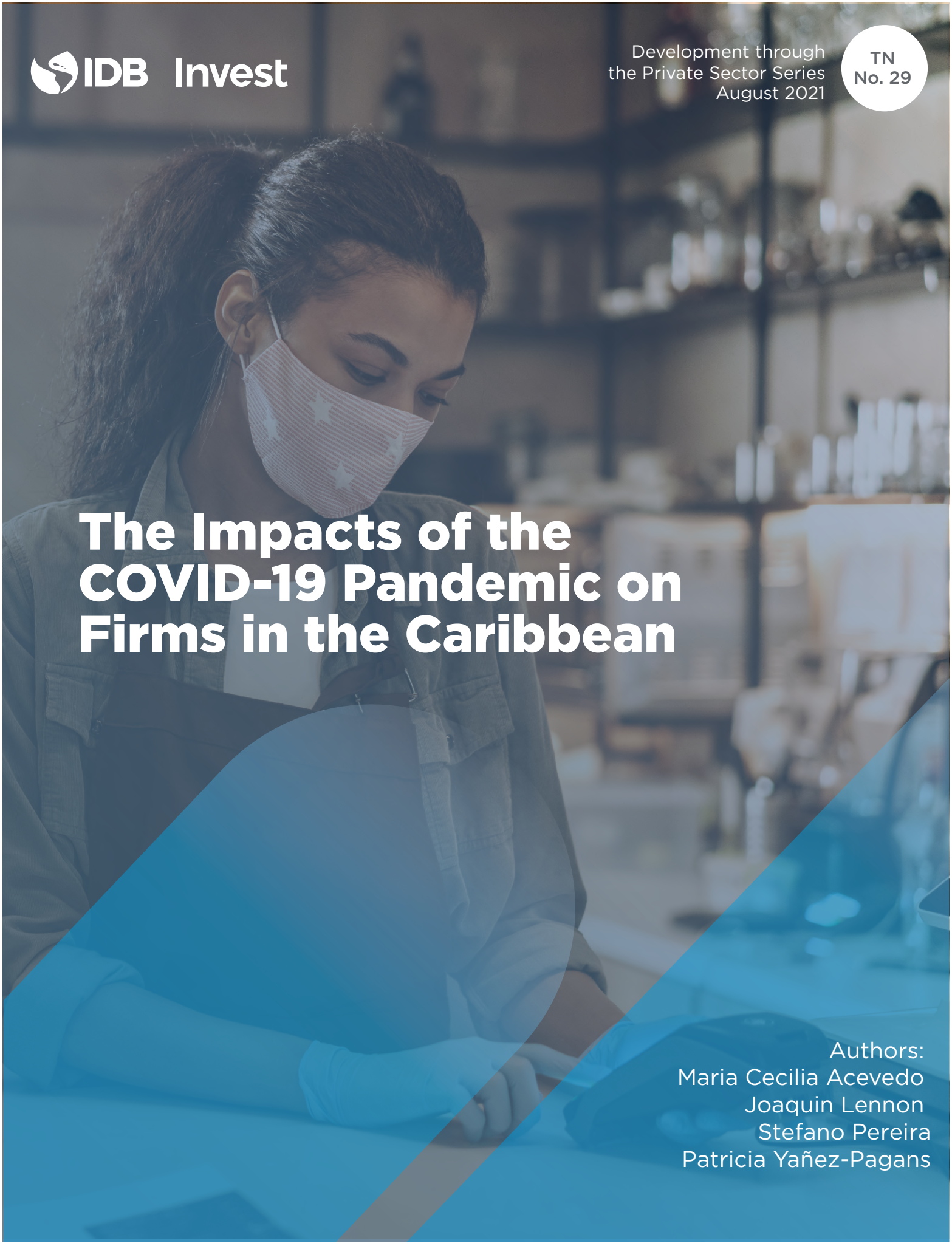

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The Impacts of the COVID-19 Pandemic on Firms in the Caribbean[1]

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August 24, 2021

Abstract

The COVID-19 pandemic has had a profoundly negative impact on firm survival and performance across the globe. We provide new evidence on the impacts of the pandemic on Caribbean firms, a region hit hard by the health and economic crises, and where data is usually very scant. The analysis exploits data from the Innovation, Firm Performance, and Gender (IFPG) survey collected by the IDB Group through the Compete Caribbean Partnership Facility. The sample includes 1,153 small, medium, and large enterprises distributed across seven Caribbean countries. Results show that small and medium-sized firms and women-owned/led firms were more negatively impacted compared to other firms. Moreover, firms that adopted measures to avoid supply chain disruptions fared better when compared to those that did not. Firm priorities have shifted because of the pandemic, with a much higher emphasis on access to digital payments and telecommunications. In line with this trend, technical assistance focused on digitalization and market diversification are among firms' top demands moving forward.

JEL CODES: D22, O12, J01, D24

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1. Introduction

The COVID-19 pandemic has had a profoundly negative impact on firm survival and performance across the globe. Early analyses from developed economies found that the most negatively affected companies were small firms, particularly in industries most sensitive to social distancing. In the first three months of the lockdown, active businesses in the United States (U.S.) dropped by an estimated 22 percent (Fairlie, 2020). In addition, restaurants in the U.S. experienced a 50 percent increase in the likelihood of permanent closure compared to historical rates (Crane et al, 2020). Evidence across developing countries has also shown that the COVID-19 shock has had severe and widespread impacts across firms, with persistent negative effect on sales. On average, a cross-country estimation conducted by Apedo-Amah et al. (2020) suggests a reduction in firm sales of nearly 50 percent compared to the same period the previous year. The impact on sales, according to this study, mostly depends on characteristics that are particular to the firm, such as management practices and technology capabilities; country and sector characteristics seem to matter less. Other studies conducted across the world also suggest that firms in poorer countries show a higher probability of closure relative to richer countries (Grover, A and V. Karplus, 2021).

In terms of firm size and COVID-19 impacts, small firms have been more likely to lay-off workers. In contrast, larger companies have implemented granted-leave or reduced hours of work or wages as the most prominent human resource strategy (Apedo-Amah et al, 2020). Regarding economic activities, more than half of tourism-related firms have granted-leaves and a third have cut wages, performing worse than any other sector. A third of larger firms across 51 economies expected to fall into arrears, as well as more than half of micro and small companies when surveyed (Apedo-Amah et al, 2020).

Firms have tried to adapt to the disruptions created by the pandemic in different ways. For instance, manufacturing firms around the world that were able to shift to remote work arrangements, and which in general exhibited better management capabilities, have been more resilient to sales, closure, or furlough pressures because these adjustments enabled them to sustain or seek new sources of revenue and/or reduce costs.

Additionally, almost 50 percent of firms in developing countries report making greater use of technology and changing their product mix (Apedo-Amah et al, 2020). Around a third of companies across the developing world increased or started to use internet, social media, and digital platforms, and 17 percent have invested in new equipment, software, or digital solutions in response to the pandemic. One in four firms performed product innovation in response to the pandemic, either by introducing a new product or service or by changing some of the product or service attributes. Small businesses, however, have been less able to adopt digital solutions as a coping mechanism (Apedo-Amah et al, 2020), which is unfortunate given the negative relationship between firm exit and innovation and digital presence, especially for small firms (Muzi et al, 2021).

This document provides novel evidence on the impacts of the COVID-19 pandemic on Caribbean firms, focusing on their performance and main responses during the crisis, including operational adjustments, adoption of new approaches or innovations, and changes in business priorities. Data for Caribbean countries is usually very scant, and the existing evidence on COVID impacts on

firms does not cover this region.[2] To help the Caribbean region recover from the pandemic, it is critical to better understand the magnitude of firm-level impacts, taking into consideration both country and sector-specific characteristics. This study intends to fill this gap.

The Caribbean region is of particular importance as it has been hit hard by the health and economic crises. Data from the International Monetary Fund (IMF) estimates that economic activity in the region fell by 9.9 percent in 2020, higher than the average economic contraction in the rest of Latin America for the same period (6.8 percent).[3] In fact, Caribbean tourism-dependent economies are expected to be the last to economically recover (by 2024 at the earliest) due to the slow resumption in tourism (IMF, 2021). In 2020, international visitor arrivals dropped by 76 percent in The Bahamas, 69 percent in Jamaica, and 67 percent in Barbados (Gomez et. al., 2021). These figures are in line with the United Nations World Tourism Organization (UNWTO, 2021) estimate of a 66 percent contraction in international tourist arrivals for the broader Caribbean region.

In terms of existing evidence regarding pandemic impacts in the Caribbean, data collected to date has come from household surveys, which included questions about business operations (Bottan et al., 2020; Arteaga et al. 2020). Early evidence from Barbados showed significant labor market disruptions disproportionately affecting lower income people (Arteaga et al. 2020). Results for Suriname found that 47 percent of households reported closing their businesses, either following mandatory requirements or due to lack of demand (Khadan, 2020). While business closures were reported across all sectors in Suriname, incidence of closures during the survey period[4] were highest for hotels and restaurants (79 percent), construction (60 percent), and manufacturing (53 percent).

In this study, we exploit newly launched data from the Innovation, Firm Performance, and Gender (IFPG) survey collected by the IDB Group through the Compete Caribbean Partnership Facility. The sample of the study focuses on 1,153 small, medium, and large enterprises distributed across seven IDB member countries: Barbados, Belize, Guyana, Jamaica, Suriname, The Bahamas, and Trinidad and Tobago. For comparison, we also include some statistics for an additional six countries that are part of the Organization of Eastern Caribbean States but are non-IDB members (i.e., Antigua and Barbuda, Dominica, Grenada, St. Kitts & Nevis, St. Lucia, St. Vincent & Grenadines). This study aims to provide a first exploratory view of the pandemic-induced impacts on firms by looking at key descriptive statistics, including conditional and unconditional means and some correlation analyses. Further studies are underway to continue deepening our understanding in some of the key areas presented in this first study.

Overall, our results indicate that the impact of the pandemic on Caribbean firms has been substantial, with 90 percent of firms reporting a negative impact and an average reduction in sales of 33 percent. Impacts have been heterogeneous across sectors. For now, available data only allows for sectoral disaggregation in these two broad categories: (i) mining, manufacturing and aquaculture, and (ii) services and retail. The data shows that firms in the services and retail sectors report the largest decreases in sales and capacity utilization. Future research could explore whether there are heterogeneities within the retail and services category and if firms in

[2] For the Latin American and Caribbean region, the World Bank COVID-19 Follow up Enterprise Surveys only cover Guatemala, Honduras, Nicaragua, and El Salvador. The Business Pulse Survey (BPS) covers Brazil and Mexico.

[3] These estimates remove two outliers in the data, Guyana, which is estimated to have grown by 40 percent as a result of oil discovery, and Venezuela which is estimated to have contracted by over 30 percent for two consecutive years.

[4] Online IDB surveys were conducted between April and July 2020.

tourism-related activities, one of the most affected sectors of the pandemic around the globe, report larger negative effects than other economic activities.

Consistent with findings in other countries, we also observe that women-owned/led firms were more negatively impacted compared to other firms, and that small and medium enterprises (SMEs) have performed worse when compared to larger firms. An analysis of the correlates of firm's resiliency shows that those firms that adopted measures to avoid supply chain disruptions fared better when compared to those that did not in terms on business outcomes, such as maintaining or increasing their workforce, their sales or their capacity utilization. Finally, the data shows that firm priorities have shifted because of the pandemic, with greater emphasis on access to digital payments and telecommunications. In line with this trend, technical assistance focused on digitalization and market diversification, including through networking, are among firms' top demands in response to the pandemic.

The paper is structured as follows. Section 2 describes the data used for the analysis and presents some descriptive statistics of the sample. Section 3 presents the main findings of the analysis and Section 4 concludes by summarizing the key results and discussing some of the implications, both at the policy level and for the work conducted by development finance institutions (DFIs) in the Caribbean region.

2. The Innovation, Firm Performance, and Gender (IFPG) Survey

In mid-2020, the IDB Group, through the Compete Caribbean Partnership Facility, commissioned the Innovation, Firm Performance, and Gender (IFPG) Survey to collect reliable and statistically representative data from nearly 2,000 firms in the Caribbean to help quantify the impacts of COVID-19 on the private sector. The survey included data on key performance indicators, corporate governance, innovation habits, and resource management among other topics relevant for private sector development. The selection of firms was done by stratified random sampling to generate a representative country and sector-level sample. Sectors were aggregated into two broad categories: (i) mining and quarrying, manufacturing, aquaculture, and fishing; and (ii) services, retail, arts and entertainment, management consultancy, office and business support, and waste collection. The survey sample includes small, medium, and large firms. The period for data collection covers March to November 2020, but the questionnaire included data points for the firms' previous fiscal year (2019), which provides baseline information.

Our main sample of analysis contains 1,153 firms across seven IDB member countries: Barbados (170), Belize (157), Jamaica (172), Guyana (155), Suriname (162), The Bahamas (157) and Trinidad & Tobago (180). See Table 1 for more details on the sample composition. The IFPG survey sample also contains 826 firms from six countries within the Organization of Eastern Caribbean States (OECS): Antigua and Barbuda, Dominica, Grenada, St. Kitts & Nevis, St. Lucia, St. Vincent & Grenadines. For comparison purposes, the Appendix recreates some of our analysis using these six countries, which are non-IDB members.

Of the firms in our sample, approximately 57 percent are small-sized firms, 33 percent are medium-sized, and 10 percent are large.[5] Approximately 23 percent are women-owned/led firms[6] and 39 percent of firms export. Additionally, 93 percent are domestically-owned firms while 7 percent are foreign-owned. Table 1 also reports a breakdown by country. Barbados, Belize, and Trinidad and Tobago have the largest percentages of small firms (all above 60 percent). In terms of sector, while services and retail dominate the sample of firms in Belize (62 percent), in the rest of the countries firms are quite similarly distributed between the two sectors. In relation to women-owned/led firms, it is noteworthy to mention that Jamaica has the highest percentage of these firms in the sample (31), while Barbados has the smallest percentage (15). Finally, Belize has the highest proportion of exporting firms, while Suriname has the lowest percentage of firms owned by foreign companies (4).

Table 1: **Descriptive Statistics of the Sample**

	Barbados	**Belize**	**Guyana**	**Jamaica**	**Suriname**	**The Bahamas**	**Trinidad and Tobago**	**Total**
# of firms	170	157	155	172	162	157	180	**1153**
Small	67.70%	63.10%	54.80%	45.90%	46.90%	59.90%	61.70%	**659**
Medium	29.40%	28.00%	29.70%	38.40%	50.00%	28.00%	28.30%	**382**
Large	2.90%	8.90%	15.50%	15.70%	3.10%	12.10%	10.00%	**112**
Mining, Manufacturing, & Aquaculture	46.47%	37.58%	48.39%	47.67%	50.62%	42.68%	48.89%	**532**
Services & Retail	53.53%	62.42%	51.61%	52.33%	49.38%	57.32%	51.11%	**621**
Other	85.29%	71.97%	78.06%	68.60%	75.93%	75.16%	83.33%	**888**
Women-owned/led*	14.71%	28.03%	21.94%	31.40%	24.07%	24.84%	16.67%	**265**
Not Exporting	73.50%	45.90%	65.20%	54.70%	67.90%	54.80%	65.00%	**705**
Exporting	26.50%	54.10%	34.80%	45.40%	32.10%	45.20%	35.00%	**448**
Domestic	95.88%	89.17%	89.03%	94.19%	96.30%	94.27%	93.33%	**1075**
Foreign	4.12%	10.83%	10.97%	5.81%	3.70%	5.73%	6.67%	**78**

*Women-owned firms are predominantly or entirely owned by women

3. Results

3.1. Overall Impacts of the Pandemic

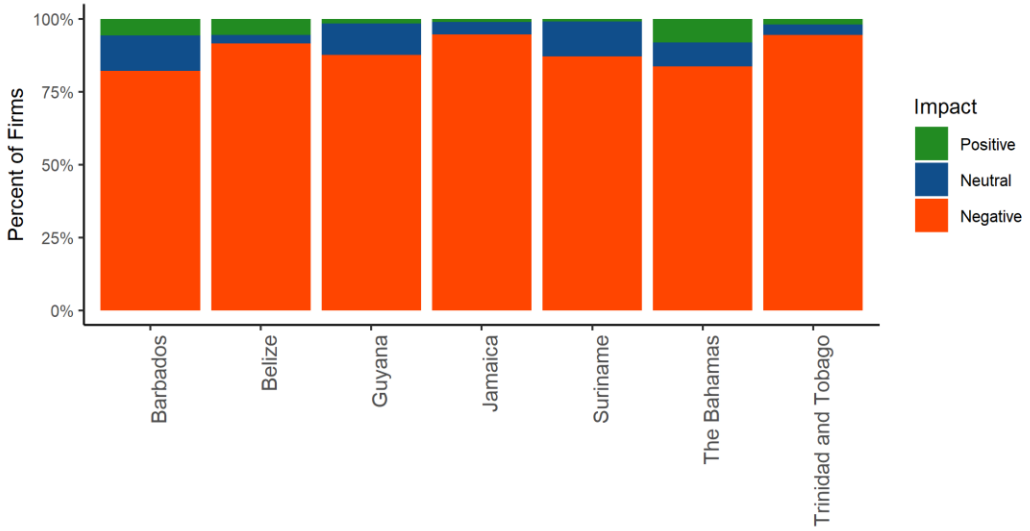
Overall, 90 percent of firms have qualified the impact of COVID-19 on their business as negative. Impact varies somewhat by country with as much as 18 percent of firms in Barbados

[5] Large firms are those with 100 or more employees, medium firms have between 20 and 99 employees, and small firms have fewer than 20 employees. This definition is aligned with other prominent cross-country surveys such the World Bank Enterprise Survey (https://www.enterprisesurveys.org/en/enterprisesurveys).

[6] In the survey, firms are asked to classify the ownership composition of their business as one of the following: All men, predominantly men, equally men and women, predominantly women, all women. We construct a variable that classifies a firm as owned/led by women whenever the composition is predominantly women or all women. In addition, we include in this pool firms that are owned equally by men and women and where the CEO is a woman.

reporting a neutral or positive impact from COVID-19, while only 5 percent of firms reported the same in Jamaica and Trinidad and Tobago (Figure 1). In the Appendix we recreate this analysis including the OECS countries. The negative trends hold once the sample is expanded.

Figure 1: COVID-19 Impact by Country



Source: Authors' own elaborations based on IFPG survey question asking firm's perception of impact of pandemic on their business.

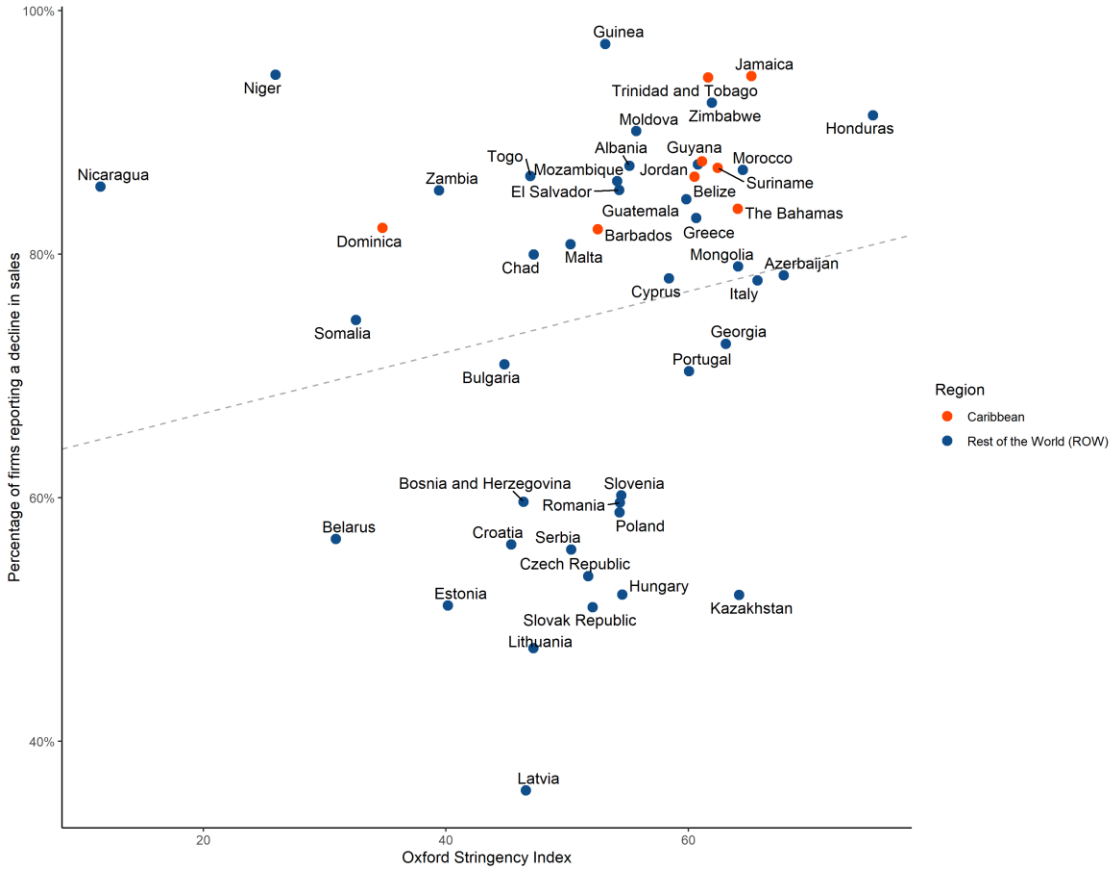
The variation in the impacts of the pandemic on firms could be due in part to differences in perceptions across countries, but they could also be related to differences in the length and stringency of lockdown measures implemented for each country.[7] To explore this hypothesis, we combine the IFPG and data from the World Bank's COVID-19 Follow-up Enterprise Surveys[8] and compare to the Oxford University Stringency Index[9]. Overall, there is a positive correlation between the stringency level and the proportion of firms reporting a decline in sales (see Figure 2). Based on the global sample, including the Caribbean, there is a positive correlation between the extent of lockdowns and sales performance, suggesting that lockdown measures that restricted mobility may have affected economic activity.[10] Interestingly, the correlation coefficient for the Caribbean sample is much larger (0.57) than the one observed for the rest of the world (0.10). Overall, these results are in line with previous evidence highlighting that social distancing interventions can be effective to contain epidemics but are potentially detrimental for the economy. For example, Koren and Peto (2020) show that U.S. businesses that rely heavily on face-to-face communication or close physical proximity when producing a product

[7] See IDB Caribbean Country Department Quarterly Bulletin Issue 1, May 2021.
[8] See https://www.enterprisesurveys.org/en/covid-19.
[9] The Oxford Stringency Index is a composite measure of the strictness of "lockdown style" policies that primarily restrict people's behavior. In Figure 2, we report the daily average for each country.
[10] In the Appendix we repeat this analysis with a subsample of only small firm (Figure A2). Results show a similar positive correlation, but a higher average proportion of firms reporting decline in sales. Three countries are lost because data on firm size for certain countries participating in the World Bank COVID Follow-up Survey are not available. It is important to note that the scatterplot depicted in Figure 2 only suggests a positive correlation between the two sets of values, but it does not necessarily suggest that more strict lockdown measures *caused* a decline in businesses sales.

or providing a service reported larger employment losses, including retail, hotels and restaurants, arts and entertainment, and schools.

Data gathered also shows that the Caribbean is characterized both by high stringency in lockdown measures as well as high incidences in reductions in sales when compared to other countries (i.e., all Caribbean countries fall above the trend line and the proportion of firms that report expecting a reduction in sales is higher than the global average). When interpreting this result, it is important to keep in mind that data for the Caribbean utilizes a firm's perception about changes in their sales due to COVID, relative to total sales in the last fiscal year(i.e., what is the firm's perception about experiencing a decline in sales), and the time period under observation is March 2020 to November 2020. On the other hand, data from the World Bank uses registered declines in sales in comparison to the last fiscal year and covers the time period May 2020 to April 2021.

Figure 2: COVID-19 Impacts and Stringency of Lockdown Measures

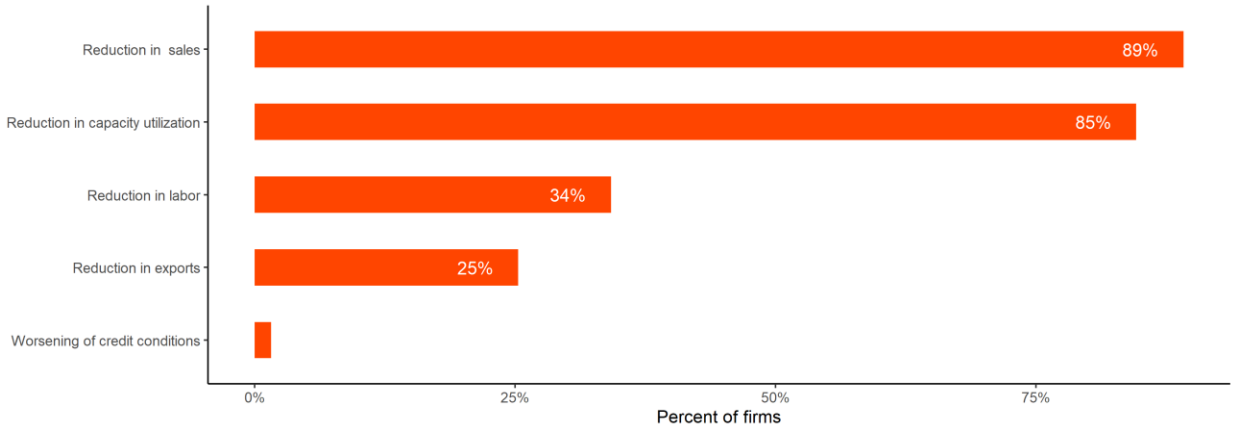


Note: The Oxford Stringency Index is a composite measure for the strictness of 'lockdown style' policies that primarily restrict people's behaviour.
Data for Caribbean covers March 2020- November 2020 and decline in sales is measured by firms perception since COVID-19 ;
Data for Rest of the World (ROW) covers May 2020-April 2021 and decline in sales is measured as registered decline in sales in comparison to the same time period one year prior.

Firms in the sample were also asked about the expected magnitude of the reduction in their sales due to COVID and relative to sales in the last fiscal year. The average reduction in sales expected by firms was 33 percent, ranging from 23 percent (Belize) to 39 percent

(Barbados). In addition, as shown in Figure 3, the three most prevalent effects of the pandemic reported by Caribbean firms were lower sales (89 percent), lower capacity utilization (85 percent), and reduction in labor (34 percent). Capacity utilization is measured in percentage terms and considers the firm's output produced as a proportion of the maximum output possible if using all available resources.

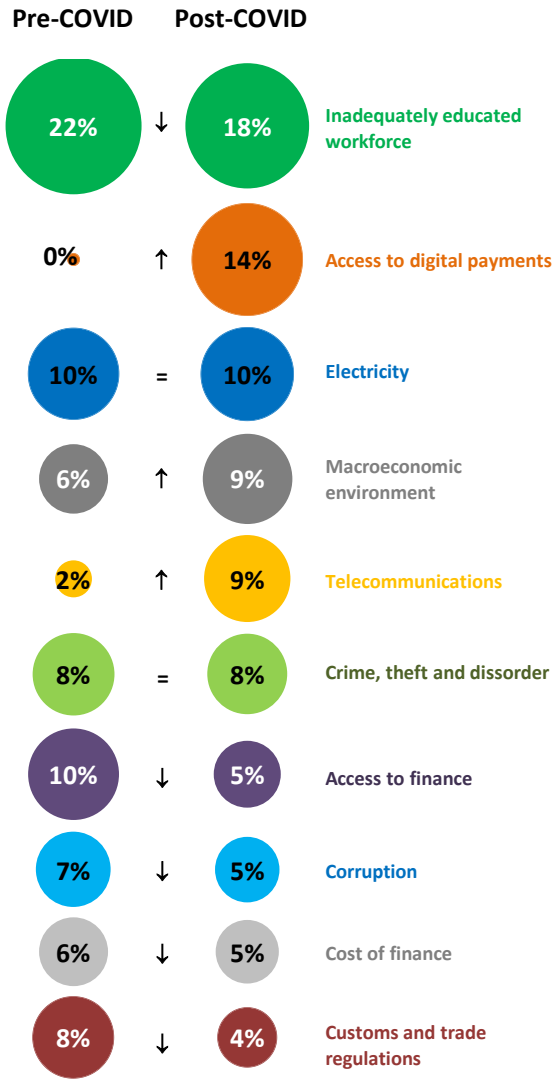
Figure 3: Effects of COVID-19 on Firm Operations



Source: Authors' own elaborations based on IFPG survey questions asking firm's perception on types of impact on their business due to pandemic.

The pandemic has caused a shift in firm priorities. Prior to the pandemic (before March 2020), Caribbean firms described the three greatest obstacles to conducting business as: an inadequately educated workforce (22 percent of firms), access to finance (10 percent), and electricity (10 percent). Before the pandemic less than 1 percent of firms perceived access to digital payments as a major obstacle to doing business. However, since the pandemic, access to digital payments has risen to the second highest ranking obstacle facing firms (14 percent), and an inadequately educated workforce remains the top concern for firms since the start of the pandemic. Figure 4 reports the results for the top 10 obstacles identified post-COVID and compares with their importance in the pre-COVID period. In the Appendix, we report the results with all obstacles identified by firms (See Table A1). The Appendix reveals similar results for OECS countries (Figure A3).

Figure 4: Biggest Obstacles for Doing Business (pre- and post-COVID-19)



Note: Figure presents the top 10 obstacles identified by firms in the post-COVID period and compares against their position in the pre-COVID period. Numbers reported are the % of firms selecting each category.

3.2. The Heterogeneous Impacts of the Pandemic

Firms in the survey were asked about whether they considered to have been affected by the pandemic and, for those that declared to have been affected, they were asked about the magnitude of these effects. In this section we explore these intensive and extensive margin impact changes with particular attention to the heterogeneity of the impacts caused by COVID across three dimensions: the size of the firm, the sector (aggregated in the two broad categories available in the dataset) and whether it is a women-owned/led business.

Small and medium enterprises (SMEs) have been the most affected by the pandemic.[11] When comparing the three most prevalent impacts on SMEs versus large firms, there is a significant difference in the percentage of firms that report experiencing a reduction in labor (see Figure 5a). While 36 percent of SMEs report a reduction in labor, 20 percent of large firms report experiencing these cuts. There are also see significant differences in the extent of workforce reduction (34 percent for SMEs and 23 percent for large firms). SMEs were also 5 percentage points more likely to report a reduction in their capacity utilization compared to large firms, and 4 percentage points more likely to report a decrease in sales. Even though the differences in capacity utilization and sales between SMEs and large companies are not statistically significant, this could be at least partly explained by the constraint imposed by a small sample size, restricting our ability to find a significant effect if such effect exists.[12]

We next compare differences across small, medium, and large firms and explore whether the negative impacts are driven by the smallest firms, shown in Table A2 of the Appendix. Findings show that impacts are coming from both small and medium enterprises. As it is shown, 34 percent of small firms report a reduction in labor in comparison to 39 percent of medium-sized firms and the difference between both groups (small and medium) is statistically significant with that of large firms (20 percent, although not significant between small and medium).

Small and medium-sized firms reported similar declines in sales (33 percent), compared to 28 percent for large firms. Both of these differences were statistically significant (small vs large & medium vs large). Small firms reported a greater decline in capacity utilization (39 percent) in comparison to medium-sized and large firms (37 and 36 percent respectively); however, only the difference between small and medium-sized firms was statistically significant. Interestingly, medium-sized firms report a greater decline in labor (35 percent) than small and large firms (33 and 23 percent respectively). In this case, only the difference between medium-sized firms and large firms was statistically significant. Differences in the number of firms reporting declines in capacity utilization and sales reduction remain statistically insignificant when comparing small and medium-sized firms.

A larger proportion of firms in the mining, manufacturing, and aquaculture sectors indicate to have been affected by the pandemic but, for the subset of firms that were affected, the magnitude of the effects is larger for firms in the services and retail sectors. Mining, manufacturing, and aquaculture firms were 7 percent more likely to report a reduction in sales compared to firms in the services and retail sectors, 7 percent more likely to report a reduction in capacity utilization, and 8 percent more likely to report a reduction in workforce as a result of the pandemic as compared to services and retail sector firms (Figure 6a). Differences in sales and capital utilization were statistically significant at the 1 percent level, while differences in labor were significant at the 5 percent level. This analysis is repeated for OECS countries with similar results and can be found in Figure A4 in the Appendix.

As mentioned before, it is important to keep in mind that, at time of preparing this report, the sector classification in the survey has only two broad categories based on the stratification

[11] We divide firms in three groups based on their number of full-time employees. Large firms are those with 100 or more employees, medium firms have between 20 and 99 employees, and small firms have fewer than 20 employees. This definition is aligned with other prominent cross-country surveys such the World Bank Enterprise Survey (https://www.enterprisesurveys.org/en/enterprisesurveys). At baseline, the average number of full-time employees were as follows: 10 employees for small firms, 49 employees for medium-sized firms, and 246 for large firms.

[12] Considering the distribution of the variable of reduction in workforce and the sample sizes for each group, we compute the Minimum Detectable Effect size, which confirms that any difference that is smaller than 6 percentage points will not be detected in the sample.

variable.[13] Therefore, we cannot distinguish tourism-related activities and it could be that there is heterogeneity within the retail and services sector. Future research will have to explore in more detail the impacts on the tourism sector. Despite this, something noteworthy to acknowledge is that when we analyze the intensive margin, this means the magnitude of the reported decreases, the pattern flips around and firms in the retail and services sector are those that experience the largest impacts. As depicted in Figure 6b, while the average decrease in sales for firms in the mining, manufacturing, aquaculture sector is 26 percent, it is 34 percent for firms in the retail and services sector. In the case of capacity utilization, differences are also statistically significant but smaller (2 percentage points) and there are no significant differences in the magnitude of labor impacts.

Large impacts on retail and services have been documented in previous studies in other countries. Apedo-Amah et al. (2020), looking at data from 51 countries, but not including Caribbean countries, show that tourism related activities, especially accommodation, exhibit the highest probability of granting leave (52 percent), and cutting wages (32 percent). For reduction in hours worked, retail and wholesale exhibit the highest predicted probability with 38 percent. The impacts on the mining and manufacturing caused by COVID have been also reported. For example, as shown by Azevedo et al. (2020), commodity prices, apart from specific cases such as gold and uranium, have dropped between 5 and 25 percent during the pandemic and these markets have been importantly affected by supply disruptions, such as the case of iron ore in Brazil.

We also compare the previous results with statistics coming from some comparator countries for the Caribbean. Following Ruprah et al. (2014), we consider other smaller countries that are either tourism-based or commodity-based and that have data available from the COVID-19 Follow-Up Enterprise Surveys.[14] In this case we see that almost the same proportion of firms in both sectors report to have experienced declines in sales (58 percent), but the percentage decline in sales is larger for firms in the retail and services sector (35 percent versus 30 percent). In addition, more firms in the mining and manufacturing sector report a reduction in labor (43 percent versus 37 percent), but the percentage decline in labor is again larger for those in the retail and services sector.

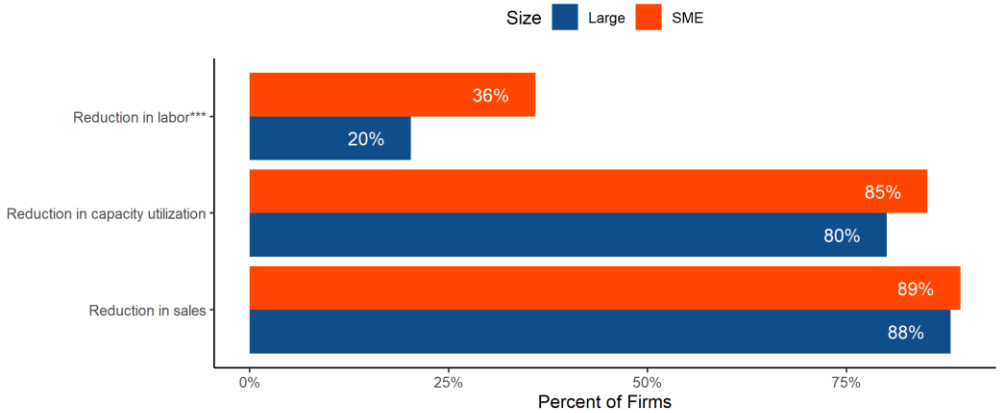
Impacts on women-owned/led businesses have been larger. Women-owned/led firms[15] were also more likely to report reductions in sales (93 percent) and in capital utilization (90 percent) when compared to the rest of firms (Figure 7). Differences are marginally significant for these outcomes at the 10 percent level for sales and at the 5 percent level for capacity utilization. In contrast, women-owned/led firms seem to be less likely to report a reduction in workforce (30 percent) compared to the rest of firms (35 percent), but this difference is not statistically significant. However, the sample size for women-owned/led firms is relatively small (265) and the standard deviation of this variable is larger compared to the previous ones, so there could be a power issue explaining the statistically insignificant difference.[16] One possible explanation for this last finding is that women-owned/led firms may have used different business tactics to cope with the pandemic. Another possibility is that they already tend to operate with "barebone" staffing with

13 These two broad categories are: (i) Mining & Quarrying, Manufacturing, Aquaculture and Fishing; and (ii) Services, Retail, Arts and Entertainment, Management Consultancy, Office and Business Support, Waste Collection.
14 These comparison countries include Estonia, Latvia, Slovenia, and Malta. For more details see Ruprah et al. (2014).
15 Defined as firms that are predominantly or entirely owned by women or that are equally shared by men and women but that have a female top manager.
16 Considering the distribution of the variable of reduction in workforce and the sample sizes for each group, we compute the Minimum Detectable Effect size, which confirms that any difference that is smaller than 9 percentage points will not be detected in the sample.

limited room for cuts. For example, prior to the pandemic, the average number of employees in a women-owned/led firm was 33 in comparison to 53 for other firms. Further analysis and data are required to test these hypotheses.

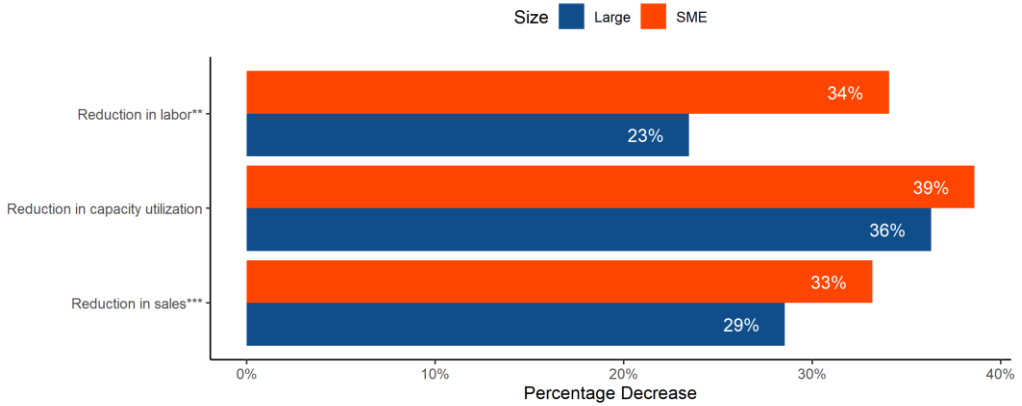
The impacts of the pandemic on women-owned/led firms has been well-documented in other countries. As shown by Kenny and Yang (2021) in 2020 and looking at the 17 middle-income countries that have data coming from the Enterprise Surveys, equal and majority women-owned firms were around 1.4 times more likely to close (permanently or temporarily) than majority men-owned firms. Some of the reasons mentioned is that women-owned/led businesses were disproportionately more likely to report supply shocks and sales declines, while they were less likely to have received public support than men-led businesses. Earlier studies also suggest that women business owners reported considerably greater challenges with childcare during the pandemic than did business owners who were men (Facebook/OECD/World Bank, 2020). Further research in this area is needed for the Caribbean region.

Figure 5.a: Commonly Reported COVID-19 Impacts by Size



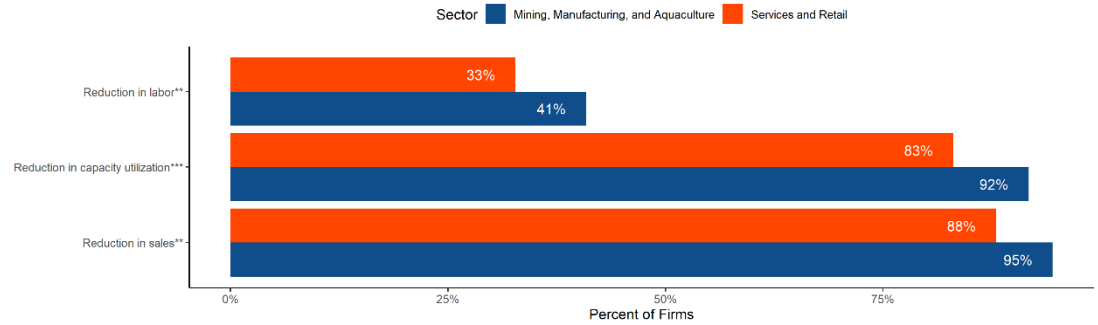
*Note: * Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.*
N=1153 (All Impact types)

Figure 5.b: Magnitude of Declines Reported by Size



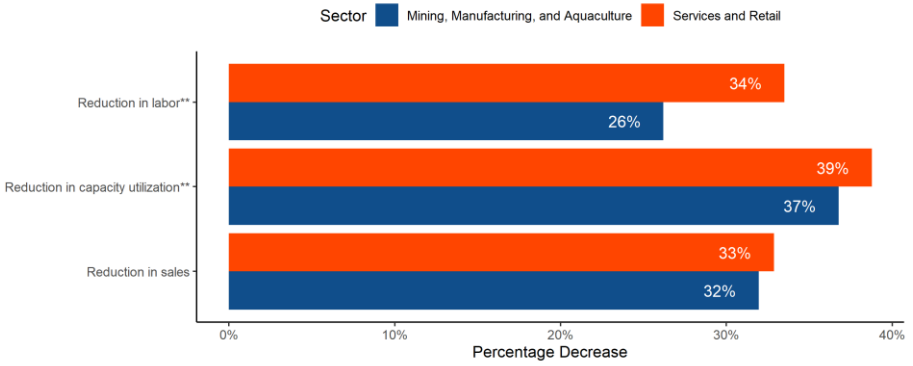
*Note: * Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.*
Responses/Sample size (N) varies by impact type: Sales=1023, Capacity Utilization=970, Labor=114

Figure 6.a: Commonly Reported COVID-19 Impacts by Sector



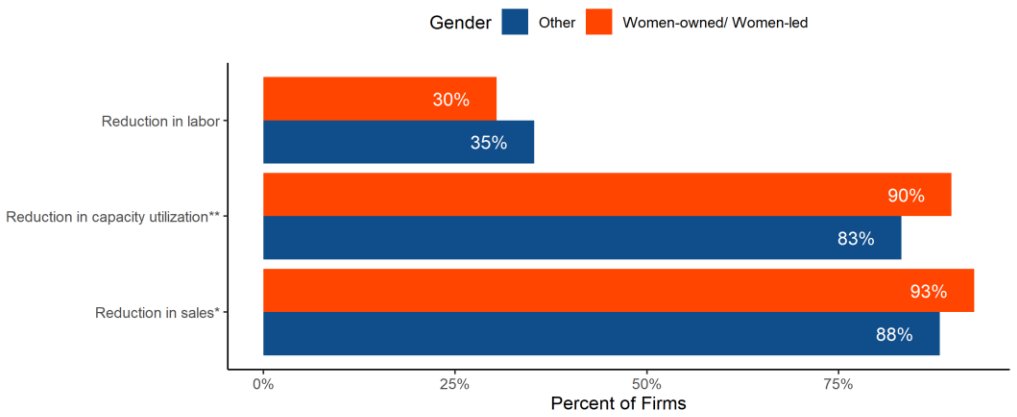
*Note: * Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.*
N=1153 (All Impact types).

Figure 6.b: Magnitude of Declines Reported by Sector



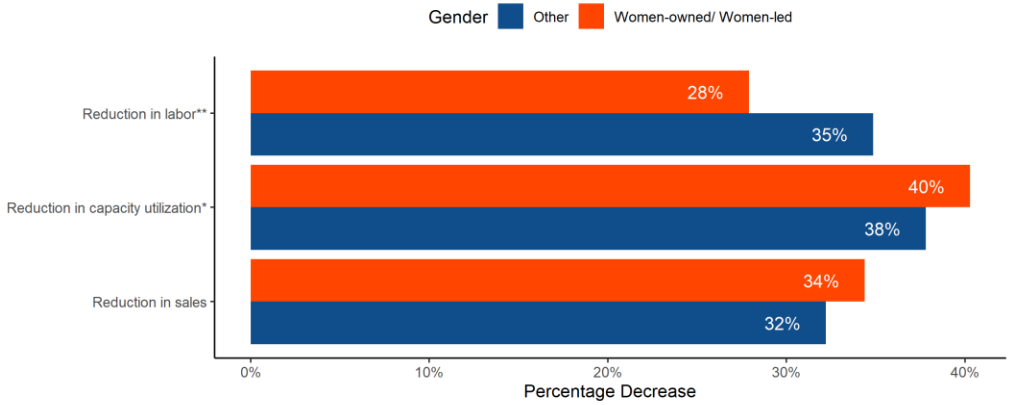
*Note: * Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.*
Responses/Sample size(N) varies by impact type:Sales=1023, Capacity Utilization=970,Labor=114.

Figure 7.a: Commonly Reported COVID-19 Impacts by Women-Owned/Led Firms



*Note: * Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.*
N=1153 (All Impact types).

Figure 7.b: Magnitude of Declines Reported by Women-Owned/Led Firms



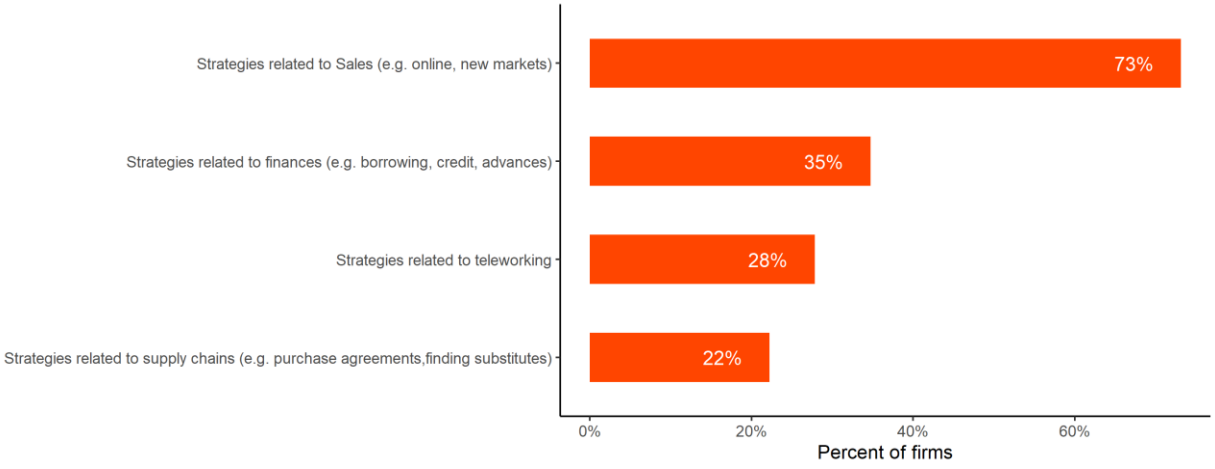
*Note: * Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.*
Responses/Sample size(N) varies by impact type:Sales=1023, Capacity Utilization=970,Labor=114.

3.3. Firms' Responses to the Pandemic

Firms have responded to the pandemic in a variety of ways. As shown in Figure 8a, the most common ways firms have responded to the pandemic were by adopting strategies to secure their sales (73 percent), such as conducting business online, finding new clients, and developing new products, among others. The second most important strategy has been to secure their finances (35 percent), including borrowing, purchasing on credit, and selling assets asking for credit or payments in advance. This is followed by creating teleworking arrangements (28 percent) and strategies related to supply chains (22 percent), which include establishing purchase agreements and sourcing substitute inputs. Of the 28 percent of firms that were able to implement teleworking procedures only a quarter had the network capacity to accommodate this modality prior to the pandemic.

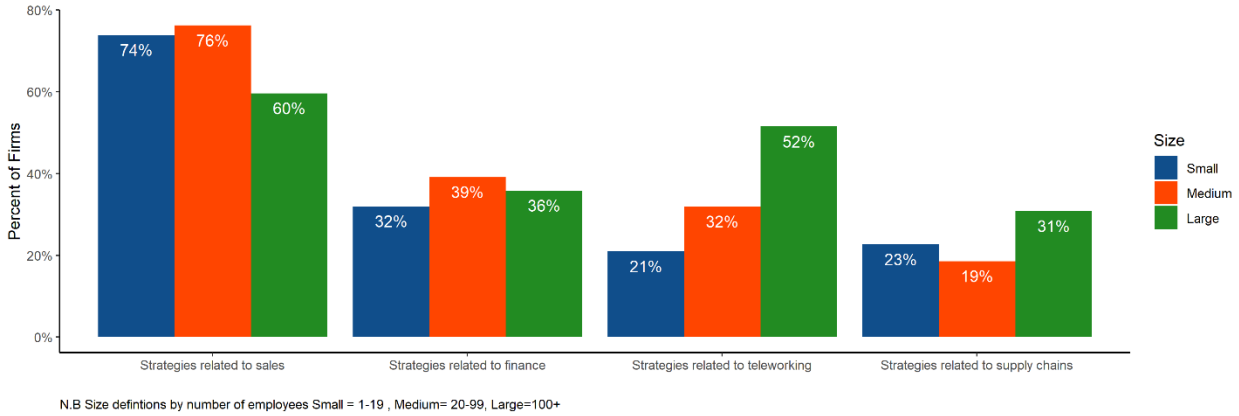
When disaggregating the adoption of strategies by firm size we observe that large firms were more likely to adopt strategies related to teleworking and supply chains (52 and 31 percent respectively), whereas SMEs were more likely to adopt strategies related to sales. This could be because 55 percent of large firms had developed means of digitized sales or promotion prior to the pandemic in comparison to 18 percent of SMEs. Medium-sized and large firms were more likely to adopt strategies related to financing in relation to small firms (Figure 8b). To put this into perspective, 2 percent of small firms expect an increase in the interest rate post-COVID in comparison to 1 percent of medium and large firms. Differences in access to credit at baseline were already more pronounced for the smallest firms (> 20 employees). In 2019, only 2 percent of small firms accessed credit in comparison to 7 percent of medium or large firms.

Figure 8a: Most Common Firm Adaptation Strategies



Source: Authors' own elaborations based on IFPG Survey.

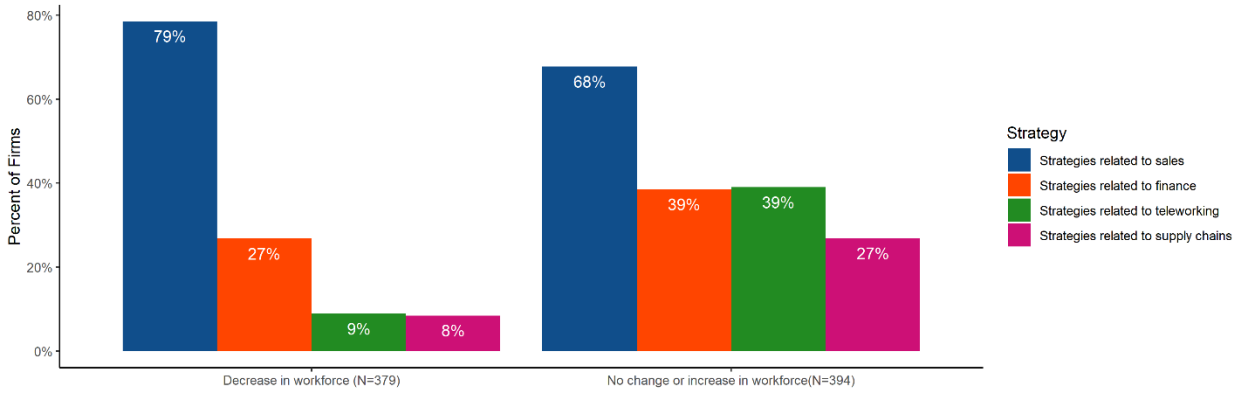
Figure 8b: Adaptation Strategies by Firm Size



3.4 Correlates of Firm Resilience

When analyzing the types of strategies adopted by firms and their workforce resilience during the pandemic, we see that firms that implemented a variety of business strategies were more likely to be resilient as measured by those firms that had no change or an increase in their workforce compared to the last fiscal year prior to the pandemic. Results show that 39 percent of resilient firms implemented strategies related to telework and 27 percent had strategies related to supply chains, as opposed to 9 and 8 percent, respectively, for firms with decreases in workforce (Figure 8c).

Figure 8c: Firm Strategies and Performance



To better understand the previous results, in addition to the unconditional means, we estimate the following model:

$$Y_{it} = f(\alpha + \beta X_{it-1} + \gamma Z_{it} + \theta_c + \vartheta_s + \varepsilon_{it})$$

Where Y_{it} *e* is a binary outcome variable capturing firm resilience and taking the value of one if firm i had no change or an increase in their workforce, in their sales or in their capacity utilization during the pandemic and zero otherwise; X_{it-1} is a vector of firm characteristics and baseline covariates, including an indicator variable for the firm being small or medium-sized (*SME);* if the firm exported in the baseline (*Exports)*; if the firm is predominantly owned by foreign entities

(*Foreign)*; if the firm had access to loans or lines of credits at baseline (*Credit)*; if the firm is woman-owned/led (*Female*); and if the firm had online sales in the baseline, which is a proxy of how digitalized the firm was prior to the pandemic. We also control for the natural logarithms of labor productivity in the last fiscal year before the pandemic and firm age, respectively. Vector Z_{it} includes a set of indicator variables capturing the business strategies implemented in response to the pandemic (i.e., strategies related to teleworking, sales, finance, and supply chains). The estimated models also include sector (ϑ_s) and country-level (θ_c) fixed effects. Standard errors are robust to heteroskedasticity.

Table 2 reports the marginal effects computed after the logit estimation.[17] Columns (1), (3) and (5) report the results of the baseline model that controls for general firm-level characteristics and baseline covariates to have a better understanding of how certain business attributes affect their resiliency in terms of labor, sales, and capital utilization, respectively. In columns (2), (4) and (6) we include the set of controls related to the different business strategies adopted for each outcome.

Results show that baseline labor productivity increases the probability of firms not experiencing a reduction in labor by 14 percentage points (pp). This is in line with evidence showing the positive role of productivity on firm survival (Muzi et al. 2021; Esteve-Perez et al., 2017; Durate & Restuccia, 2010). Firms that exported in the baseline were also more likely to maintain their workforce (13 p.p.). However, baseline labor productivity and exports are not significant predictors for firms that maintained sales or capacity utilization and estimated coefficients are close to zero. Consistent with what was shown in Figure 7, results confirm that even after controlling for a set of covariates, women-owned/led firms have a significantly lower probability (5 p.p.) of maintaining their sales and capacity utilization during the pandemic when compared to the rest of the firms. This difference is not observed for labor resiliency.

In terms of business strategies, findings indicate that firms that adopted measures to avoid disruptions to the supply chain, such as securing the supply of raw materials, using inventory, obtaining substitutes for supplies, among others, were more likely to be resilient across all evaluated dimensions. More specifically, firms that adopted these measures were 24 p.p. more likely to maintain their workforce, 12 p.p. more likely to retain sales, and 11 p.p. more likely to keep or increase their capacity utilization. Results also indicate that the ability to telework is an important determinant of labor resilience, and firms that were able to secure financing sources for their operations were also more likely to retain workers. Finally, sales strategies, such as developing new market segments, finding new clients or incorporating online sales, among others, are also significantly correlated with resilience in terms of sales and capacity utilization. Firms that adopted these measures, were approximately 5 p.p. more likely to maintain sales and capacity utilization.

The previous results highlight the important role of adequately functioning supply chains in promoting economic activity and how COVID-19 has affected Caribbean firms through these disruptions. As stated by Carvalho et al. (2021), given the key role of intermediate goods in the production process, disruptions to the flow of goods and services are an important source of aggregate risk. The authors show, for example, that the Japan earthquake in 2011 resulted in a 3.8 p.p. decline in the growth rate of firms with disaster-hit suppliers and a 3.1 p.p. decline in the growth rate of firms with disaster-hit customers. More importantly, they show that there is a

[17] Similar results are obtained when estimating a Linear Probability Model.

significant propagation effect on customers' customers and suppliers' suppliers, and so on. Similar results have also been seen in Japan related to the COVID-19 pandemic by Inoue and Todo (2020). In their study they simulate that a complete lockdown of Tokyo would have an indirect effect on other regions that is twice as large as the direct effect in the city.

Table 2. Firm Resilience and Strategies to Cope with the COVID-19 Pandemic

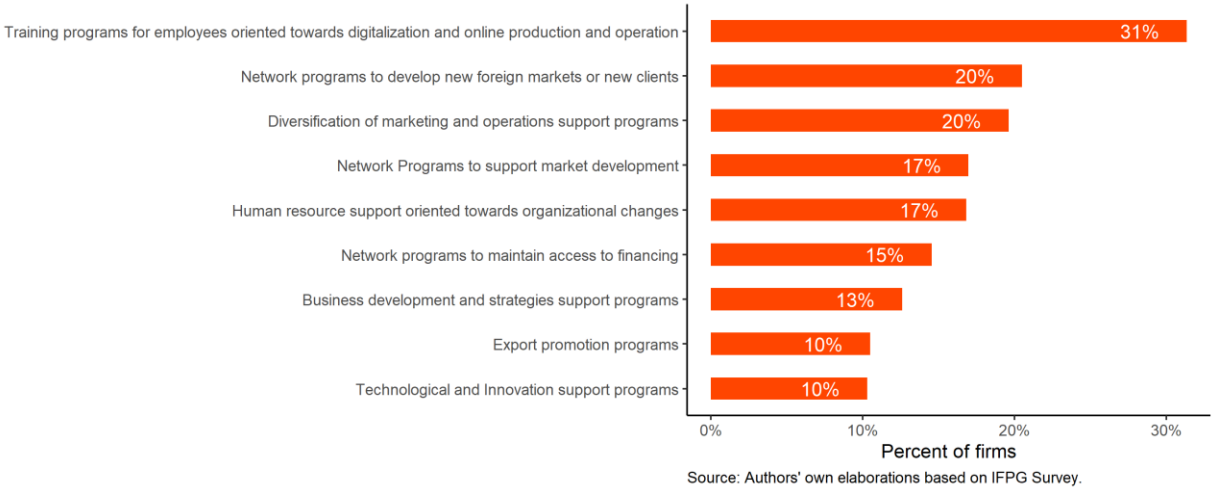
Variables	(1) Labor	(2) Labor	(3) Sales	(4) Sales	(5) Capacity utilization	(6) Capacity utilization
Log (Labor Productivity)	0.145***	0.123***	-0.00372	0.00132	0.00471	0.00863
	(0.0335)	(0.0290)	(0.0125)	(0.0106)	(0.0125)	(0.0119)
SME	-0.0376	0.0293	-0.0264	-0.0162	-0.0271	-0.0236
	(0.0873)	(0.0816)	(0.0410)	(0.0341)	(0.0401)	(0.0366)
Exports	0.133***	0.121***	0.00529	0.00740	-0.0203	-0.0173
	(0.0427)	(0.0428)	(0.0254)	(0.0198)	(0.0259)	(0.0234)
Access to credit baseline	0.0432	0.0323	0.0257	0.00738	0.0712	0.0579
	(0.145)	(0.150)	(0.0510)	(0.0465)	(0.0485)	(0.0499)
Foreign	-0.0848	-0.0885	-0.0497	-0.0337	0.0543	0.0610
	(0.0808)	(0.0871)	(0.0589)	(0.0475)	(0.0402)	(0.0380)
Log (Age)	0.000584	-0.00246	-0.00451	-0.00647	0.00645	0.00403
	(0.0321)	(0.0326)	(0.0158)	(0.0124)	(0.0145)	(0.0135)
Women-owned/led	0.0258	0.0174	-0.0469*	-0.0482**	-0.0540*	-0.0571**
	(0.0478)	(0.0445)	(0.0267)	(0.0217)	(0.0277)	(0.0256)
Online sales baseline	0.00555	-0.00324	-0.0220	-0.0255	-0.0339	-0.0384*
	(0.0427)	(0.0421)	(0.0245)	(0.0199)	(0.0253)	(0.0233)
Teleworking		0.213***		-0.00577		-0.00405
		(0.0543)		(0.0236)		(0.0281)
Sales strategy		-0.0727		0.0580***		0.0523**
		(0.0475)		(0.0182)		(0.0216)
Finance strategy		0.101**		-0.000669		-0.00677
		(0.0442)		(0.0203)		(0.0243)
Supply Chain strategy		0.244***		0.123***		0.114***
		(0.0587)		(0.0211)		(0.0285)
Observations	1,133	1,133	1,133	1,133	1,133	1,133
Country FE	YES	YES	YES	YES	YES	YES
Sector FE	YES	YES	YES	YES	YES	YES

Standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Note: Firm resilience is a binary outcome that takes the value of one if a firm had no change or an increase in their workforce, in their sales or in their capacity utilization during the pandemic and zero otherwise. Logit models are estimated, and marginal effects are reported.

3.5. Support Needed and Expectations for Recovery

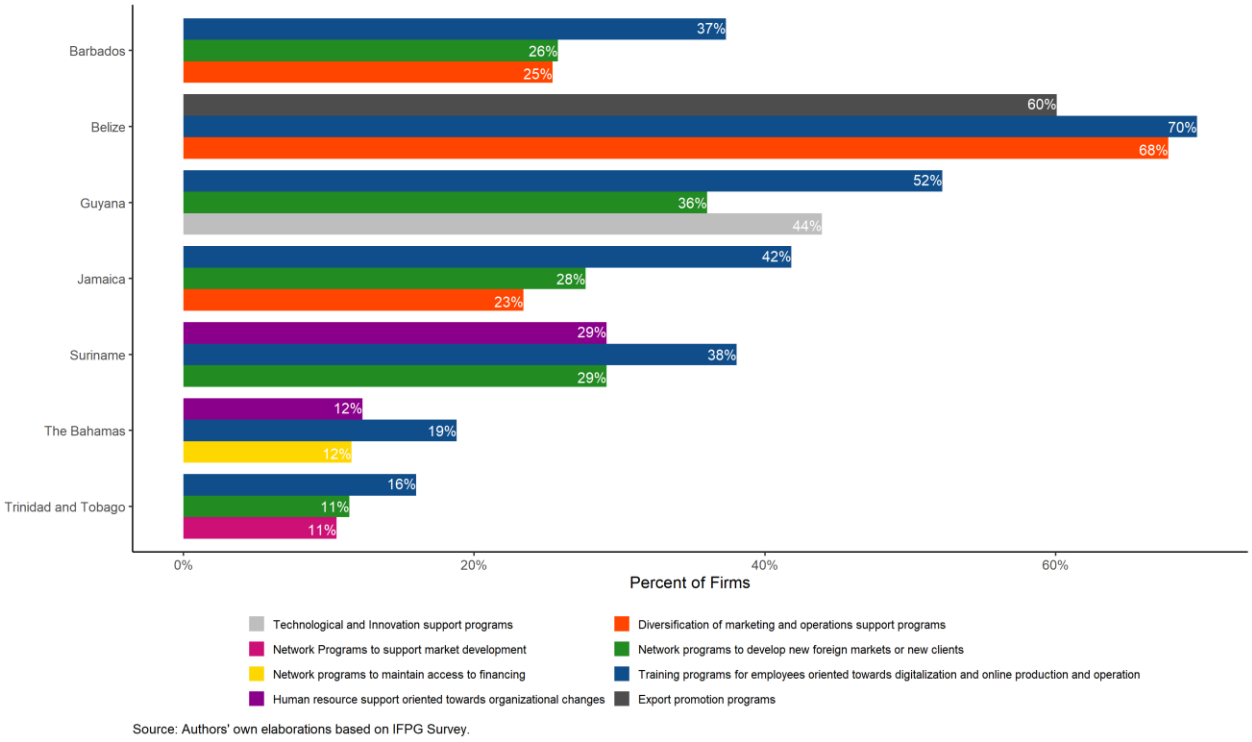
Targeted support of varying degrees and breadth is needed for a private sector-led recovery. Almost one-third (28 percent) of firms see bankruptcy/insolvency as a major risk brought on by the current health crisis. On average, firms expect it will take at least 13 months before they make a complete recovery. Additionally, 34 percent of firms consider that they will require technical assistance (TA) to ramp up their operations post-COVID (Figure 9a), primarily related to three areas: training programs for employees on digitalization and online production and operation (31 percent), networking programs to develop new foreign markets or attract new clients (20 percent), and diversification of marketing and operations support programs (20 percent). At the country level, TA demands vary, as shown in Figure 9b. Demand for employee training programs on digitalization and online production and operation range from 70 percent of firms in Belize to 16 percent of firms in Trinidad and Tobago. Demand for support through networking programs ranges from 36 percent of firms in Guyana to 0 percent in The Bahamas. Belize is the only country where export promotion is among the top three types of TA demanded, while Guyana stands alone in its prioritization of programs focused on innovation. Likewise, The Bahamas is the only country where programs for maintaining access to finance are a priority.

Figure 9a: Most Urgent Technical Assistance Needs Reported



Source: Authors' own elaborations based on IFPG Survey.

Figure 9.b: Technical Assistance Needs by Country



Source: Authors' own elaborations based on IFPG Survey.

4. Conclusions and Discussion

The significant health and economic shock brought by the COVID-19 pandemic has reshaped how the private sector works across the world, requiring businesses to react in agile and decisive ways to keep their operations running. Although multiple cross-country studies have recently explored the impacts of the pandemic on firms, the Caribbean region has been left out of the existing evidence due to the limited amount of information available. Nonetheless, the region is of particular importance as it has been hit hard by the health and economic crises given its strong dependence on tourism.

This study provides an initial snapshot of the impacts of the pandemic on Caribbean firms using data from the IFPG survey. Results show that Caribbean firms have been widely impacted by the crisis, especially SMEs and those that are women-owned/led. The data also shows that while a larger proportion of firms in the mining, manufacturing, and aquaculture sectors indicate they have been negatively impacted by the pandemic relative to firms in the services and retail sectors, firms in the services and retail sectors report largest decreases in sales and capacity utilization at the firm level. When looking at the determinants of firm resilience— captured by their ability to maintain or increase labor, sales, and capacity utilization—firms that adopted measures to avoid supply chain disruptions fared better when compared to those that did not along all resiliency dimensions.

Containment measures applied during the pandemic have accelerated the trend towards digitalization. This is reflected in our results by the fact that digital payments are now ranked as

one of the highest priorities for Caribbean firms to survive and thrive. Although firms have taken concrete actions to face the crisis, such as expanding their online sales and securing access to finance, about a third of surviving companies still fear looming bankruptcy or insolvency. In this context, high uncertainty remains over the path to recovery and the permanency of job losses.

The results of this survey suggest that firm resiliency will be largely determined by their capacity to find workers with the right skills and train staff appropriately; adopt digital payments and technologies; and enhance access to new markets and clients, intermediate inputs, and finance.

It is important to keep in mind that this analysis is exploratory in nature and more in-depth studies will be needed to better understand some of the hypotheses that have been raised in this review. One possible limitation of this analysis is that some data points rely on firm perceptions rather than actual changes. Therefore, human bias can lead to a potential overestimation or underestimation of impacts. Nevertheless, this paper provides a point of reference that can inform future research in this area. The sectoral analysis is also limited by the fact that the dataset at the moment of preparing this report only contains two broad categories (i.e., mining, manufacturing, and aquaculture vs. retail and services), which limits our ability to explore in more detail the impacts of the pandemic on tourism-related activities, which might report the largest negative effects. This needs to be part of future analyses once the information becomes available.

Moving forward, the role of public policy and the work of DFIs will be key to helping Caribbean firms navigate the post-pandemic recovery. On the policy side, this calls for multiple lines of action, such as enhancing the business environment and facilitating investments in the private sector, strengthening training or mentoring programs to help SMEs assess and manage the impacts of the pandemic, and helping firms to digitalize and access new markets. Improving worker skills in this rapidly digitalizing economy and investing in education and business development will also be critical, especially given that the main challenge highlighted by Caribbean firms both pre- and post-pandemic is the inadequately educated workforce. Finally, to advance regional integration, infrastructure and logistics must be included in economic recovery policies (OECD, 2020).

Caribbean governments have already begun to mobilize support to the private sector. This includes, but is not limited to, temporary moratoriums on loans, deferral of taxes and social security contributions, expanding credit to SMEs, and salary compensation to workers (Nuguer & Powell, 2020; IDB, 2020). Nonetheless, additional support is needed if the region is to ensure a steady post-pandemic recovery.

For DFIs, such as IDB Invest, it is important to keep facilitating firm access to long-term financing for capital expenditures. Securing access to finance has proven to be key to maintain operations and retain the workforce. Additionally, short-term financing provided by DFIs has proven its worth during the pandemic, including timely trade and supply chain finance solutions. These resources play a crucial role in facilitating local and international trade transactions and avoiding costly disruptions. DFIs also have an important part to play in providing technical assistance and creating incentives to mobilize investors through blended finance instruments to catalyze post-pandemic recovery efforts targeting the most affected segments, such as women-owned/led firms. Finally, given the importance of strengthening the digital economy in a post-pandemic Caribbean, DFIs need to continue supporting faster and more inclusive broadband access, investing in companies with innovative digital business models, and helping more traditional companies and financial institutions develop digital channels and adapt to market trends.

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Appendix

Table A1: Full list of Pre- and Post-COVID Obstacles to Doing Business

Obstacle	Pre-COVID Ranking	Post-COVID Ranking
Inadequately educated workforce	22%	18%
Access to digital payments	0%	14%
Electricity	10%	10%
Macroeconomic environment	6%	9%
Telecommunications	2%	9%
Crime, theft and disorder	8%	8%
Access to finance	10%	5%
Corruption	7%	5%
Cost of finance	6%	5%
Customs and trade regulations	8%	4%
Labor regulations	3%	2%
Transportation	2%	2%
Political environment	2%	2%
Tax rates	6%	2%
Practices of competitors in the informal sector	2%	2%
Access to land for expansion / relocation	4%	1%
Business licensing and permits	2%	1%
Tax administration	2%	1%

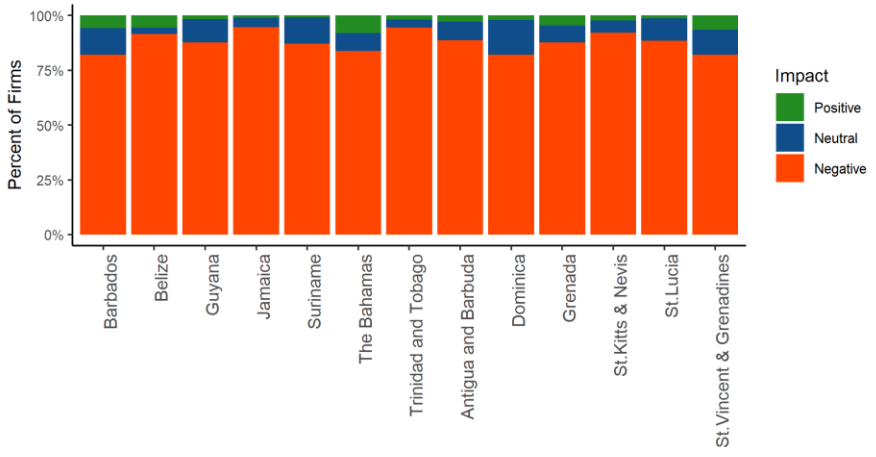
Source: IFPG Survey (2021).
Note: Numbers reported indicate the percentage of firms that responded Yes to each category.

Table A2: Breakdown of Mean Differences of Firm Impacts by Firm Size

Variable	Small	Medium	Large	Diff (Small vs Medium)	Diff (Small vs Large)	Diff (Medium vs Large)
Firms reporting reduction in sales	0.889	0.900	0.881	-0.011	0.008	0.019
	(0.017)	(0.018)	(0.043)	(0.025)	(0.046)	(0.047)
Firms reporting reduction in capacity utilization	0.865	0.829	0.801	0.036	0.065	0.028
	(0.018)	(0.024)	(0.052)	(0.030)	(0.055)	(0.057)
Firms reporting reduction in labor	0.342	0.389	0.203	-0.047	0.139	0.186
	(0.025)	(0.034)	(0.054)	(0.042)	(0.059)**	(0.064)***
% Decrease in sales	33.308	33.011	28.556	0.297	4.751	4.455
	(0.606)	(0.960)	(1.521)	(1.136)	(1.637)***	(1.798)**
% Decrease in capacity utilization	39.539	36.943	36.310	2.596	3.230	0.633
	(0.751)	(0.759)	(2.725)	(1.068)**	(2.826)	(2.828)
% Decrease in labor	32.892	35.170	23.470	-2.279	9.422	11.701
	(3.585)	(2.733)	(4.857)	(4.510)	(6.037)	(5.575)**
N	659	382	112			

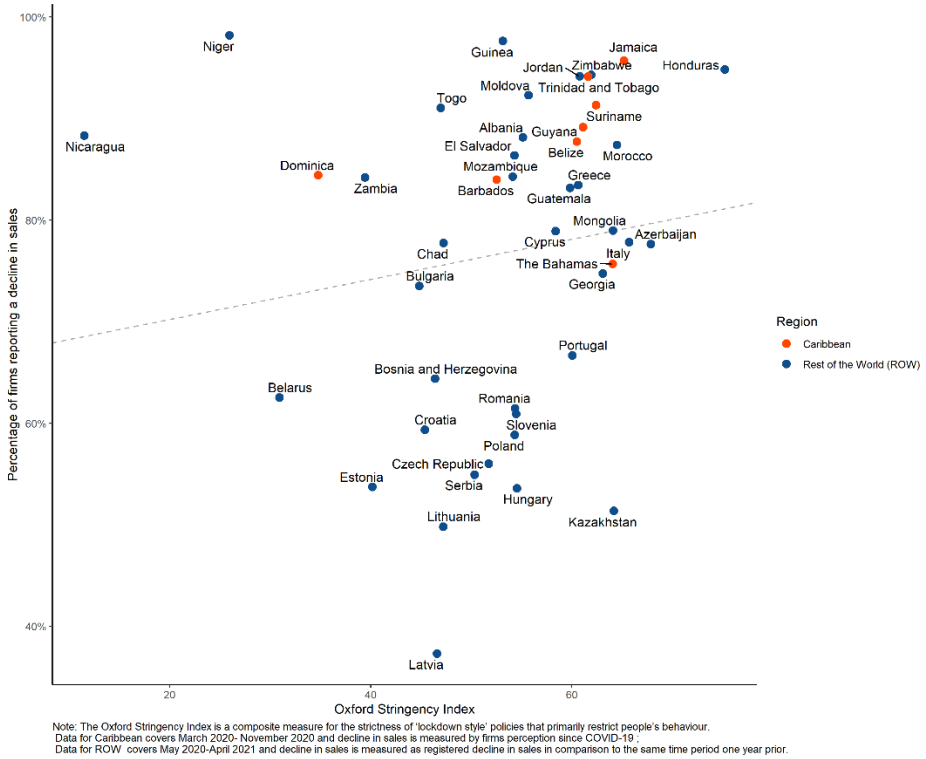
Significance levels: * < 10% ** < 5% *** < 1%
Standard errors in parentheses. Numbers reported are the proportion of firms that replied Yes in every category.

Figure A1: COVID-19 Impact by Country (includes OECS)



Source: Authors' own elaborations based on IFPG survey question asking firm's perception of impact of pandemic on their business.

Figure A2: COVID-19 Impact and Stringency of Measures (small firms only)[18]



Note: The Oxford Stringency Index is a composite measure for the strictness of 'lockdown style' policies that primarily restrict people's behaviour.
Data for Caribbean covers March 2020- November 2020 and decline in sales is measured by firms perception since COVID-19 ;
Data for ROW covers May 2020-April 2021 and decline in sales is measured as registered decline in sales in comparison to the same time period one year prior.

[18] Correlation coefficients: Caribbean= 0.22; Rest of the World (ROW)= 0.06.

Figure A3: OECS Countries - Most Problematic Areas for Doing Business (pre-and post-COVID-19)

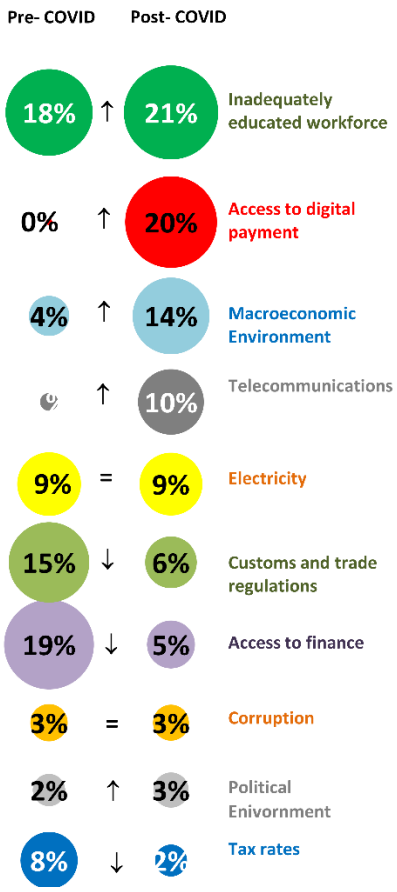


Figure A4: Commonly Reported COVID-19 Impacts by Sector (OECS Countries)

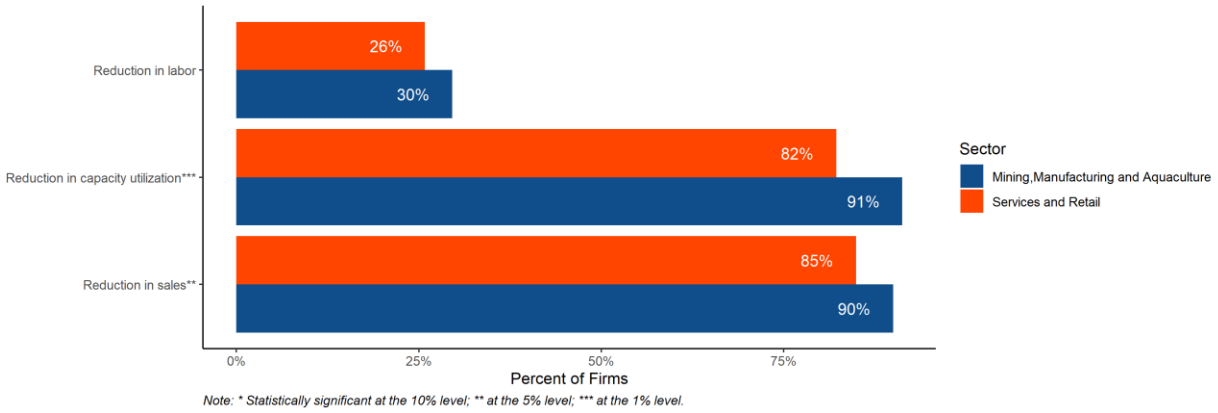
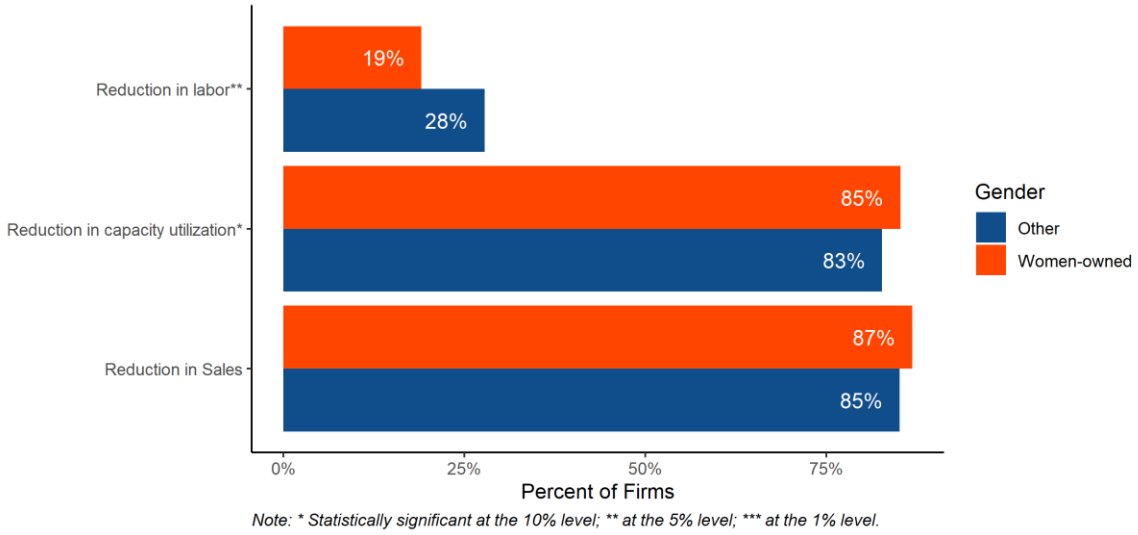


Figure A5: Commonly Reported COVID-19 Impacts by Gender (OECS Countries)



*Note: * Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.*