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## Reflections on Innovation and Productivity

As Caribbean Businesses Emerge  
from the Pandemic



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## Caribbean Economics Quarterly - May 2023

### Regional Overview - Reflections on Innovation and Productivity as Caribbean Businesses Emerge from the Pandemic

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#### Introduction

The previous edition of the *Caribbean Economics Quarterly* analyzed the region's robust economic recovery but also highlighted the short-term external headwinds complicating that recovery.<sup>1</sup> This edition returns to the issue of long-term economic growth. The main question is: Will the region return to the slow long-run growth of the pre-pandemic period?

The generic answer is that we know from the basics of theory and experience that productivity needs to be the driver of faster growth, and that innovation is one key way to increase productivity.<sup>2</sup> That said, in each country context, business owners and managers face their own unique challenges to improve the performance of their companies, both large and small. The best way to understand those challenges is to collect and analyze data from the businesses themselves. In the middle of the pandemic, the Compete Caribbean Partnership Facility,<sup>3</sup> housed in the Barbados office of the IDB, collected such business-level data from nearly 2000 firms across 13 Caribbean countries.<sup>4</sup> These data provide a window into the challenges firms faced at that time. A subset of those surveyed firms had been included in the survey sample of a previous data collection effort in 2014, the Productivity, Technology and Innovation in the Caribbean (PROTEqIN) Enterprise Survey.<sup>5</sup> Thus, a time dimension can be added to the analysis.

This edition starts with an overview of past performance of Caribbean countries in terms of economic growth and productivity. It then describes the Compete Caribbean data and summarizes recent research papers analyzing those data and the conclusions emerging from that research. Finally, the country chapters draw on the Compete Caribbean database to describe the challenges facing firms at the country level.

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<sup>1</sup> This report is focused on the six countries of the Caribbean Country Department at the Inter-American Development Bank: The Bahamas, Barbados, Guyana, Jamaica, Suriname, and Trinidad and Tobago. The data used in the papers summarized cover a broader set of countries, as noted below.

<sup>2</sup> As noted in the preface to the IDB's *2023 Latin American and Caribbean Macroeconomic Report*, the region faces a triple challenge: rising social demands, fiscal consolidation, and slow growth due to low productivity growth (Galindo and Nuguer 2023).

<sup>3</sup> The CCPF, which is housed in the Barbados Country Office of the Inter-American Development Bank (IDB), is a technical assistance program focused on stimulating private sector development through innovation and business climate reforms. It is financed by the IDB, the United Kingdom's Foreign and Commonwealth Development Office, the Caribbean Development Bank, and the Government of Canada.

<sup>4</sup> Data about business performance refer to 2019.

<sup>5</sup> Both the IFPG and PROTEqIN datasets are available on the Compete Caribbean website at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).



Key messages that emerge from the analysis include the following:

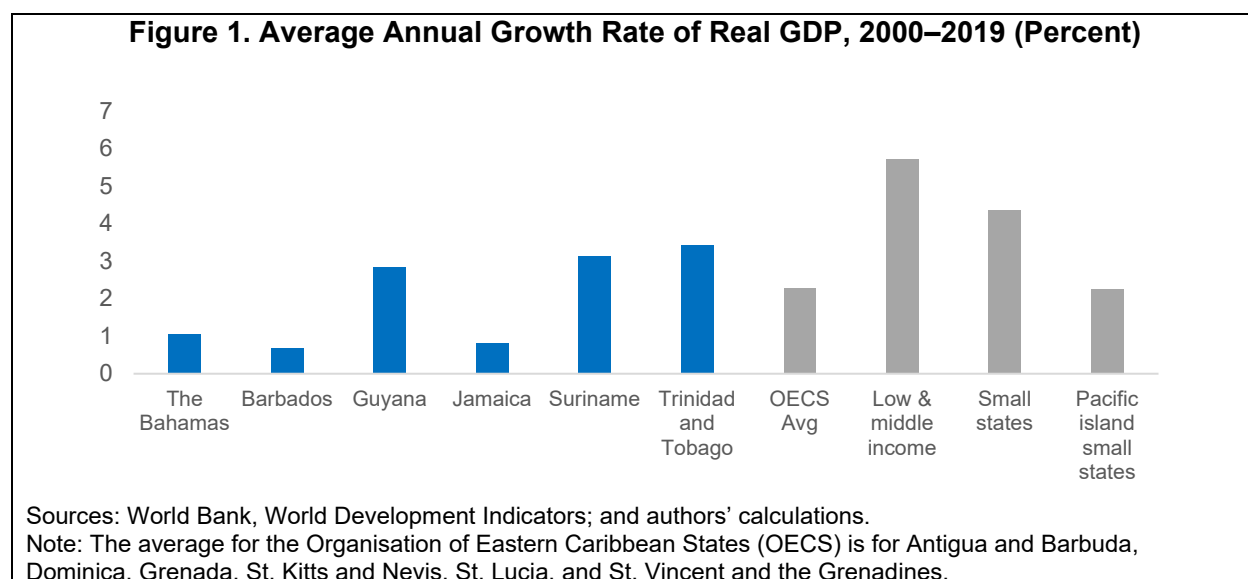
- *Pre-pandemic economic growth performance was relatively poor.* In the 20 years prior to the COVID-19 pandemic, the average growth rate in the Caribbean was far below the average for low- and middle-income countries. The average growth “gap” varies from 2 to 5 percentage points. Commodity exporters grew faster than tourism-oriented economies, although that advantage faded during the second decade of the 2000s. Underlying this low growth was poor performance in aggregate measures of productivity.
- *Innovation plays a key role in spurring productivity in the Caribbean, and there is an important gender dimension in productivity, as documented in recent research papers summarized below.* Overall, the evidence shows that while proactive innovation positively affects business productivity and efficiency, innovations implemented in response to pressing external shocks (such as the COVID-19 pandemic) do not necessarily generate gains in terms of efficiency. This insight points to the relevance of implementing policies to continuously promote technological adoption and business innovations across the entire business cycle. The evidence also reveals that, while the pandemic shock affected employment differently by gender, policies to limit female unemployment are not only needed for equity, but also are effective in improving productivity. The heavier burden of domestic chores carried by women and the relatively higher female concentration in the service industry resulted in female employment in the Caribbean being heavily affected by the pandemic shock (Arteaga, Beuermann, and Álvarez 2020). Nonetheless, the evidence shows that firms that effectively mitigated female employment losses were also more successful in limiting productivity losses.
- *While access to finance and infrastructure challenges (e.g., electricity and telecommunications) are common across Caribbean countries, the depth of those challenges varies, and other specific issues emerge in each country case.* The country sections of this edition of the bulletin use the dataset presented to document the specific productivity challenges of each country.

Finally, an overarching message from the analysis is the importance of having and using data to unlock the key determinants of productivity and innovation in the region. The dataset presented here is extremely rich and is publicly available, and we encourage researchers to take advantage of this regional public good and engage in their own analysis. In so doing, the policy agenda will be informed by real evidence, creating the scope for more precise and targeted policy interventions.



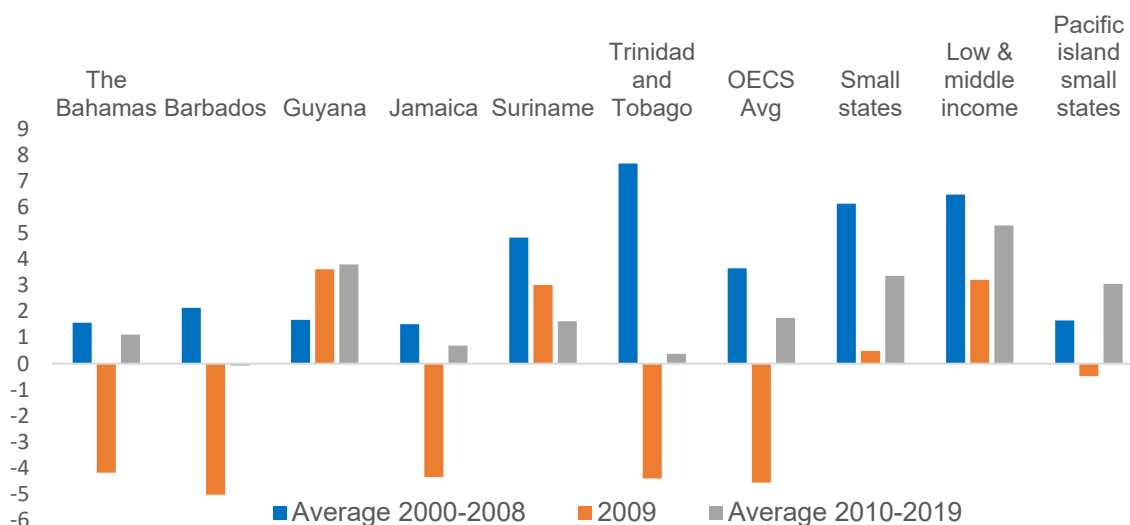
## Overview of Growth and Productivity

Economic growth in the Caribbean from the turn of the century until the start of the COVID-9 pandemic (2000–2019) was relatively slow, especially in tourism-oriented economies (Figure 1), whose growth rates averaged about 1% or less.



Splitting the period between the years before and after the global financial crisis shows that the better performance of the commodity exporters (Figure 1) faded in the second decade of the century (Figure 2). This was driven in part by the decline in commodity prices following the commodity price super-cycle (except for Guyana). Meanwhile, the global financial crisis itself coincided with a recession in most countries, with the exception of Guyana and Suriname.

**Figure 2. Average Annual Growth Rate of Real GDP, by Specified Period (Percent)**



Sources: World Bank, World Development Indicators; and authors' calculations.

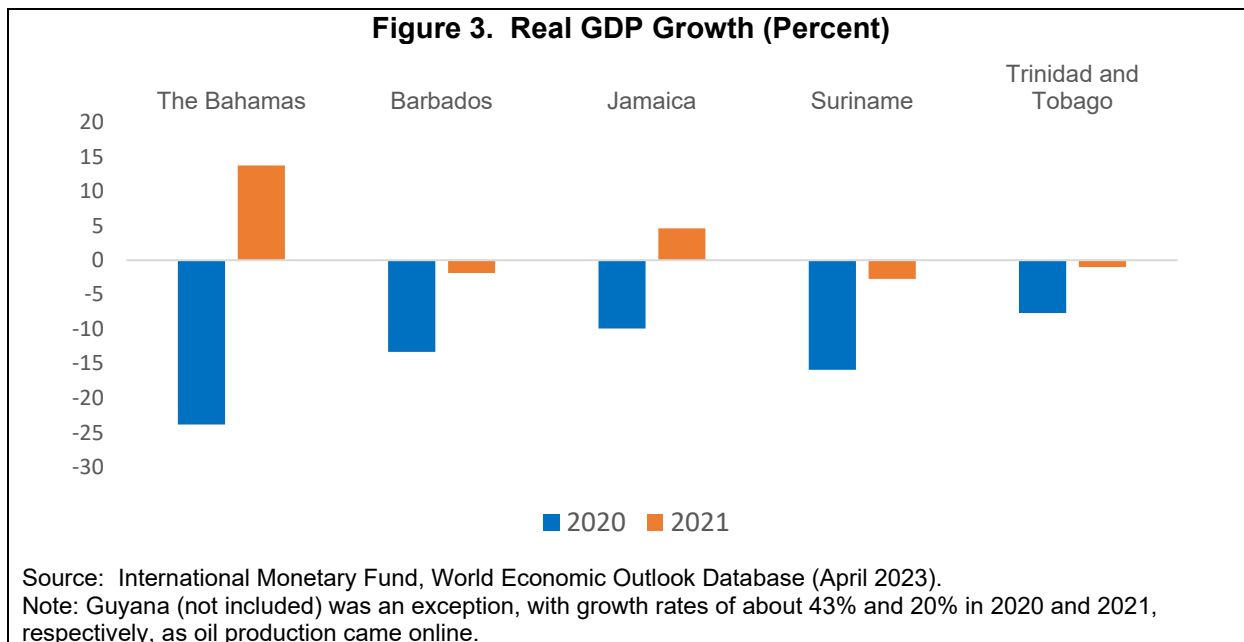
Note: The average for the Organisation of Eastern Caribbean States (OECS) is for Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines.

Finally, the first two decades of the century ended with the pandemic crisis that impacted tourism-oriented economies more than any other countries on earth.<sup>6</sup> In addition, inevitable domestic lockdowns and disruptions in global supply chains affected all countries, and the Caribbean economies were no exception (Figure 3). There was an initial recovery in late 2021 in some countries, and that recovery consolidated and gained strength in 2022, with positive growth estimated for all six countries analyzed here. That said, levels of GDP and GDP per capita remained either near or slightly below pre-pandemic levels in 2022. Moving forward, there is the risk that growth rates will return to the slow pre-pandemic growth rates described above.

<sup>6</sup> See Figure 4 of the Regional Overview in the second quarter edition of the *Caribbean Economics Quarterly* in 2022, available at <https://publications.iadb.org/publications/english/viewer/Caribbean-Economics-Quarterly-Volume-11-Issue-2-Finance-for-Firms-Options-for-Improving-Access-and-Inclusion.pdf>.



Figure 3. Real GDP Growth (Percent)



What does economic theory tell us about economic growth? One standard source of economic growth is factor accumulation: more labor, more physical capital, or the deployment or discovery of more natural resources (including land). Productivity is the other main source of long-run growth. Empirically, it accounts for most of the growth differences across countries globally.<sup>7</sup> An analysis of the slow growth of Caribbean economies since the 1970s, as compared to the rest of the small economies in the world, pinpoints low total factor productivity (TFP) growth as a key explanatory variable (Ruprah, Melgarejo, and Sierra 2014).

Increasing productivity, in broad terms, means getting more output or higher value output out of the same quantity of the factors of production. Productivity starts with technical efficiency – that is, combining inputs in a way that produces the most output. Technological change through innovation in new processes, new products or new machinery can expand production possibilities, even with the same quantity of inputs. At the micro level, TFP captures the innovation and/or technology development and adoption activities of private sector firms as well as efforts to create more value in either new products or processes (Isaksson 2007). In the 1950s, Solow’s model showed that accumulation affects the relative level of GDP, but that only technological change can increase long-run growth (Solow, 1957). Since then, economic growth experts have focused on multiple factors affecting productivity, both in theory and in empirical work, including market structure, access to finance, participation in international trade, intellectual property, government regulation (including basic property rights), managerial skills, research and development, and,

<sup>7</sup> See Easterly and Levin. (2001). Social returns to innovation have been estimated at 40 percent or more for advanced economies, and even higher for developing economies. See Benavente, de Mello, and Mulder (2005).

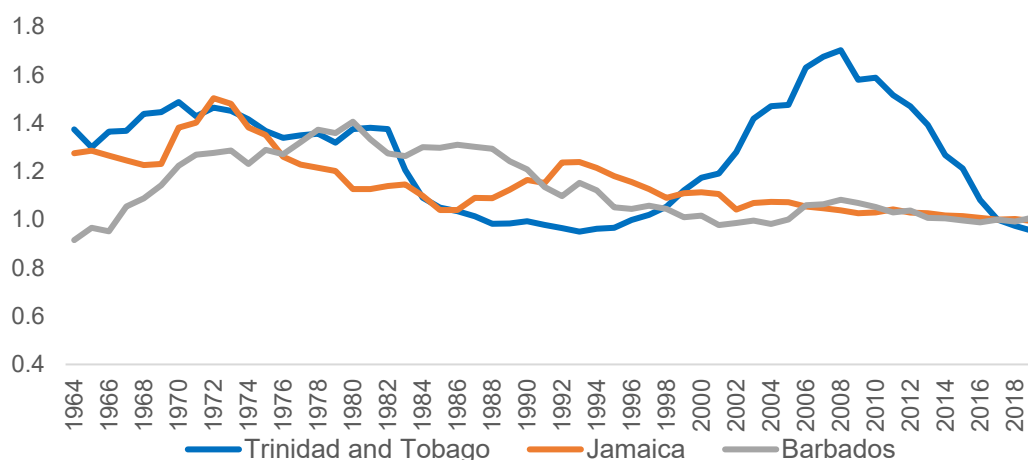


more broadly, the dynamic process of creative destruction of firms.<sup>8</sup> These are some of the factors that can spur the innovation that can lead to continuous increases in productivity and hence higher sustained levels of economic growth.

Measuring productivity is complex. At the aggregate macroeconomic level, one can account for the accumulation of factors – labor and capital – and then calculate the residual change in GDP. This is often called the “Solow residual,” and it represents a proxy for TFP, that is, output per combined units of inputs. There are drawbacks to this approach, including measurement problems and cyclical issues related to tax domestic or external demand, or changes in the terms of trade (export prices relative to import prices). Even natural disasters can play a role if the destruction of capital stock is not taken into account in the calculations. That said, aggregate TFP measurement is one approach that can provide an indication of the overall economy’s performance in terms of productivity growth.

The Penn World Tables (PWT) project (Feenstra, Inklaar and Timmer, 2015) produces estimates of TFP for many economies, including three of the Caribbean economies covered in this report.<sup>9</sup> Figure 4 shows that since 2000, TPF has stagnated or even declined slightly for Barbados and Jamaica, indicating that whatever limited economic growth that occurred was mostly due to capital accumulation. Again, there are caveats to using the methodology. One can also see that there was a TFP boom in the middle of the 2000–2019 period in Trinidad and Tobago, but this must have been driven by the commodity price cycle that strongly affected the terms of trade.

**Figure 4. Estimates of Total Factor Productivity from the Penn World Tables (Index: 2017 = 1)**



Source: The “rtfpna” variable of the Penn World Tables, Version 10.01.

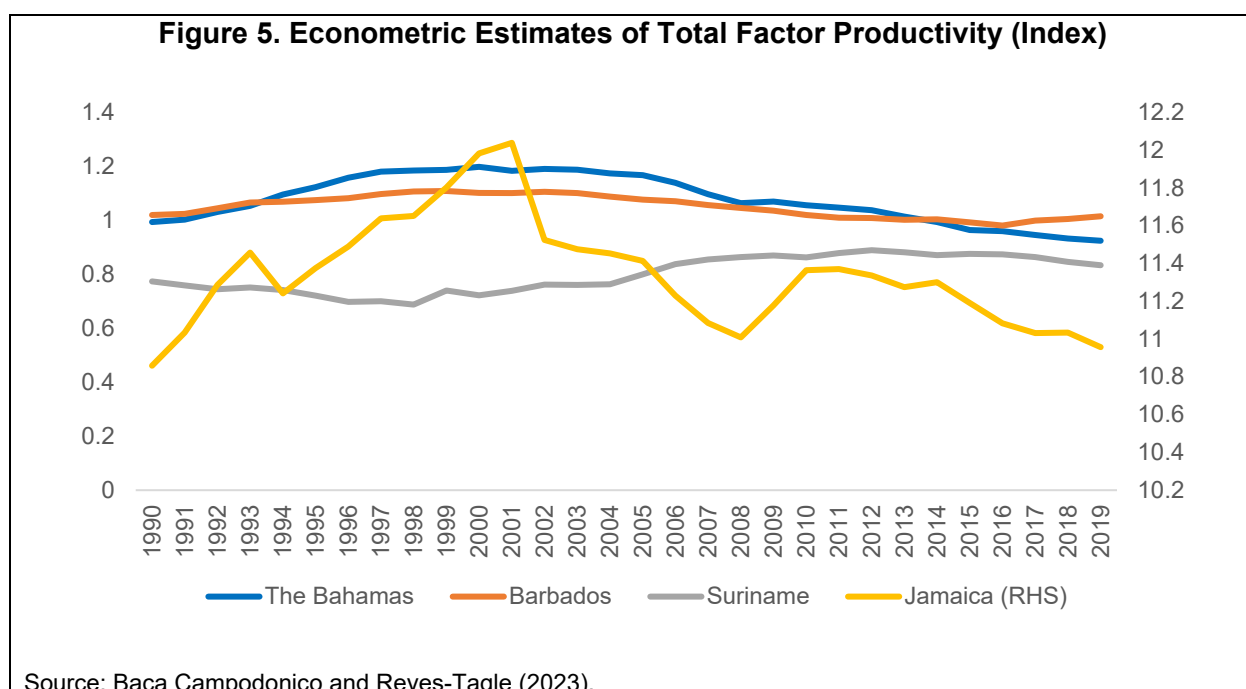
<sup>8</sup> See Aghion (2019) for an overview of this approach in the context of developing economies.

<sup>9</sup> Data are available online at the Groningen Growth and Development Centre at <https://www.rug.nl/ggdc/productivity/pwt/?lang=en>





Baca Campodonico and Reyes-Tagle (2023) developed an econometric approach to estimate TFP simultaneously with the parameters of the production function. They then applied the technique to four countries: The Bahamas, Barbados, Jamaica, and Suriname (Figure 5). The results confirm broadly declining levels of TFP since 2000, except for Suriname. That said, the authors note that their estimates of TFP levels are generally higher than Penn World Table estimates. For example, over the longer period, the authors estimate lower capital stock accumulation than PWT for The Bahamas, and as result, more of the country's economic growth is attributed to TFP in their estimates than in the PWT.



As mentioned earlier, there are limitations to measuring TFP at the aggregate level. The economy is not a magic aggregated machine, but rather a collection of firms and people engaged in economic decisions. It is at the firm level where investment decisions take place and where managers and workers engage in new processes or develop new products. In making those decisions, they are affected by the overall business climate, access to markets (including labor markets), government policies, and other factors. By collecting firm-level information, one can measure productivity from firms' reported sales and input costs, and compare how they perform and whether they engage in innovation across different sectors and different sets of conditions. Careful statistical analysis can then lead to actionable policy advice for reforms that can spur greater productivity growth, from the bottom up, and higher overall economic growth.



## Papers that Explore Productivity and Innovation Using the Innovation, Firm Performance and Gender Database

The 2020 data collection effort alluded to earlier produced the IFPG database, which provides a rich set of information on the status of firms in the Caribbean towards the end of 2020 and in early 2021, when the survey upon which the database draws was undertaken. The survey covered 1,979 firms across 13 Caribbean countries: Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St. Kitts, St. Lucia, St. Vincent and the Grenadines, Suriname, and Trinidad and Tobago. It included questions on 937 variables with information on firm performance, innovation activities, technology use, management practices, gender composition of staff and ownership/management, and views on the business climate. Thirty percent of the firms in the survey were also surveyed in the 2014 PROTEqIN survey, forming a panel subset that is tracked across the two surveys for a subset of questions.

The IDB launched a call for research proposals in 2021 with funding to support winning proposals. Five papers produced based on this process are summarized below.

- (i) *COVID-19, Firm Innovation Strategy and Production Efficiency: A Stochastic Frontier Analysis of Caribbean Firms*, by Preeya Mohan and Eric Strobl

**Motivation.** The COVID-19 pandemic had an unprecedented and devastating impact on the Caribbean, and particularly on firms in the region. The pandemic affected firm productivity through several channels, including by disrupting supply and logistics chains and forcing many firms to rapidly adopt new business processes such as teleworking arrangements. Despite its impact, there has been no empirical research on the impact of COVID-19 and firm productivity and innovation in the Caribbean. Additionally, considering the growing push towards environmental sustainability leading up to the pandemic, and the abrupt transition to strategies such as teleworking in order to maintain business continuity during the pandemic, the authors aimed to bridge that gap in knowledge.

**Hypotheses.** The authors empirically evaluated the effects of innovation on the technical efficiency of Caribbean firms before and during the COVID-19 pandemic.<sup>10</sup> Technical efficiency measures the ability of a firm to attain its maximum output based on the inputs used and technology available. Innovation is categorized as general (i.e., product, process, organization, and marketing) and green (i.e., environmental improvements).

**Data and methodology.** The authors selected relevant variables from the IFPG database, based on the literature. The variables were grouped in two categories: (i) firm characteristics (share of

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<sup>10</sup> The definition of innovation in the IFPG dataset follows the Organization for Economic Co-operation and Development's Oslo Manual: "...a new or improved product or process (or combination thereof) that differs significantly from your previous products or processes, and that you may have made available to the market or brought into use in your operations."

largest owner, foreign ownership, state ownership, experience of owner, female ownership); and (ii) firms' innovation activity and productive characteristics (including annual sales, employee headcount, and asset value).

The authors deployed a stochastic frontier approach (SFA) model, similar to that used by Coelli et al. (2005), to estimate the relationships and test hypotheses. In simple terms, the SFA examines whether firms are at the production frontier in combining the factors of production, while recognizing that there are random elements that also affect productivity. The model is based on two stages of estimation. First, technical efficiency is estimated from the decomposition of the residual of a modified production function at the firm level. The average technical efficiency for firms in the same sample was  $-0.0348$  and  $-0.0518$  before and during the COVID-19 pandemic, respectively. Second, technical efficiency enters as the variable of interest (dependent variable) within two linear models, one with a pre-COVID-19 sample and the other with a sample from during COVID-19. These models include variables pertaining to innovation and other factors as explanatory variables to estimate the determinants of firm technical efficiency. Finally, the post-COVID equation was re-estimated using the difference between technical efficiency before COVID-19 and expected technical efficiency during COVID-19 (i.e.,  $\Delta TE$ ) as the dependent variable.

**Results.** The main findings suggest that general innovation implemented before the COVID-19 pandemic had positive and statistically significant effects on technical efficiency and were better able to adapt to challenges imposed by the pandemic. However, general innovation triggered by the pandemic had negative and statistically significant effects. General innovation implemented during the pandemic also had negative effects but was only statistically significant if the dependent variable is the change in technical efficiency. The results for green innovation broadly suggested that implementation before the pandemic had negative effects. However, the effects of green innovation during the pandemic were mixed and only statistically significant if the innovation was affected by the pandemic and if the change in technical efficiency was the dependent variable.

**Policy discussion.** The results broadly suggest that proactive implementation of general innovation before external shocks should be prioritized. Firms that implement innovations, perhaps as a reactive measure to the pandemic, are penalized unlike their peers that had proactively implemented general innovations. The authors recommend that governments provide incentives to increase firm innovation during "good" times, since innovative firms stand a better chance of surviving during crises.

- (ii) *Are Caribbean Firms Willing to Innovate in the COVID-19 Era? The Effect of Managers' Perceptions and External Factors on Firm Innovation*, by Taryn De Mendonca and Togba Massaquoi

**Motivation.** The COVID-19 pandemic was an environmental shock – that is, an unexpected and disruptive event that affected Caribbean firms. There is disagreement in the literature on whether



such shocks encourage or discourage innovation by firms, and through what channels these effects, if any, occur.

**Hypotheses.** During the COVID-19 pandemic, Caribbean firms broadly avoided innovation. Though there are several potential explanations, the authors posit that the existing investment environment – which includes poorly trained labor, limited access to finance, poorly designed regulations, and low-quality physical infrastructure – discouraged risk-taking among Caribbean firms.

**Data and methodology.** The authors used the IFPG dataset, which showed that only 2% of Caribbean firms have invested in innovation since the pandemic, when priority has been on process rather than product. Like Mohan and Strobl (2023), the definition of innovation follows the Organisation for Economic Co-operation and Development’s Oslo Manual (OECD 2005).<sup>11</sup> Composite variables were designed to measure financial constraints, infrastructure quality, business-government relations, and human capital. Firms were asked to indicate their interest in investing in innovation in the next two years and their expectations of how COVID-19 would impact their operations and productivity.

To validate the hypotheses, the study used random-effects probit models, where the explanatory variables are factors that can affect the firm’s interest in investing in product or process innovation. (Probit models measure the probability of engaging in an activity – in this case, innovation.)

**Results.** The results showed that the following factors disincentivized investments in both process and product innovation:

1. Poor infrastructure
2. Age of firms (i.e., younger firms were less likely to invest in innovation)
3. Complexity of ownership (i.e., corporations were less likely to invest in innovation).

Business-government relations and human capital were determined to not have any statistically significant impacts on innovation.

Contrary to expectations, firms that did not face financial constraints were less likely to invest in process innovation (although there was no impact on product innovation).

The impact of the COVID-19 pandemic was mixed. The pandemic had no impact on product innovation, but decreased the likelihood of process innovation. Additionally, the pandemic diminished the impact of infrastructure as a factor in process innovation. For firms that believed

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<sup>11</sup> See footnote 10.



that there would be a return to “business as usual,” infrastructure quality was less likely to impede process innovation, but financing as a factor in process innovation was unaffected.

Overall, the results suggest that although the pandemic did not generally affect the calculus of Caribbean firms in seeking process innovation, it broadly decreased interest in product innovation. This diminished interest in product innovation may have reflected decreased consumer demand, and an interest by firms in maximizing rents from existing products.

**Policy discussion.** As countries move towards a new post-pandemic normal, governments should consider educating firms on the benefits of pursuing process innovations and put in place legislation to support them. For example, e-commerce and e-payments are two process innovations that mitigate fallout from diminished consumer demand as consumers gravitate towards digital interactions.

- (iii) *Gender Contribution to the Innovation-Productivity Relationship in the Wake of COVID-19: Evidence for the Caribbean*, by Ezequiel Tacsir and Mariano Pereira

**Motivation.** International research has examined the link between innovation activity and the gender composition of ownership, research and development (R&D) teams, management, and staffing. The results have been mixed, and no such studies have been conducted for a Caribbean sample of firms. In addition, the COVID-19 pandemic globally had differential impacts on female participation in the workforce, shareholding, and management, as compared to men. The pandemic shock is thus a potential source of variation in the innovation-productivity relationship due to these changes in female participation.

**Hypotheses.** The authors tested the hypothesis that, in the Caribbean context, the gender composition of a firm’s workforce or management/ownership has an impact on innovation activity and productivity. The paper also tested whether the COVID-19 pandemic impacted that relationship.

**Data and methodology.** The authors selected relevant variables from the IFPG database, based on the literature. The variables were in three categories: (i) firm characteristics (whether or not an exporter, size, ownership structure, capital stock per worker, age, sector, existence of an R&D department, existence of international quality certification, and whether public support was received for innovation); (ii) female participation (female worker share of the firm’s total workforce, and the standard deviation and coefficient of variation of the female share of the workforce across units within the firm); and (iii) innovation activity and productive characteristics of firms (binary variable on whether any innovation activity was reported, binary variable on process innovation, binary variable on product or service innovation, innovation expenditure per full-time employee, and labor productivity in terms of gross value added – revenues minus costs – per full-time employee). Most of the firms in the sample were small (less than 10 employees) and well



established (average age of 26 years). Only 4 percent of firms in the sample had an established R&D department, but nearly half reported engaging in innovation, with innovation expenditures per full-time employee averaging US\$7,854.

The authors deployed a model used by Crepon, Duquet and Mairesse (1998) to estimate the relationships and test hypotheses. The model is based on three stages of estimation. First, the probability of deciding to invest in innovation and the corresponding investment budget are estimated based on characteristics of the firms. Second, the number of innovation outputs is estimated based on the estimated innovation effort from the first stage. Third, labor productivity is measured as a function of estimated innovation outputs and other standard inputs to production. Finally, the authors innovated from the original model by adding gender participation variables (described above) to the determination of labor productivity.

Another innovation was inspired by the timing of the survey during the COVID-19 pandemic. The authors used questions from the IFPG survey on expected female participation in employment following the pandemic to see if expected changes would indicate changes in the innovation-productivity relationship.

**Results.** The empirical results show that the relationship between innovation outputs and productivity is positive and is similar to results from other studies in the literature. In terms of gender diversity, the results show that a higher share of female ownership has no effect on innovation decisions and expenditure. That said, firms with a higher share of female employment have higher labor productivity overall, though it is not through the innovation channel. The authors also found that firms did not expect substantial reductions in overall employment, but did expect a lower female share of employment, and this would partially offset the direct impact of higher shares of female employment on labor productivity.

**Policy discussion.** The analysis provides evidence that there are positive productivity returns to policies that would limit losses in female labor force participation due to the COVID-19 pandemic. In other words, greater female labor force participation is not only an equity issue, but also a productivity issue, with implications for economic growth.

- (iv) *Gender Diversity, Innovation, Open Innovation in the Caribbean Region*, by Isabel Álvarez and Yury Castillo

**Motivation.** Like the previous paper, this paper examines the role of gender diversity in firms and whether it affects the decision to innovate. Again, the literature points to the possibility that the type of women's participation in the firm (e.g., managerial versus general labor force) might matter. In addition, there is a body of literature that explores the role of cooperation in R&D activities between actors within the firm and external to the firm – a phenomenon known as open innovation.

**Hypotheses.** The authors tested whether gender diversity affects the probability of engaging in innovation, and whether this is a function of total employment or employment in particular roles:



management, production, and non-production activities. Second, the authors tested whether gender diversity affects the probability of engaging in open innovation.

**Data and methodology.** The authors examined the likelihood of engaging in any innovation (broken down by technological versus non-technological innovation) and whether such likelihood depends on the gender composition of the workforce. Technological innovation is based on whether firms reported a product or process innovation, whereas non-technological innovation is based on whether firms reported an organization or market innovation. The workforce gender diversity explanatory variables are broken down into total workforce diversity, management team diversity, and skilled production and non-production worker diversity. Control variables are investment in R&D per worker, age of the firm, and size of the firm (in terms of the number of employees). The regression also includes dummy variables for whether the firm is an exporter, whether it is part of larger company group, whether it deploys intellectual property protection, and whether it belongs to advanced IT sectors, along with fixed country effects. Due to endogeneity concerns, the authors used an instrumental variables identification strategy.

For the open innovation hypothesis, the dependent variable is whether firms engaged in cooperative innovation with another firm. An instrumental variables approach is used as well to test the impact of gender diversity.

**Results.** First, a few descriptive statistics are worth mentioning. Only 11% of firms in the sample have balanced diversity in their management teams, and 55% of firms have exclusively one gender represented in their management teams. Some degree of gender diversity in production and non-production workforces is present in 54% of firms. In terms of innovation, 39% of firms had engaged in some form of innovation, but only 12% had engaged in open innovation.

The regression analysis confirms that gender diversity in the total workforce has a significant and positive impact on both technological and non-technological innovation. Gender diversity in management has a significant positive effect on technological innovation, but not on non-technological innovation, and the results are similar for workers in other production and non-production roles. Finally, in terms of open innovation, gender diversity in the total workforce has a significant impact, but that is not the case for female participation in management.

**Policy discussion.** The policy implications are aligned with the previous study. Greater female workforce participation may be one path to improve productivity, in this case through a greater propensity to innovate and to cooperate with other firms on innovation.

- (v) *Who Protects Female Jobs in the Caribbean? Gendered Labor Decisions during COVID-19*, by Anna Tabitha Bonfert and Charles Udomsaph

**Motivation.** The COVID-19 pandemic negatively affected female employment more than male employment in the Caribbean and elsewhere. Discrimination at the firm level or differences in the sectoral composition of female employment could have played a role, as women's disproportionate involvement in household tasks perhaps could have induced a departure from



the labor force. Studies in other contexts have shown that more women lost jobs due to women-owned firms failing to survive the economic downturn, and that women-owned firms tended to have a higher proportion of female employees.

**Hypothesis.** The authors sought to establish whether female-owned or female-led firms are more likely to protect female employment among the firms that survive the recession. (This is different from the literature that showed that the exit of female-owned or female-led firms had led to declines in female employment.)

**Data and methodology.** The authors started by focusing on firms that have either majority-female ownership or majority-female management, along with a variable that combined both female-majority ownership with firms that have equal gender management but where the top manager is female. In terms of descriptive statistics, firms that are either exclusively or predominantly female-owned represent 19 percent of the sample. Female-owned firms have a greater tendency to be small: 67 percent of female-owned firms in the sample have 20 employees or less, as compared to 61 percent of male-owned firms. In terms of descriptive statistics on the female workforce, the share of females employed by firms varies greatly across firms and across countries. The female workforce is concentrated in the services sector, and firms in the essential services category have a higher proportion of female workers than do non-essential services. Firms led or managed by women employ a higher proportion of women than firms not led or managed by women.

To examine how women-led firms would respond to the COVID-19 pandemic in terms of employment, the dataset only offers an indirect measure: expected changes in employment and wages, by gender, as reported by the firms. The authors tested statistically whether female-owned or female-led firms have different expectations, by gender, for employment and wages, while controlling for characteristics of the firms (e.g., size, age, exporter status, sole proprietor status, and whether the firm was a startup).

**Results.** The results showed that female managers are more likely to expect losses in female managers and unskilled workers, as compared to male managers. There is no statistically significant correlation for female owners or for the blended female leadership variable described above. Using the percentage change in female job losses (rather than declines versus no decline), the results show a statistically significant decline for female-owned firms, but not for the other categories. In terms of wages, female-managed firms are more likely to expect female wage losses, while female-owned firms are less likely to expect such losses. A more general finding is that there is a strong correlation between female management/ownership/leadership and the level of female employment.

**Policy discussion.** The results show that the type of female leadership – ownership versus management versus mixed – might make a difference in how female employment is affected by the type of labor market stress experienced during the pandemic. Given that female-led firms





have more female employment, it would be worth exploring in more detail in future studies how the type of female leadership affects labor market outcomes.

## **Conclusions and Future Research Agenda**

Having enterprise-level microdata across different time periods is key to measuring the evolution of productivity and its determinants. The enterprise surveys sponsored by Compete Caribbean thus constitute a significant public good necessary to inform evidence-based policy decisions. Overall, the evidence points to continuing challenges as well as long-standing issues that were revealed in earlier surveys. Indeed, issues related to a challenging environment to access external finance with appropriate terms, as well as the absence of demanded skills within the Caribbean workforce, remain significant constraints to productivity and growth. Therefore, policy design and implementation to address the market failures that cause these challenges should rank high on the policy agenda.

The research papers summarized here are just an example of the insights that can be gained from careful statistical analysis of the IFPG dataset. Overall, the evidence shows that while proactive innovation positively affects business productivity and efficiency, innovations implemented as a result of pressing external shocks (such as the COVID-19 pandemic) do not necessarily generate gains in efficiency. This insight points to the relevance of policies geared towards continuously promoting technological adoption and business innovations across the entire business cycle.

The evidence also reveals that, while the pandemic shock affected employment differently by gender, policies aimed at limiting female unemployment are not only needed for equity but also are effective at improving productivity. Indeed, the COVID-19 shock led to worldwide job losses that were relatively more pronounced among women. Within the Caribbean, the heavier burden of domestic chores on women and the relatively higher female concentration in the service industry resulted in female employment being heavily affected (Arteaga, Beuermann, and Álvarez 2020). Nonetheless, the evidence presented shows that firms that effectively mitigated female employment losses were also more successful in limiting productivity losses. Likely channels operate through a positive association between a larger share of women in the workforce and higher propensities to innovate within firms and to cooperate between firms on innovation. As such, policies to facilitate female labor force participation will likely generate returns not only for equity considerations but also for productivity and long-term growth. This might even be relatively more relevant for the Caribbean where, although female educational attainment is higher than that of males, gaps in labor market participation are still unfavorable to women (Thailinger et. al. 2023).

One limitation of the dataset is that, although the dataset is representative of the average within each country, the sizes of country-level samples are relatively small. This results in relatively imprecise estimates (i.e., relatively large estimation errors) and limits the statistical power to



compare statistics across industries within countries and across countries. Future firm-level data collection exercises could take this into consideration. In addition, future iterations could include more variables related to managerial capabilities and firm-level input and output prices. That said, there is much useful analysis that can be leveraged from this dataset, and we encourage researchers from across the region to explore the data.



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A Caribbean Settlement Network: Can Blockchain Ease Intraregional Trade in the Caribbean?

ECONOMIC INSTITUTIONS FOR A RESILIENT CARIBBEAN

Editors:  
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## COUNTRY SUMMARIES

### The Bahamas

Khamal Clayton

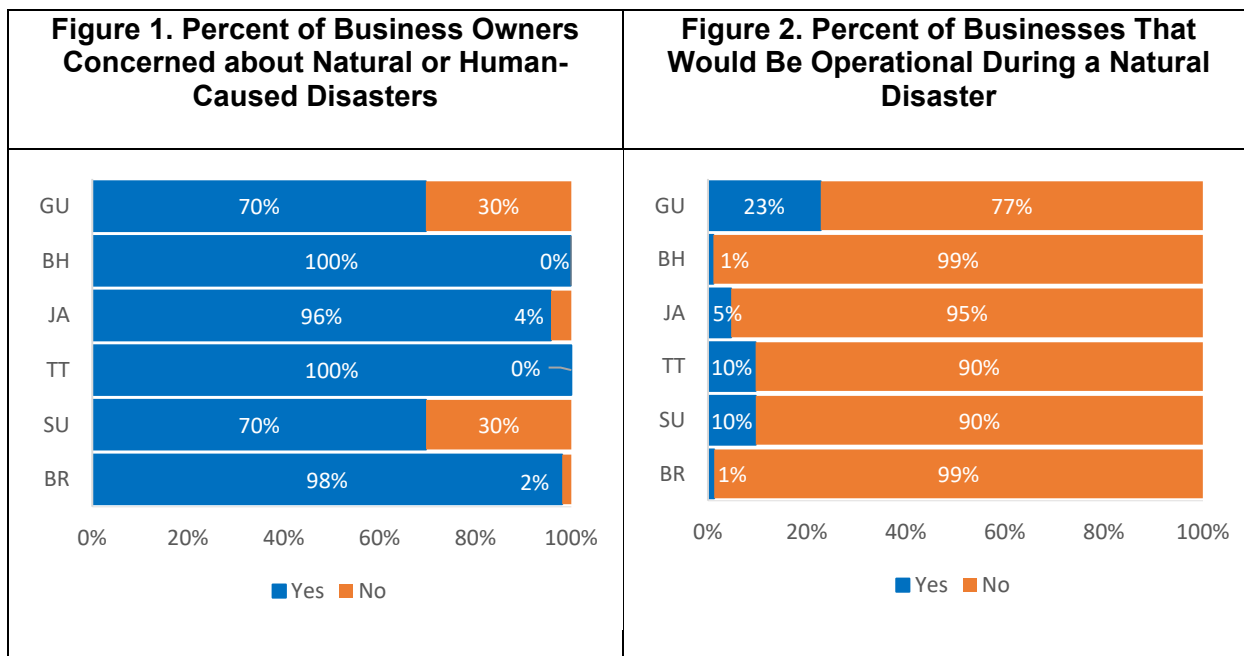
#### Macroeconomic Context

The last five years have been challenging for Bahamian businesses. Hurricane Dorian struck in 2019, leaving physical damage worth approximately 18 percent of GDP, of which 91 percent was borne by the private sector (ECLAC and IDB 2020). A few months later, Bahamian borders were shut for almost two years because of the COVID-19 pandemic, which contracted real GDP in 2020 by 23.8 percent. Both the hurricane and the pandemic were unexpected natural phenomena. However, unlike pandemics, hurricanes are a constant feature of the Caribbean, and steps can be taken to mitigate their devastating impact. These mitigation and adaptation efforts will require substantial investments by both the private and public sectors in physical and digital infrastructure.

Not surprisingly, 100 percent of Bahamian firms in 2020 were concerned that their business operations would be disrupted by a natural or human-caused national disaster (Figure 1), as reported in responses to the Innovation, Firm Performance and Gender (IFPG) Survey conducted by Compete Caribbean in 2020.<sup>12</sup> This very high level of concern was echoed by other Caribbean countries that depended on tourism or were occasionally affected by hurricanes, while countries such as Guyana and Suriname, which are neither services-oriented nor typically affected by hurricanes, showed sharply lower levels of such concern (both at 70 percent). The Bahamian business owners believed that they would not be able to remain operational if, during a natural disaster, they were to lose access to their markets, basic utilities, or place of business (Figure 2). Loss of utilities, whether power, water, or communications, can be common during hurricanes. Winds can overturn powerlines and telecommunication towers, and flooding can damage power plants.

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<sup>12</sup> See the Regional Overview of this bulletin for a more detailed description of the IFPG survey and dataset. The IFPG dataset is available on the Compete Caribbean website at [www.competecaribbean.org/protegin-ifpg-datasets/](http://www.competecaribbean.org/protegin-ifpg-datasets/).



Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020, available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

Note: The question in Figure 1 was: Are you concerned that your normal business operations might be interrupted by a natural or human caused disaster? The question in Figure 2 was: Would you be able to stay open for business in the case of natural disasters if you would not be able to access your markets, your primary place of business or basic utilities?

BH (The Bahamas), BR (Barbados), GU (Guyana), JA (Jamaica), SU (Suriname) and, TT (Trinidad and Tobago)

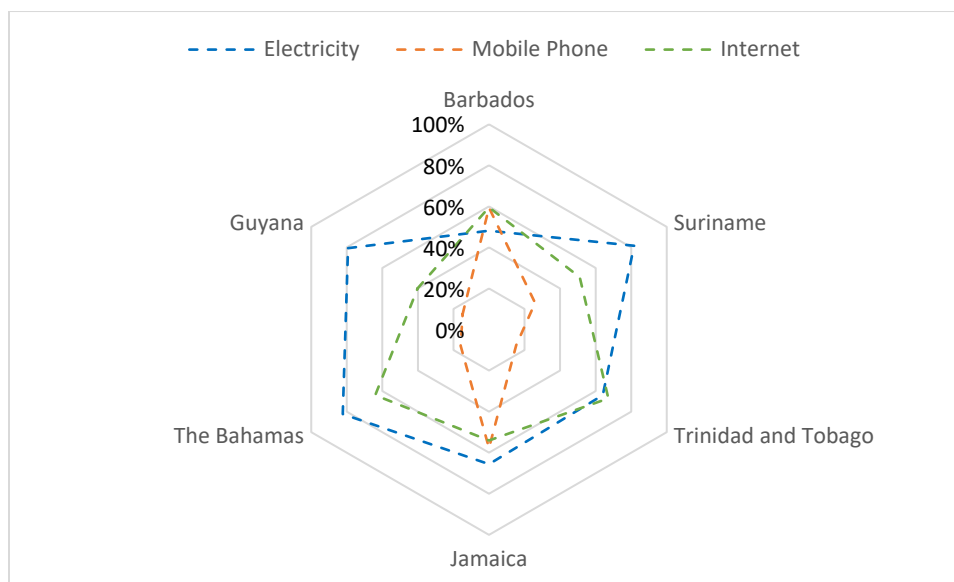
Throughout the year, outages are common in the Caribbean, especially for telecommunications and power. In The Bahamas in 2019, more than four out of five businesses reported power outages, while more than three out of five reported disruptions in Internet service (Figure 3). Across the Caribbean, regardless of level of development and exposure to hurricanes, disruptions to Internet service and electricity are the norm. However, in The Bahamas, unlike its peers, mobile service has proved to be the most reliable and resilient for businesses. Mobile telecommunications is relatively less dependent on fixed, connected infrastructure, which contributes to its reliability during natural disasters. On the other hand, the unreliability of energy and telecommunications in The Bahamas broadly suggests a need for improvement. According to IDB calculations, based on income per capita in The Bahamas, energy, telecommunications, and digital adoption were ranked as key development gaps in need of further investment.<sup>13</sup>

<sup>13</sup> The development gaps methodology is detailed at Acevedo, Borensztein, and Lennon (2019).





**Figure 3. Percent of Businesses Reporting Electricity, Mobile Phone, and Internet Outages, 2019 (Percent)**



Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020, available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

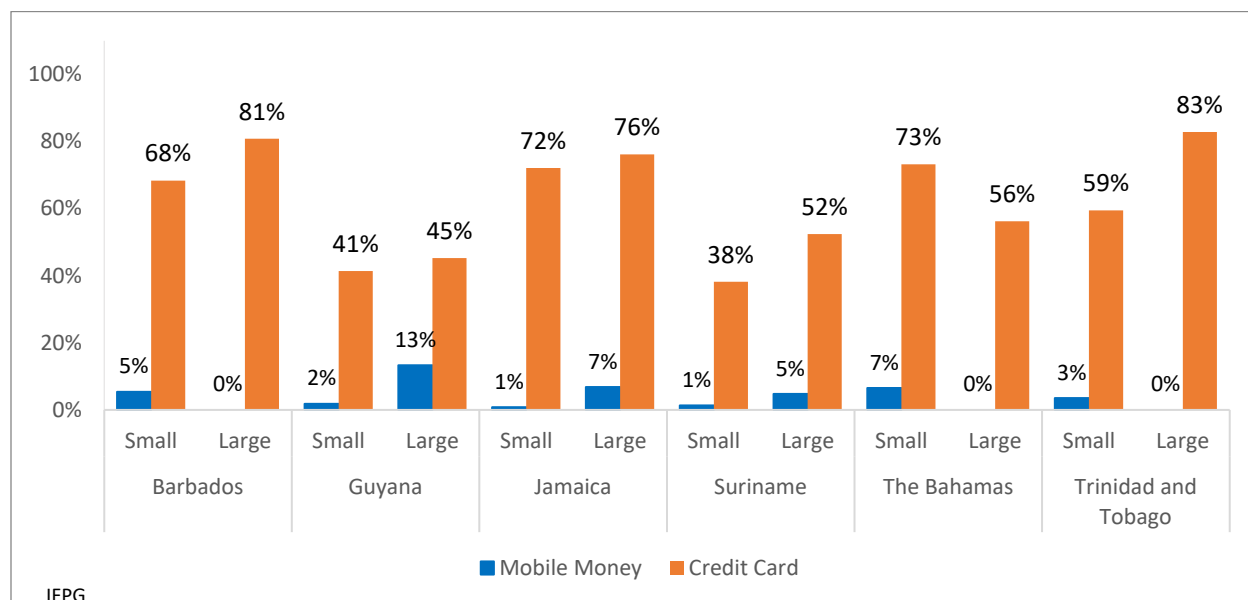
Note: The question posed was: Over the last fiscal year, did this establishment experience outages/interruptions? The center of the figure corresponds to 0 percent.

During a hurricane, when power service is intermittent and access to cash from banks and automated banking machines is restricted,<sup>14</sup> mobile phones may offer an opportunity for business continuity across the islands, and for much-needed financial services for residents in underbanked Family Islands. Mobile phones can provide not only communication, but also be leveraged for means of payment. As of 2020, credit card and mobile payment uptake was slow in The Bahamas for both small and large firms. Across the Caribbean, use of mobile money payments is almost non-existent. On the other hand, unlike its peers across the region, Bahamian large firms were more likely than their smaller counterparts to refuse credit card payments, both in person and remotely (Figure 4). Even before the rollout of the Sand Dollar in 2022, the level of resistance to payment methods outside of cash was high and may partly explain the slow uptake of Sand Dollars by citizens and firms.

<sup>14</sup> Even without hurricanes, access to banking has [shrunk](#) in the Family Islands in the last few years.



**Figure 4. Percent of Firms by Size that Accept Credit Cards or Mobile Money in Some Form**



Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020, available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

Note: The question posed was: If yes [i.e., aware of payment method], do you currently accept this payment method?

Both the COVID-19 pandemic as well as the rising threat of natural disasters mean that businesses must find new ways to maintain continuity while increasing productivity. New technologies such as mobile money offer new opportunities, especially within the e-commerce space, for both businesses and residents across the sparsely populated Family Islands. Yet, investment in traditional infrastructure is also needed, particularly for the provision of power. That infrastructure is still overwhelmingly dependent on aging infrastructure that is prone to outages. If the private sector is the engine of the economy, then infrastructure is the highway on which those engines need to run. Without it, it will be more difficult for the Bahamian economy to reach its goal of sustainable growth and development.



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## **Barbados**

Diether W. Beuermann

### **Macroeconomic Context**

Undoubtedly, the last five years have severely tested the strength and resilience of Barbados. The consequences of the COVID-19 pandemic, followed by shocks from natural disasters, have been unprecedented. Following the imposition of mobility restrictions around the globe to try to control the spread of the virus, Barbados experienced a halt in tourism arrivals starting in the second quarter of 2020. Real GDP dropped by 13.5% in 2020 and by 0.3% in 2021. Tourism arrivals rebounded after the first wave of COVID-19 cases eased between the end of 2020 and the beginning of 2021, but natural disasters disrupted the expected recovery. In April 2021, the volcanic ash falls from La Soufriere in neighboring St. Vincent disrupted economic activity, paralyzed airport operations, and resulted in additional expenditures derived from cleanup activities. In July 2021, the island was hit by a category 1 storm, Hurricane Elsa, the first to directly strike Barbados in 65 years. This caused damage to powerlines, disruptions in telecommunications and water provision, and damage to roofs. Although tourist arrivals improved in all quarters of 2022 compared to 2021, aggregate arrivals still represented only 48.5% of pre-pandemic (i.e., 2019) figures. Therefore, although real GDP grew 10% during 2022, it will not return to pre-pandemic levels for at least another year.

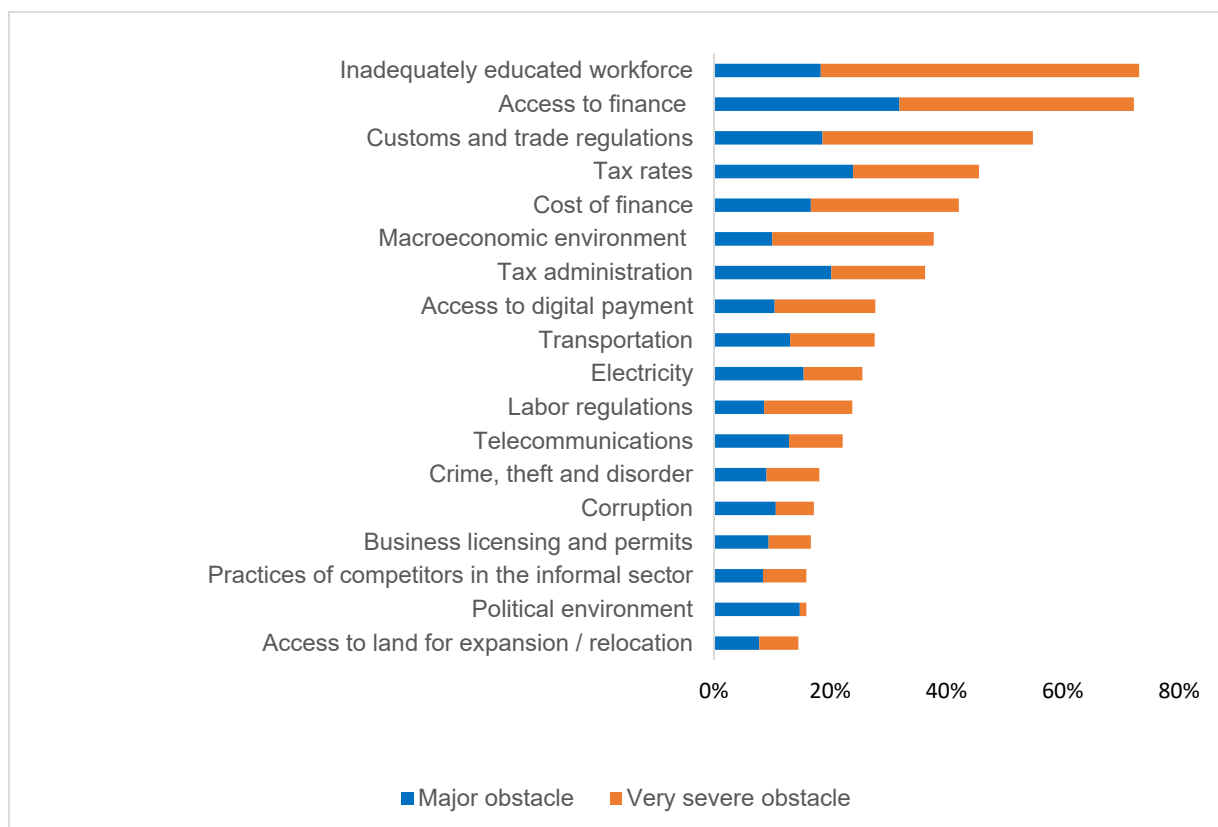
To sustain a strong recovery, the private sector can and should play an integral role. However, evidence from the Innovation, Firm Performance and Gender (IFPG) survey conducted in 2020 reveals several constraints that limit private sector productivity and growth.<sup>15</sup> The most severe obstacles affecting business operations were the lack of needed skills in the workforce, limited access to reliable financing, and burdensome customs and trade regulations (Figure 1).

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<sup>15</sup> See the Regional Overview of this bulletin for a more detailed description of the IFPG survey and dataset. The IFPG dataset is available on the Compete Caribbean website at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).



**Figure 1. Barbados: Main Obstacles that Affect Business Operations (Percent)**



Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020, available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

Note: The question asked was: Please rate each one of these factors as obstacles that can affect the current operations of your establishment.

Given the relatively high levels of educational attainment in Barbados – which averages 10.6 years of schooling versus a regional average of 8.7 years in Latin America and the Caribbean (UNDP 2020) – the fact that more than 70% of firms in the IFPG identified the lack of an adequately educated workforce as a major or very severe obstacle to business operations seems somehow surprising (Figure 1). Nonetheless, one significant determinant of that situation is the skill-biased emigration phenomenon. More than 60% of the population in Barbados with a tertiary education emigrates to member countries of the Organization for Economic Co-operation and Development (OECD) (Mishra 2016). This translates into a short supply of individuals with tertiary education on the island, and, on the other hand, an excess supply of non-college educated workers (Ruprah and Sierra 2016). The latter enter the local labor force without adequate skills to meet new social and labor demands. Furthermore, employers believe the country’s Technical and



Vocational Education and Training (TVET) System puts too much emphasis on theory and too little on practical application (Downes 2022). Indeed, there are no systematic mechanisms to effectively capture and project the demand for skills from the private sector (ILO 2018). Over 77% of firms in Barbados report that they have not participated in the design or development of training programs. As a result, the education system does not ensure that the training offered is aligned with the demands of employers or with the needs of sectors with high growth potential (Downes 2022). Finally, it is worth noting that the University of the West Indies, which historically has contributed to higher levels of human capital, is facing budget cuts that could lead to financial distress and eventually further reduce the stock of needed skills.

Access to finance for innovative and productive activities was reported as another significant constraint for business operations in Barbados. More than 70% of surveyed firms in the IFPG identified access and cost of finance as major or very severe obstacles, while only 11.6% of small and medium-sized enterprises reported having a bank loan. While financial institutions show adequate liquidity levels, their risk appetite is aligned with financing scarce large-scale projects and collateral-based operations. Consequently, the loan portfolio of commercial banks is heavily concentrated on mortgages, real estate, and construction (63%). The absence of institutions such as credit registries or bureaus results in high levels of asymmetric information in the credit market and, therefore, exacerbates obstacles for firms such as high collateral requirements and unfavorable interest rates. This restrains the possibilities to secure financing for innovative enterprises that often lack collateral. Indeed, there is almost no financing for very early stages of entrepreneurship (e.g., seed capital), and the ecosystem to support entrepreneurs and innovators is undeveloped. The absence of financing at the early stages of the business cycle limits the scope for private sector diversification in terms of both sectors and business models.

Given the need for mitigation and adaptation to climate change, financing for private-led initiatives on this front becomes necessary. The private sector should become a key factor in the climate and biodiversity crisis agenda through the development of profitable projects that address both mitigation and adaptation issues while contributing to the recovery of natural capital. Therefore, as correctly highlighted in the Bridgetown Initiative, climate and green financing becomes of the utmost importance. Although commercial banks may have some climate-related instruments, the market failures that restrain access to finance for innovative products and services also limit this type of financing. Consequently, initiatives for specialized climate financing agencies, such as the Blue Green Bank for the Caribbean and the issuance of green and blue bonds to leverage international capital, become highly relevant. Initiatives such as the first private green bond issued in 2019 by Williams Caribbean Capital to finance solar photovoltaic projects set the appropriate path to follow. Relevant initiatives in Barbados include renewable energy development to utilize the island's abundant natural potential; waste minimization, including waste disposal pricing and composting; performance bonds to minimize damage from cultural events; and sustainable land-based transportation (ECLAC 2021).



The third reported obstacle in the IFPG survey was the burdensome customs and trade regulatory environment. About 55% of firms reported this issue as a major or very severe obstacle (Figure 1). According to the OECD's Trade Facilitation Indicators, noteworthy areas for improvement include appeal procedures, border agency cooperation, and governance and impartiality. The absence of a foreign trade single window results in a situation in which traders must submit documentation with partially redundant information to multiple agencies. The rate of implementation of Barbados' commitments under the World Trade Organization's Trade Facilitation Agreement (TFA) is 44.5% (WTO 2019).<sup>16</sup> In addition to the single window, examples of TFA commitments that would expedite the customs clearance process for which implementation is still pending include advance rulings, risk management, post-clearance audit, and trade facilitation measures for authorized operators.<sup>17</sup> Nonetheless, the Barbados Customs and Excise Department has made progress towards modernization with the development of a 2020–2023 Strategic Plan and organizational and governance reforms. In addition, customs legislation passed in 2021 addressed the implementation of some issues mentioned above (Austin 2021).

Addressing these challenges with policies that have shown success should rank high on the national agenda. For example, to address the mismatch between skills found in the labor market and businesses demands, the implementation of pre-apprentice and apprenticeship programs could be considered. This should be carried out in collaboration with the private sector by possibly expanding dual training programs in economic sectors with growth potential. In the case of young people who lack the basic skills to enter the labor market, they could first enroll in a pre-apprentice program that reinforces soft, cognitive, and digital skills.

For their part, regulatory authorities and the financial sector could work together to ameliorate credit market failures that undermine access to finance and limit innovation. The establishment of a centralized credit registry or bureau should be a priority to unleash credit availability to the productive sector and reduce the overreliance on collateral. Lending to innovative businesses could be incentivized through a combination of risk-sharing, blended finance, and guarantee mechanisms – with government support – that could mitigate exposure to this relatively riskier segment. Technical assistance and advisory services could be deployed to support innovative firms in the preparation and evaluation of business plans and investment proposals that can be financed by the private sector.

<sup>16</sup> See also the Barbados page of the WTO's Trade Facilitation Agreement Database, available at <https://tfadatabase.org/members/barbados/technical-assistance-projects> (accessed 12 April 2023).

<sup>17</sup> See the Category C Analysis on the Barbados page of the WTO's Trade Facilitation Agreement Database, available at <https://tfadatabase.org/members/barbados/technical-assistance-projects> (accessed 12 April 2023).



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## Guyana

Victor Gauto

### Macroeconomic Context

Guyana's economic context continues to be one of a booming economy. Oil production is expected to drive growth in GDP, government revenues and expenditures in the medium term. In 2022, GDP growth reached the highest rate ever of 62.3%, while the non-oil economy expanded by 11.5%. GDP is expected to grow by 37.2% in 2023 while the non-oil economy is projected to grow by 7.9% (IMF, 2023; MoF, 2023). Two more floating, production, storage, and offloading (FPSO) vessels for oil production are expected to come online in 2023 and 2025, adding to the two FPSOs already producing oil since 2020 and 2022. This additional oil production has contributed to the International Monetary Fund (IMF) increasing its annual average GDP growth estimates for the country from 18.5% to 40.0% percent for 2022–2026. Government revenues and expenditures are expected to follow a similar trend, averaging annual growth rates of 23% and 15%, respectively, over the same period (IMF, 2023).

This chapter reviews high-level data focusing on the private sector based on the 2020 Firm Performance and Gender (IFPG) Survey, which collected private sector information from 13 Caribbean countries.<sup>18</sup> In addition, it compares some of the outcomes with an earlier survey, the 2014 Productivity, Technology and Innovation in the Caribbean (PROTEqIN) Survey.<sup>19</sup> In Guyana, 155 firms were surveyed across industries such as manufacturing and services. The chapter begins with an overview of the main obstacles to doing business in Guyana and compares that to the other five Caribbean countries analyzed in this bulletin. Next, it reviews some important service indicators describing connectivity for electricity, mobile communications, and Internet before describing how some of these indicators have evolved over time.

Opportunities in the private sector in Guyana are increasing. In the current context of a growing economy, there are significant opportunities for private sector growth, not only because of the positive spillovers from the oil and gas industry, but also from higher levels of government spending on infrastructure. Sectors such as construction, transportation, logistics, hospitality, technology, and other business services all stand to gain significantly, such that it is important that the business climate facilitate these growing opportunities. The firms surveyed across the Caribbean were asked what they considered to be major and very severe obstacles to doing business in their respective countries in 18 different areas. In Guyana, the top six obstacles to doing business were electricity, tax rates, skilled labor, collateral requirements for loans, interest rates on loans, and customs and trade regulations. A total of 64% of firms cited electricity as either a major or very severe obstacle to doing business, while 47% cited customs and trade regulations (Figure 1). In contrast, for the Caribbean overall, electricity remains a challenge, but

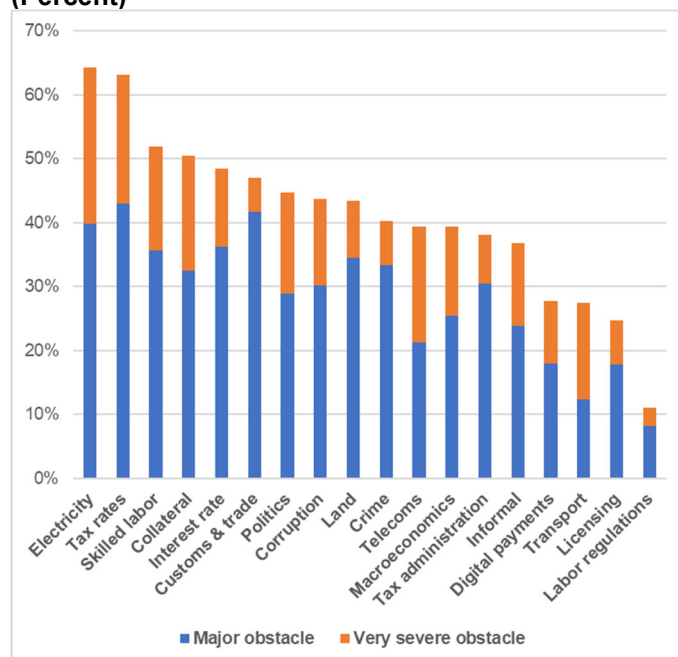
<sup>18</sup> See the Regional Overview of this bulletin for a more detailed description of the IFPG survey and dataset.

<sup>19</sup> Both the IFPG and PROTEqIN datasets are available on the Compete Caribbean website at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

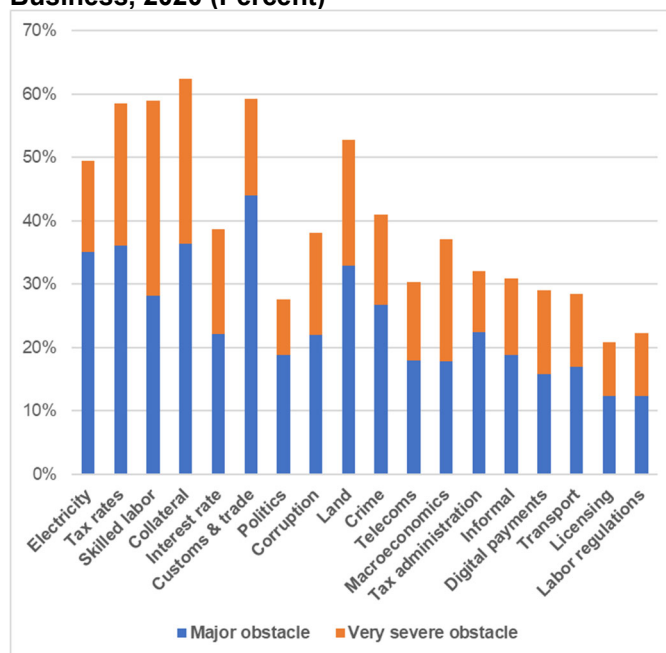


not the main one, as 49% of firms identified it as a major or very severe obstacle (Figure 2). Regionally, the three most significant obstacles were collateral requirements for loans, identified by 63% of surveyed firms, followed by customs and trade regulations (59%), and skilled workers (59%). The greatest divergences between Guyana and the region are in the categories of political environment and electricity, which are identified as more serious obstacles in Guyana, while collateral requirements, customs and trade regulations, and labor regulations are reported as more serious obstacles in the region (Figure 2).

**Figure 1. Guyana: Obstacles to Doing Business, 2020 (Percent)**



**Figure 2. The Caribbean: Obstacles to Doing Business, 2020 (Percent)**



Sources: Compete Caribbean, Productivity, Technology and Innovation in the Caribbean (PROTEqIN) Survey, 2014, and Innovation, Firm Performance and Gender (IFPG) Survey, 2020. Both datasets are available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

Note: In Figure 2, the Caribbean refers to the six countries of the Caribbean Country Department at the Inter-American Development Bank: The Bahamas, Barbados, Guyana, Jamaica, Suriname, and Trinidad and Tobago.

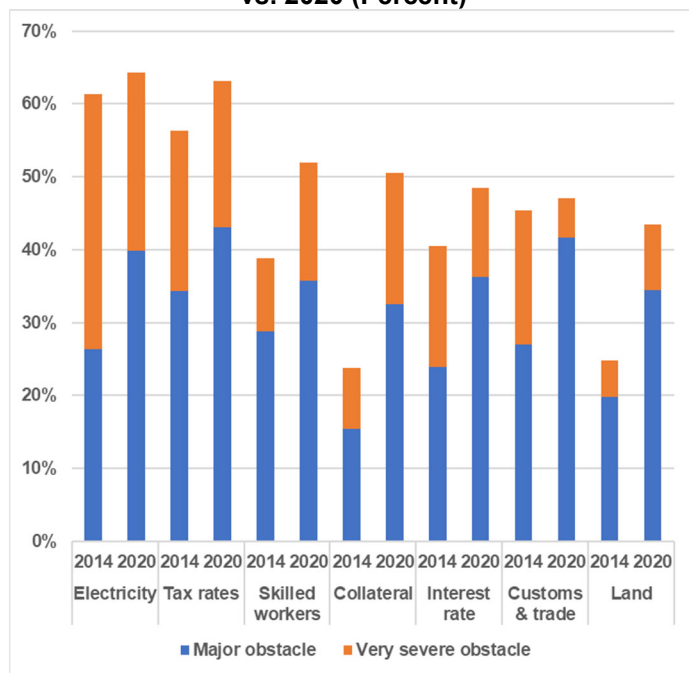
Some obstacles appear to have become more serious recently in Guyana. In comparing the survey results between 2014 and 2020, electricity, tax rates, skilled workers, collateral requirements, interest rates, customs and trade, and land have been reported to be major and very severe obstacles by a larger share of surveyed firms (Figure 3). Electricity continues to be a significant challenge, as it was reported as an obstacle by more than 60% of firms in both surveys. Similarly, there has been little variation across the surveys in the obstacles reported in customs and trade, the political environment, and corruption. However, there has been significant variation in areas such as collateral requirements, land, and skilled workers, with almost 30% more firms identifying collateral and 20% more firms identifying access to land as an obstacles. This result is not surprising in the context of a booming economy, considering the high levels of



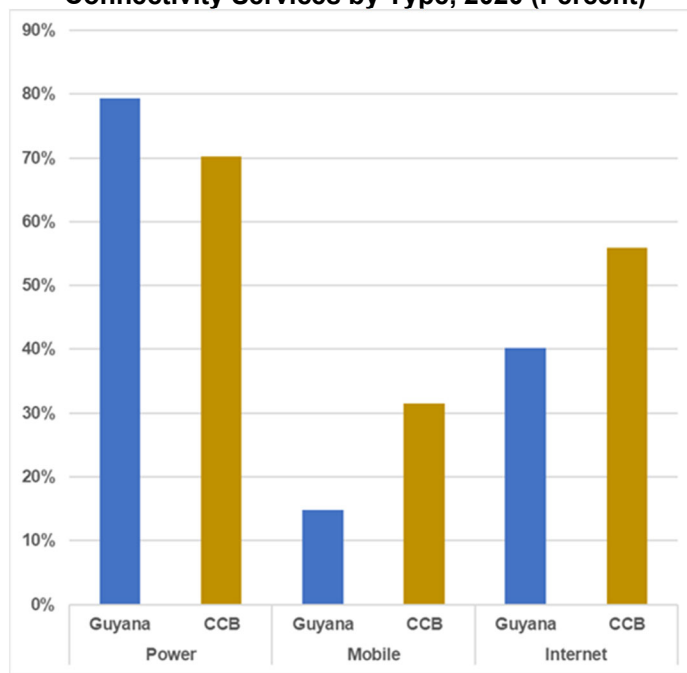
capital inflows. Increased business opportunities demand higher levels of credit and skilled workers, while at the same time property values have increased, making access to land more difficult.

In connectivity services, a higher share of firms in Guyana reported having power interruptions, but fewer reported mobile and internet service interruptions compared to the Caribbean average. In 2020, 79% of surveyed firms in Guyana reported experiencing power service interruptions over the last year compared to 70% in the Caribbean. However, only 15% of firms in Guyana reported having mobile phone connection interruptions, compared to 32%, and 40% reported having internet service interruptions compared to 56% in the Caribbean (Figure 4).

**Figure 3. Guyana: Obstacles to Doing Business, 2014 vs. 2020 (Percent)**



**Figure 4. Guyana and the Caribbean: Interruption of Connectivity Services by Type, 2020 (Percent)**



Sources: Compete Caribbean, Productivity, Technology and Innovation in the Caribbean (PROTEqIN) Survey, 2014, and Innovation, Firm Performance and Gender (IFPG) Survey, 2020. Both datasets are available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

Note: In Figure 4, CCB refers to the six countries of the Caribbean Country Department at the Inter-American Development Bank: The Bahamas, Barbados, Guyana, Jamaica, Suriname, and Trinidad and Tobago.

Electricity supply, although an important challenge, has seen some improvement over time. The survey data show that the number of average reported power outages per month in Guyana is the highest across Caribbean countries, reaching 5.2 outages per month compared to the Caribbean average of 2.9 per month (Figure 5). In terms of the length of the outages, responses in Guyana were relatively better than the region, with firms reporting that the average length of



outages in Guyana was 2.45 hours, lower than all Caribbean countries except Jamaica, where outages were reported to last an average of 2.19 hours. The Caribbean average was 2.83 hours. Finally, in terms of electricity sector development in Guyana, the 2020 survey results show significant progress in reducing the number of outages, as the average number of power outages reported by respondent firms decreased from 9.3 per month in 2014 to 5.2 per month in 2020 (Figure 6). The regional average figures showed a similar trend, declining from 3.9 outages per month in 2014 to 2.9 per month in 2020.

Figure 5. Number and Length of Power Outages, 2020

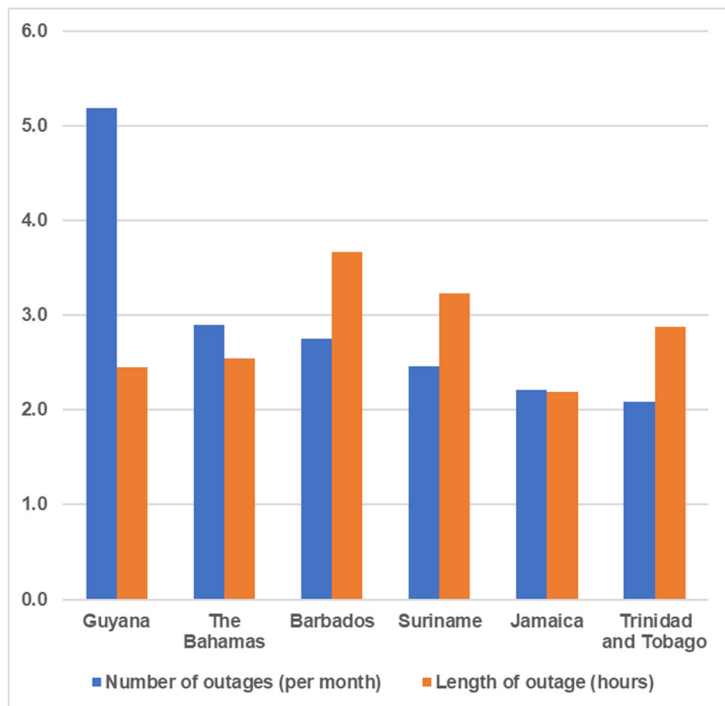
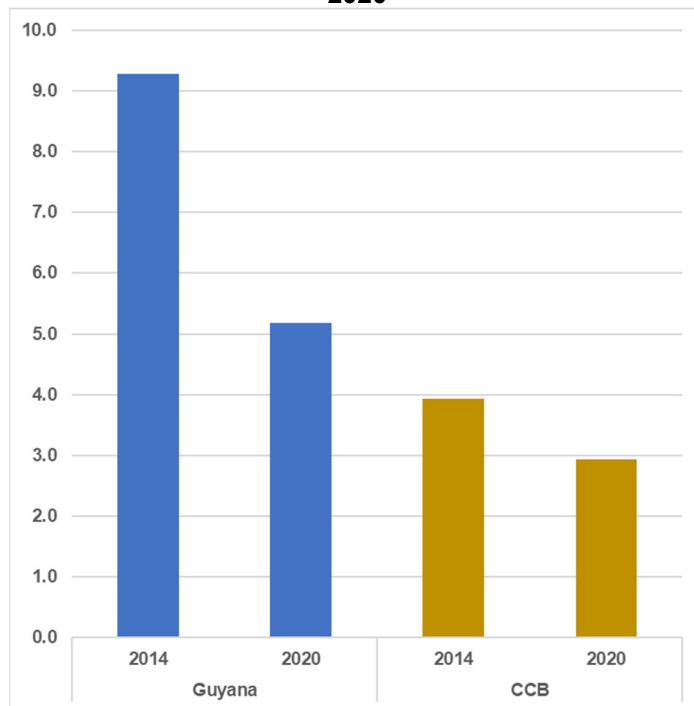


Figure 6. Number of Power Outages per Month, 2014 vs. 2020



Sources: Compete Caribbean, Productivity, Technology and Innovation in the Caribbean (PROTEqIN) Survey, 2014, and Innovation, Firm Performance and Gender Survey, 2020. Both datasets are available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

Note: In Figure 6, CCB refers to the six countries of the Caribbean Country Department at the Inter-American Development Bank: The Bahamas, Barbados, Guyana, Jamaica, Suriname, and Trinidad and Tobago.

In terms of policy implications, the government, through its Low Carbon Development Strategy 2030 (LCDS), highlights the importance of private sector development (Government of Guyana 2022). The LCDS states that Guyana has some of the highest electricity rates in the Americas and proposes to stimulate future growth by diversifying the energy matrix and transition to cleaner energy by moving from heavy fuel oils for electricity generation to natural gas and renewable sources. One of the government's transformative infrastructure projects is the development of the gas-to-shore project, which consists in the construction of a pipeline transporting natural gas



to shore and a natural gas power plant, expected to significantly reduce the cost of electricity and support private sector development. In renewable energy, the government plans to use some of the funds it earned from the Government of Norway for environmental sustainability, to build solar power plants in Linden, the Essequibo Coast, and Berbice. There are also plans to construct and rehabilitate hydroelectric power plants in communities on the border with Brazil.

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## Jamaica

Monique Graham and Henry Mooney

### Macroeconomic

After a sharp contraction driven by the COVID-19 shock in 2020, Jamaica's economy is recovering in line with a strong rebound in tourism, though risks to the outlook remain. The shock to real GDP growth was substantial (-10% in 2020), particularly given that nearly a third of both total output and employment are linked to the tourism sector ([Mooney et. al. 2020](#)). Latest estimates from the International Monetary Fund (IMF) suggest that real GDP growth was about 5% in 2021, and about 4% in 2022 (IMF 2023). Looking forward, strong tourism demand continues to buoy expectations, though risks from domestic and global inflationary conditions, tightening policy conditions, and geopolitical uncertainties continue to cloud the outlook.

Despite these and related risks, Jamaica has developed strong fiscal buffers to help deal with any unforeseen shocks, including a new contingent facility from the IMF. In March 2023, the IMF approved a loan package, including support under the Precautionary and Liquidity Line of approximately US\$967 million and the Resilience and Sustainability Facility of approximately US\$763 million. The former is a contingent facility that provides ample buffers against unforeseen shocks, supplementing already strong international reserves and continued large projected primary surpluses. The latter will provide low-cost, long-term general budget financing, allowing the government of Jamaica to refinance debt that is coming due in the near term at low cost, supporting its medium-term debt reduction objectives.

### Challenges and Opportunities: Views of the Private Sector

Rather than focus on short-term macroeconomic challenges facing countries, this edition of the bulletin focuses on challenges and opportunities facing the most important engine of long-run growth for the region: the private sector. In Jamaica, private businesses employ approximately 90% of the workforce across sectors. Against this backdrop, this chapter reviews results of the Compete Caribbean Innovation, Firm Performance and Gender (IFPG) Survey, which collected private sector information from 13 Caribbean countries, including Jamaica.<sup>20</sup> In addition, the chapter compares some of the outcomes with an earlier survey, the 2014 Productivity, Technology and Innovation in the Caribbean (PROTEqIN).<sup>21</sup>

These surveys highlight several severe challenges to the private sector in Jamaica, including the top five issues as measured by the proportion of survey responses: (i) inadequately skilled workers, (ii) corruption, (iii) electricity, (iv) crime, and (v) access to digital payments (Figure 1). The sections below discuss some of these and other key issues faced by Jamaican firms.

<sup>20</sup> See the Regional Overview of this bulletin for a more detailed description of the IFPG survey and dataset.

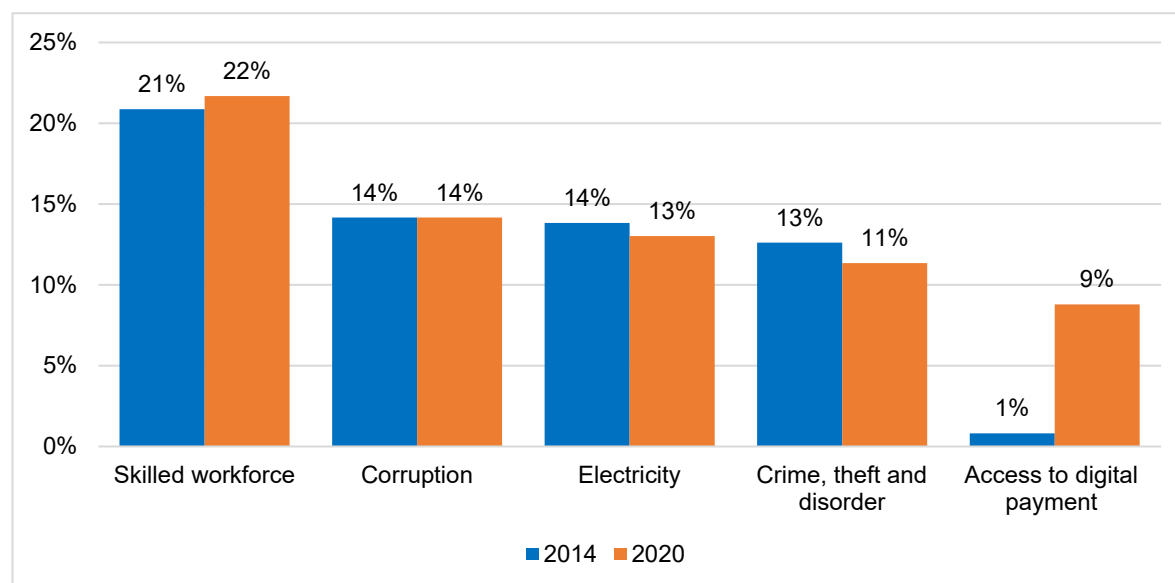
<sup>21</sup> Both the IFPG and PROTEqIN datasets are available on the Compete Caribbean website at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/)



### Skills

Access to a skilled workforce became a more acute challenge in Jamaica between 2014 and 2020. This is intuitive, given the rapid pace of technological development over the past decade. Against this backdrop, while employment rose between 2015 and 2022, labor productivity in Jamaica declined by 7.8% (CaPRI 2023), highlighting the increasingly profound implications of the emerging skills deficit, particularly in technology-related areas.

**Figure 1. Jamaica: Top Five Obstacles as Reported by the Private Sector, 2014 vs. 2020**



Sources: Complete Caribbean, Productivity, Technology and Innovation in the Caribbean (PROTEqIN) Survey, 2014, and Innovation, Firm Performance and Gender (IFPG) Survey, 2020.

### Digital Payments

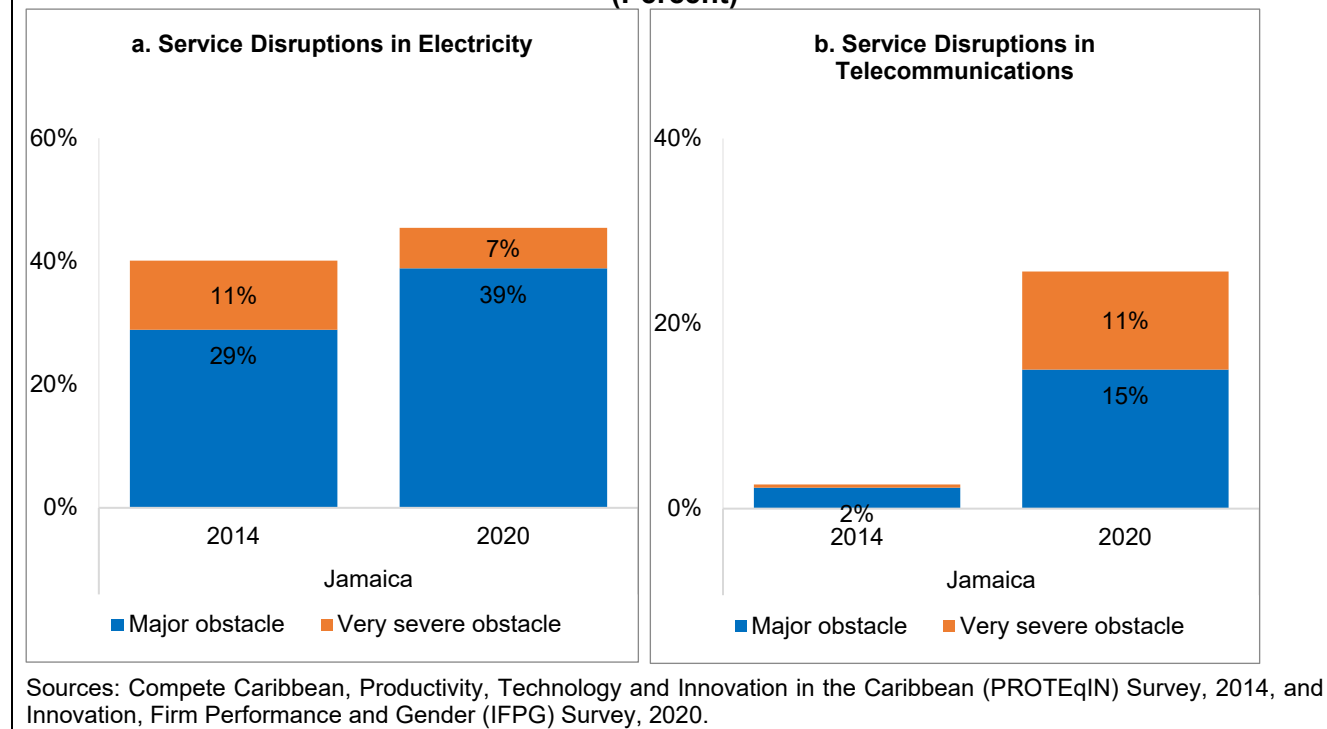
Accessing digital payments—for example, using mobile wallets and digital services for financial transactions—also emerged as a significant challenge between 2014 and 2020. This is also intuitive to some degree, as digital payments have rapidly become increasingly prevalent over the past decade. Similarly, the COVID-19 crisis itself drove many traditional commercial activities more quickly towards digital transactions and payments. Against this backdrop, the World Bank found that Latin America and the Caribbean has seen an 18-percentage point increase in ownership of digital payment accounts since 2017—the largest of any developing world region (World Bank 2022).



### Vulnerabilities to Service Disruptions

While the IFPG survey data cover a wide range of indicators, the region’s susceptibility to severe disruptions is a particular vulnerability, with implications across many issue areas. For example, severe weather conditions tend to disrupt power and telecommunications systems (e.g., internet and mobile services), as well as other key infrastructure and services upon which businesses rely. As noted above, access to electricity and digital payments are among the most significant challenges facing Jamaican businesses: approximately 46% of firms surveyed cited electricity service as an important challenge in 2020, a 6-percentage point increase over 2014 (Figure 2, panel a). Similarly, with internet penetration in Jamaica doubling from 40% in 2014 to 79% in 2020<sup>22</sup>, the number of firms highlighting interruptions in telecommunications services as a major challenge also increased from about 2% in 2014, to 26% in 2020 (Figure 2, panel b).

**Figure 2. Jamaica: Service Disruptions as Obstacles to Current Operations, 2014 vs. 2020 (Percent)**



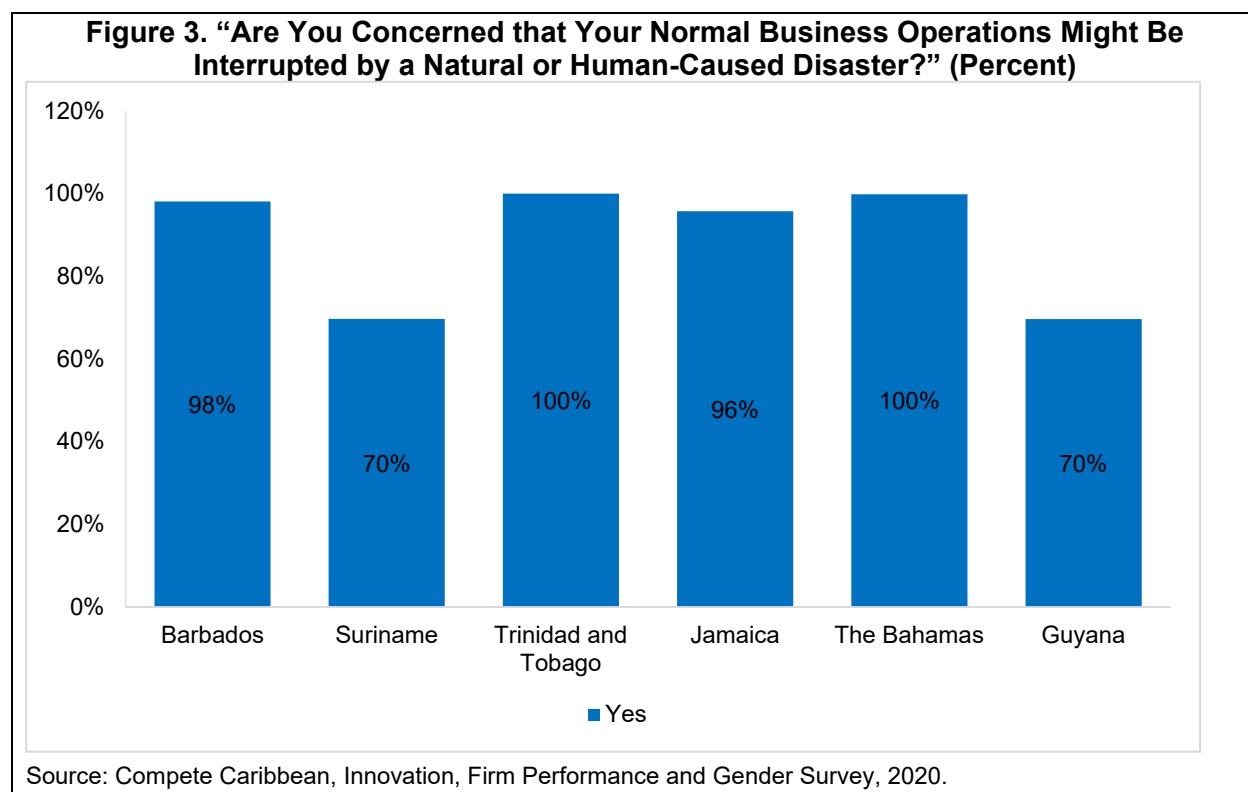
<sup>22</sup> International Telecommunication Union, Fixed Broadband and Internet Penetration Database, available at <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx> (accessed April 2023).





### ***Vulnerabilities to Disasters***

Most Jamaican as well as Caribbean businesses were concerned that disasters might disrupt their operations. Between 70% and 100% of respondents across countries highlighted this as a key concern (Figure 3). Disasters could include weather and health-related disasters, such as the COVID-19 pandemic. Looking forward, this is crucially important, as it points to the need for governments and businesses alike to focus on developing business, contingency, and investment plans to ensure that the economy can continue to operate in the face of future shocks. This will require collaboration across the public and private sectors to develop fiscal and financial buffers, invest in resilient public and private infrastructure, and partner to develop action plans in the event of disasters.



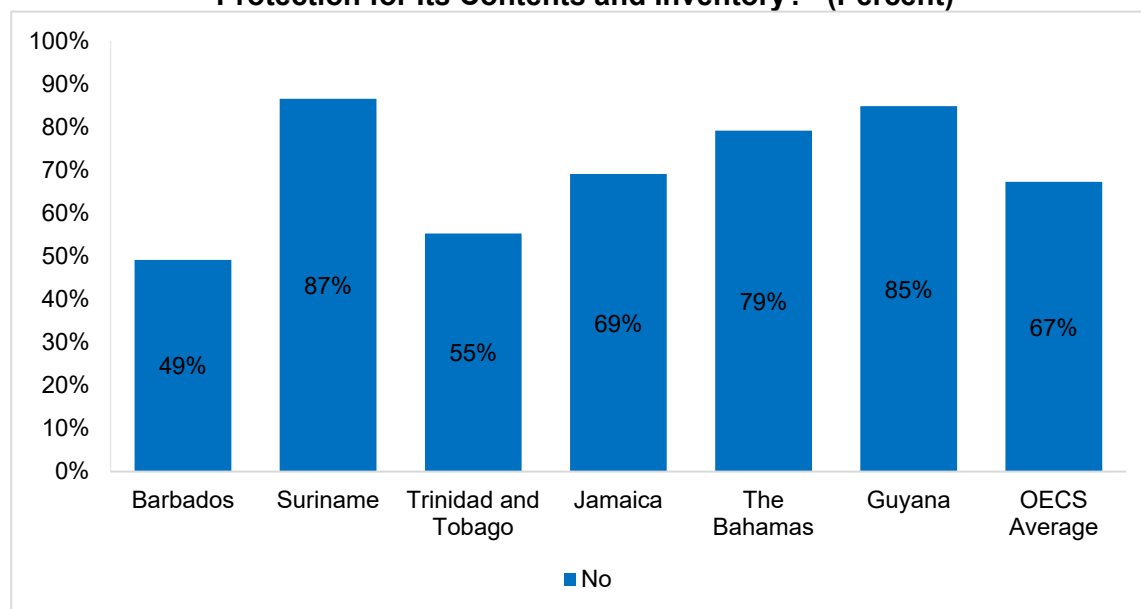
### ***Infrastructure Vulnerabilities***

Along similar lines, poor drainage and improper waste disposal in Jamaica have increased the risks and frequency of flooding of roads and related infrastructure. As a result, businesses are at greater risk of damage and extended down time following disasters. Against this backdrop, 69% of firms in Jamaica reported that, in the event of a natural disaster, their physical facilities would not be able to withstand the impact (Figure 4). This finding is not unique to Jamaica, however, with higher proportions of surveyed firms in several other countries across the region (The



Bahamas, Guyana, and Suriname) also reporting that physical infrastructure could be severely compromised by disasters.

**Figure 4. “Is Your Building Able to Withstand Natural Disasters, including Damage Protection for Its Contents and Inventory?” (Percent)**



Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020.  
Note: OECS: Organisation of Eastern Caribbean States.

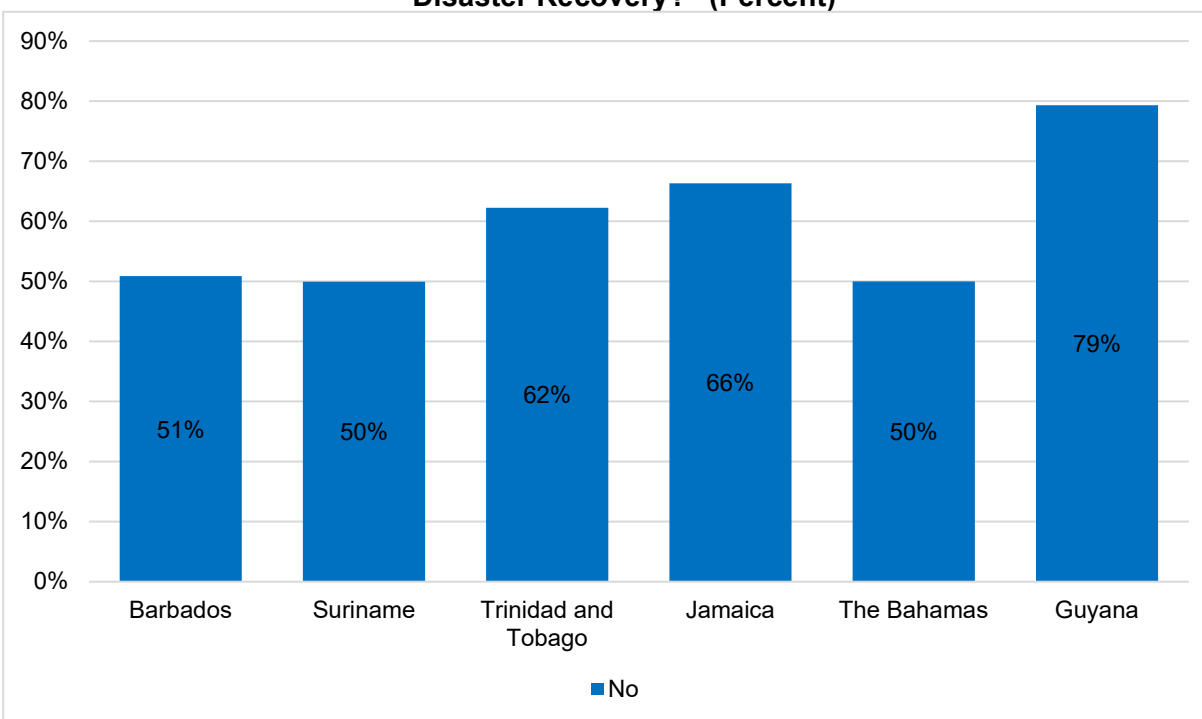
### **Financial Buffers against Disasters**

Given this level of susceptibility, the issue of financial preparedness is crucially important, including through insurance, savings, or the availability of credit. At least half of the firms in all six Caribbean countries analyzed in this bulletin reported that they did not have resources set aside to aid in recovery (Figure 5), including about 66% of Jamaican firms. As noted above, one of the key lessons of the pandemic and past disasters has been the importance of developing financial buffers and contingencies against future shocks. It is worth noting that this is consistent with previously published findings, including that businesses across the Caribbean saw markedly increasing challenges in terms of accessing finance between 2014 and 2020.<sup>23</sup>

<sup>23</sup> See the second quarter edition of the *Caribbean Economics Quarterly* in 2022, available at <https://publications.iadb.org/publications/english/viewer/Caribbean-Economics-Quarterly-Volume-11-Issue-2-Finance-for-Firms-Options-for-Improving-Access-and-Inclusion.pdf>.



**Figure 5. “Do You Have Financial Resources Set Aside Specifically for the Purpose of Disaster Recovery?” (Percent)**



Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020.

### Agenda for the Future

While addressing the many challenges outlined above is beyond the scope of this chapter, what is clear is that enterprise surveys suggest that many key obstacles to business development became more entrenched between 2014 and 2020. As discussed in previous editions of this bulletin, many of the key issues related to access to finance must be addressed through concerted efforts to reduce barriers to financial inclusion, ranging from reform of regulatory and supervisory practices, to investments in technological infrastructure and capacity to facilitate lending. Similarly, ensuring that the public and private sectors are able to work together to develop contingency plans will help minimize disruptions when crises do occur. Finally, the rapid pace of technological change suggests that education, training, and infrastructure investments are needed to support key sectors as they adapt to rapidly changing economic and climatic conditions.



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## Suriname

Gisele Teixeira

### Macroeconomic Context

Surinamese firms have long been challenged by an unfavorable macroeconomic framework. Even though the economy grew by 4.4 on average from 2001 to 2014, the growth was driven by natural resources, and there was not adequate public investment to diversify the economy and reduce its vulnerability to external shocks. Moreover, the well-known Dutch disease that affects natural-resource-rich countries penalized competitiveness in non-natural-resource sectors through local currency appreciation or additional expenditures to avoid further decreases in exchange rates. The 2015 commodity price shock and the closure of alumina production resulted in an average GDP contraction of 0.1% over 2015–2019. The consequent shrinkage in the government's fiscal space limited any eventual public investment to promote a more diversified private sector. Another commodity price shock in 2019, which was followed by the COVID-19 shock, resulted in estimated GDP declines of 16% and 2.7% in 2020 and 2021, respectively. Further devaluations and a large share of public debt denominated in foreign currencies forced the new government elected in 2020 to design an economic recovery program to restore macroeconomic sustainability.<sup>24</sup>

Despite these challenges, successful implementation of the current economic recovery program would create an improved environment for business in Suriname. The planned reforms aim to restore fiscal sustainability while bringing public debt down to sustainable levels, upgrade the monetary and exchange rate policy framework, stabilize the financial system, and strengthen institutions. These reforms would bring economic stability, a necessary condition to promote private investment in Suriname. In 2022, the first year of implementation of the 36-month program, the Surinamese economy is estimated to have grown by 1.3%, while average medium-term growth is projected to be 3%.

The design of public policies to boost productivity is a necessary complementary condition to foster long-term GDP growth in the country. Against this backdrop and guided by the importance of further diversifying the economic structure so that it becomes less vulnerable to external volatility, this chapter highlights important facts from the Compete Caribbean Innovation, Firm Performance and Gender (IFPG) database,<sup>25</sup> and draws general recommendations for the design of well-suited public policies to strengthen the private sector. In addition to achieving

<sup>24</sup> The program is financed through a 36-month International Monetary Fund arrangement. Suriname's authorities' homegrown economic plan aims to restore fiscal sustainability, while protecting the vulnerable by expanding social safety net programs.

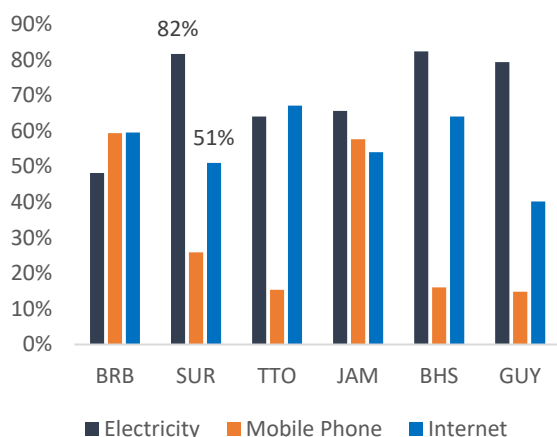
<sup>25</sup> See the Regional Overview of this bulletin for a more detailed description of the IFPG survey and dataset. The IFPG dataset is available on the Compete Caribbean website at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/)



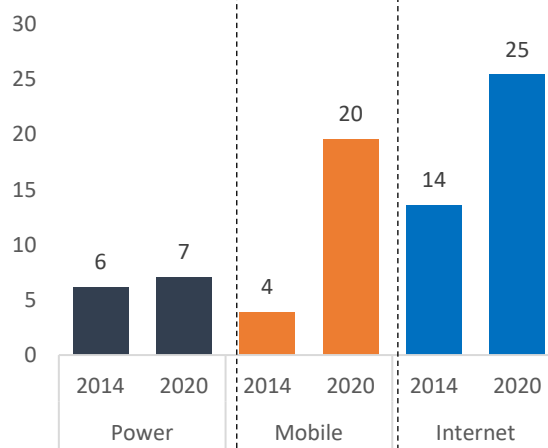
macroeconomic stability and financial depth,<sup>26</sup> it is critical to improve the country’s foundational infrastructure to improve the business climate. At the same time, innovation and the adoption of new technologies, a gender-inclusive network of entrepreneurs, and a more diversified labor force have been related to higher productivity levels.

Energy and telecommunication services have been reported as the main obstacles in firms’ operations in Suriname. On average, more than 80% of businesses reported electricity outages in Suriname in 2020 (Figure 1). Even though Suriname is not highly exposed to hurricanes, low levels of resilient and sound-quality infrastructure result in numerous outages that can last for more than 24 hours in a month (Figure 2). And the situation is deteriorating over time, as an average electricity outage of approximately seven hours was reported in 2020 compared to six hours in 2014. The current macroeconomic situation makes it more difficult for the government to cover maintenance costs of energy plants. For Internet service, half of the businesses reported outages in 2020, with disruptions lasting more than 24 hours in a month, almost doubling the time from 2014. The availability of reliable power and Internet service, complemented by adequate regulation on digital services, would be appropriate to further incentivize e-commerce. In 2020, only 16% of purchases from small enterprises were made through e-commerce.

**Figure 1. Suriname: Percent of Businesses Reporting Outages, 2020**



**Figure 2. Suriname: Length of Outages per Month (Hours), 2014 vs. 2020**



Sources: Compete Caribbean, Productivity, Technology and Innovation in the Caribbean (PROTEqIN) Survey, 2014, and Innovation, Firm Performance and Gender (IFPG) Survey, 2020. Both datasets are available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

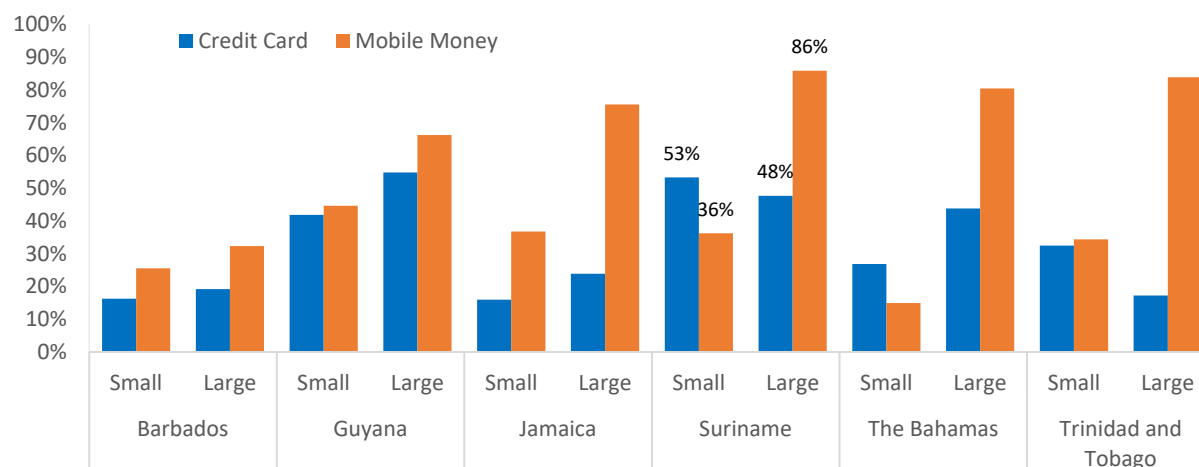
Note: The specific question in Figure 1 was: Over the last fiscal year, did this establishment experience outages/interruptions? The specific question in Figure 2 was: Hours of power/mobile service/Internet service lost per month.

<sup>26</sup> See the second quarter edition of the *Caribbean Economics Quarterly* in 2022, available at <https://publications.iadb.org/publications/english/viewer/Caribbean-Economics-Quarterly-Volume-11-Issue-2-Finance-for-Firms-Options-for-Improving-Access-and-Inclusion.pdf>.



Mobile money and credit card acceptance are limited in Suriname. Even though only one-third of small firms do not accept mobile money, that share increases to 86% among large firms, illustrating the cash-based characteristic of the economy (Figure 3). For credit cards, the rate of rejection is around 50%. Therefore, strengthening digital payments has the potential not only to raise productivity, but also to further develop e-commerce among Surinamese firms, expanding their market access.

**Figure 3. Suriname: Percent of Firms that Do Not Accept Credit Cards or Mobile Money in Any Form, by Size**



Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020, available at

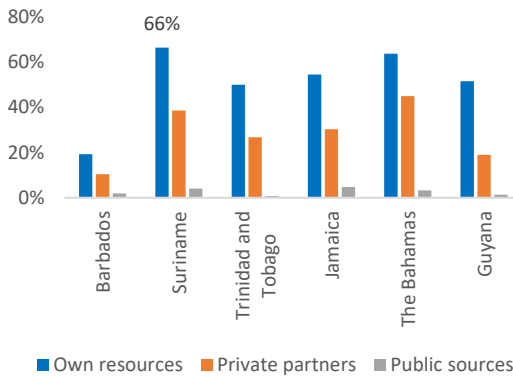
[www.competecaribbean.org/protegin-ifpg-datasets/](http://www.competecaribbean.org/protegin-ifpg-datasets/).

Note: The specific question was: If yes [i.e. aware of payment method], do you currently accept this payment method?

The share of firms that reported a lack of available financial resources as an obstacle for innovation activities increased during the COVID-19 pandemic. Among countries in the region, Suriname has the highest rate of establishments that want to innovate either their products or processes. Implementing a policy measure to support firms' plans to innovate is worth given that (i) firms' own resources have been the primary source to finance innovation in Suriname in the past three years (Figure 4), (ii) firms do plan to pursue innovation in the next two years (Figure 5), and (iii) an increased number of firms reported their level of financial resources as an obstacle for innovation activities (Figure 6). A deeper look at the obstacles by firm size indicates that the severity is higher among small firms. Given the firms' reported willingness to innovate their products and processes, and the positive impact that innovation would have on productivity, a small-firm-oriented fund for innovation could support long-term growth and sustainably promote economic and social development in Suriname.



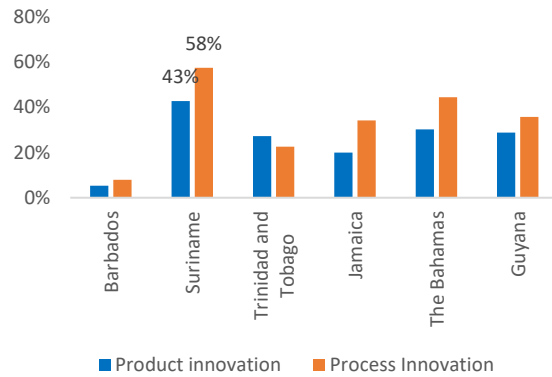
**Figure 4. Financial Source to Develop Innovation (Percent)**



Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020, available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

Note: The specific question was: In total for the last three fiscal years, was the development of innovation financed by?

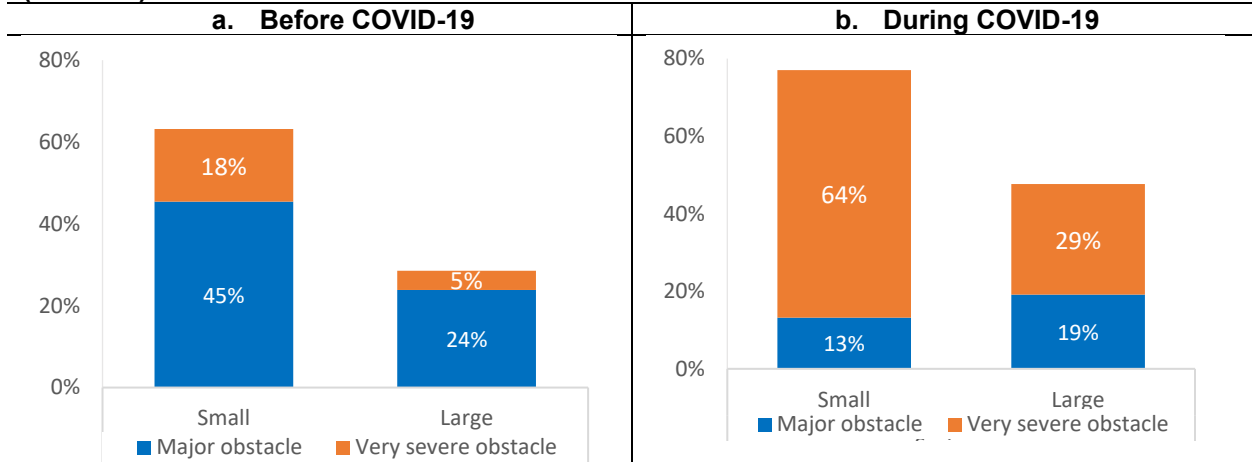
**Figure 5. Firms' Willingness to Pursue Innovation (Percent)**



Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020, available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

Note: The specific question was: In the next two years, do you want to pursue innovation in your establishment (yes)?

**Figure 6. Suriname: Level of Available Financial Resources as an Obstacle to Innovate (Percent)**



Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020, available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

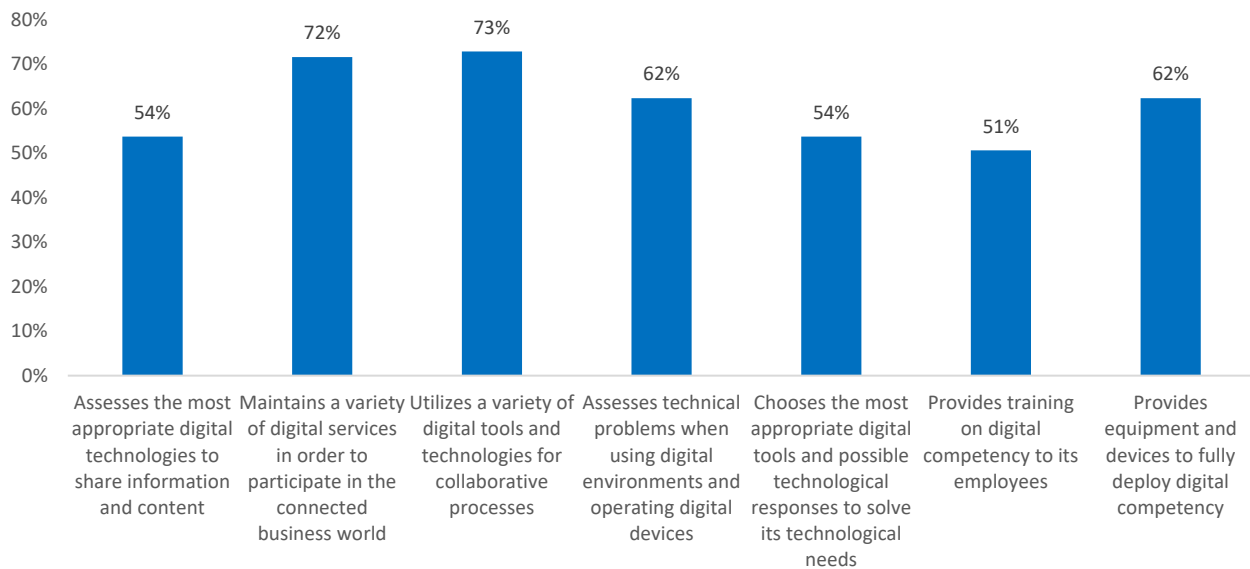
Note: The specific question for panel a was: Do you think that the following present any obstacle to the innovation activities of your establishment: level of available financial resources, in the absence (since the advent) of COVID-19 crisis? The specific question for panel b was: Do you think that the following present any obstacle to the innovation activities of your establishment: level of available financial resources, since the advent of COVID-19 crisis? The figure reports the share of firms that answered "major or very severe obstacle."





A large share of firms in Suriname do not have access to appropriate digital technologies and services. More than half of enterprises surveyed reported that they tend to disagree or strongly disagree that their establishment (i) assesses the most appropriate digital technologies to share information and content; (ii) maintains a variety of digital services in order to participate in the connected business world; (iii) utilizes a variety of digital tools and technologies for collaborative processes; (iv) assesses technical problems when using digital environments and operating digital devices; (v) chooses the most appropriate digital tools and possible technological responses to solve its technological needs; (vi) provides training on digital competency to its employees; or (vii) provides equipment and devices to fully deploy digital competency (Figure 7). These specific interventions could be targeted by a small-firm innovation fund, as mentioned above.

**Figure 7. Suriname: State of Technology Adoption by Firms (Percent)**



Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020, available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

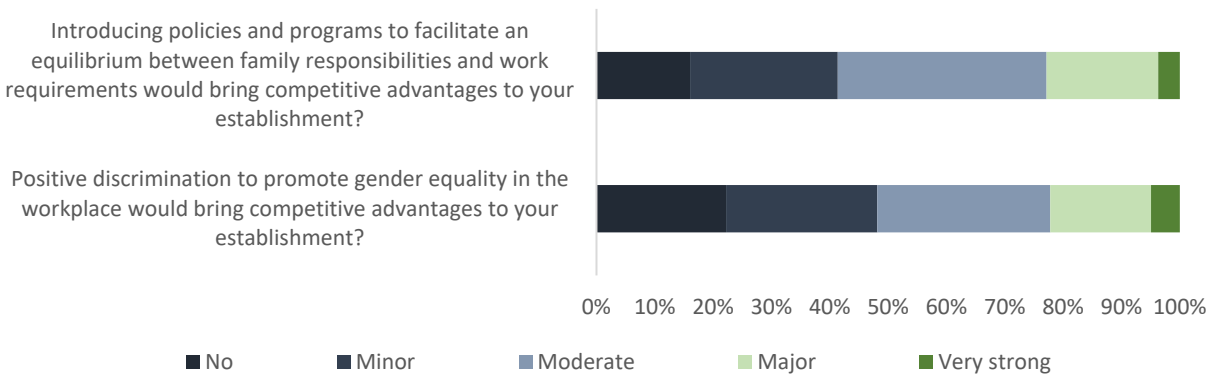
Note: The specific question was: To what extent do you agree or disagree with the following statements describing your establishment? The figure reports the share of surveyed firms that “tend to disagree” or “strongly disagree.”

Positive discrimination for gender equality and promotion of policies to better balance family and work life are not seen as competitive advantages by firms in Suriname. Even though there are evidence-based results showing additional benefits of having higher female participation in the labor force, a minority of establishments see competitive advantages from proactive policies to promote gender equality in the workplace (Figure 8). Likewise, 63% of the firms surveyed believe



that introducing policies and programs to facilitate an equilibrium between family responsibilities and work requirements would bring no, minor, or moderate competitive advantage.

**Figure 8. Suriname: Firms' Perception of Competitive Advantage of Policies Related to Gender and Work/Life Balance (Percent)**



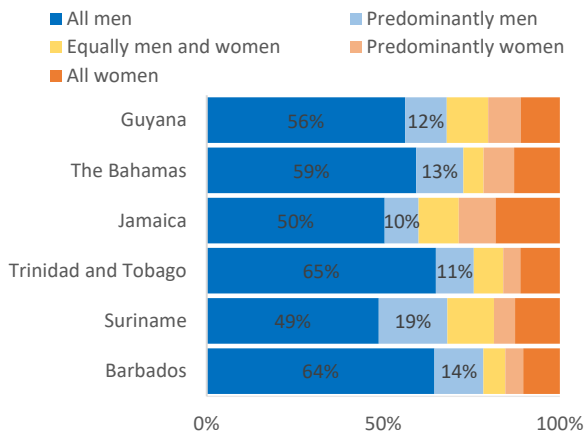
Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020, available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

Note: The figure reports the share of

Only 1 in 10 firms surveyed was owned exclusively by woman in Suriname. While 49% of firms have only men as owners/shareholders (Figure 9), that share falls to 13% on the other extreme (only women). Moreover, only 15% of the firms surveyed in Suriname reported actively seeking to employ, retain, develop, and promote women (Figure 10). The design of policies to promote female entrepreneurs in Suriname would support higher and more inclusive economic growth, given previous evidence in the literature reporting (i) greater female workforce participation improves productivity, and (ii) a positive correlation between female entrepreneurship and female participation in the labor force. Among those companies that did seek to employ, retain, develop, and promote women in Suriname, initiatives to promote women's networking, equal pay across gender, and flexible working conditions are more frequent than policies to balance work and family life, provide childcare, and establish quotas for hiring women employees (Figure 11). Therefore, regulations on such rights would probably not appear as an endogenous solution, but rather would need to be regulated by the government.

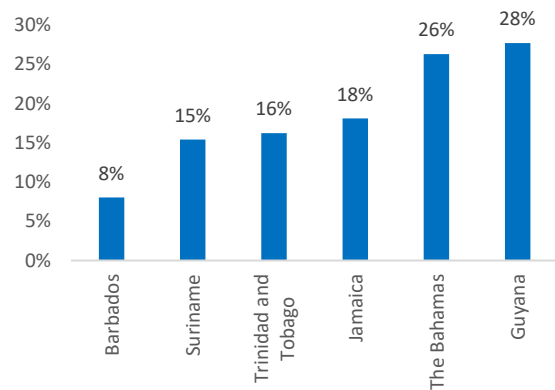


**Figure 9. How Would You Characterize the Gender Composition of the Owners/Shareholders of This Firm? (Percent)**



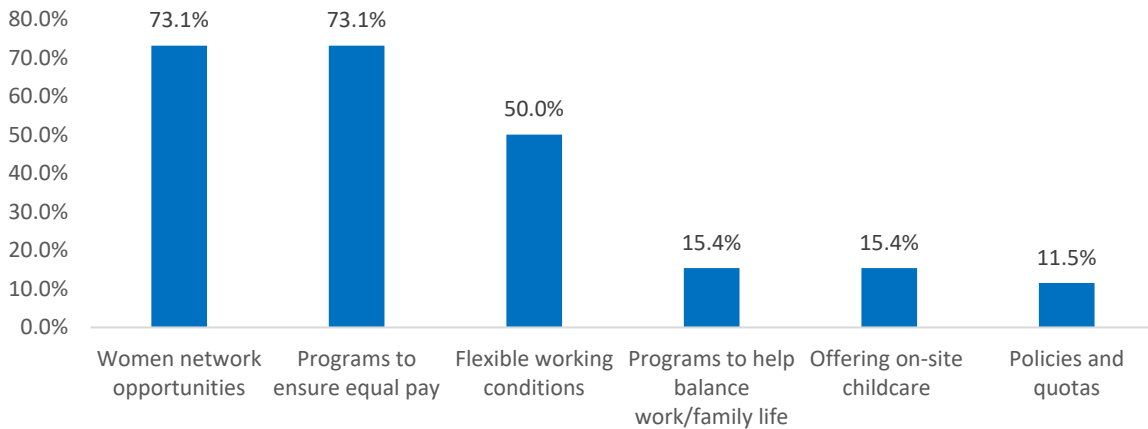
Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020, available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

**Figure 10. Does Your Establishment Actively Seek to Employ, Retain, Develop, and Promote Women? (Percent)**



Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020, available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

**Figure 11. Suriname: If Yes, Does Your Establishment Have Any of the Following Measures in Place? (Percent)**



Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020, available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

In sum, Suriname’s dependence on natural resources, along with the challenges posed by the COVID-19 pandemic, have increased the urgency of increasing the long-term economic growth rate so that development challenges can be achieved. For that to become a reality, everyone has



a role to play. Foundational infrastructure must be improved, especially for energy and telecommunication services. Furthermore, policies to foster innovation and a better gender balance in the labor force and entrepreneurship could be incentivized.

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## **Trinidad and Tobago**

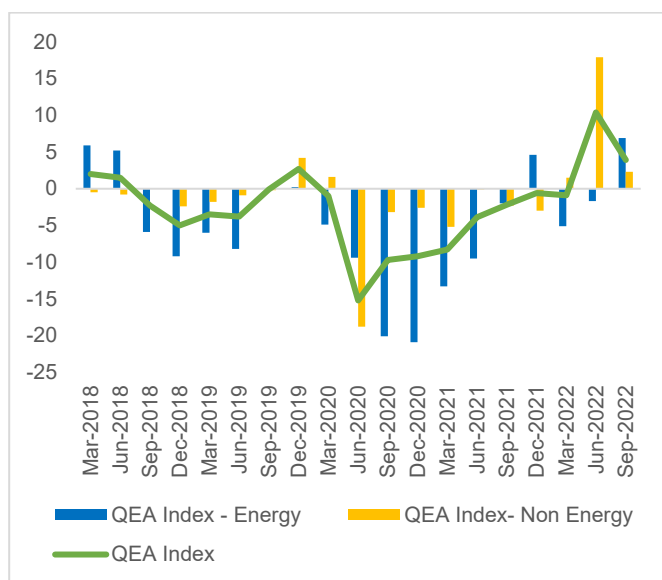
Nirvana Satnarine-Singh and Victor Gauto

### **Macroeconomic Context**

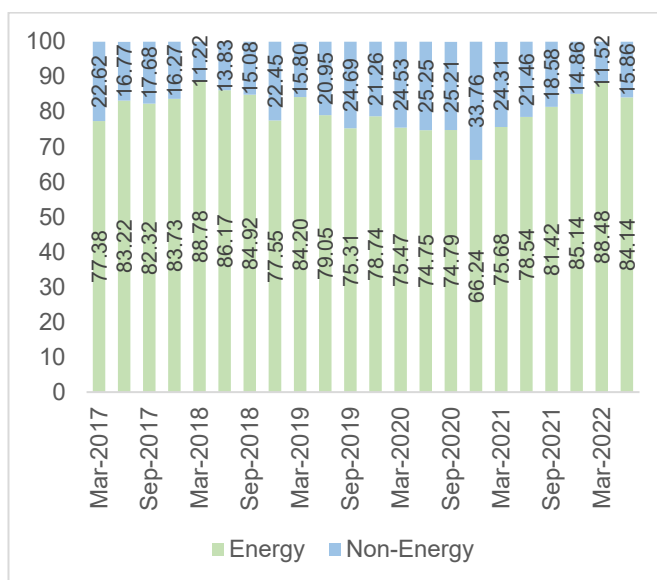
The Trinidad and Tobago economy moderately recovered in 2022, with real GDP estimated to have increased by 2.5 percent, according to the International Monetary Fund (IMF). This represents the highest real growth since 2014 and was mainly driven by the non-energy sector, which recorded estimated growth of 4.3 percent, while energy sector GDP contracted by 1.8 percent (IMF, T&T Article IV Concluding Statement 2023). Economic activity was supported by a slight recovery in the energy sector in the third quarter of 2022 and a stronger recovery in the non-energy sector, along with the removal of COVID-19 restrictions in the first four months of 2022. These factors contributed to an increase in the Quarterly Economic Activity Index in the second and third quarters of 2022 by 10.4 percent and 3.9 percent (year-over-year), respectively, following nine consecutive quarters of contractions starting in March 2020 (Figure 1). Higher energy sector revenues for 2022 on account of increasing global prices for hydrocarbons and petrochemical products contributed to a favorable fiscal and balance of payments position for the country. The first overall fiscal surplus since FY2009/2010 was recorded in FY2021/2022 at 0.6 percent of GDP (the fiscal year runs from September to October). Injections totaling US\$345 million were made into the Heritage and Stabilization Fund for 2022, thereby strengthening fiscal buffers, while net official reserves remained stable at between US\$6.6 billion and US\$6.9 billion during 2022.



**Figure 1. Quarterly Economic Activity (QEA) Index (Percent change)**



**Figure 2. Composition of Merchandise Exports (Percent)**



Source: Central Bank of Trinidad and Tobago.

High fiscal revenues benefited mainly from higher energy prices, as energy production levels were moderate. Dependence on revenue from energy exports, which accounts for more than 80 percent of total merchandise exports (Figure 2), leaves the economy exposed to international commodity prices fluctuations, strengthening the need for economic diversification. In this context, the Innovation, Firm Performance and Gender (IFPG) Survey holds valuable information that can provide further insight into the perspective of the private sector and the key areas that can create an enabling business and investment environment for firms.<sup>27</sup>

While the IFPG dataset consists of firms from across the Caribbean, the survey includes responses from 180 firms in Trinidad and Tobago. For T&T specifically, 48.9 percent of the sample are firms from commodity-producing industries while the remaining 51.1 percent are service-oriented firms.<sup>28</sup> Further, for 51 firms, at least 5 percent of the firm is owned by foreign individuals or entities, while five firms in the sample (all service-oriented) are fully owned by foreigners. The sample also consists of 63 firms that directly export some or all of their output and includes a mixture of micro, small, medium-size, and large firms. From the entire IFPG sample for Trinidad

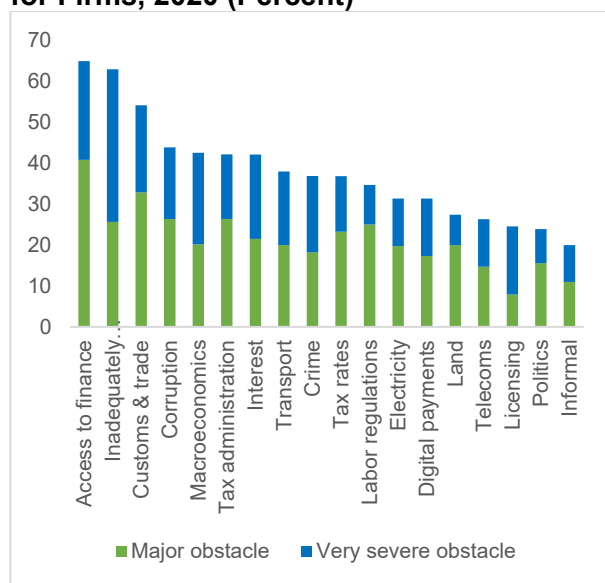
<sup>27</sup> See the Regional Overview of this bulletin for a more detailed description of the IFPG survey and database. The IFPG database is available on the Compete Caribbean website at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/)

<sup>28</sup> The firms in the dataset are stratified into two main categories. The first category is Mining, Quarrying, Manufacturing, Aquaculture, and Fishing. The second category is Services, Retail, Arts and Entertainment, Management Consultancy, Office and Business Support, and Waste Management.

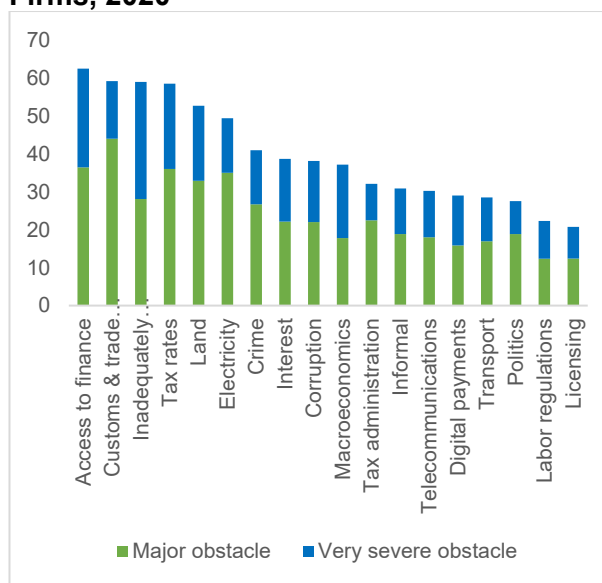


and Tobago, the top six obstacles, rated as “very severe” or a “major obstacle,” were access to finance (65 percent of respondents), an inadequately educated labor force (63 percent), customs and trade regulations (54 percent), corruption (44 percent), the macroeconomic environment (43 percent), and tax administration (42 percent) (Figure 3).<sup>29</sup>

**Figure 3. Trinidad and Tobago: Obstacles for Firms, 2020 (Percent)**



**Figure 4. The Caribbean: Obstacles to Firms, 2020**



Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020, available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

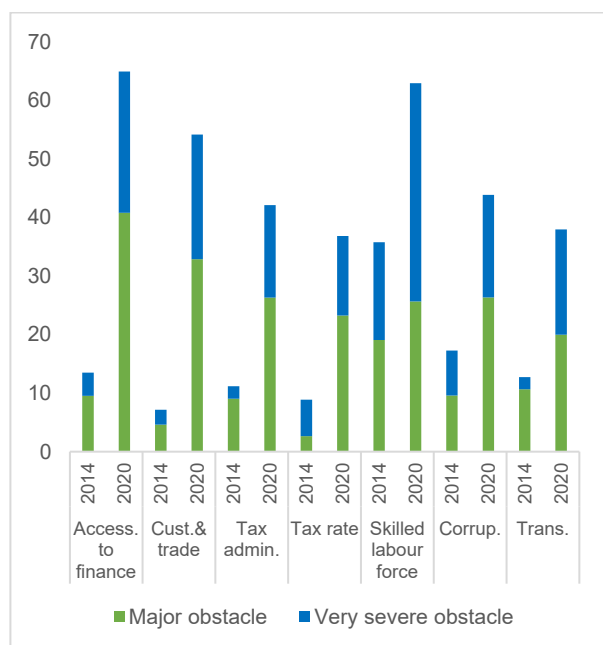
Note: LF: labor force.

Similar obstacles were identified generally by Caribbean countries. “Very severe” or “major” obstacles included access to finance (63 percent of respondents), customs and trade regulations (59 percent), an inadequately educated labor force (59 percent), tax rates (59 percent), and access to land (53 percent) (Figure 4). The main areas of variation between the Caribbean regional averages and Trinidad and Tobago were access to land, identified by 25 percent more firms in the Caribbean as an obstacle. Similarly, tax rates and electricity were also identified as an obstacle by a larger share of firms in the region than in Trinidad and Tobago. Tax rates were identified as an obstacle by 22 percent more firms in the regional average, while 18 percent more firms in the region cited electricity as an obstacle (Figure 4). The obstacles that were reported to be more of a challenge in Trinidad and Tobago compared to the region were labor regulations and tax administration, which were reported to be a major obstacle or very severe obstacle by 12 percent and 10 percent more firms in Trinidad and Tobago, respectively.

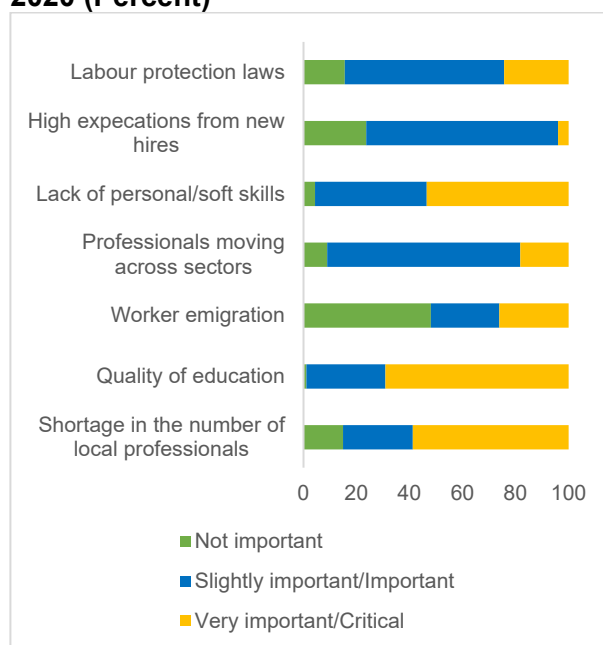
<sup>29</sup> Strict weights were applied when calculating the percentage of respondents.



**Figure 5. Trinidad and Tobago: Obstacles to Doing Business, 2014 vs. 2020 (Percent)**



**Figure 6. Trinidad and Tobago: Firms' Perceived Reasons for Skills Shortages, 2020 (Percent)**



Sources: Compete Caribbean, Productivity, Technology and Innovation in the Caribbean (PROTEqIN) Survey, 2014, and Innovation, Firm Performance and Gender (IFPG) Survey, 2020. Both datasets are available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

Some obstacles seem to have affected a larger share of firms over time. The Productivity, Technology and Innovation in the Caribbean (PROTEqIN) Survey conducted in 2014 allows for analyzing certain challenges over time.<sup>30</sup> Access to finance, in terms of collateral requirements, was reported to be a challenge by 65 percent of firms in 2020 compared to 13.5 percent in 2014, a 51 percentage point increase. Other obstacles identified by a larger share of firms as major or very severe obstacles include customs and trade regulations and tax administration, with 47 percent and 31 percent more firms, respectively, identifying them as obstacles in 2020 compared to 2014. Similarly, about 25 percent more firms identified tax rates, inadequately trained workers, corruption, and transportation as obstacles in 2020 than in 2014 (Figure 5). The increase in firms identifying transportation as an obstacle could reflect increasing commuting times or changes in road conditions. The areas with little or no change between 2014 and 2020 include labor regulations and practices from competitors in the informal sector.

<sup>30</sup> The PROTEqIN database is available on the Compete Caribbean website at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/)





Looking deeper into the factors affecting skills shortages for firms, the IFPG Survey found that most important or critical issues were the quality of education and training offered by local institutions (69.1 percent of respondents) and shortages in the number of local professionals trained by local institutions (58.8 percent) (Figure 6). Khadan (2017) found that a skills gap does in fact exist in Trinidad and Tobago such that there is an undersupply of labor with secondary and university education. According to data from the Continuous Sample Survey of the Population, in the third quarter of 2022, 51.7 percent of the labor force consisted of persons with only a secondary school education and/or training, while 22.5 percent of the labor force only attained a primary school education or passed no subjects at the secondary level, and 23.8 percent attained a university level education.<sup>31</sup> A high unemployment rate for persons with only a secondary school education is also apparent. There is, therefore, availability of labor, but there is a need to increase the stock of human capital in alignment with the requirements of the non-energy sector.

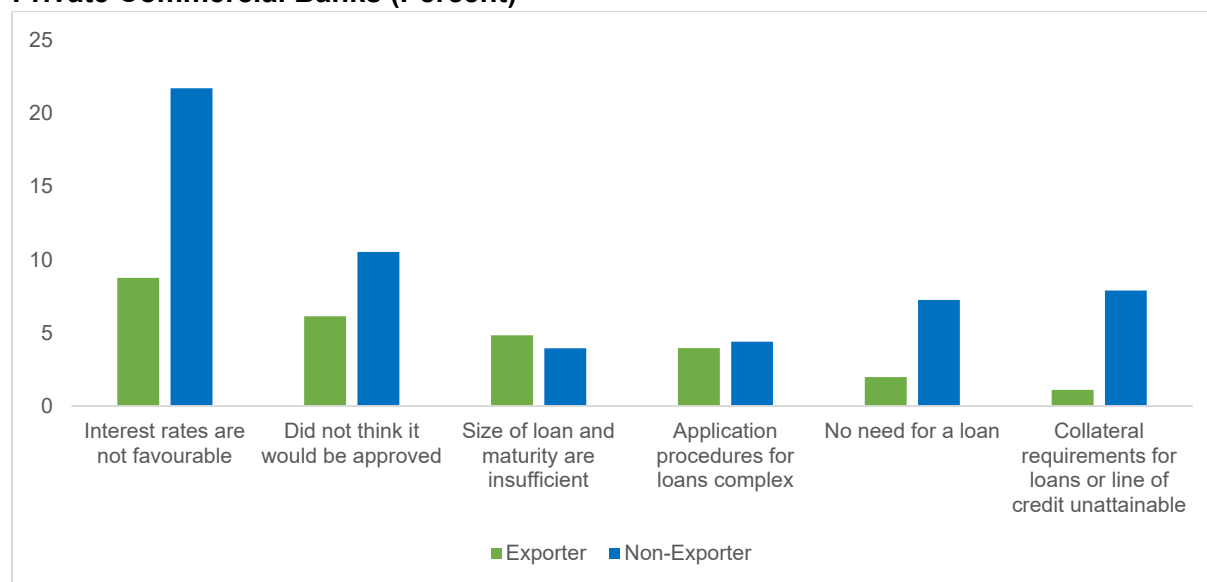
Firms in Trinidad and Tobago face challenges to access financing. Among firms investing in fixed assets, almost all seek funding internally (98 percent) while the other most-frequently-used option is loans from private commercial banks (51 percent). For both exporting firms and non-exporting firms, the main reason for not applying for loans from private commercial banks is unfavorable interest rates (8.8 percent and 21.7 percent of respondents for exporting and non-exporting firms, respectively) (Figure 7). Another important reason is the firms' perception that the requests for funding may not be approved. For non-exporters, collateral requirements for loans were also a challenge.

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<sup>31</sup> This includes persons with a degree, diploma, or certificate at the university level.



**Figure 7. Trinidad and Tobago: Reasons Why Firms Did Not Apply for a Loan from Private Commercial Banks (Percent)**



Source: Compete Caribbean, Innovation, Firm Performance and Gender Survey, 2020, available at [www.competecaribbean.org/proteqin-ifpg-datasets/](http://www.competecaribbean.org/proteqin-ifpg-datasets/).

The authorities in Trinidad and Tobago have taken several steps to alleviate obstacles to firms' growth. In terms of the skills gap, the government introduced apprenticeship programs for the non-energy sector and completed an assessment of possible gaps in the information and communications technology sector. The government's efforts to support digital transformation could significantly contribute to paving the way to improve productivity and address some of the obstacles discussed in this chapter, especially as they relate to the provision of public services.

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