associations	0.441**	0.436**	0.440**	0.443**	0.440**
	(0.214)	(0.214)	(0.214)	(0.213)	(0.213)
Other	-0.321	-0.315	-0.320	-0.295	-0.291
	(0.352)	(0.352)	(0.352)	(0.351)	(0.351)
Constant	6.733***	6.722***	6.730***	6.706***	6.698***
	(0.0924)	(0.0930)	(0.0924)	(0.0923)	(0.0929)
Observations	3,064	3,064	3,064	3,064	3,064
R-squared	0.312	0.313	0.313	0.317	0.317

F-statistics	81.44***	76.98***	76.96***	78.44***	67.23***
Joint F-test of interaction terms		24.99***	18.95***	53.14***	24.27***

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The results show that the effect of receiving government support, adoption of mobile money and internet access due to the COVID had a positive effect on sales. The coefficients were also higher for these values in the interacted models (columns 2-5) than in the non-interacted model (column 1). However, the overall effect needs to be estimated to determine the effect of government support, adoption of mobile money and internet on sales in columns 2-5.

Figure 1 shows the marginal effects of the predicted values of the sales on the interacted terms. This was to help examine the effects of the interacted terms on sales. From Panel 1 in Figure 1, it could be seen that firms that received government support recorded higher sales as compared to those who did not receive government support. This was true for firms that adopted mobile money. Thus, firms that received government support and adopted mobile money had higher sales than all others. Panel 2 also showed similar results with firms that received government support and adopted internet services had higher sales. However, Panel 3 shows that, while there is a fall in sales by those who adopted mobile money and those who adopted the internet for their operations, it was still higher than all other combinations. Firms that did not adopt internet but adopted money however saw a rise in sales although lower than those who adopted both. Panel 4 shows that firms that received government support, did not adopt mobile money but adopted internet had the highest increase in sales. They are followed by those who received government support and adopted both money and internet for the work.

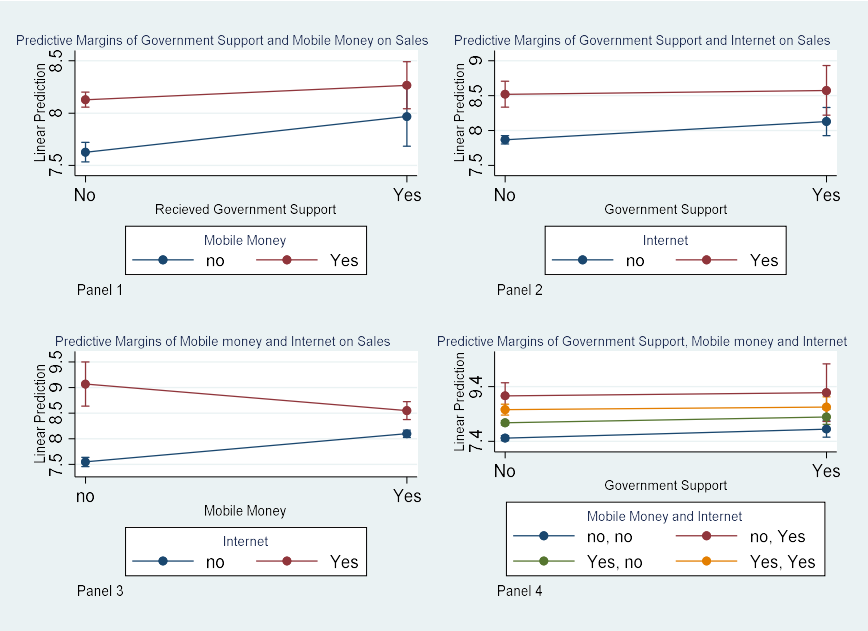

Figure 1: Effect of interacted variables on sales

Beyond government support, adoption of mobile money and internet, the study also controlled for the characteristics of the firms which included, the age of the firms (young, maturing and established), sector of operation (manufacturing, accommodation and food, other industry and agriculture, other service sector and trade), firm size (micro, small, medium and large), legal status (sole proprietor, partnership, limited liability, NGO, associations and other).

The results show that the age of the business was also important in explaining the sales of firms. The results show that maturing firms and established firms have higher effect on sales as compared to young firms. That of maturing firms was significant at 1 percent while that of established firms is at 5 percent significance level. The sector in which the firm operates in also important in explaining the sales of the firms. Firms in other industries and agriculture sector and the trade sectors have a positive effect on sales as compared to the manufacturing sector. However, firms in the service sector experienced a decrease in sales as compared to the manufacturing as shown in Table 2. Firms in the accommodation and food sector was significant in the models in column 2, 4 and 5 and at 10 percent.

The larger the size of the firm, the higher the sales of the firm as seen in the coefficients of the firm size variable. This implies that large firms are able to withstand any situation, in this case the COVID-19, as being large pays in increasing in sales in times of a pandemic. The legal status of a firm also plays a crucial role in affecting the sales of a firm in times of a pandemic given that government support is only provided to firms that are duly registered. This is shown in Table 2 where, firms that have a legal status of partnership, limited liability and associations have an increase in sales as compared to a sole proprietorship. Thus, firms do better where ownership involves more than a single person who is usually the owner, manager, accountant and everything to the firm.

Other trends worth mentioning include higher than average levels of success in a particular region in Ghana. The Upper East region performed much better in terms of sales than other regions, reporting upwards of a 135% increase in sales during the pandemic. Additional observations show that this region also maintained the highest percentage of female employees averaging at 36% per organization compared to the country average of 25.4%. Participants in the study had the ability to give specific descriptions of the work they engaged in before and during the pandemic. While the data is not standardized similar to the groupings referenced above, there are specific areas of work that showed high increases in sales including, book sales, bread baking, and gold mining. It's highly probable that with government lockdown measures and people staying indoors, that free time increased, and eating out decreased, suggesting a need for time-consuming activities like reading books, and other sources of food, including fresh bread.

Discussion

In contrast to previous research showing that government funding strategies have been ineffective for recovering income on individual levels (Alvi et al., 2021), the current study indicated that government support, the adoption of mobile money, and internet access had a positive effect on sales. This shows that, with lockdowns in place, firms able to pivot to or expand their internet and mobile sales or those with these features already in place were more likely to perform well. These findings support those of other studies indicating greater reliance on digital solutions during the pandemic and decreased sales but with variations by sector (The World Bank, 2020). The study did not collect data on the specifics of why some companies had challenges finding funding (The World Bank, 2020), while according this study, others were successful.

Findings also showed that more well-established firms, characterized by higher sales, and those in particular sectors such as agriculture and trade fared better than

manufacturing and service industries. Certainly, older firms with strong sales records likely had more extensive financial foundations to depend on. Similarly, companies meeting essential needs such as food production would be expected to fare better than those with non-essential production or services and be less impacted by lockdowns although every company was likely affected by employee issues such as absenteeism, turnover, family needs, and mental well-being.

Additionally, companies operating legally and those characterized by partnerships as opposed to sole proprietorships were more successful in continuing their operations during the pandemic. As mentioned, only registered firms were eligible for government funding. It is possible that companies with multiple owners were more resilient due to having greater human and fiscal resources.

Previous studies also indicated that the pandemic impacted some populations more than others, specifically female-led households (Bukari et al., 2021; Rajamani, 2021), children (UNICEF, 2021), rural inhabitants, and the middle and lower class (Bukari et al., 2021). This study contributes further insights into these variations with the finding that companies in the Upper East region, which had the highest percentage of female employees, also experienced high increases in sales in the areas of book sales, bread baking, and gold mining. The reason for this is not so clear. In some regions, the pandemic likely had a negative impact on women due to job loss or needing to stay home to care for children who were not in school. The relationship between female employees and increased sales needs further investigation. Perhaps employers were able to support their female employees and provide childcare or other benefits.

Conclusions and Future Research

Additional research is needed to understand the reasons behind the variations found in this study. Generally speaking, the findings were in expected directions. For example, more well-established firms with strong sales would be more resilient than smaller, less mature firms. Similarly, some types of firms were more impacted than others simply due to supply and demand variations resulting from the pandemic and their degree of reliance on global supply chains. Infection rates and waves of the pandemic as well as government restriction levels varied widely across the global, making it difficult for many companies to remain viable. Supply chain re-establishment, credit schemes, access to foreign markets, and technology upgrades remain critical strategies (Dynan, 2021, Stang, 2021)

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