COVID-19 and African Firms

Impact and Coping Strategies

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Abstract

Drawing on a representative survey of firms in 38 countries, eight of which are in Sub-Saharan Africa, this paper documents the impact of COVID-19 and firms' coping strategies in Sub-Saharan Africa, benchmarking with other regions. The paper shows that the impact of the pandemic is more pronounced in Sub-Saharan Africa compared with other regions. This disproportionate impact is not explained by differences in sectoral composition and other firm characteristics, but likely by the level of development.

This underscores the important economic and structural contexts that predate the pandemic in understanding the differential impact. Contrary to expectations, the findings show that businesses in Sub-Saharan Africa are more likely to adjust their operations or products and services to adapt to the shock than those in other regions. However, firms in the region lag in leveraging digital technologies, remote working, and e-commerce, compared with those in other regions.

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COVID-19 and African Firms: Impact and Coping Strategies*

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1 Introduction

The COVID-19 pandemic and some of the public health measures to contain its spread have resulted in major disruptions to the global economy. For businesses in low-income economies, like those in Sub-Saharan Africa (SSA), this shock comes on top of existing structural challenges facing businesses. Firms in SSA are predominantly small,¹ more likely to be credit constrained and had limited cash flows prior to the pandemic – characteristics that are likely to make them vulnerable to even small shocks, let alone a systemic shock of this scale. This is compounded by the fact that governments lack the financial and organizational resources needed to provide the type of support and safety nets that developed economies marshalled to mitigate the impact of the shock on the private sector [Loayza and Pennings, 2020, Stiglitz, 2020].² The pandemic-induced disruption appears to have pushed the region into the first recession in 25 years [Calderon et al., 2020] and is feared to jeopardize SSA’s nascent private sector.

On the other hand, while the pandemic is not yet over and has already exacted a toll on lives, emerging evidence suggests that the health impact in the region is milder than originally predicted [Maeda and Nkengasong, 2021]. Evidence also shows that containment measures were relatively less strict and eased sooner than in other parts of the world. Taken together, these findings suggest that firms in the region may have been affected less severely than those in other regions. Perhaps consistent with this view, in a macro-level study, Deaton [2021] finds that international income inequality decreased following the pandemic primarily since less developed economies were less affected by the pandemic compared with developed economies.

Yet not much is known empirically on the specific nature and magnitude of the impact of the crisis on firms in SSA, as well their coping strategies and how firms in SSA compare relative to other regions. Understanding the magnitude of the impacts and the types of businesses that are most affected is central in designing sound policy interventions to mitigate the effects of the shock and for planning for the post-COVID-19 economic recovery. Against these backdrops, this paper uses a rapid business survey conducted by the Enterprise Analysis Unit of the World Bank Group in 38 countries, eight of which are in SSA, to document the multi-faceted impact of the pandemic on the private sector in the region, focusing on key measures of performance, financial health, and how firms have been adjusting to counter the impact of the disruptions. These surveys are conducted as follow-ups by re-interviewing firms that were covered in each country’s most recently completed standard World Bank Group Enterprise Surveys (ES), thus providing a rich set of baseline information. Chad, Guinea, Mozambique, Niger, Somalia, Togo, Zambia and Zimbabwe are the eight countries for which the World Bank Enterprise Survey follow-up data is available as of the write-up of this paper. We address two central questions. First, on top of documenting the nature and magnitude of the impact, we explore whether firms in the region are disproportionately affected by the pandemic-induced disruptions compared with their peers in other regions. Second, we document how firms in SSA responded to mitigate the impacts of the shock, examining whether firms in the region are different from those in other regions in their coping strategies.

¹ According to the World Bank’s Enterprise Surveys, African firms are 35 percent smaller than those in other locations.

² In fact, according to a recent COVID-19 focused business survey conducted by the Enterprise Analysis Unit of the World Bank, only 3% of firms in SSA have received some form of government support for COVID-19 relief compared with 60% for ECA, 15% for LAC and 30% MNA. Firms in SSA are in effect left to either sink or swim.

To preview our results, we show that the impacts of the pandemic are large and uneven within and across countries, with firms in SSA hit the hardest. We find that the pandemic induced contractions in firm-level sales and employment that are significantly higher in SSA than in other regions. Similarly, firms in the region are more likely to experience liquidity and cash flow challenges, and hence are more vulnerable to permanently closing, than those in other regions. This disproportional impact on African firms is not explained by differences in sectoral composition and firm characteristics. Consistent with other studies, we also find that the impact of the pandemic varies across sectors, firms, and countries, with businesses in customer-facing sectors, such as hospitality and related services, affected the most. However, contrary to expectations, we find that businesses in SSA are more likely to adjust their operations, products, or services to adapt to the shock than those in other regions, even compared to firms in other economies with comparable income levels. However, firms in the region lag in terms of leveraging technology, particularly on use of e-commerce and remote work arrangements.

This paper contributes to the emerging and rapidly growing literature on the economic impacts of COVID-19 on businesses [Bartik et al., 2020, Bachas et al., 2020, Chetty et al., 2020, Apedo-Amah et al., 2020]. The paper is closely related to Bachas et al. [2020] who utilize administrative corporate tax records from 10 low- and middle-income economies and show that firms in poorer countries are relatively less impacted on different dimensions. Our paper builds on the results of these studies by providing the first detailed analysis of the impact on African firms using short business surveys.

This paper is organized as follows. Section 2 briefly summarizes the COVID-19-focused follow-up business surveys. Section 3 presents the main results and section 4 concludes.

2 Survey and Data

The Enterprise Analysis unit of the World Bank Group (WBG) has been conducting a rapid survey of businesses as part of the Bank’s effort to understand the impact of the pandemic on the private sector. These surveys are conducted as follow-up surveys on recently completed standard WBG Enterprise Surveys (ES) in several countries. These short surveys re-contact all establishments sampled as part of the standard World Bank Group ES and are designed to provide quick information on the impact and adjustments that COVID-19 has brought about in the private sector.

The universe of inference, as in standard ES, is all registered establishments with five or more employees that are in one of the following activities defined using ISIC Rev. 3.1: manufacturing (group D), construction sector (group F), services sector (groups G and H), transport, storage, and communications sector (group I) and information technology (division 72 of group K). These surveys have been conducted in 38 countries across the world,³ eight of which are in Sub-Saharan Africa. The paper uses these data sets for a total of 38 countries (8 countries in SSA and 30 in other regions) for which this survey has been conducted by the Enterprise Surveys Unit; Table A 1 presents the list of countries and comparators included in the analysis.⁴

³ The list of countries with this survey can be found here: <https://www.enterprisesurveys.org/en/covid-19>

⁴ Similar surveys have been conducted for additional countries in SSA, (<https://www.worldbank.org/en/data/interactive/2021/01/19/covid-19-business-pulse-survey-dashboard>). However, as of the write-up of this paper, the firm-level data for these surveys are not available. Consequently, our sample of countries is restricted to those covered by the Enterprise Analysis Unit’s follow-up survey, for which anonymized firm-level data has been published following the tradition of the World Bank Group Enterprise Surveys data.

3 Results

The pandemic unleashed a multi-pronged shock on businesses in Africa as elsewhere, disrupting demand and supply sides. This section documents some of the salient empirical patterns based on the COVID-19 follow-up surveys for these countries; we focus on how the pandemic impacted key measures of firm performance and coping strategies, benchmarking results for Africa with other regions. We group the discussion of the key results along two broad themes. First, we present the impact of the shock on key firm performance measures, including sales, employment, and financial health. Second, to better understand how firms in the region adapted in response to the shock, we look at firms' coping strategies. We focus on key adjustments taken to counter effects of the shock including adapting their products, services, or means of delivery to evolving customer demand, as well as the use of technology such as e-commerce and work-from-home arrangements.

3.1 Impact of COVID-19-Induced Disruptions

As we noted above, the pandemic's immediate impacts involved the widespread suspension of business operations, and supply chain disruptions. For instance, among the eight countries in Sub-Saharan Africa in our sample, about 60% of firms reported suspending operations at some point leading up to the date of data collection (Figure A2), on average for about two months. This prevalence of closure ranges from about 90% in Chad and Zimbabwe to just 28% in Togo. As may be expected, the prevalence of closures closely follows the stringency of containment measures (Figure A1), measured based on an index produced by Oxford University's COVID-19 policy response tracker.⁵ In our data, the prevalence of temporary closures in SSA is not only high, but almost twice that of ECA (36%), although slightly lower than that of the MENA (67%) and LAC (79%) regions. Disruptions to demand, and in the availability of input/raw materials and merchandise for resale is also pervasive in the region. Among the eight SSA countries, 82% of firms experienced a decline in sales compared to the same month in 2019 (Figure A3). Similarly, 81% of firms experienced disruptions to their supply of inputs and raw materials.

The impact of the shock on sales and employment, two of the most closely watched variables, has also been substantial. For instance, close to 90% of firms in SSA reported that their sales contracted compared to the pre-COVID levels. Among the eight countries, sales fell on average by 45% compared to the same month in 2019, with the value ranging from 56% in Niger to 32% in Somalia. Median sales growth is negative in all the eight countries in SSA (blue color in Figure 1). Importantly, while public containment measures were relatively less stringent in the 8 countries compared with those in other regions, the decline in sales is more prevalent and deeper in SSA compared with other regions.

⁵ <https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker>

Figure 1: Average change in sales and employment compared to pre-COVID levels.

Note: Data for each country shows values for the median, 25th percentile, and 75th percentile. Sources: World Bank's Enterprise Surveys COVID-19 Follow-up Surveys. The stringency index is the Oxford COVID-19 Government response stringency index. It is a composite measure based on nine response indicators including school and workplace closures, travel bans, etc. The value of the index ranging from 0 to 100, with 100 being strictest [Hale et al., 2021]

A similar pattern is observed on employment. Almost all surveyed firms in these countries experienced a decline in the number of full-time workers compared with pre-pandemic levels. On average, employment declined by 22% between the eight countries. The magnitude of employment contraction varies across countries, ranging from 40% in Guinea to 10% in Zimbabwe. Further, between 57% (Chad) and 94% (Niger) of firms report reducing employee hours compared to the same month in the previous year. The level of required workforce reduction and the ability of firms to do so also depends on the country's institutional context, particularly labor regulations. Some firms may also opt to reduce working hours rather than retrenching employees to avoid loss of skilled and experienced employees.

The results above show that, overall, the impact appears to be higher in SSA compared with other regions. We turn to a regression analysis to formally test whether the shock has systematic differential impact within SSA:

$$y_{isc} = \beta_0 + \beta_1 Africa + \eta_s + \beta_2 Z_{isc} + \epsilon_{isc} \quad (1)$$

Where y denotes different outcome variables including change in sales and employment compared to pre-COVID levels, permanent closure, liquidity/cashflow shortages, adjusted production/services,

started or increased e-commerce and delivery or carryout, and started or increased remote work arrangement for its employees, for firm i in country c in sector s . Variable Africa is a dummy variable that is equal to one if a firm is in Sub-Saharan Africa and 0 otherwise.

The coefficient of interest β_1 captures the average impact on African firms compared to those in other regions. In addition to the Africa dummy, we sequentially include various controls to account for sector fixed-effects, captured by (η_s) as well as other potential confounders of the regional differences captured by firm-specific characteristics, measured by a vector of firm-specific controls (Z_{isc}) such as size, age, ownership, exporting status and country characteristics. ϵ_{ics} is the error term that captures unexplained variation in y .

To capture changes in employment, we follow Davis et al. [1998] and use the arc-percentage change by comparing employment post-COVID against the baseline employment and divided by the average of the two

$$EmpGrowth_{isc} = \frac{(PostCovid_{isc} - PreCovid_{isc})}{0.5(PostCovid_{isc} + PreCovid_{isc})}$$

This allows the inclusion of firms with zero full-time permanent employees in the computation. The value ranges from -2 (for firms going from positive full-time permanent employees in the pre-COVID period to zero after COVID) and +2 for those moving from zero to positive.

Table 1 reports OLS regression results for the percentage changes in sales (columns 1 to 4), employment (columns 5 to 8) and hours worked (columns 9-12) as dependent variables by sequentially adding different controls in the regression. In columns 1, 5 and 9, we present estimates of a basic regression for sales, employment, and reduction in hours worked on an Africa dummy variable controlling for just the month of the COVID follow-up survey.⁶ The estimated African dummy coefficient is negative and significant for sales and change in employment as well as hours worked, suggesting that the pandemic has had a disproportionately negative impact on firms in SSA compared to those in other regions.

It has been widely documented that the impact of the pandemic varies by sector, with businesses in customer-facing sectors, such as hospitality and related services, among the most affected [Vavra, 2020]. Thus, differences in sectoral composition can generate differential impact in Africa if firms in the region are concentrated in the most directly exposed sectors. To account for differences in sectoral composition across countries, in columns 2, 6 and 10, we include sector fixed effects. For all three dependent variables, the African dummy is still negative and significant, buttressing the finding that the impact has been disproportionately higher in SSA. The disproportionate impact on Africa may be explained by differences in firms' characteristics in Africa relative to other regions. To investigate whether the various firm characteristics increase the exposure of African firms, we control for firm-specific factors, size, age, ownership, exporting status. This, however, does not change the results (column 3 for sales, 7 for employment, and 11 for hours worked); the coefficient of the African dummy remains negative and significant at the 1 percent level for both sales and employment.

The other regions in our sample are composed of countries at different levels of development, while all our sample countries for SSA are lower income economies. Because of the pre-existing structural challenges firms in lower-income economies face, the effects of the shock could be magnified compared

⁶ We control for survey period in all specifications since data collection period is staggered across countries, coinciding with different stages of the pandemic.

to higher income economies. To account for this, we limit the comparator countries to lower income economies (columns 4, 8 and 12 in Table 1 for the three dependent variables). Interestingly, the result changes once we do so; the coefficient of the Africa dummy becomes insignificant for both sales growth and employment. This means that the sales and employment impact of the shock was higher in lower income economies than in higher-income economies regardless of whether they are in SSA or elsewhere. The story is different for the change in hours worked where the coefficient of the African dummy is positive and significant, suggesting that firms in SSA are 10 percentage points more likely to reduce the weekly hours of their workers compared to those in low income economies located in other regions.

To gauge whether there are differences in the extent to which firm characteristics were impacted by the pandemic in SSA relative to other countries, we interact several firm-level characteristics with the Africa dummy controlling for country fixed effects. The results are reported in Table A.3. Columns 1 & 2 present the results for changes in sales, 3 & 4 for changes in employment and 5 & 6 for changes in total hours worked. Consistent with expectations, the impact on sales is negative and significant for businesses operating in the hospitality sector compared with those in other sectors. Given the global nature of the shock, export-oriented firms were significantly negatively affected compared with non-exporters. Despite the shock, it is interesting that older firms and foreign-owned firms have seen an improvement in their sales compared with younger and locally owned firms. The smaller negative effect on foreign firms could be due to fewer credit constraints as they may have access to foreign capital markets. None of the coefficients of the interaction term between the African dummy and firm-level variables is significant (column 2).

Turning to the change in employment, businesses in manufacturing, retail, wholesale, and construction have seen improvements in the number of full-time permanent employees, while smaller firms and those whose top manager is female saw significant decline in their number of employees. In terms of hours worked (columns 5 and 6), businesses in the hotel and restaurant industry are more likely to reduce hours operated while smaller firms and those that are foreign owned are less likely to do so. For both measures of employment, however, the interaction term of the African dummy is insignificant, suggesting that the impact does not vary by firm type or sector in Africa as compared to other regions

Table 1: Impact of COVID on sales and employment

	Sales growth				Employment growth				Decreased total hours worked per week			
	Without control	Sector control	Firm control	Low income only	Without control	Sector control	Firm control	Low income only	Without control	Sector control	Firm control	Low income only
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Africa Dummy	-0.131*** (0.018)	-0.122*** (0.019)	-0.161*** (0.021)	0.033 (0.023)	-0.110*** (0.019)	-0.105*** (0.020)	-0.081*** (0.021)	-0.013 (0.023)	0.237*** (0.026)	0.225*** (0.028)	0.267*** (0.030)	0.120*** (0.032)
Sector FE	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No
Firm controls	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No
Survey Week	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.619*** (0.034)	-0.572*** (0.048)	-0.626*** (0.070)	-0.609*** (0.053)	-0.110*** (0.039)	-0.122** (0.052)	-0.084 (0.077)	-0.320*** (0.051)	0.964*** (0.047)	0.926*** (0.082)	1.080*** (0.120)	0.937*** (0.055)
Observations	13843	13767	12140	3506	12771	12698	11131	3556	14360	14281	12576	3675
R-squared	0.093	0.142	0.095	0.007	0.005	0.009	0.004	0.019	0.064	0.088	0.073	0.040

Note: The dependent variable in columns (1) – (4) is sales growth. The dependent variable in columns (5) – (8) is employment growth and the dependent variable in columns (9) – (12) is a dummy whether a firm reduced total hours worked per week. The omitted sector is “other services” and the control group are 30 countries from ECA, MENA, and LAC. *, **, and *** indicate statistical significance at the 10%, 5% and 1% level.

We now turn to the discussion of the impact of the shock on the financial health of the businesses, measured by three key variables: i) experiencing cashflow and liquidity shortages, ii) vulnerability to exit, iii) and permanent closure. The survey asks several questions to elicit information on the nature and magnitude of COVID’s impact on firm finances, covering topics such as liquidity and cash flow, the ability to honor existing commitments with suppliers, landlords, and government agencies, as well as the ability to buffer shocks.

Between the eight SSA countries, close to 87% of the businesses faced liquidity and cash flow shortages because of the pandemic, ranging from 96% of firms in Togo and Guinea respectively to 80% in Mozambique (Figure A6). The proportion of firms facing liquidity and cash flow shortages is higher in SSA compared with other regions⁷ – 57% in ECA, 76% in MNA and 81% in LAC. Perhaps because of the pervasiveness of cash flow challenges in the region, slightly over half of the businesses in SSA have consequently delayed payment to suppliers, landlords and tax authorities. This is substantially higher than the corresponding figure for ECA (32%), but roughly similar to LAC (54%) and lower than MNA (61%).

A relatively small fraction of firms were confirmed to have permanently closed at the time of the survey. Except for Chad and Zambia, where, respectively, about 6 and 3 percent of firms confirmed to have permanently gone out of business, in the rest of SSA, less than 1 percent of businesses initially surveyed in the pre-COVID ES were permanently closed as of the follow-up survey (see Figure A8). In Niger, Togo and Zimbabwe, for instance, not a single establishment was confirmed permanently closed since the outbreak of the pandemic. Only 1 percent of all firms in our SSA sample were permanently closed. This is smaller than the corresponding figure in MNA (8 percent) and ECA (2 percent) but roughly in line with LAC (0.9 percent).

While only a few firms have so far confirmed to have permanently closed, the pandemic may have increased underlying vulnerability of the businesses to exit in the future, should containment measures be extended or further tightened. To gauge this, the survey asks firms how many more weeks the business can survive (meeting its financial obligations) if sales stopped now. The results reveal a stark level of vulnerability of firms in the region (Figure A7). For instance, a median-size firm in Niger, Togo, Zambia, and Zimbabwe can survive for just four weeks from the day their sales stop. Between the eight countries, about 70% of the firms can stay afloat for a maximum of two months if their sales stop as of the date of the survey. Therefore, a significant number of firms appear to be vulnerable to going out of business if the pandemic and the associated policy restrictions persist for a long period of time. Firms in SSA can survive for 8 weeks from the day their sales stops. This is smaller than the corresponding number in ECA (10 weeks) and MNA (14 weeks) but higher than LAC (7 weeks) (see Figure A7).

As we did above for sales and employment impact, we present regression results for the three measures of financial-wellbeing (Table 2), focusing on whether firms in Africa are disproportionately affected. We will also examine other key drivers of firm financial fragility. Columns 1-4 provide regression results for measures of liquidity and cash flow shortages, a dummy variable taking a value of 1 if the firm experienced cash flow or liquidity shortages since the start of the pandemic, and zero otherwise. As columns 1 to 4 show, firms in SSA are more likely to experience cash-flow shortages following

⁷ Within SSA, Somalia and Togo are among the most significantly affected. Interestingly, while about 90% of firms in Chad and Somalia report facing liquidity and cash flow shortages, only about 15% of firms in Chad delayed payment to service providers compared to about 90% of firms in Somalia.

the pandemic; depending on the specification, businesses in the regions are 10 to 28 percentage points more likely to experience liquidity challenges compared to their peers in other regions. Restricting the comparator countries to lower income economies does not change the key result, although the size of the African dummy coefficient becomes smaller (column 4). Vulnerability to exit or permanent closure is not particularly higher in SSA, with the coefficient for the Africa dummy significant only when the sample of comparator countries is restricted to lower income economies (columns 5-12).

We also assess the differential impact on financial health by firm characteristics in SSA by interacting firm-level variables with the Africa dummy. The results are reported in Table A.4. The likelihood of experiencing cashflow and liquidity shortages varies widely by sector and firm characteristics within a country (Table A.4). While firms in the manufacturing sector are less likely to experience liquidity shortages, those in the hospitality sector are more likely to do so, consistent with the fact that the latter group experienced a significant decline in sales. Older and foreign-owned firms are less likely to experience a liquidity shortage, while small, export oriented and female managed firms are more likely to experience one.

There are some variations in vulnerability to exit across sectors (Table A.4). Businesses in the hotel and restaurant sector are more likely to exit in the hypothetical case where sales stop; this is consistent with the finding earlier that businesses in this sector are more likely to experience a decline in sales and experience liquidity shortages. Female-managed firms and those with more experienced top managers are more likely to exit after a sudden stop of sales, while small, older, export-oriented firms, and those in the construction sector are less likely to do so. The likelihood of permanent closure is higher among firms in the manufacturing, wholesale, retail, hotel, restaurant, and construction sectors compared with those in other service sectors. It also tends to be higher among exporters, older firms, and female-managed firms. By and large, none of the coefficients of the interaction terms with the African dummy is significant, for both vulnerabilities to exit and permanent closure.

Table 2: Impact of the pandemic on financial wellbeing of the business

	Decreased liquidity or cash flow since the pandemic				Vulnerability				Permanently closed since the pandemic			
	Without control (1)	Sector control (2)	Firm con- trol (3)	Low income only (4)	Without control (5)	Sector control (6)	Firm con- trol (7)	Low in- come only (8)	Without control (9)	Sector control (10)	Firm con- trol (11)	Low income only (12)
Africa Dummy	0.267*** (0.024)	0.248*** (0.025)	0.282*** (0.029)	0.100*** (0.031)	-0.003 (0.017)	-0.003 (0.018)	0.028 (0.021)	-0.056** (0.022)	-0.001 (0.007)	-0.002 (0.007)	-0.001 (0.006)	-0.030*** (0.013)
Sector FE	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No
Firm controls	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No
Survey Week	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.949*** (0.047)	0.940*** (0.083)	0.937*** (0.117)	0.905*** (0.051)	0.340*** (0.031)	0.317*** (0.043)	0.406*** (0.062)	0.728*** (0.047)	-0.001 (0.015)	-0.012 (0.018)	0.008 (0.031)	0.005 (0.016)
Observations	14348	14267	12572	3672	10815	10765	9519	2959	15160	15106	13237	3921
R-squared	0.035	0.062	0.045	0.018	0.015	0.038	0.046	0.127	0.001	0.006	0.013	0.007

Note: The dependent variable in columns (1) – (4) is a dummy equal to 1 if a firm experienced a decrease in liquidity or cash flow since the pandemic. The dependent variable in columns (5) – (8) is as the inverse of average duration of survival if sales dropped to zero. The dependent variable in columns (9) – (12) is a dummy equal to 1 if a firm is confirmed permanently closed since the pandemic. The omitted sector is “other services” and the control group are 30 countries from ECA, MENA, and LAC. *, **, and *** indicate statistical significance at the 10%, 5% and 1% level.

3.2 Sink or swim? Firms' adjustments and mitigation strategies

By the time of the survey, which was about 6 months into the outbreak of the pandemic, only 2% of firms in the eight countries in SSA received some form of government support to help them navigate the crisis. This is in a stark contrast with other regions where a significant share of firms have received direct government supports. For instance, for our sample of countries, the percentage of firms receiving some form of assistance ranged from 49% in ECA, 8.9% in LAC, and 24% in MENA (Figure A10). In effect, as far as direct government support is concerned, firms in SSA appear to be left to fend for themselves to navigate the crisis, with minimal tangible financial support from the government.

Firms indeed take several measures on their own to counter the impact of the crisis. The often-discussed adjustment in the context of COVID-19 disruption is re-purposing, where firms adjust their operation to evolving demand. There is anecdotal evidence of alcohol manufacturing companies producing hand sanitizers and textile and garments companies making face-masks. Many businesses have also adjusted their mode of operations, for instance, allowing employees to work remotely, delivering goods and services instead of on-site service, etc.

Survey respondents were asked several questions to gauge some of these adjustments. One of these is whether firms adjusted or converted production or services in response to the pandemic. Among the firms in our sample of SSA countries, 53% have made such adjustments, which is interestingly higher than the share of firms in other regions. Similarly, about 20% of the firms in SSA have started or increased delivery and/or online business activities in response to the pandemic. This is slightly lower than the average for ECA, and almost half that of LAC and MNA (see Figure A9).

Not all businesses have the capability to adjust their operations in response to such a sudden and systemic shock. The ability to adapt and leverage technology depends on firms' capabilities, but also on the country's level of development. For instance, effective utilization of e-commerce and remote work requires, among other things, a well-developed internet infrastructure and wider access by the population. Except for Zimbabwe and Guinea where, respectively, 27% and 18% of the population has internet access, for the remaining six countries in our sample, this figure is less than 15% Bank [2020]. Coupled with other structural challenges, this would make these adaptations much more difficult for firms in SSA, broadly confirmed by the regression results reported in Table 3.

As columns 1- 3 of Table 3 show, African firms are more likely to adjust or convert production in response to the pandemic. Firms in SSA are about 20 percentage points more likely to repurpose their products or services compared to those in other regions. Restricting the comparator countries to lower income economies does not change the result. The results are somewhat mixed in terms of leveraging digital technology. Businesses in Africa are not significantly different from those in other regions in terms of delivering their goods or services to consumers, or use of e-commerce compared to those in other regions. However, if the comparator countries are restricted to lower income economies, the coefficient for the Africa dummy is negative and significant, indicating that firms in the region are nine percentage points less likely to employ online sales and delivery. SSA firms are also significantly less likely to have started or increased remote working arrangements for their employees since the pandemic, suggesting that firms in the region lag significantly in adopting digital technology as part of their adaptation to the pandemic.

Finally, we report estimates for firm-specific characteristics controlling for country fixed effects and

interaction terms with the Africa dummy in Table [A.5](#). The adjustment varies widely by sector and firm attributes. Businesses in the manufacturing, wholesale, retail, hotel and restaurants, restaurant, and construction sectors are more likely to adjust their product or services compared with those in other service sectors. Perhaps required by the need to adjust to the global demand shock, exporters are more likely to adjust their product or services compared with non-exporters. Consistent with expectations, smaller firms are less likely to re-purpose their products or services. While the likelihood of leveraging technology varies by firm attributes, none of the coefficients of the interaction term of the SSA dummy is significant.

Table 3: Repurposing and leveraging technology to mitigate the impact of the pandemic

	Adjusted or converted production/services				Online and delivery				Started or increased remote work arrangement for its workforce			
	Without control	Sector control	Firm con-trol	Low income only	Without control	Sector control	Firm con-trol	Low income only	Without control	Sector control	Firm con-trol	Low income only
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Africa Dummy	0.178*** (0.031)	0.176*** (0.031)	0.211*** (0.034)	0.238*** (0.037)	-0.030 (0.030)	-0.038 (0.031)	-0.031 (0.033)	-0.086** (0.038)	-0.090*** (0.027)	-0.080*** (0.028)	-0.116*** (0.030)	-0.061* (0.034)
Sector FE	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No
Firm controls	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No
Survey Week	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.402*** (0.048)	0.395*** (0.080)	0.507*** (0.118)	0.068 (0.058)	0.620*** (0.048)	0.625*** (0.079)	0.820*** (0.118)	0.449*** (0.076)	0.563*** (0.048)	0.641*** (0.076)	0.737*** (0.112)	0.484*** (0.075)
Observations	14457	14405	12626	3682	14473	14421	12636	3694	14448	14396	12616	3690
R-squared	0.003	0.004	0.012	0.049	0.024	0.036	0.039	0.005	0.025	0.032	0.054	0.013

Note: The dependent variable in columns (1) – (4) is a dummy equal to 1 if a firm converted its production or services in response to COVID. The dependent variable in columns (5) – (8) is a dummy equal to 1 if a firm started or increased business activity online, and started or increased delivery or carry-out of goods or services. The dependent variable in columns (9) – (12) is a dummy equal to 1 if a firm started or increased remote work arrangement for its workforce. The omitted sector is “other services” and the control group are 30 countries from ECA, MENA, and LAC. *, **, and *** indicate statistical significance at the 10%, 5% and 1% level.

4 Conclusion

The COVID-19 pandemic and the public health measures implemented to contain its spread have resulted in major disruptions to the economic system worldwide. For businesses in low-income economies, this comes on top of existing structural challenges facing the private sector. This is particularly so for SSA where governments lack required financial resources and organizational infrastructure to provide the type of support and safety nets that developed economies marshalled to mitigate the impact of the shock on the private sector [Loayza and Pennings, 2020, Stiglitz, 2020]. Further compounding the issues in SSA is the fact firms are predominantly small, more likely to be credit constrained and have limited cash flows prior to the pandemic.

Against these backdrops, this paper uses a rapid business survey conducted by the Enterprise Analysis Unit of the World Bank Group in several countries to document some of the silent features of the impact of the shock on the region’s private sector. We document that the pandemic has inflicted widespread and deep shocks on the private sector in the region. Temporary closures were much more prevalent in the region. About 60% of firms in the region report suspending operations at some point since the pandemic, on average for about 7 weeks, indicating lost revenue for almost two months. Disruptions to demand and supply have also been much more prevalent in the region. This coupled with limited support and safety nets from the government means that the shock has substantially impacted key financial indicators of businesses in the region. Sales contracted on average by about 45% compared to the same month in 2019; employment declined by 22% compared to the pre-COVID level, and over 87% of firms report experiencing liquidity/cashflow shortages.

Not only are these impacts high in absolute terms, but we also show that they are much more severe in SSA than for other regions. The negative impact on sales and employment is significantly higher in SSA compared with other regions. Consistent with the fact that firms in SSA are structurally more precarious and have limited resources to buffer such sudden shocks, firms in the region are more likely to experience liquidity and cashflow shortages than those in other regions.

We do find one silver lining; contrary to expectations, businesses in SSA are more likely to adjust their operations to adapt to the shock than those in other regions, even compared to those firms in economies with comparable income levels. However, firms in the region lag in terms of leveraging technology; for instance, compared with other regions, firms in SSA are 10 percentage points less likely to have started or increased remote work arrangements for their employees.

There are several interesting avenues for future research on this; three of them are apparent. One of these is expanding the sample of countries in the region. Although they cover geographically different parts of the region, the study covers just eight countries. A logical next step, which we hope to do as more data becomes available, is to see if the results hold as the sample of countries covered in the region increases with the availability of more data. A second avenue for future research relates to the recovery process. With improved access to vaccines and as restrictions are eased, the hope is that the economy will begin to recover. It would be interesting to examine the nature and speed of the recovery process for firms in the region and if and how it differs from those in other regions. Finally, the interesting but counterintuitive finding that firms in SSA are more likely to adjust their operation than those in other regions is worth exploring to better understand its key drivers.

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APPENDIX

A Figures

Table A.1: Variable Definitions

Variable	Description
Dependent variables	
<i>Sales growth</i>	Change in firm-level sales for the last completed month with the same month in 2019.
<i>Employment growth</i>	Change in firm-level employment for the last completed month with the same month in 2019
<i>Liquidity</i>	Dummy equal to 1 if a firm experienced a decrease in liquidity or cash flow since the pandemic.
<i>Vulnerability</i>	The inverse of the average duration of the establishment that will remain open if its sales stop. This value is higher for firms that will exit faster if sales drops to zero.
<i>Exit</i>	Dummy equal to 1 if a firm was confirmed permanently closed.
<i>Adjustment</i>	Dummy equal to 1 if a firm converted its production or services in response to COVID
<i>Digital</i>	Dummy equal to 1 if a firm started or increased business activity online, and started or increased delivery or carry-out of goods or services
<i>Remote work</i>	Dummy equal to 1 if a firm started or increased remote work arrangement for its workforce
Explanatory variables	
<i>Small</i>	Dummy equal to 1 if a firm employs less than 20 workers.
<i>Exporter</i>	Dummy equal to 1 if a firm directly exports to foreign markets.
<i>Age of firm (logs)</i>	(log of) age of the firm
<i>Foreign</i>	A dummy variable equal to 1 if foreign individuals, companies or entities own 10 percent or more of the firm and 0 otherwise.
<i>Female top manager</i>	Dummy equal to 1 if top manager is female
<i>Manager experience</i>	(log of) number of years of experience the top manager of the firm has working in the industry
<i>Survey week</i>	The week when the COVID survey was conducted.

Figure A1: Timeline of containment measures and level of stringency

Sources: Oxford Coronavirus Government Response Tracker.

Table A.2: List of countries included in the study

Country	Baseline Year	Sample	2020								2021
			May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Albania	2019	377		X							
Belarus	2018	600				X					
Bulgaria	2019	772			X	X	X				
Chad	2018	153		X							
Croatia	2019	404					X				
Cyprus	2019	240		X							
Czech Republic	2019	502					X	X			
El Salvador	2016	719		X	X	X					
Estonia	2019	360						X			
Georgia	2019	581		X							
Greece	2018	600		X	X						
Guatemala	2017	345		X	X	X					
Guinea	2016	150		X							
Honduras	2016	332		X	X	X					
Hungary	2019	805					X				
Italy	2019	760	x	X							
Jordan	2019	601			X	X					
Latvia	2019	359						X	X		
Lebanon	2019	532							X	X	
Lithuania	2019	358						X			
Malta	2019	242					X	X			
Moldova	2019	286	X								
Mongolia	2019	360				X					
Morocco	2019	1096			X	X					
Mozambique	2018	601			X	X	X	X	X	X	X
Nicaragua	2016	333		X	X	X					
Niger	2017	151		X							
North Macedonia	2019	360						X	X		
Poland	2019	1369			X	X					
Portugal	2019	1062					X	X			
Romania	2019	814				X	X				
Russia	2019	1323		X							
Slovakia	2019	429					X	X			
Slovenia	2019	409			X	X					
Somalia	2019	451		X	X						
Togo	2016	150		X							
Zambia	2019	601		X	X						
Zimbabwe	2016	600		X	X						

Figure A2: Share of firms temporarily closed and duration of closures.

Sources: World Bank's Enterprise Surveys COVID-19 Follow-up Surveys.

Figure A3: Share of firms experienced disruption to demand and supply chain

Note: Mozambique is excluded from the left panel since the survey did not cover change in demand due to the pandemic.
Sources: World Bank's Enterprise Surveys COVID-19 Follow-up Surveys.

Figure A4: Distribution of changes in monthly sales compared to pre-COVID level, by region.

Sources: World Bank's Enterprise Surveys COVID-19 Follow-up Surveys.

Figure A5: Employment before and after COVID-19.

Sources: World Bank's Enterprise Surveys COVID-19 Follow-up Surveys.

Figure A6: Percentage of firms experiencing decline in liquidity and cash-flow.

Sources: World Bank's Enterprise Surveys COVID-19 Follow-up Surveys.

Figure A7: Vulnerability to exit.

Sources: World Bank's Enterprise Surveys COVID-19 Follow-up Surveys.

Figure A8: Permanent closure and vulnerability to exit.

Note: Somalia is excluded from the left panel since most of the firms interviewed for the COVID-19 survey are those without baseline ES, which makes meaningful estimation of exit rate difficult. Sources: World Bank's Enterprise Surveys COVID-19 Follow-up Surveys.

Figure A9: Adjustment to economic shock caused by COVID.

Sources: World Bank's Enterprise Surveys COVID-19 Follow-up Surveys.

Figure A10: Firms that received or expect to receive COVID-related government support.

Sources: World Bank's Enterprise Surveys COVID-19 Follow-up Surveys.

B Additional regression tables

Table A.3: Impact of COVID on sales and employment, interaction with African dummy

	Sales Growth		Employment Growth		Decrease total hours	
	(1)	(2)	(3)	(4)	(5)	(6)
Small	-0.002 (0.006)	-0.001 (0.006)	-0.022*** (0.006)	-0.022*** (0.006)	-0.048*** (0.011)	-0.048*** (0.011)
Log Age	0.024*** (0.005)	0.024*** (0.005)	0.004 (0.004)	0.004 (0.004)	-0.042*** (0.009)	-0.042*** (0.009)
Exporter	-0.025*** (0.010)	-0.024** (0.010)	-0.012 (0.008)	-0.010 (0.008)	0.034** (0.016)	0.034** (0.016)
Foreign	0.034* (0.019)	0.034* (0.019)	0.006 (0.016)	0.004 (0.016)	-0.098*** (0.032)	-0.104*** (0.033)
Female top manager	-0.002 (0.006)	-0.003 (0.006)	-0.011** (0.005)	-0.011** (0.005)	0.013 (0.010)	0.013 (0.010)
Manager's experience	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.001)	-0.000 (0.001)
Manufacturing	-0.008 (0.009)	-0.009 (0.009)	0.038*** (0.008)	0.039*** (0.008)	-0.012 (0.015)	-0.011 (0.015)
Wholesale and retail	-0.007 (0.008)	-0.007 (0.008)	0.028*** (0.007)	0.028*** (0.007)	0.022 (0.014)	0.023 (0.014)
Hotels and restaurants	-0.256*** (0.012)	-0.256*** (0.012)	-0.015 (0.010)	-0.013 (0.010)	0.273*** (0.020)	0.276*** (0.020)
Construction	-0.018* (0.009)	-0.018* (0.009)	0.025*** (0.008)	0.025*** (0.008)	0.000 (0.016)	0.000 (0.016)
Small X Africa		-0.094 (0.075)		0.012 (0.055)		-0.036 (0.118)
Log Age X Africa		-0.020 (0.058)		-0.015 (0.044)		0.072 (0.094)
Exporter X Africa		-0.113 (0.132)		-0.180* (0.096)		0.048 (0.208)
Foreign X Africa		0.001 (0.096)		0.035 (0.069)		0.075 (0.149)
Female top manager X Africa		0.125 (0.096)		0.043 (0.069)		0.025 (0.149)
Manager's experience X Africa		-0.001 (0.004)		0.001 (0.003)		-0.004 (0.005)
Manufacturing X Africa		0.029 (0.126)		-0.095 (0.093)		-0.073 (0.198)
Wholesale and retail X Africa		0.006 (0.115)		-0.073 (0.085)		-0.075 (0.180)
Hotels and restaurants X Africa		-0.006 (0.140)		-0.167 (0.103)		-0.288 (0.219)
Construction X Africa		-0.027 (0.150)		-0.028 (0.109)		-0.009 (0.229)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Survey Week	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.706*** (0.043)	-0.708*** (0.043)	-0.139*** (0.037)	-0.139*** (0.037)	1.291*** (0.073)	1.294*** (0.073)
Observations	12140	12140	11131	11131	12576	12576
R-squared	0.179	0.179	0.033	0.034	0.116	0.116

Table A.4: Impact of the pandemic on financial wellbeing of the business, interaction with African dummy

	Decreased liquidity or cash flow since the pandemic		Vulnerability		Permanently closed since the pandemic	
	(1)	(2)	(3)	(4)	(5)	(6)
Small	0.047*** (0.011)	0.046*** (0.011)	-0.012** (0.006)	-0.012** (0.006)	0.020*** (0.003)	0.020*** (0.003)
Log Age	-0.025*** (0.009)	-0.025*** (0.009)	-0.039*** (0.005)	-0.039*** (0.005)	-0.013*** (0.003)	-0.013*** (0.003)
Exporter	0.089*** (0.017)	0.089*** (0.017)	-0.073*** (0.008)	-0.074*** (0.008)	0.043*** (0.005)	0.044*** (0.005)
Foreign	-0.059* (0.032)	-0.065* (0.033)	-0.047*** (0.016)	-0.048*** (0.016)	-0.002 (0.010)	-0.002 (0.010)
Female top manager	0.060*** (0.010)	0.060*** (0.010)	0.036*** (0.006)	0.036*** (0.006)	0.017*** (0.003)	0.017*** (0.003)
Manager's experience	0.002*** (0.001)	0.002*** (0.001)	0.003*** (0.000)	0.004*** (0.000)	-0.000 (0.000)	-0.000 (0.000)
Manufacturing	-0.033** (0.015)	-0.032** (0.015)	0.004 (0.008)	0.004 (0.008)	0.008* (0.005)	0.008* (0.005)
Wholesale and retail	0.017 (0.014)	0.017 (0.014)	-0.004 (0.008)	-0.004 (0.008)	0.027*** (0.004)	0.027*** (0.004)
Hotels and restaurants	0.264*** (0.020)	0.266*** (0.020)	0.120*** (0.011)	0.120*** (0.011)	0.029*** (0.006)	0.029*** (0.006)
Construction	-0.020 (0.016)	-0.019 (0.016)	-0.015* (0.009)	-0.016* (0.009)	0.040*** (0.005)	0.040*** (0.005)
Small X Africa		0.043 (0.119)		0.033 (0.064)		-0.006 (0.038)
Log Age X Africa		-0.018 (0.094)		0.021 (0.047)		0.011 (0.028)
Exporter X Africa		-0.076 (0.210)		0.096 (0.130)		-0.033 (0.067)
Foreign X Africa		0.123 (0.151)		-0.002 (0.082)		0.003 (0.047)
Female top manager X Africa		-0.109 (0.150)		-0.012 (0.086)		-0.018 (0.046)
Manager's experience X Africa		-0.002 (0.006)		-0.006** (0.003)		-0.000 (0.002)
Manufacturing X Africa		-0.067 (0.200)		0.039 (0.103)		0.004 (0.061)
Wholesale and retail X Africa		-0.077 (0.182)		0.020 (0.093)		-0.011 (0.056)
Hotels and restaurants X Africa		-0.232 (0.221)		-0.079 (0.119)		-0.010 (0.067)
Construction X Africa		-0.041 (0.231)		0.117 (0.126)		-0.035 (0.073)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Survey Week	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.361*** (0.074)	1.360*** (0.074)	0.115*** (0.041)	0.116*** (0.041)	-0.042* (0.023)	-0.042* (0.023)
Observations	12572	12572	9519	9519	13237	13237
R-squared	0.087	0.087	0.098	0.099	0.027	0.027

Table A.5: Repurposing and leveraging technology to mitigate the impact of the pandemic, interaction with African dummy

	Adjusted or converted production/services		Online and delivery Online and delivery		Started or increased remote work arrangement	
	(1)	(2)	(3)	(4)	(5)	(6)
Small	-0.026*** (0.010)	-0.026** (0.010)	0.039*** (0.010)	0.040*** (0.010)	-0.084*** (0.010)	-0.083*** (0.010)
Log Age	0.009 (0.008)	0.010 (0.008)	-0.034*** (0.008)	-0.034*** (0.008)	0.019** (0.008)	0.019** (0.008)
Exporter	0.071*** (0.016)	0.072*** (0.016)	0.078*** (0.016)	0.078*** (0.016)	0.127*** (0.015)	0.126*** (0.015)
Foreign	-0.015 (0.031)	-0.015 (0.032)	0.026 (0.030)	0.024 (0.031)	0.128*** (0.029)	0.135*** (0.029)
Female top manager	0.019* (0.010)	0.019* (0.010)	0.001 (0.010)	0.000 (0.010)	0.015 (0.009)	0.016* (0.009)
Manager's experience	-0.002*** (0.000)	-0.002*** (0.000)	-0.001 (0.000)	-0.001 (0.000)	-0.003*** (0.000)	-0.003*** (0.000)
Manufacturing	0.024* (0.015)	0.025* (0.015)	0.020 (0.014)	0.020 (0.014)	-0.080*** (0.014)	-0.079*** (0.014)
Wholesale and retail	0.031** (0.014)	0.031** (0.014)	0.034** (0.013)	0.035** (0.013)	-0.126*** (0.013)	-0.126*** (0.013)
Hotels and restaurants	0.078*** (0.019)	0.079*** (0.019)	0.021 (0.019)	0.022 (0.019)	-0.182*** (0.018)	-0.182*** (0.018)
Construction	0.042*** (0.015)	0.043*** (0.015)	-0.079*** (0.015)	-0.078*** (0.015)	-0.072*** (0.014)	-0.071*** (0.014)
Small X Africa		-0.091 (0.113)		-0.120 (0.111)		-0.050 (0.106)
Log Age X Africa		-0.021 (0.090)		0.005 (0.088)		-0.006 (0.084)
Exporter X Africa		-0.104 (0.200)		-0.027 (0.196)		0.082 (0.187)
Foreign X Africa		0.001 (0.143)		0.047 (0.141)		-0.149 (0.134)
Female top manager X Africa		0.014 (0.142)		0.081 (0.140)		-0.085 (0.133)
Manager's experience X Africa		0.001 (0.005)		-0.001 (0.005)		-0.001 (0.005)
Manufacturing X Africa		-0.143 (0.190)		-0.104 (0.187)		-0.189 (0.178)
Wholesale and retail X Africa		-0.096 (0.173)		-0.162 (0.170)		-0.105 (0.162)
Hotels and restaurants X Africa		-0.155 (0.211)		-0.121 (0.207)		-0.014 (0.197)
Construction X Africa		-0.097 (0.220)		-0.076 (0.216)		-0.088 (0.206)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Survey Week	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.700*** (0.070)	0.700*** (0.070)	0.459*** (0.069)	0.461*** (0.069)	0.322*** (0.066)	0.321*** (0.066)
Observations	12625	12625	12635	12635	12615	12615
R-squared	0.065	0.066	0.087	0.087	0.103	0.103