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ECLAC SUBREGIONAL HEADQUARTERS FOR THE CARIBBEAN

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COVID-19 RESPONSE

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Abstract

The emergence of the COVID-19 pandemic has not only been sudden but has required significant re-adjustment on the part of world economies with far-reaching effects anticipated in the short to medium term. For vulnerable Caribbean economies already challenged by high debt service payments, external support is needed to fill the resource gap. The objective of this report is to assess the impact of the pandemic imposed restrictions across six critical sectors and to provide policy recommendations to ensure a swift recovery and make a case for greater external concessional financial support to the fiscally challenged economies of the subregion. The sectors examined include health, tourism, international transportation, energy, education and social protection.

Data collection for all analyses was conducted up to June 2020. Short to medium term policy recommendations to mitigate the effects of the restrictions and facilitate a robust recovery for each sector are also outlined. The study determines that while the pandemic restrictions were essential to slowing the spread of COVID-19, the economic impact has been severe across all Caribbean economies. So far, the health sector has accrued costs amounting to US$260.2 million while an estimated US$ 1.3 billion in emergency social support has been announced. There has been major disruptions to the education systems and global markets for transportation. Energy dependent economies are expected to experience declines in real GDP ranging from 4.4% to 8.2% and service producing economies are in the midst of a virtual collapse of the tourism sector with direct losses from US$22 to US$28 billion.

The study finds that the enormous costs and limited external funding requires a relaxation in debt service payments and increased availability of grant resources to address the subregion's vulnerabilities and support the implementation of the SDGs.

Introduction

The 2019 Novel Coronavirus (COVID-19) was first reported in Wuhan, China in December 2019 as a pneumonia of unkown cause. The oubreak, which was initially confined to China, South Korea and Japan, quickly spreadd around he world. It was declared a Public Health Emergency of International Concern by the World Health Organization (WHO) on 30 January 2020 and upgraded to a pandemic on 11 March 2020.

The pandemic, has spared no country and each is doing their best to flatten the infection curve. The Caribbean is no different and given the limited capacity of the health systems in the Caribbean to address existing health needs, every available strategy must be deployed to suppress higher rates of COVID-19 transmission.

The mitigation and social distancing impacts have imposed considerable financial costs as scarce budgets have to be reoriented to forestall any additional outbreak. The challenge now, is how to faciliatate economic activity and travel while making sure that uncontrolled outbreaks do not occur. With no vaccine likely for the next several months this is a real danger more so for the Caribbean given the limited capacity for testing domestically. However the economic necessities may force such an opening unless Caribbean member states are able to secure additional financing to support the current safety measures.

COVID-19 presents a clear and present danger to the countries of the Caribbean given that the tourism sector, including such industries as hotels and restaurants, the engine of most of their economies has collapsed, along with other sectors, including construction, some areas of distribution and agriculture linked to tourism. Additionally, weak and falling commodity prices have affected those countries that are oil, gas and other commodity exporters and generally the region will face a decline in its GDP for 2020.

The pandemic is straining budgets, as Caribbean countries struggle to meet the health needs of their population, respond to growing unemployment and support their economies. They will need to use all the fiscal space available to boost demand and this is vitally important since success with the virus can be accompanied by a sharp economic recession .

In light of the narrow fiscal space and high debt burden currently being shouldered by many in the Caribbean, only limited fiscal support is possible for a short duration and governments have made an effort to assist a variety of sectors to shore up falling incomes and, to a limited extent, troubled business.

COVID-19 could not have come at a more challenging time for the Caribbean subregion which is still recovering from the global financial crisis of 2008-2009. Average growth for the goods producing economies was 6.4% before the crisis (1999-2008) and 0.2% after the crisis (2009-2019). For the service based economies, growth was 2.0% before the crisis and 0.4% after the crisis. At the same time the debt burden (Debt to GDP) was 67.9% for the Caribbean as a whole; 68.3% for goods economies, and 75.4% for services economies. Low growth, high debt, and high debt servicing costs have meant lower fiscal space and increasing challenges to address the effects of climate change and critical aspects of the SDGs. These issues are being compounded by annual hurricane effects and a rash of sargassum blooms on the beaches, in a region that is known to be the most vulnerable among all SIDS. We may recall that in 2017 hurricanes Irma and Maria wrought some US$93 million in damage and losses. More recently Hurricane Dorian affected many countries but the most affected was the Bahamas, with estimated damage at $2.5 billion, plus losses estimated at $717.3 million and additional costs up to $220.9 million. The total cost was approximately $ 3.4 billion or 1% of the Bahamas GDP.

COVID-19 represents a perfect storm for these economies which cannot sustain a prolonged closure but whose economic performance relies heavily on the effectiveness of the COVID-19 response in major external markets as in the case of the tourism economies.

Financial resources must be found to provide immediate support to help ailing sectors while meeting debt service obligation. Where are these resources to come from? In the case of the non-independent Caribbean countries, they have not received the level of financial resources requested and so must look to accumulate more debt to meet their urgent obligations. At a recent meeting of finance ministers of the Caribbean hosted virtually by the Executive Secretary of ECLAC, there was a unanimous view expressed that while international financial support favours the most vulnerable based on per capita income COVID-19 does not discriminate on that basis. Additional financial resources are therefore urgently required, at concessional terms, to prevent a deepening of the debt crisis in the Caribbean. The following sections provide a summary account of the results of COVID-19 impact analyses undertaken on the sectors health, tourism, international transportation, energy, education and social protection. Recommendations for the short and medium term are also reported in each sector. The paper makes the case for concessional and other forms of financing to address the deepening health, economic and social crisis in the Caribbean and suggests what must be done.

I. Sectoral effects and impacts

A. Health sector

1. Introduction

The COVID-19 pandemic, although primarily a health concern, has implications for every aspect of life beyond the health sector. In fact, the high potential of the disease to spread through community infection has resulted in the disruption of lives and livelihoods. By 30 June 2020, just under 50,000 positive cases of COVID-19 and over 1100 related deaths had been reported in the Caribbean Development and Cooperation Committee (CDCC) Member and Associate Member Countries. While all Caribbean countries had recorded cases of COVID-19, no related deaths had been reported in Anguilla, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines.

In the first half of 2020, reports of wide-spread local transmission of COVID-19 were limited in the Caribbean. This could be credited to the proactive stance taken by regional governments. Across the Caribbean, governments have implemented various measures to control the spread of the disease and minimize its impact on the population. These measures include the testing and quarantining of suspected cases and the treatment and isolation of diagnosed cases. Closure of borders and schools and shutting down of the economy are widely in place. Governments have also introduced social distancing regulations, and the public has been sensitized, through public education campaigns, to the necessity of practicing proper handwashing and hygiene. Handwashing has been promoted by the World Health Organization (WHO) as the most effective way to reduce transmission and both public and private sector entities in the Caribbean have implemented initiatives to facilitate this. In Haiti, more than a thousand public lavatories were built to facilitate hand washing in accordance with public health recommendations and to help protect against COVID-19 infection . Also, the wearing of face masks in public places has been mandated in many countries while essential businesses that continue to operate are implementing recommended social distancing rules. Although these measures have proven to limit the spread of the disease in the Caribbean, they have come at an enormous cost to the economy, the impacts of which go beyond the health sector.

2. Analysis of Impact

The economic impact assessment of COVID-19 on the health sector of CDCC Member and Associate member Countries is based on the public health perspective in which only the costs accrued by the government in responding to the COVID-19 pandemic are accounted for; as such, the cost reported in this study should be considered a minimum estimate of the true cost.

The economic impact is estimated under four categories: prevention, testing, treatment, and infrastructure. The cost of prevention activities includes expenditures on Personal Protective Equipment (PPE) for healthcare workers and frontline responders, contact tracing of persons whom have been exposed to the risk of infection, sanitization of healthcare facilities and public spaces, and public health mass media campaigns. Cost of testing covers outpatient visits to the emergency room for COVID-19 tests and collection and testing of samples. The treatment component reflects the cost of treating all identified positive cases while the cost of infrastructural upgrade represents the estimated cost of renovating or retrofitting healthcare facilities to accommodate COVID-19 patients, including the cost of providing isolation facilities for suspected cases.

Cost estimation was based on the reported or estimated unit and average costs in Trinidad and Tobago for the different components of the four cost categories. In order to apply these costs to the other countries, two adjustments were made. Average costs in Trinidad and Tobago were weighted by the healthcare access and utilization rate - in other Caribbean countries. Weighted average costs and unit costs were then converted to corresponding costs in these countries using the Purchasing Power Parity (PPP) for health. For the prevention and intervention categories, the average cost in PPP was applied to the population size to arrive at an estimated cost of prevention and infrastructure. For testing, the relevant unit cost in PPP was used to calculate the cost of testing based on the actual reported number of COVID-19 tests conducted. Similarly, the different unit costs of treatment were used to calculate the corresponding costs of treatment based on the reported number of suspected and confirmed cases of COVID-19 in each country. The severity of cases and the duration of hospitalization were factored in the calculation of cost of treatment. This required the estimation of the number of COVID-19 cases that were categorized as critical, severe, mild and recovered, corresponding to those admitted to Intensive Care Units, High Dependency Units, General Medicine Ward, and Recovery Ward/Step-Down facilities in each country using WHO's data on severity of COVID-19 cases.

The economic cost of COVID-19 estimated based on prevalence data is reflective of the economic impact as at the time the prevalence data were collected. Given that only a few Caribbean countries had reached the peak of COVID-19 infection, there are many different trajectories that the disease could follow in these countries in the near future, thus making it difficult to reliably simulate a likely timeline in which the disease could be contained. However, as countries move to relax social distancing restrictions and take steps to reopen the economy, the possibility of a second wave of infection is being discussed. To provide an estimate of the likely cost under different scenarios of higher COVID-19 prevalence, two pessimistic scenarios— mildly pessimistic and overtly pessimistic— were considered. The mildly pessimistic scenario is defined as the doubling of the prevalence rate of COVID-19 infection in the population of each country while the overtly pessimistic scenario represents a 10-fold increase in the prevalence of the disease . The estimated costs to the health sector in each country under these two scenarios serve as proxies of the potential economic impact of the pandemic on the health sector if countries are faced with significantly higher rates of infection.

3. Results

The total economic impact of COVID-19 on the health sector of Caribbean countries is estimated to be US$ 260.2 million. The estimated cost at the national level varied from a low of US$ 73,466 in Anguilla to a high of US$95.8 million in the Dominican Republic (see Table 1). When disaggregated by the four

cost categories, the cost of prevention activities amounted to US$64.6 million, the cost of testing was estimated at US$55.4 million, the estimated cost of treatment equaled US$108.3 million, and infrastructure cost was valued at US$31.9 million (see figure 1). The breakdown of costs at the national level is presented in Appendix A.

Based on the subregional aggregate, the cost of treating COVID-19 patients represents 42% of the total impact while the cost of prevention accounts for another 25% of the total impact. When combined, the costs of prevention and testing represent less than half (46%) of the estimated cost in the health sector. Although the estimated cost of infrastructure is the lowest among the four cost components accounting for 12% of the subregional impact, some countries have incurred substantial infrastructure cost in the health sector. For example, as part of its COVID-19 response, the Government of Guyana began the construction of a hospital to treat confirmed, and isolate, suspected cases of COVID-19. It is expected that the hospital will be utilized not only for COVID-19 but for future epidemics as well.

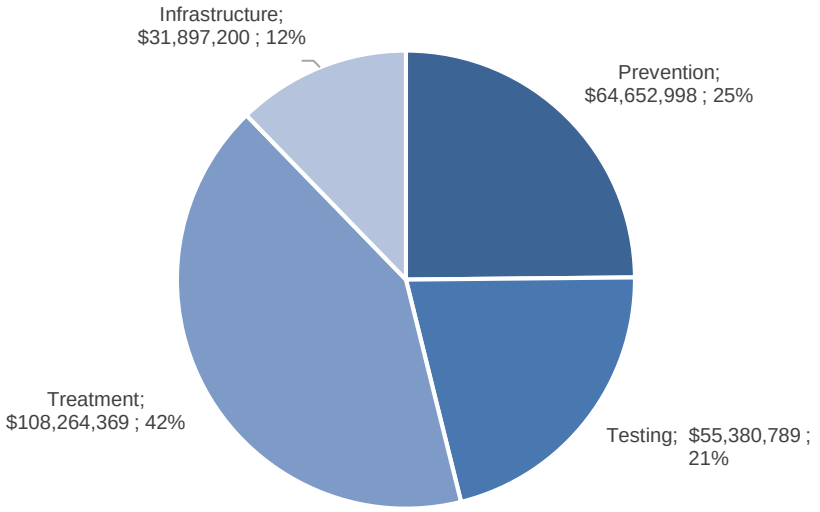
Table 1
Economic impact of COVID-19 on the health sector of Caribbean countries
(Dollars)

Country	Scenarios[a]		
	Base	Mildly Pessimistic	Overtly Pessimistic
Anguilla	73 466	133 131	628 190
Antigua and Barbuda	467 437	857,265	3 976 747
Aruba	1 905 346	3 716 177	18 203 865
The Bahamas	3 353 533	6 201 666	28 992 303
Barbados	3 394 195	6 448 147	30 883 511
Belize	1 568 922	2 802 622	12 675 917
Bermuda	5 620 492	11 103 480	54 968 893
The British Virgin Islands	214 061	388 804	1 787 178
The Cayman Islands	3,241 456	6 369 890	31 398 607
Cuba	42 170 688	78 066 251	365 299 940
Curacao	734 179	1 319 366	6 002 505
Dominica	499 061	933 615	4 410 755
The Dominican Republic	95 802 035	182 934 776	880 092 282
Grenada	1 114 511	2 129 517	10 250 658
Guyana	2 075 728	3 658 942	16 330 086
Haiti	19 108 854	29 365 790	116 916 362
Jamaica	14 182 617	25 705 218	117 915 357
Montserrat	139,451	273 478	1 345 760
Puerto Rico	52 833 528	100,557,658	482 407 026
Saint Kitts and Nevis	334 181	628 642	2 984 772
Saint Lucia	850 598	1 532 966	6 993 768
Saint Vincent and the Grenadines	433 106	778,321	3 541 009
Sint Maarten	876 865	1 715 121	8 421 598
Suriname	1 333 804	2 274 463	9 804 070
Trinidad and Tobago	5 324 020	9 418 030	42 319 126
Turks and Caicos Islands	354 434	656 874	3 076 962
US Virgin Islands	2 206 654	4 241 605	20 523 101
Caribbean	**260 213 225**	**484 211 816**	**2 282 150 346**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from the countries.
[a] Defined by the prevalence rate of COVID-19 in each country. Cost under the base scenario is based on actual prevalence of the disease as on 4 May 2020. Results for the mildly pessimistic and overly pessimistic scenarios represent the estimated cost of COVID-19 if the prevalence rate was to double or increase by 10-fold, respectively.

It is important to note that although COVID-19 represents a global crisis that was primarily a public health shock, the proactive stance taken by several Caribbean governments in closing borders, schools and the economy has prevented healthcare facilities from becoming overwhelmed. This has resulted in a relatively low economic impact on the health sector but a greater cost impact on the economy. As such, there are calls from the business community for governments to lift or ease restrictions towards the reopening of the economy. Inevitably, border closure orders will also be lifted, ushering in the return of residents abroad and tourists to the Caribbean. With this in mind, the results of the mildly and overtly pessimistic scenarios (see table 1) provide indications of alternative costs of COVID-19 on Caribbean health sectors. These results suggest that the health impact could be tremendous should there be a resurgence of infection causing the number of positive cases of COVID-19 to significantly increase, due to the re-opening of the economy.

Figure 1
Economic Impact of COVID-19 on the health sector of the Caribbean by cost category



Source: Economic Commission for Latin America and the Caribbean on the basis of official data.

Under the mildly pessimistic scenario, the impact on the health sector of the Caribbean would amount to US$ 484.2 million. The impact would increase substantially to US$ 2.3 billion under the overly pessimistic scenario. When the magnitude of this cost estimate is considered against the background that it is based on a COVID-19 population prevalence rate of 1% in most countries and no more than 2.1% in any country, it can be expected that future pandemics, if not effectively controlled, will constitute significant cost to the health sector of Caribbean countries. Therefore, adequate investment in health for effective prevention, early detection, and treatment provides a cost-effective insurance against a much greater economy-wide impact at the national level, and even more so at the subregional level.

4. Recommendations

In addressing the challenges posed by COVID-19 in the health sector and to ensure that the Caribbean is better prepared for a second wave of infection or future pandemics, the following recommendations are made.

(a) In the short-term

- COVID-19 testing: Regional and national health systems should increase capacity for testing so that new cases can be detected early. Regional Governments should also engage Caribbean Public Health Agency (CARPHA) to license private laboratories to conduct COVID-19 tests in order to make testing more widely available. Such arrangements should be adopted in other countries where private laboratories have such capacities. Relatedly, international support for boosting COVID-19 testing capacities is critical for the early detection of COVID-19 cases. The provision of a grant of US$8.6 million to CARPHA by the European Union for the purchase of materials for testing, laboratory and epidemiological training in the Caribbean is an example that should be emulated by other donors.

- Universal access to treatment: Governments should ensure that persons infected with COVID-19 receive adequate treatment irrespective of their ability to pay for medical care. Although most Caribbean countries provide fee-free healthcare in public hospitals and clinics, universal access to healthcare should be provided to all needing care, including refugees and undocumented migrants, in this period of pandemic to encourage persons with symptoms of COVID-19 to seek treatment and prevent further community infection.

- Adequately resourced health facilities: Healthcare providers should make sure that staff have adequate PPE and government intervention is required to address shortages of doctors and nurses to ensure that patients receive adequate care. In addition to ensuring that there is adequate supply of PPE and other healthcare supplies, the COVID-19 pandemic provides an opportunity for South-South cooperation in the provision of critically needed healthcare services. Along this line, about 1,200 Cuban health experts have joined the global battle against COVID-19 by rendering technical assistance to 23 nations across Europe, Africa, the Middle East and Latin America and the Caribbean. In the Caribbean, over 600 Cuban health professionals are supporting the COVID-19 health response in Belize, Dominica, Grenada, Jamaica, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Suriname, Barbados, St. Lucia and Trinidad and Tobago. This technical assistance rendered by the Cuban Government in providing medical experts to other Caribbean countries to support their COVID-19 response is an excellent example of South-South cooperation and should be strengthened through multilateral arrangements.

- Tracking and tracing: A regional system of tracking and tracing should be implemented through the Caribbean Community (CARICOM) for a more efficient management of cross-border infection. Given the frequency of intra-regional travels in the Caribbean, CARPHA, working collaboratively with other regional and national authorities, should be provided with the necessary facility to introduce or implement, as needed, a regional tracking and tracing system to provide governments and health authorities with the necessary information to conduct tracking and tracing beyond what is ordinarily available within their national health information system. Consistent with the agreement reached by the Council for Human and Social Development (COHSOD) of CARICOM at their April 2020 meeting, member states should seek to formulate and instittе a common Communications Strategy aimed at providing citizens with accurate information about how the pandemic is being addressed as well as to provide solutions to combat the spread of misinformation.

(b) In the medium-term

- Health system strengthening: Governments should strive to raise public expenditure on health to a minimum of 6% of Gross Domestic Product (GDP) as recommended by the World Health Organization/Pan American Health Organization. National health systems of the

Caribbean should be strengthened so that they are adequately prepared for future pandemics. COVID-19 has revealed the fragility of the health system of most countries necessitating the extreme measures taken to prevent the spread of the disease.

- Regional pandemic response: It is timely for the Caribbean to devise a regional pandemic response given the limited capacities of the health care systems, especially in the Eastern Caribbean States. Through CARPHA, the Caribbean Disaster Emergency Management Agency (CDEMA), the Ministries of Health, and national authorities with mandate for disaster response and management, a regional approach to address pandemics should be developed for effectiveness of disease control and efficiency of constrained healthcare systems. This response should incorporate a health pandemic early warning system similar to that used for extreme weather events. It should also include enhancing the public health research capabilities and footprint of CARPHA, in close collaboration with universities and research institutions, across the Caribbean

- Focus on NCDs: The high prevalence of non-communicable diseases (NCDs) in the Caribbean puts more people at greater risk of severe illness and death as a result of COVID-19. Governments should continue to focus attention and resources on addressing NCDs and their risk factors to improve the health and quality of life of the populace. The Caribbean has one of the highest prevalence rates of non-communicable diseases in the world and persons with pre-existing medical conditions linked to NCDs have been shown to be most severely affected by COVID-19, including having a greater risk of dying as a result of the disease. As Caribbean countries look beyond this initial wave of the pandemic, Ministries of Health, through their respective NCD plans, should redouble efforts on health interventions and policies to address NCDs and their risk factors as part of the health systems' response to the current and future pandemics.

- Healthcare infrastructure: It is important that countries in the region, in particular those whose healthcare systems were overburdened by COVID-19, formulate a strategy for enhancing health care infrastructure, including consideration for identifying or creating parallel health facilities that can be easily and rapidly activated for any future health crises. National health systems also need to strengthen their intensive care capacity to ensure that deaths remain at a minimum for COVID-19 and any future pandemic. Furthermore, it is crucial that all health facilities have adequate and reliable supply of clean water which will facilitate the necessary hand washing and sanitation practices. However, financing health infrastructural development remains a major obstacle which needs to be addressed. As espoused by Her Excellency Mia Mottley, Prime Minister of Barbados and Chairperson of CARICOM, there is an urgent need for special consideration to be given to Caribbean countries that are classified as middle- to high-income countries and hence unable to access concessionary finance which is critically needed to make necessary investments in their health systems. Appendix B provides a snapshot of recent international commitments in support of COVID-19 healthcare response efforts in the Caribbean. While this is a welcome development, greater investments through grants and concessionary financing are required to achieve the WHO recommended level of healthcare financing.

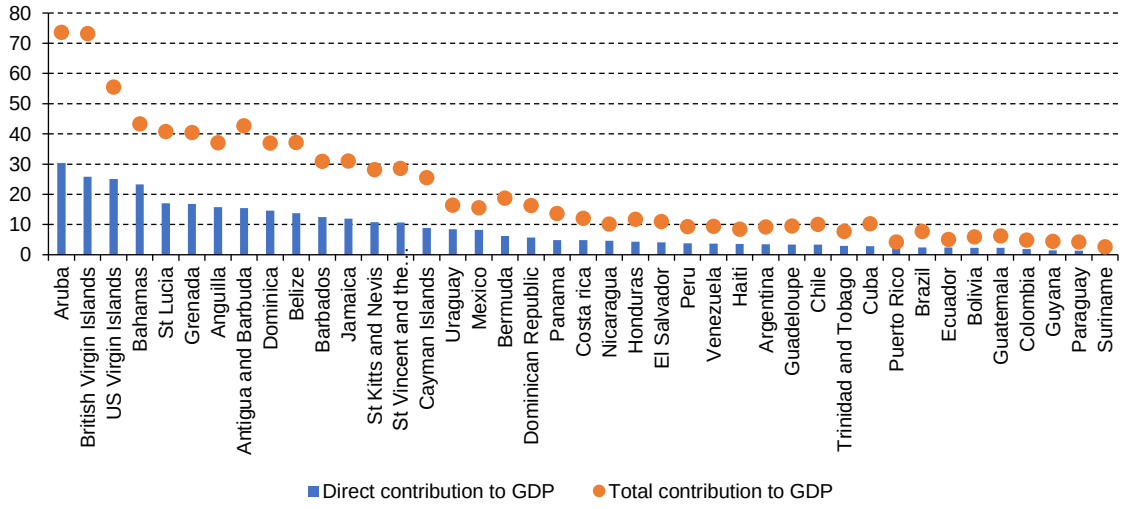
B. Tourism sector

1. Introduction

This section of the analysis examines the impact of the pandemic on Caribbean tourism and its subsequent impact in the wider economy. It also provides recommendations for rethinking operations in the industry, including innovative measures to enable it to bounce back after the crisis.

The tourism sector is vital to most Caribbean economies. On average, tourism's direct contribution to GDP in the Caribbean was 11.8% in 2019, while its total contribution (direct and indirect) was 28.5% (WTTC 2019). The dependence on tourism does vary across Caribbean economies, as the direct contribution ranged from 1.1% of GDP (total contribution 2.6%) in Suriname, to 30.4% (total contribution 73.6%) in Aruba (see figure 2 below). Tourism also accounts for 1 in 6 jobs, a majority of which are held by women.

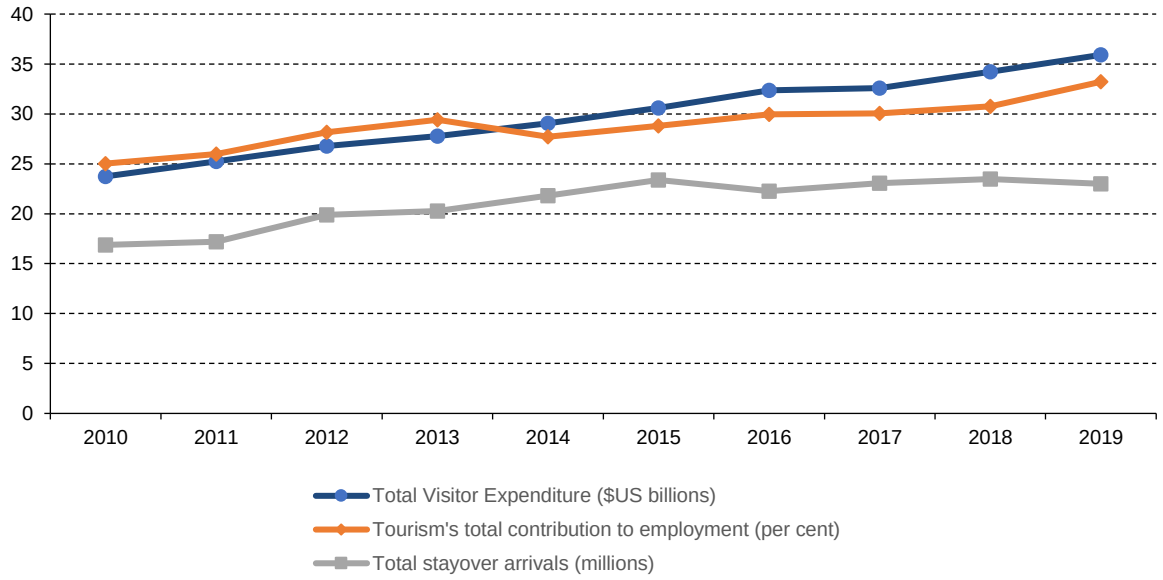
Figure 2
Tourism's direct and total contribution to GDP, 2019
(Per cent of GDP)



Source: World Travel and Tourism Council.

Figure 3 below shows that tourism in the Caribbean was recovering steadily after the fallout from the 2008-09 global crisis. Total visitor expenditure rose from US$ 23.7 billion to US$35.9 billion, at an average annual growth rate of 4.7% from 2010 to 2019. Similarly, total arrivals in the mainstay stayover segment increased on average by 3.6% annually from 16.9 million visitors in 2010 to 23.0 million in 2019.

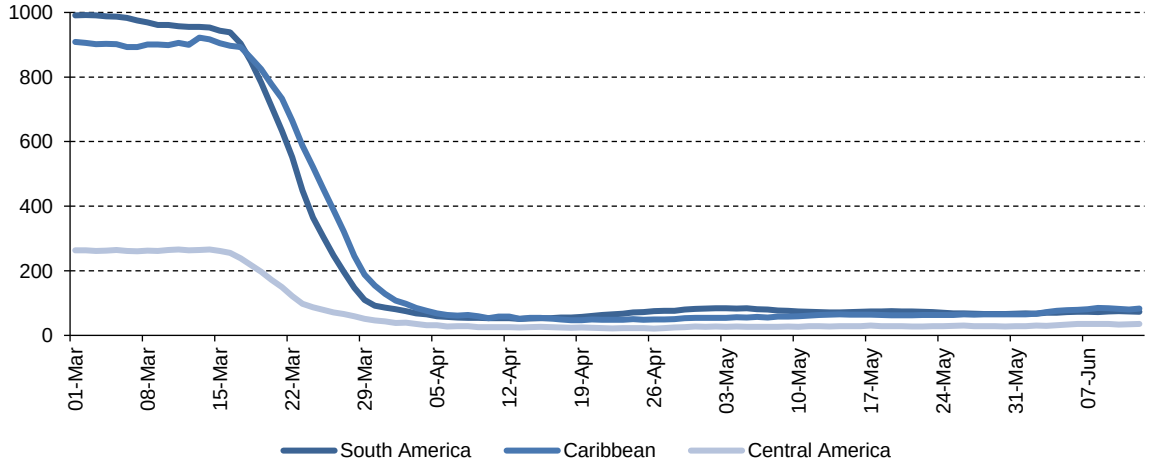
Figure 3
Total visitor expenditure, tourism's total contribution to employment and total stayover arrivals for the Caribbean, 2010 – 2019



Source: Economic Commission for Latin America and the Caribbean on the basis of official data; World Travel and Tourism Council; Caribbean Tourism Organization.

In response to the rapid spread of COVID-19, several countries in the Caribbean began implementing travel restrictions in March. As a result, Daily flight departures in the Caribbean have fallen to near zero in many countries (see figure 4 below). While real time data is limited, the hotel subsector has already been hard hit by the pandemic. According to major global tourism analysis firm STR, border closures and other travel restrictions led to an almost 90% fall in Revenue Per Available Room and an occupancy level of 8.4% by the end of March in the Caribbean hotel industry.

Figure 4
Latin America and the Caribbean (selected subregions): Daily flight departures, 1 March to 12 June 2020
(Number)



Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on International Civil Aviation Organization (ICAO) Global COVID-19 Airport Status, https://www.icao.int/safety/Pages/COVID-19-Airport-Status.aspx.

The COVID-19 pandemic presents a perfect storm crisis for the Caribbean tourism industry. This stems from the collapse of tourism arrivals and revenues and the plummet in activity and incomes in the distribution, manufacturing and other sectors. At the same time, the sharp decline in government revenues is accompanied by a substantial increase in government spending to support mitigation efforts. It is to be noted that this limits governments' ability to assist the tourism sector, as there are multiple calls on spending, including health, business and social welfare support. While the impacts from COVID-19 measures resemble those from a natural disaster, the effects are expected to be even worse than for a typical hurricane, as activity and receipts from other sectors can often be used to assist the tourism sector after the storm has passed. Indeed, ECLAC's assessment of the costs suggests that the prolonged effects of the pandemic could lead to a deep recession marked by a significant fall in incomes and rising unemployment. This will severely affect the livelihoods of small business owners and workers in the tourism sector.

Tourism is particularly vulnerable to the Covid-19 pandemic due to the several factors, including the up close and personal nature of service delivery. The World Tourism Organization (UNWTO) predicts that globally, international tourist arrivals could fall by between 60% and 80% in 2020 leading to losses of US$850 to US$1.2 trillion in tourism receipts, which is about one third of annual revenues from the sector (UNWTO, 2020). This could put between 100 to 120 million direct tourism jobs at risk. Further, according to the UNWTO, experts predict that the sector is not expected to recover fully until 2021. This is ominous for the Caribbean, as the scale of the impact would be relatively larger in the Caribbean than in other areas, owing to the heavier dependence on tourism in many economies due to the larger relative size of tourism in GDP, employment and its greater indirect and induced impacts on other sectors and activities.

The shutdown of the tourism sector has also affected the transport, logistics and distribution sectors, owing to the two-way impact of these sectors on each other.

Further, the pandemic has come at a particularly tough time for Caribbean tourism as the industry was just posting a decent recovery following the fall-out from hurricanes Irma and Maria in 2017 and hurricane Dorian in 2019. Hurricane Dorian had led to an estimated impact of some US$ 3.4 billion in the Bahamas. In addition, as a premonition of what is likely to happen in the cruise sector due to the COVID-19 pandemic, Royal Caribbean, a major cruise line, estimated that it lost $27 million in the last quarter of 2019 due to Dorian.

The full impact of the COVID-19 pandemic is difficult to gauge. This stems in part from many unknowns, transmission channels and possible succeeding waves of infection that cannot be predicted with a high level of certainty. Nevertheless, it is expected that the pandemic will disrupt regional tourism in many ways. Disruptions are expected in tourism demand, supply, pricing arrangements with knock-on indirect and induced effects on other sectors and factors of production, including labour. The main impact will be the sharp fall in tourism demand for the duration of the pandemic and immediately after. The combination of border closures and stay at home practices around the world, has led to a collapse of demand for tourism in the Caribbean and other regions. With no visitors coming to the Caribbean, tourism export receipts (visitor expenditure) has dried up across the region.

2. Methodology

This section attempts to estimate the possible impacts on the economy of the reduction in tourist activity. The scope of the analysis in this report is 24 member and associate member countries of the Caribbean Development and Cooperation Committee (CDCC) with available data necessary for analysis.

Cruise and Stayover tourism arrivals data were sourced from the Caribbean Tourism Organization, and GDP tourism expenditure and GDP data from the World Travel and Tourism Council estimates. Exports of good and services data were sourced from the United Nations Trade and

Development database. This section estimates the impact on the tourism sector and the wider economy using the concept of economic losses. The impacts are calculated based on production forgone in the tourism sector due to the COVID-19 mitigation measures. The production forgone is in turn based on the difference between the expected number of tourist visitors before the pandemic (the baseline projection) and the simulated number of visitors since the pandemic.

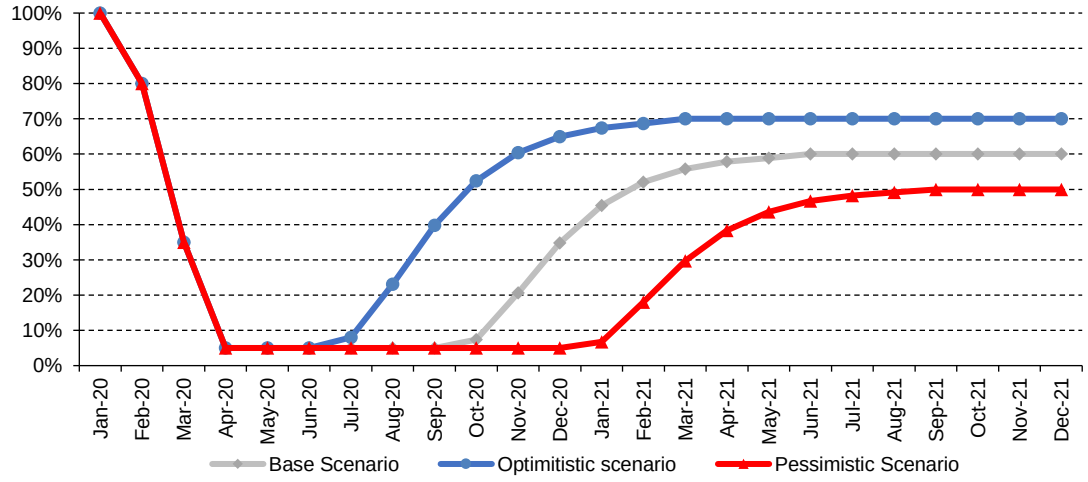
The baseline projection of visitor arrivals, based on long term trends, was made to December 2021. The projection was based on monthly flows due to the strong seasonality in tourism arrivals. Then, a projection of visitor arrivals was made based on official data for the first couple of months (where available), followed by a 95% suspension of arrivals from April 2020. Finally, given the high level of uncertainty, three recovery scenarios are then simulated in which arrivals, as a per cent of the baseline forecast, increase gradually then plateau between 50% and 70% of baseline forecast.

Table 2
Tourism decline scenarios

Recovery scenario	Assumptions	Fall in visitor arrivals in 2020
Optimistic	Assumes the "lockdown" period of near zero arrivals continues until June 2020. Most countries get the pandemic under control and from July arrivals gradually return to the 70% of the level forecasted at baseline over a period of nine months.	-58%
Base	Assumes the "lockdown" period of near zero arrivals continues until September 2020. Most countries get the pandemic under control and from October, arrivals gradually return to 60% of the level forecasted at baseline over a period of nine months.	-71%
Pessimistic	Assumes the "lockdown" measures are lifted in September, but countries have not gotten the pandemic under control. This opening would be followed by a second wave of infections, intensified by falling temperatures in the Northern Hemisphere. Travel restrictions are then re-implemented and last until December 2020. Beginning in January, arrivals gradually return to 50% of the level forecasted at baseline over a period of nine months.	-76%

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

Figure 5
Forecasted Tourist arrivals
(Per cent of baseline forecast)



Source: Economic Commission for Latin America and the Caribbean (ECLAC).

While domestic tourism is not as important for the Caribbean as in other areas in Latin America, its impact was also estimated. It was assumed that the domestic tourism activity fell by 40% in the optimistic scenario, 60% in the base scenario and 80% in the pessimistic scenario.

Tourism expenditure (visitor export receipts) was calculated using forecasted arrivals and historical expenditure. For each forecast scenario the percentage change in expected external tourist arrivals was multiplied by the 2019 external tourism expenditure. For cruise tourism, data was much more limited: The 2014-2016 average cruise expenditure per arrival was multiplied by monthly cruise arrivals under the various forecast scenarios.

The impact on GDP growth is estimated by multiplying the percentage difference between the baseline forecast and recovery forecast weighted by the share of tourism in GDP for both external and domestic arrivals.

3. Results

The losses in tourism expenditure are summarized in the table below.

Table 3
Caribbean (24) Stayover and cruise tourism expenditure losses across scenarios, 2020
(Millions of Dollars)

	Base	Optimistic	Pessimistic
		Tourism *expenditure*	
Stayover	25 811.6	21 161.6	27 129.1
Cruise	942.8	757.5	1 012.8

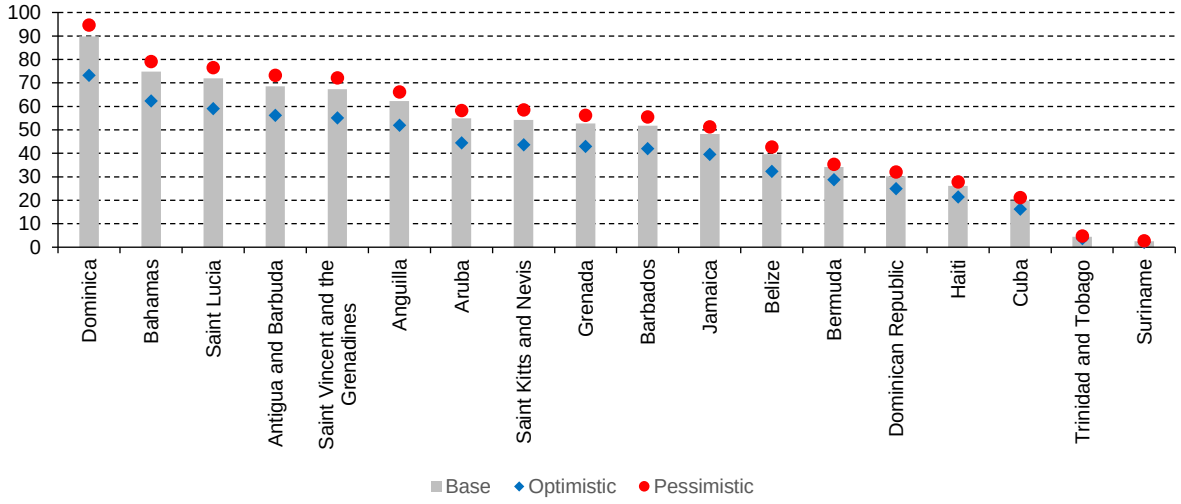
Source: ECLAC estimates, based on data from the Caribbean Tourism Organization and the World Travel and Tourism Council.

As expected, the table illustrates that losses from stayover tourism are much greater than expenditure losses from cruise tourism. The average expenditure per cruise passenger is just over US$50, compared to over US$ 2,000 per stayover arrival. By their nature, stayover tourists spend more time in the countries, pay for accommodation and eat more meals. The fallout from their loss is therefore much greater.

(a) Impact on exports

Tourist expenditure is classified as exports of services in the balance of payments; therefore, all losses of tourist expenditure have a negative impact on the current account balance. The slowdown in tourism activity will also lead to a reduction in imports, since tourism businesses import most of the food, other consumables and equipment that are used in their operations. As the information on tourism imports is limited, this report focuses solely on the impact on service exports. The figure below provides ECLAC's estimates of the expected stayover expenditure losses across the three scenarios.

Figure 6
Stayover and cruise tourism expenditure losses by economy, 2020
(Per cent of 2018 exports of goods and services)



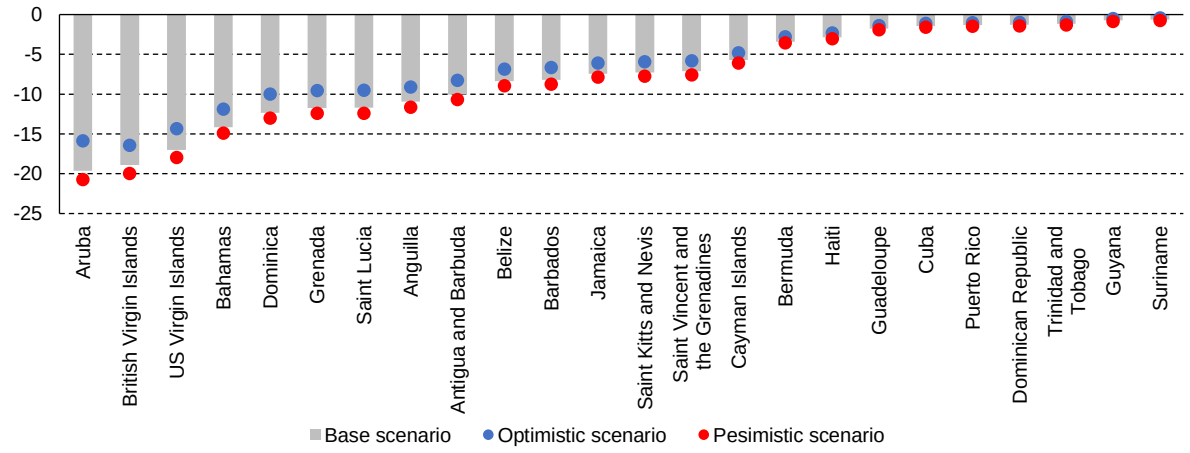
Source: Economic Commission for Latin America and the Caribbean (ECLAC).

On average, the losses of exports of goods and services ranged from 39 % of GDP in the optimistic scenario to 50 % in the pessimistic scenario. Optimistically, 14 of the 18 economies assessed will lose at least 25 % in GDP as a result of the COVID-19 precautionary measures. The economy whose exports will suffer the most is Dominica, with a loss of 73 % in the optimistic scenario and 95 % in the pessimistic. Not surprisingly, the less tourism dependent goods producing economies of Trinidad and Tobago and Suriname will be least affected, with their losses not crossing 5 % even in the pessimistic scenario.

(b) Impact on GDP growth

The loss of tourism revenue will impact directly on overall GDP growth. In the optimistic scenario GDP growth will be reduced on average by 6.4 percentage points and will fall by 7.7 and 8.2 percentage points in the base and pessimistic scenarios respectively.

Figure 7
Loss of direct GDP growth
(Percentage points)



Source: Economic Commission for Latin America and the Caribbean (ECLAC).

The worst impacted will be the economies most dependent on tourism. Aruba, the British Virgin Islands and the United States Virgin Islands will all experience declines in their growth rate by over 15 percentage points in the base scenario. The least affected will be the larger, more diversified economies which depend less on tourism, such as Trinidad and Tobago, Guyana and Suriname, whose economies all depend mainly on commodity exports.

4. Emergency response measures to mitigate impact on tourism sector

Considering the precipitous downturn in the tourism sector from the COVID-19 pandemic, governments across the region acted quickly to introduce several mitigating measures to stem the fallout in the short-term. Several of these initiatives have taken the form of stimulus packages for the broader economy aimed at providing liquidity support, financial relief and minimizing income and job loss. Emergency response and mitigation measures beneficial to the tourism sector include supplementary income support to tourism workers, easing of financial obligations through loan and national insurance deferrals, cash flow support through banks and credit unions, and suspension of tariffs and value-added taxes. Countries such as The Bahamas have allocated B$20 million to support business loans to SMEs and B$30 million to provide tax credits to companies retaining at least 80 percent staff, while Saint Vincent and the Grenadines is offering a one-time support payment to water taxi and tour operators in light of the cancelled cruise season. Table A3 in the Annex provides a summary of existing measures announced as of April 2020 across the region that can provide short-term support to tourism workers and businesses.

Moreover efforts to establish a common border re-opening protocol that can benefit regional airlines and boost domestic tourism came to fuition in September (2020), with the regional Travel Bubble becoming operatinal. Several regional bodies are also working on a collective approach to accessing international financing that can serve to bolster severely impacted sectors such as tourism. While these emergency responses have been critical to providing much needed short-term support to the sector, they cannot be sustained indefinitely and the uncertainty and severity of this crisis requires more long-term initiatives to protect tourism businesses, particularly SMEs. Such initiatives can best be developed and implemented with broad-based collaboration among governments, private sector, regional and international bodies to ensure sustainability of tourism in the region.

5. Policy recommendations for containing the fallout and helping the tourism industry bounce back better after the pandemic

While the recessionary impacts and downside risks of the pandemic are highlighted by the high estimates for impact on expenditure and GDP, the pandemic also offers opportunities for countries to rethink their tourism product and determine which segments of the value chain to prioritize for investment. The following recommendations provide pointers for 'firefighting' measures to limit the short-term impacts of the pandemic and a strategy to facilitate a more resilient and competitive tourism sector in the medium-term when conditions return to normal. This is particularly important as all indicators point to a period of intense competition to attract visitors by destinations around the world after the pandemic (UNESCAP, 2020).

(a) Short-term actions

- In the short-term, Caribbean tourism businesses, including hotels and tour operators need to put in place a strategic health, hygiene and safety plan to inspire confidence among tourists. This plan should include robust protocols and procedures for ensuring visitor health and safety, such as dealing with sick guests, clear reporting lines and quick remedial actions when problems arise. Sandals Resort has developed an "Eighteen Touch Point Practice" strategy, which includes enhanced cleaning and sanitation protocols and direct check-in to rooms. This could provide a model for other hotels. However, small cash-strapped indigenous hotels might need to be provided with financial support from governments to remain in business.

- In the short-term, the Caribbean should also strive to boost domestic tourism to partly offset the sharp fall in international tourism. Tourism demand from abroad might not return before the next high season, especially if there is a resurgence of the virus in major markets. Therefore, the Caribbean should promote domestic tourism, including staycations and 'know-your-country' vacations, through promotional incentives, including affordable rates at hotels and local tour packages. The case for this would be even stronger if the region is able to contain the number of infections and bend the epidemic curve downwards in the next couple of months.
- To cushion the fall-out in employment in tourism in the short-term, Caribbean governments could seek to repurpose tourism workers for tasks relating to the pandemic (Bernard, 2020). A PPP initiative could be designed that redirects workers in the sector to work as cleaners, temperature checkers and contact tracers to maintain them in employment. The costs would be borne jointly by tourism businesses and governments.
- In the short-term some tourism service providers would need financing to upgrade facilities/equipment to meet health and social distancing standards. Support from international organizations through grants and low-cost loans can provide the necessary financial resources to make such upgrades and increase the attractiveness of facilities to visitors. Such initiatives should target small, locally owned tourism service providers given their high vulnerability to business failure because of the pandemic.
- The International Financial Institutions under the auspices of the Financing for Development Initiative should be encouraged to create innovative funding, including a Pandemic Relief Fund to assist developing countries, especially SIDS which are badly affected by the pandemic. This funding instrument should be a grant fund with quick and easy disbursement mechanisms so that Caribbean governments can draw down on the fund readily to relieve impacts. This could allow the region to provide some stimulus and assistance to the tourism small businesses and workers who have been severely impacted.

(b) Medium-term actions

- The Caribbean should strategically brand and market itself as a region that has been able to better contain the spread of the virus to capture a share of 'pent up demand` from more affected destinations. There is the case for this as the region has fared relatively well, owing to early interventions such as lockdowns, social distancing and border closures that have limited infections and mortality.
- The region needs to redirect its product development, marketing and promotion pitch to these segments, in order get ahead of the competition. For instance, member states should explore avenues for instituting programmes similar to the Barbados Welcome Stamp, which allows remote working for visitors from anywhere in the world for up to a year. Priority could also be be given to youth, adventure and luxury tourism, which would be the most likely to rebound the soonest. Youth and Adventurers are more likely to travel, and to visit remote sites that take them away from large numbers of people and high net wealth visitors (with high average spending) are better able to isolate on aircrafts and yachts. Indeed, a survey by the University of Florida (Pennington-Gray, 2020) revealed that persons under 25 reported less anxiety about returning to travelling than older persons. Further, persons earning above US$125,000 were more interested in travelling than lower income households.
- To facilitate a robust recovery in the medium-term, tourism businesses and policy makers should redirect the bulk of resources to the development and promotion of stayover tourism. The heavy investment in cruise tourism ports and other facilities, might not be

producing adequate returns for the region and needs to be re-evaluated. The data shows that only 3.4% to 13.5% of tourism expenditure is contributed by the cruise sector as 82% of discretionary spending by passengers is done onboard the ship. These statistics are particularly important post Covid-19 as ships are likely to be even more aggressive in maximizing onboard revenue to compensate for the loss of business due to the virus.

- To facilitate a longer-term transformation of the tourism sector tourism businesses and policy makers should use the opportunity presented by the pandemic to start to rethink the tourism industry around the issues of people, planet and prosperity. This requires measures to improve wages and working conditions in the sector to enhance social upgrading, mainstreaming green practices, including green energy and reduced overcrowding at important eco-heritage sites and attractions to increase their longevity and increasing the competitiveness and profitability of the sector, while ensuring local communities prosper along with tourism business owners. This could be facilitated by increased purchases of farm produce, handicrafts and other items from the community.

C. Transportation sector

1. Introduction

This analysis would cursorily examine the impacts on the cruise sector, commercial shipping and airlines while extending these findings into specific implications for the Caribbean, and speculate on recovery pathways for the sector through scenario analysis.

Global transportation has been one of the most severely impacted by the COVID-19 pandemic to date. This sector first hinted at the possible catastrophic consequences of the disease, with the confirmation of cases on Carnival Corporation's Diamond Princess Cruise vessel off the coast of Japan in early February 2020. With dramatic increases in the number of travelers being infected over a subsequent two-week period, several governments implemented extensive quarantine restrictions, and eventual travel bans on international cruise lines. Ultimately, widespread closures of international borders also resulted in the curtailment of air travel, and while commercial shipping has been largely exempted from travel bans, new pandemic control measures at seaports[1], as well as disruptions of supply-chains in importing and exporting hinterlands have reduced shipping logistics efficiency in many global markets.

The Caribbean, being highly dependent on international transportation for supporting its tourism sector and the delivery of critical supplies such as food, energy, medication, machinery and other consumer goods, has suffered severe impacts, with the temporary closure of several hotels and related tourism business.

Given that most of the suppliers of international transportation services are centered outside the Caribbean region, an assessment of their impacts on the Caribbean economy would depend on how significantly they are affected in the wider global context.

2. Impact on the cruise shipping sector

The four globally dominant cruise firms of Carnival Corporation, Royal Caribbean, Norwegian Cruise Lines, and Mediterranean Shipping Company, all operate regular cruise schedules in the Caribbean. Not

[1] Such measures include the restriction of crews from coming ashore, or the boarding of vessels by locals; extensive sanitization procedures as a pre-requisite for docking; adjustments of port operation schedules; adjustment of working hours to match nationally imposed curfews which limit to movement of port workers; imposition of various levels of self-quarantine for selected personnel; among others.

unexpectedly, the combination of border closures, along with the uneasiness of passengers to travel has precipitated a sharp decline, with the number of cruising vessels falling dramatically from 169 to 77 over the six-week period from mid-February to the end of March, 2020 (Bloomberg Markets, 2020).

For the Caribbean, most cruises originate from the United States, which is the subregion's largest source market (CTO, 2020), and consistent with the peak demand for service in this market during the winter months of the Northern Hemisphere, the cruise high season ranges from December to April each year. Hence the onset of the COVID-19 pandemic in the Caribbean from February, 2020 has effectively curtailed operations for a period of two months from Mid-March, to Mid-May, 2020, thus triggering a major shock to industry players in the region. Based on previously published itineraries, this 2-month service disruption represents a cut of approximately 20% of the planned annual available cruise berths to the Eastern Caribbean for 2020[2]. Such reduction translates to a loss of roughly USD 598 million, or 21.1% of projected revenues to the cruise shipping sector servicing the Eastern Caribbean in 2020. Estimates of related measures are presented in table 4.

At the same time, stock prices for the main cruise ship companies fell by 27 percent (table 5, figure 8) on average for the first quarter of 2020, amounting to losses of just over USD31 billion for the global industry (Bloomberg Markets, 2020). This was on account of cruise lines being forced to cancel many itineraries, and to endure the additional costs and inconvenience of berthing denials by port authorities, as well as quarantining and eventually repatriating thousands of passengers and crew.

(a) Impacts in the Caribbean

Suspension of cruise activities is likely to affect the Caribbean in terms of sector spend, as well as employment. Although recent figures are unavailable, the FCCA estimates that the region earned roughly USD2.4 billion in visitor expenditure from roughly 27.1 million visitors in 2017 (CTO, 2018). At the same time, the industry generated just over 79,000 jobs for Caribbean residents (BREA and Florida Caribbean Cruise Association - FCCA 2018). Given that recent CTO projections suggest a significant improvement in these figures for 2019 (Britell, 2020), the scuttling of the 2020 cruise season portends major economic impacts for the subregion.

Table 4
Estimated Changes in Available Cruise Berths to the Eastern Caribbean – First Quarter 2020

Cruise Line	Max. Number of Berths per Year (ALB)	Average Annual Revenue (Berths Only)	Loss of Berths due to COVID-19	Estimated Revenue Loss Due to COVID-19
Carnival Corporation	2 175 336	1 197 670 440	362 556	199 611 740
Royal Caribbean	1 043 664	697 958 400	173,944	116 326 400
Norwegian Cruise Line	423 471	332 064 780	195,176	164 141 320
MSC	502 170	603 871 140	97 856	117 608 120
Totals	**4 144 641**	**2 831 564 760**	**829 532**	**597 687 580**
Percentage loss of berths for period (all cruise lines): 20.01				
Percentage loss of revenue for period (all cruise lines): 21.11				

Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on cruise itineraries from cruisemapper.com.

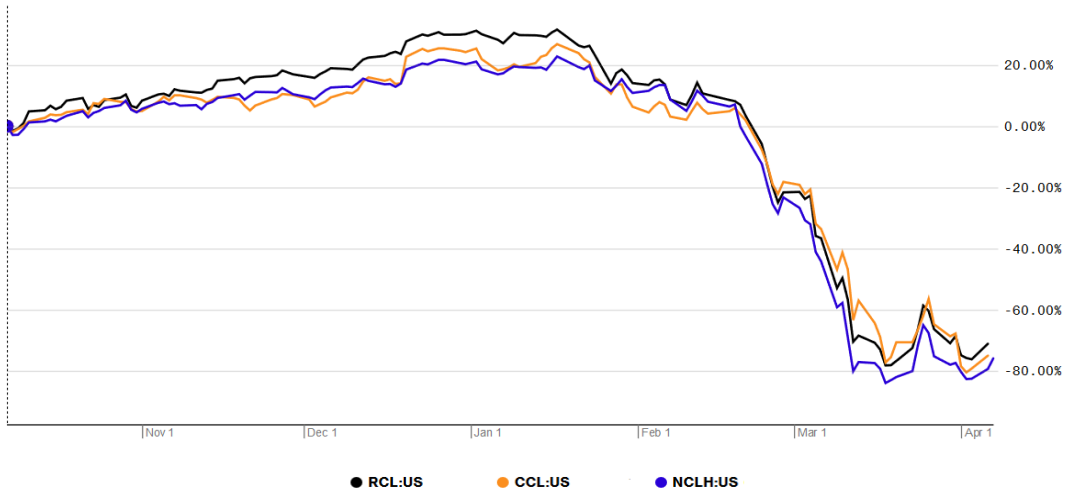
[2] ECLAC's estimation based on planned cruise itineraries as presented at cruisemapper.com. Also note that these estimates do *not* include cruise itineraries to the Western Caribbean, which the industry defines as including Belize, Mexico, and the Dutch territories of Aruba, Bonaire and Curacao.

Table 5
Stock Price Trends: Major Cruise Lines, October 2019 – March 2020

Cruise Line	Month						Percentage change over period
	Oct '19	Nov '19	Dec '19	Jan '20	Feb '20	Mar '20	
Carnival	40.95	42.95	44.49	51.31	44.75	33.06	-23.0
Royal Caribbean	101.88	111.18	119.15	134.65	116.45	80.56	-27.5
Norwegian Cruise Lines	47.21	51.33	53.15	58.83	54.19	35.59	-30.7
Average							**-27.1**

Source: Bloomberg Markets.

Figure 8
Trends in Stock Values of Global Cruise Lines – Oct. 2019 – Apr. 2020



Source: Bloomberg Markets.

3. Impact on the aviation sector (Passenger and Air Cargo)

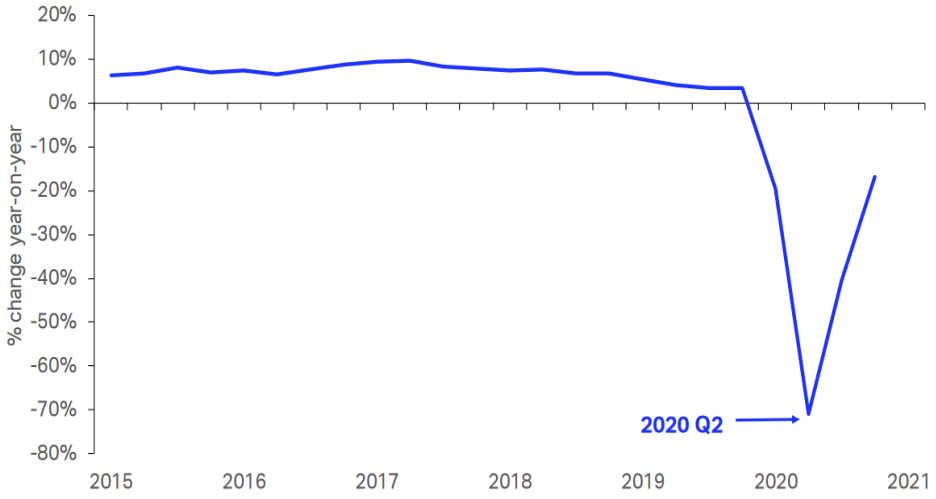
While the impacts on the cruise sector have been significant, the disruption of international airline traffic has provoked far more severe consequences as many countries closed airports to international and/or regional travelers. Rolling air travel restrictions which began in February 2020, resulted in a 13% global reduction of Available Seat Kilometers (ASK)[3] on account of travel restrictions to China and related regional cities. By March, further reductions reached 49%, and in April, topped off at an unprecedented 89% of ASKs worldwide as the pandemic gathered momentum (ICAO, 2020). This overall decline also resulted in a corresponding sharp drop in Revenue Passenger Kilometers (RPK), estimated to be USD252 billion, or more than 70% year-on-year as at the second quarter of 2020 (figure 9).

Not surprisingly, this shock has resulted in a sharp decline in stock values for several international air carriers, averaging about 65% (figure 10) for the first quarter of 2020 (Bloomberg, 2020).

[3] Available Seat Kilometers (ASK) is the total capacity of an airline measured in kilometers. It is as the product of the total number of available seats and the distance flown. Revenue Passenger Kilometers (RPK) is the number of kilometers travelled by paying passengers. It is the product of the total number of paying passengers and the total distance travelled.

The continued suspension of air travel has also affected employment and has put at risk up to 25 million jobs supported by air transport globally (IATA, 2020). As shown in figure 11, the pandemic threatens some 2.9 million jobs in the LAC region, which is notable, given the region's relatively low participation in global aviation activity. Moreover, the high dependence of the Caribbean on international tourism portends possibly even greater job losses, should the current suspension of air travel be sustained.

Figure 9
Year-on-year change in Global revenue passenger kilometers, Q2 2020
(Percentages)

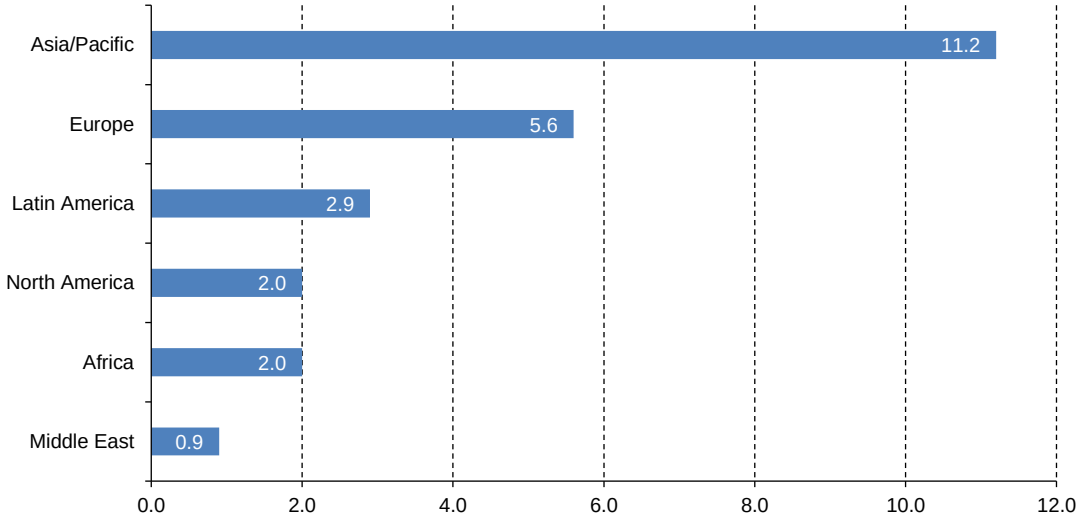


Source: IATA.

Figure 10
Trends in Stock Values of Major Airlines – Nov. 2019 – Apr. 2020
(Percentages)

Source: Bloomberg Markets.

Figure 11
Jobs Supported by Air Transport at Risk Due to COVID-19
(Millions)



Source: IATA, 2020.

The epidemic however created a seemingly temporary boom for airline freight traffic, mainly because this sub-sector was exempted from flight restrictions, as well as a surge in demand for expedited airlift of emergency medical supplies, as countries ramped up their response to the disease. The withdrawal of 'belly-cargo' space normally provided with passenger traffic also enhanced short-term demand for freight services. All of this notwithstanding, the intractable nature of the disease still resulted in a 0.6% fall in Freight Tonne-Kilometers (FTK) between December, 2019 and January 2020, with projections for a more significant overall decline of 19% by the end of the first quarter of 2020 (IATA, 2020) (table 6).

Table 6
Air Cargo Throughput: First quarter 2019 and 2020
(Millions of tonnes transported)

	March, 2019	March, 2020	Change
Belly Cargo	3.49	2.40	-31%
Freighter Cargo	1.48	1.61	9%
Net	**4.97**	**4.01**	**-19%**

Source: International Air Transport Association (IATA), 2020.

(a) Regional Assessment

As noted above, Latin America *and* the Caribbean (LAC) is a relatively small region in terms of share of airline passenger traffic, accounting for just 5.7% of global ASK as at January, 2020 (ICAO, 2020). In this context, the Caribbean's sub-share is considered to be miniscule. However, given the subregion's high dependence on international tourism, and the poor development of intraregional maritime passenger services, air transportation remains critical for the transfer of international visitors into, and the movement of Caribbean residents within the subregion. The region is therefore relatively well serviced both by international air carriers from North, Central and South America, as well as a number of regional airlines of varying sizes. While air freight services are far less developed, that which exists provides a generally consistent and reliable service (table 7).

Table 7
Airlines Servicing the Caribbean Subregion

Airline	Origin	Type
American	USA	International Passenger/Belly Freight
United	USA	International Passenger/Belly Freight
Delta	USA	International Passenger/Belly Freight
Continental	USA	International Passenger/Belly Freight
JetBlue	USA	International Passenger/Belly Freight
COPA	Panama	International Passenger/Belly Freight
Caribbean (CAL)	Trinidad and Tobago	Regional Passenger/Belly Freight
Virgin Atlantic	UK	International Passenger/Belly Freight
British Airways	UK	International Passenger/Belly Freight
Air Canada	Canada	International Passenger/Belly Freight
West Jet	Canada	International Passenger/Belly Freight
Condor	Germany	International Passenger/Belly Freight
Aeropostale	Venezuela	Regional Passenger/Belly Freight
LIAT	Antigua and Barbuda	Regional Passenger/Belly Freight
Bahamas Air	Bahamas	Regional Passenger/Belly Freight
Air Caraibes	Guadeloupe Region	Regional Passenger/Belly Freight
Suriname Airways	Suriname	International Passenger/Belly Freight
Win Air	Sint Marteen	Regional Passenger
LaParkan	USA	Regional Freight
Amerijet	USA	Regional Freight

Source: Author's compilation.

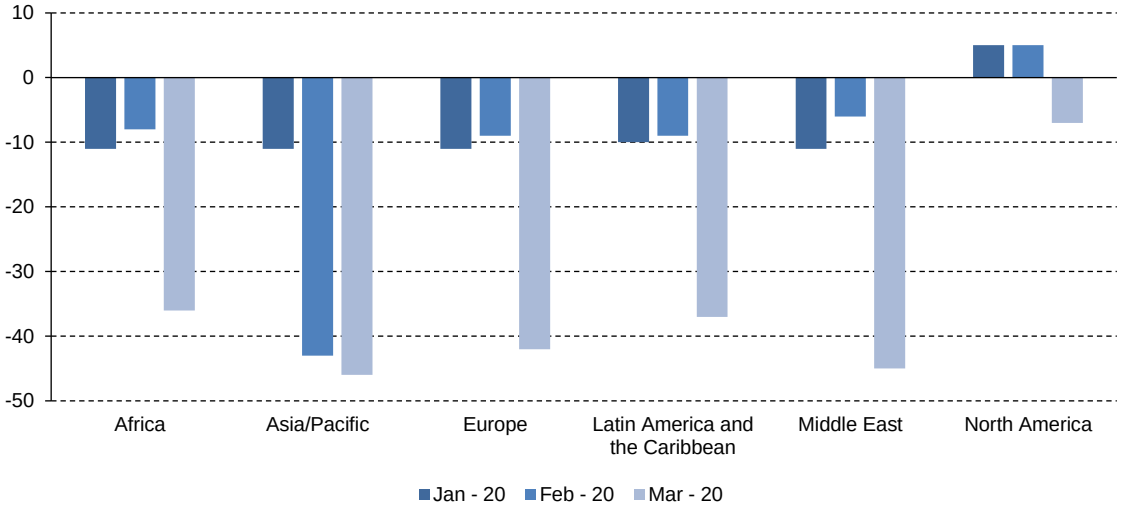
Although specific data for the Caribbean subregion are not available, the likely impacts of the pandemic are apparent from their effects on air travel for the LAC region as a whole. According to ICAO (2020), decline in *international* ASKs was 25% relative to the originally planned ASKs for the first quarter of 2020. *Regionally* planned ASKs fared worse over the same period, falling by 37% (table 8, figure 12).

Table 8
Monthly Seat Capacity Compared to Originally Planned – Regional
(Percentage change)

Region	Jan - 20	Feb - 20	Mar - 20
Africa	-11	-8	-36
Asia/Pacific	-11	-43	-46
Europe	-11	-9	-42
Latin America and the Caribbean	-10	-9	-37
Middle East	-11	-6	-45
North America	5	5	-7
World	**-6**	**-21**	**-32**

Source: Internationl Civil Aviation Organization (ICAO), 2020.

Figure 12
Percentage Change from Planned Monthly Seat Capacity by Region: January - March, 2020



Source: ICAO, 2020.

(b) Impacts on Regional Carriers

With the implementation of airport closures in the Caribbean, beginning in the latter half of March 2020, it is expected that this figure will be far higher for the subregion, especially since both international and regional passenger services were shut down. The impacts of COVID-19 on this subsector in the subregion can be gleaned from an examination of the experience of three regional carriers. These are Caribbean Airlines (CAL), Leeward Islands Air Transport (LIAT), and Bahamas Air (BHA), all of which operate mainly regional services with limited extra-regional connections mainly to the United States. The analysis elaborates the potential financial impacts on operations based on the adjustments to schedules, and related seat availability as a result of the pandemic in the Caribbean[4].

(i) Caribbean Airlines:

Caribbean Airlines (CAL) is jointly owned by the governments of Trinidad and Tobago, and Jamaica, with each holding shares of 84% and 16% respectively. Operating a fleet of 17 aircrafts[5], this carrier currently serves 22 destinations, four of which are in the United States, two on the South American mainland, and the remainder distributed among the islands. As a state-owned entity, CAL also enjoys a monopoly on a domestic air-bridge service between the twin islands of the Republic of Trinidad and Tobago.

The airline's most recent financial report for the first three quarters of 2019, just prior to the outbreak of the COVID-19 pandemic indicates a positive performance year on year. Earnings before Interest and Taxes (EBIT) amounted to USD18.1 million (TTD121m), and overall revenue increased by 3.8% to USD 0.34 billion (TT$2.3bn) (Caribbean Airlines, 2019). Over the period, CAL also carried 1,247,592 international passengers, as well as 766,776 on the domestic airbridge.

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[4] This analysis is based on published fleet specifications, flight schedules, average ticket costs, and adjustments to flight operations in light of COVID-19, as available at the airlines' websites or related sources.

[5] 12 Boeing 737-800 and 5 ATR 72-600.

However potential revenue losses from deferred Available Seat sales due to airport closures for six weeks (mid-March to end of April, 2020) were estimated at **USD 60.2** million or 12.45% of *total projected* revenues for the previous year (table 9).

(ii) Leeward Island Air Transport

Leeward Islands Air Transport (LIAT) provides scheduled high-frequency inter-island connections among 15 destinations mainly in the Eastern Caribbean. It is owned by seven Caribbean governments, as well as a mix of private shareholders, and employees. A significant majority of shares (94.7%) are however held by the governments of Barbados, Antigua and Barbuda, Saint Vincent and the Grenadines, and Dominica. Given the limited options for intra-island connectivity either by air or sea in the subregion, LIAT approximates an essential service for passenger travel, and services its route network using a fleet of ten aircrafts[6]. Although the airline has experienced financial challenges in recent times, it continues to operate, having carried over 750,000 passengers on its route network in 2018 (LIAT, 2018).

In response to airport closures due to COVID-19, LIAT was also forced to suspend passenger operations for a period of 6 weeks (April – Mid-May, 2020). Based on current operations this short-term action is estimated to result in a potential ticket revenue loss of **USD41** million, or 12.50% of *total projected* revenues for the previous year (table 9).

(iii) Bahamas Air

Bahamas Air (BHA) is the national airline of the Bahamas and provides air connectivity to the main population centres distributed across the many islands of the Bahamas archipelago, as well as selected cities in the Caribbean and the United States. It serves 32 destinations, the majority of which are domestic, and operates a fleet of 9 aircrafts[7]. While the airline's average annual passenger load is estimated to be 1.5 million, the country's closure of both its international and domestic airports from March 23rd, 2020 is likely to reduce the airline's potential revenues by **USD34.8** million (12.58% of *total projected* revenues for the previous year) if such closure is maintained until the end of April, 2020 (table 9). Projected revenue loss for each of the three regional airlines is shown in figure 13.

Table 9
Estimates of Changes in Available Seats and Potential Revenues: Selected Regional Airlines - First Quarter, 2020

Airline	Max. Number of Available Seats Per Year	Average Price per Round Trip - USD**	Average Annual Revenue (Seats Only)	Loss of Available Seats due to COVID-19	Estimated Revenue Loss Due to COVID-19
Caribbean Airlines (CAL)					
International Service	1 646 327	331.58	438 347 577	205 791	54 793 447
Domestic Service*	1 168 430	48.00	45 035 981	140 212	5 404 318
Subtotal: CAL	**2 814 757**		**483 383 559**	**346 002**	**60 197 765**
LIAT					
Regional Service	798 401	300.00	192 334 683	99 800	24 041 835
Regional Service	563 577	300.00	135 765 659	70 447	16 970 707
Subtotal: LIAT	**1 361 977**		**328 100 342**	**170 247**	**41 012 543**
Bahamas Air (BHA)					
Domestic Service	636 979	240.00	122 758 631	76 438	14 731 036
International Service	832 955	230.00	153 838 413	108 646	20 065 880
Subtotal: BHA	**1 469 934**		**276 597 045**	**185 084**	**34 796 916**

[6] Five ATR 72-600, and five ATR 42-600.

[7] Three ATR 42-600, 2 ATR 72-600, 3 Boeing 737-500, and 1 Boeing 737-700.

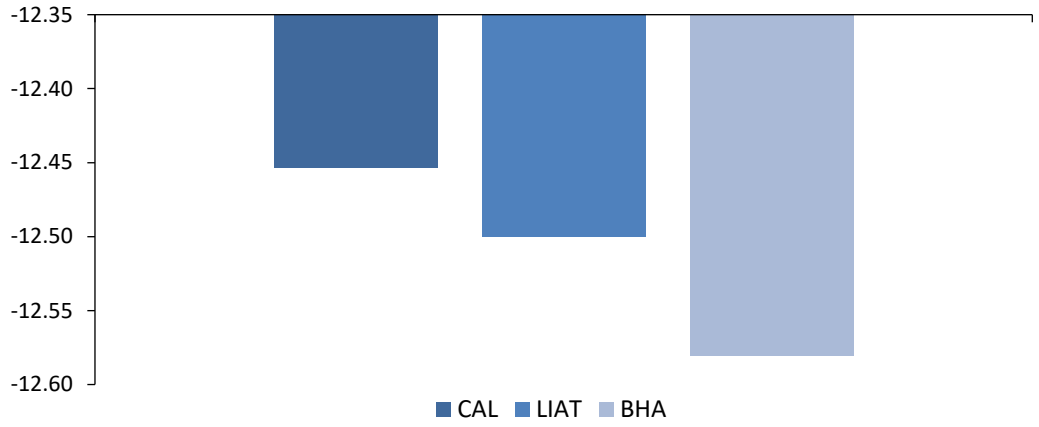
Airline	Max. Number of Available Seats Per Year	Average Price per Round Trip - USD**	Average Annual Revenue (Seats Only)	Loss of Available Seats due to COVID-19	Estimated Revenue Loss Due to COVID-19
Totals	**5 646 668**		**1 088 080 945**	**701 333**	**136 007 223**
% Loss of Seats for Period				**12.42**	
% Loss of Revenue for Period				**12.52**	

Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on data from caribbean-airlines.com, liat.com, and bahamasair.com.

*Based on figures for 2019.

** International Average Load Factor estimated by ICAO (January 2020).

Figure 13
Projected Revenue Loss (%): Regional Airlines - Six Week Closure First Quarter, 2020
(Percentages)



Source: Author's calculations.

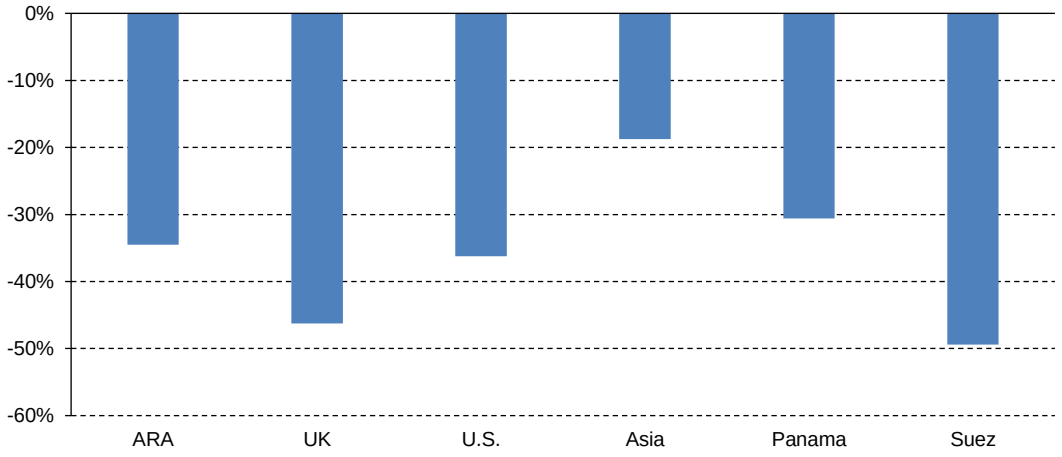
4. Impacts on the Commercial Shipping

The impact of the Corona virus pandemic on commercial shipping was also significant, although it presented in different forms, compared to cruise and airlines. The requirements for infection containment in the shipment of commercial cargo were not as restrictive as no specific ban on the movement of commercial shipping was imposed. However, given that commercial shipping carries upwards of 80% of world cargo, the closure of manufacturing plants has significantly reduced cargo capacity demand, and related freight rates. For China, which was the early epicenter of the disease, freight rates collapsed by an astounding 99.95% in January 2020. Rippling effects were later felt in US markets for instance, where commercial cargo traffic at United States' west coast ports fell by 15% during the first quarter of 2020 (Bloomberg, 2020).

Possibly the most significant impacts arose from the disruption of supply chains, and the reduction of available port labour due to the application of curfews and other measures designed to limit the movement of workers in ports and related hinterlands. These effects were evident in the movement of containerized goods, bulk materials, and crude oil and related products. As noted by Bloomberg (2020) for instance, lockdown measures at ports in the Philippines during the month of March have resulted in pile-ups of thousands of shipping containers, with the resulting congestion affecting the bulk shipment of rice. Further, curfews and reduced operating hours in ports at Guatemala and Honduras have stalled the exports of coffee, while labour shortages have affected food imports in many African countries. The accumulation of shipping containers at choke points in-turn produced shortages elsewhere in the global logistics chain.

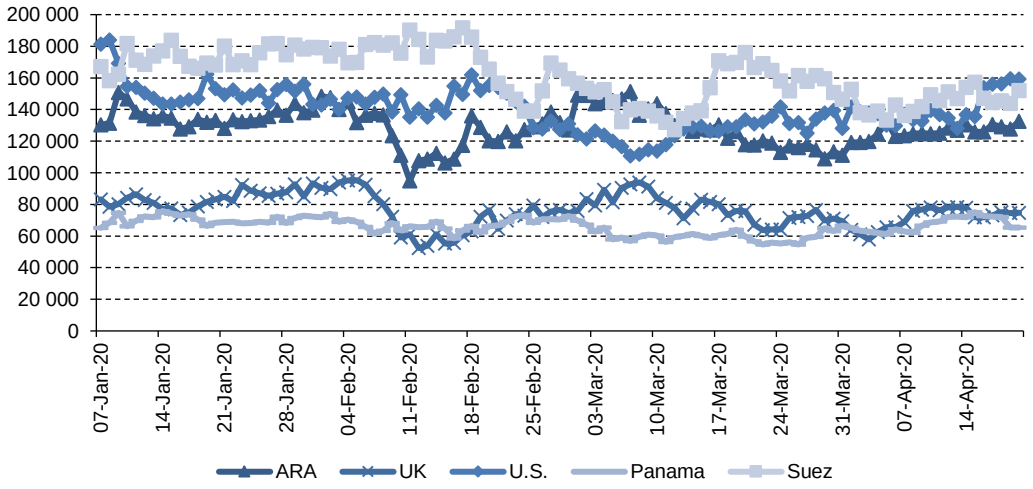
Ultimately, the pandemic resulted in an overall first quarter decline in the movement of containers ranging from 19% for the Asia region[8], to as high as 49% for the Suez region (figure 14). Notably, the steepest declines were recorded for the months of February and March, when the pandemic was at its highest momentum in terms of infection rates in China and Europe, two of the main global centres for international commercial shipping. Significantly, however, commercial shipping demonstrated a high level of responsiveness to the easing of disease control measures as evidenced by a general upwards trend in container movements in across all regions during the month of April (figures 15 and 16).

Figure 14
Change in container entries by Port/Region - January to April, 2020
(Percentages)



Source: Based on data from Bloomberg NEF.

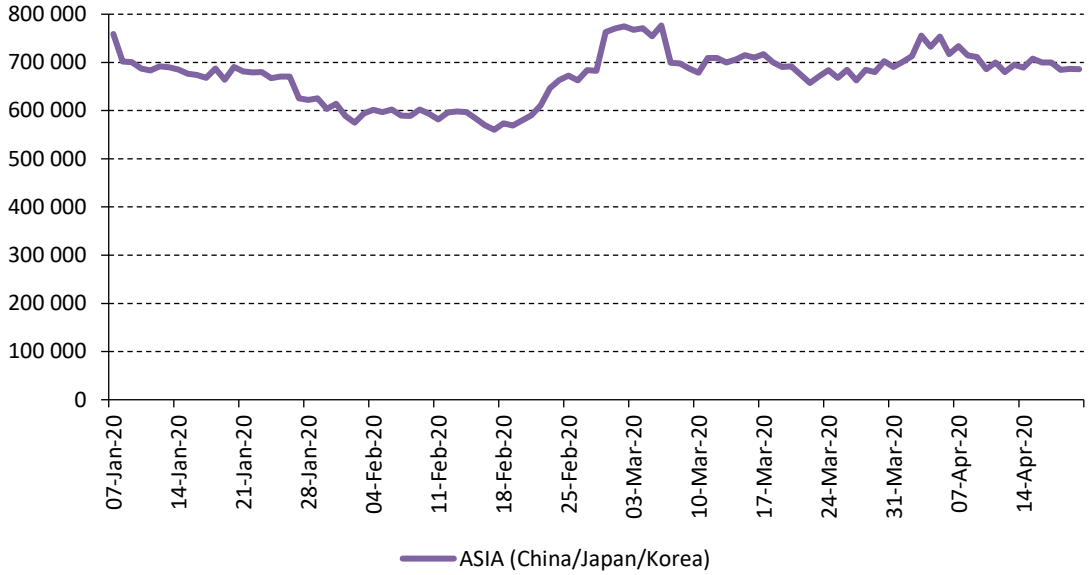
Figure 15
Marine Trade Flows: Container Entries to Selected Ports/Regions - First Quarter, 2020
(Twenty-foot Equivalent Units)



Source: Based on data from Bloomberg NEF.

[8] China, Japan and South Korea.

Figure 16
Marine Trade Flows: Container Entries to Selected Ports/Regions - First Quarter, 2020
(Twenty-foot Equivalent Units)



Source: Based on data from Bloomberg NEF.

This notwithstanding, COVID-19 also generated a significant financial impact on international commercial shipping. Estimates by the Global Trade Review (2020) indicate an average loss of 350 million per week since the onset of the pandemic, which projects to roughly 4.9 billion for the industry for the first quarter of 2020.

For the Caribbean, the *direct* impacts of the virus on commercial shipping are likely to be small given that the region endures relatively low liner-connectivity indices (less than 25) with international shipping (Sanchez and Wilmsmeier (2009). Small domestic markets and hinterlands mean that the region is serviced primarily by small public service or tool ports[9], whose objectives are to facilitate the countries' imports of essential goods, through the handling of a mix of breakbulk and containerized cargo. Most subregional ports also suffer from high labour inefficiency in terms of the ratio of workers to throughput. Hence, most Caribbean ports are serviced through regional short-sea service shipping service providers[10] (table 10) principally from hubs in Florida in the United States. Three exceptions however are the evolving hub-ports at Kingston, Jamaica; Freeport, Bahamas, and Haina in the Dominican Republic, where a slowing of global transshipment activities could potentially reduce economic earnings and increase unemployment.

More significantly however, are the potential *indirect* impacts of COVID-19 on commercial shipping, and the concomitant effects on the Caribbean. Since shipping service is a derived demand, economic fallout from the pandemic in small Caribbean economies can reduce consumer demand and goods trade, thereby reducing profitability of short-sea shipping over the short to medium term. This is especially important where goods imports to support the subregion's tourism sector are also suspended with the closure of air-passenger traffic.

[9] Ports with zero or very limited private sector participation.
[10] Usually regional subsidiaries of international shipping lines.

Table 10
Short-Sea Commercial Shipping Providers to the Caribbean

Company	Schedule (Approximate)	Service/Type
Sealand-Maersk	Regular/Multiple-Weekly	Container/Break Bulk
MSC	Regular/Weekly	Container
Hapag-Lloyd	Regular/Weekly	Container
Tropical	Regular/Weekly	Container/Break Bulk
CMA/CGM	Regular/Weekly	Container/Break Bulk
ZIM	Regular/Multiple-Weekly	Container
Cosco	Regular/Weekly	Container
Evergreen	Regular/Weekly	Container
Crowley	Regular/Weekly	Container

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

Additionally, slowing of commercial cargo trade can further increase port inefficiencies, with the possibility of ports furloughing labour, or eventually permanently retrenching workers.

Another potential effect as noted by some regional ports is the increased congestion of, and demand for break-bulk storage space as national curfews and the requirements for social distancing have slowed the retrieval of cargo by consignees (Antigua Port Authority, 2020). This is likely to place extra cost on port managers to provide storage space as the pandemic endures.

One particularly important development is also the petition by regional short-sea shippers to the United States Federal Maritime Corporation (FMC) for permission to merge their services. Given the lumpy nature of capital in international transportation, this is a response strategy to optimize the regional supply of freight capacity in light of the impact of the pandemic on subregional trade volumes and supply chains. More ominously, this proposal is likely to be irreversible, post pandemic, and could thereby reduce transport options, and regional services. Further, it could affect port revenues, and the economic viability and competitiveness of port operations, port labor, and related regional shipping agencies (Antigua Port Authority, 2020).

5. Scenario Analysis – SC1, SC2, SC3:

The scenario analysis (table 11) examines three possible future states of the world for the global and regional transportation sector in light of COVID-19: 1) three months[11]; 2) six months; and 3) greater than six months. The analysis also assesses financial impacts, possible strategic response and future prospects, taking into account several peculiarities of the economics of transportation. Among these are the following:

- The very high fixed costs of transportation assets which make large scale operations necessary in order to overcome long-run average costs. Hence a reduction of outputs (passengers or freight) results in rapidly accumulating losses over the short run.
- The lumpy nature of transportation capital which limits opportunity for scaling-up or reducing plant size in response to market conditions.
- The technical nature of transportation assets makes it very expensive to idle plant. These challenges are exacerbated in the small markets of the Caribbean and hold implications for short to medium term recovery of transportation firms after economic shocks.

[11] Commnecing March 2020.

- The marketing of global transportation services typically over long future horizons, and wide geographic regions. Hence suspension of services results in huge operational costs in the form of refunds and/or administration of deferments, which in turn negatively impact cashflow during a crisis.

Table 11
Scenario analysis

Transportation Sector	SC1: Normalcy after 3 Months	SC2: Normalcy after 6 Months	SC3: Normalcy after > 6 Months
		Cruiseship	
Financial Response	Estimated 32% revenue loss; cost for reimbursements and repatriation of clients and staff;	Estimated 63% revenue loss; cost for idling ships would likely increase;	At least 74% estimated revenue loss;
Strategic response	Cruise lines likely to accept first quarter as a loss; will seek to minimize current costs; Mitigating impacts of the pandemic and repatriating of cruisers; Furloughing and repatriation of staff; Short-run efforts to protect corporate brand; planning for resumption	Rationalization of staff could begin to see permanent job loss; efforts to secure fiscal bailouts would likely intensify; Fixed and semi fixed costs such as insurance may begin to loom;	Suspension of new capital investments likely; Full stagnation of the sector possible, as cruising will not resume without vaccine; Branding and marketing efforts to regain market confidence intensified; enhanced partnership with national and international public health agencies likely in order to speed-up development of vaccines.
Future prospects	Not good over the short term as cruising will not likely be feasible until a CV19 vaccine.	Brand rebuilding efforts may continue; but business resumption still unlikely in the absence of a CV19 vaccine, as destinations may hesitate to approve port calls; Increased job losses both internationally and in the Caribbean.	Prospects for salvaging 2021 peak cruise season substantially diminished; Further permanent job loss; Planning for resumption of services in 2022 likely initiated.
		Airline	
Financial Response	Immediate challenge is cash-flow, as global airlines face a cash-burn of 60 billion by Q2, 2020 by which time many are likely to run out of cash (IATA, 2020); main variable cost at this stage is ticket refunds estimated globally at USD35 billion (IATA); only limited reprieve from collapsed energy prices since most planes are grounded and cross-border routes closed	Fixed and semi-fixed costs continue to mount; efforts to cut these costs likely to be intensified; initial rationalization of capital, and permanent staff lay-offs begins to be contemplated; further capitalization suspended; For Regional Airlines (CAL, LIAT, BHA) average projected revenue loss is 54% for 6 – month airport closures;	The longer term scenario will depend on the evolution of the pandemic, which could produce both opportunities and challenges; as areas of early infections return to normalcy, this would see the resumption of air travel under new conditions; China, Europe and North America will be key as a global centers of aviation; if the pandemic worsens, then extended suspension international air-travel will decimate many airlines, leading to a consolidation of airlines in Asia, Europe and North America.
Strategic response	Many airlines have ramped up belly cargo freight services to supplement reduced passenger revenues, and to meet emergency demand for airfreight services; widespread temporary staff layoffs also implemented; limited domestic (*within borders)* passenger services where possible undertaken, but with significantly reduced seat capacity under social distancing requirements; fiscal stimulus sought, to underwrite unprecedented losses.	Extended freighter services by passenger airlines are likely, although viability may be short-lived as more efficient and dedicated air freighter services ramp up operations; efforts to access fiscal support and conditional loan financing likely to continue; prospects of permanent job loss enhanced; For regional airlines, the criticality of air travel to the Caribbean will likely force some kind of fiscal support, if the prospects of airline(s) failure increase.	For Regional Airlines (CAL, LIAT, BHA) average projected annual revenue loss is 92% for >8 month airport closures; *no regional airline is likely to survive this shock to annual revenues without government intervention*. On the positive side, airlines would undertake a slow resumption air services, as countries and regions re-open borders; while increased operational costs are to be expected, reduced energy prices (assuming they endure) will provide some reprieve.
Future prospects	For Regional Airlines (CAL, LIAT, BHA) average	Fixed and semi-fixed costs continue to mount; efforts to cut	Suspension of capitalization; permanent job loss and mergers

Transportation Sector	SC1: Normalcy after 3 Months	SC2: Normalcy after 6 Months	SC3: Normalcy after > 6 Months
	projected revenue loss is 25% for 3- month airport closures; all seeking fiscal bailouts; Airlines have the capacity to return to serviceability relatively quickly; as the pandemic peaks in specific regions, there may be opportunities to increase *regional – (within border)* services, but with higher operational costs due to enhanced hygiene, and social distancing requirements; limited transitioning to freighter services will supplement revenues.	these costs likely to be intensified; initial rationalization of capital, and permanent staff lay-offs begins to be contemplated; further capitalization suspended; For Regional Airlines (CAL, LIAT, BHA) average projected revenue loss is 54% for 6 – month airport closures;	would be the long-term negative outcomes for airlines. Future long-term prospects depend significantly on the availability of a COVID-19 vaccine; and the capacity of governments to provide interim fiscal support.
		Commercial shipping	
Financial Response	Disruption of supply chains and increased delays and congestion at many ports raised operational costs to commercial shippers; shippers also had to carry increased unused capacity as global trade, especially with China slowed in Q1-2020; this is likely to be significant in the short-run given already thin margins on freight rates; collapse in oil prices might have likely provided only a brief reprieve as newly imposed IMO fuel standards had already increased bunker fuel costs to shippers at the beginning of 2020; For seaports operational costs also increased as new hygiene standards and social distancing for workers and clients were implemented. Caribbean ports in particular also faced increased storage and warehousing costs for breakbulk cargoes, which remained on ports for longer periods than normal.	Losses may likely begin to be reduced, as trading regions (especially China) return to normalcy; however, capacity reductions on some routes are likely as the pandemic spreads and peaks in different geographic locations across the globe. For Caribbean ports, proposed consolidation of short-sea shippers (feeders) could likely increase freight costs, port operations charges and reduce scheduled frequency of shipping services. Rationalization of services is the most likely strategy for commercial shippers;	Commercial shipping should be normalized as global economies re-open; Industry profitability should return although operations costs from the manage-ment of the pandemic should likely increase.
Strategic response	Given the relative inflexi-bility of commercial shipping networks, short-run response to COVID-19 was mainly to temporality suspend traffic on some routes, as freight volumes plummeted. Fair over the short run as long as the shipping industry can endure short-term losses.	For Caribbean ports, adjusted feeder services would likely result in staff retrenchment at local ports.	Mergers and acquisitions, as well as retirement of old ships is the normal long-term strategy for commercial shipping; This will depend on other mitigating factors such as long-term growth in global trade, as well as geopolitical considerations.
Future prospects	Fair over the short run as long as the shipping industry can endure short-term losses.	Some adjustment to routing, and scheduling likely in order to optimize capacity (Freight Tonne Kilometres).	Depends on the evolution of the pandemic and its impacts on the global economy; shipping revenues and profits will likely remain flat until after an anticipated recession.

Sources: Economic Commission for Latin America and the Caribbean (ECLAC); International Civil Aviation Organization (ICAO), 2020; International Air Transport Association (IATA), 2020.

6. Conclusion

Global transportation is generally a cross-cutting service sector which supports several other economic sectors including tourism, retail, energy, and agriculture. Given that it is a derived demand affected by economic circumstances in the wider economy, impacts of Covid-19 on this sector amount to an exogenous shock to other sectors in the economy. At the same time, given the unprecedented global effects of the pandemic, international transportation is also a critical requisite for returning the international economy to normalcy. This is especially the case for the Caribbean with its high dependence on both the international movement of visitors to the subregion, as well as the import of traded goods for sustaining its economy and society.

D. Energy sector (oil and gas)

1. Introduction

The pandemic of COVID-19 forced countries around the world to close state borders and shut down non-essential economic activities, which resulted in an unprecedented decline in global energy demand and energy prices. According to the International Energy Agency (IEA), global energy demand is expected to drop by 6% in 2020, the steepest decline in 70 years (IEA (2020a)). Brent crude[12], an international benchmark for oil prices, dropped to $18/barrel on 30 April 2020 from $68/barrel on 31 December 2019, triggered by the spread of COVID-19 as well as by the (production stand-off and ensuing) oil price war involving Saudi Arabia, Russia and the US[13], the effects of which were not sufficiently offset by the subsequent OPEC-backed agreement to cut production by 10%.

The disruption in the global demand and prices would severely hit some goods producing economies in the Caribbean where the energy sector is an important source of income, fiscal revenues and foreign exchange earnings. For instance, in Trinidad and Tobago, the energy sector accounts for 26% of economic activity, 84% of export and 34% of fiscal revenues. While for Guyana, which commenced commercial oil production in December 2019, it was projected that the energy sector would account for 33% of economic activity, 59% of export and 15% of fiscal revenues (excluding savings in the Natural Resource Fund).

This study assesses the impact of COVID-19 on the energy sector in the major energy exporting countries in the Caribbean, namely Trinidad and Tobago and Guyana, in order to formulate a robust remedial policy and strategy for mitigating the impact and quickening the economic recovery of Caribbean energy exporters, by first recognizing the size of losses in national income, employment, fiscal revenues and foreign exchange earnings.

2. Methodology

The assessment includes an examination of the economic impact of the COVID-19 on real GDP, nominal GDP, employment, international trade (export, import and trade balance), and fiscal revenues. The focus is restricted to the countries Trinidad and Tobago and Guyana, because they are the two major exporters of the energy products in the subregion[14]. The impact on the imports, however, includes assessment of energy importing countries.

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[12] WTI, another international benchmark for oil prices, dropped further to a negative territory ($-37/barrel) on 20 April 2020. As the movement of WTI is influenced by its local factor, an insufficient pipeline and storage capacity in Cushing, Oklahoma, the delivery point for WTI, it is better to use Brent as a proxy for global oil prices in this study.

[13] In March 2020, Saudi Arabia started the oil price war by slashing its official prices when a deal between OPEC and Russia broke down. In April, however, OPEC and other major oil producing countries (including Russia) reached an agreement to cut oil production from 1 May.

[14] Belize and Suriname also export energy products, but their share in total export is smaller (6% in Belize and 8% in Suriname) than Guyana and Trinidad and Tobago.

The energy sector includes the upstream sectors (oil and gas extraction) as well as the downstream sectors such as LNG and petrochemical products[15]. Renewable energies, however, are not covered in this study, as they are not yet a major source of income in the region.

There will be an exploration of not only the impact of COVID-19 but also that of the oil price war, because 1) the impact assessment requires strong assumptions to identify the COVID-19 shock in the energy price movement[16]; 2) and including the impact of the oil price war would better inform broader possible policy responses for the energy exporting Caribbean countries.

(a) Assumptions

In order to calculate the impact of the COVID-19 on the Caribbean energy sector, assumptions were made in respect of global oil demand and global energy prices for three scenarios – base scenario, pessimistic scenario and optimistic scenario.

(i) Global oil demand

The closure of borders and shutdown of non-essential economic activities around the world resulted in a record decline in global energy demand. According to the IEA, the global energy demand is expected to decline by 6%, driven by a 9% decline in the global oil demand. Before the COVID-19 pandemic, the IEA forecasted a 1% increase in global oil demand[17], thus **the COVID-19 pandemic caused 10% drop in global oil demand** (figure 17).

In this study, **the base scenario assumes 10% decline in the global oil demand**, which is consistent with the IEA forecast (figure 18). In addition, **the pessimistic scenario assumes 14.5% decline** in the oil demand, which is informed by the IMF global GDP forecast[18], and **the optimistic scenario assumes 6.3% decrease**[19].

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[15] Guyana does not have downstream sectors.

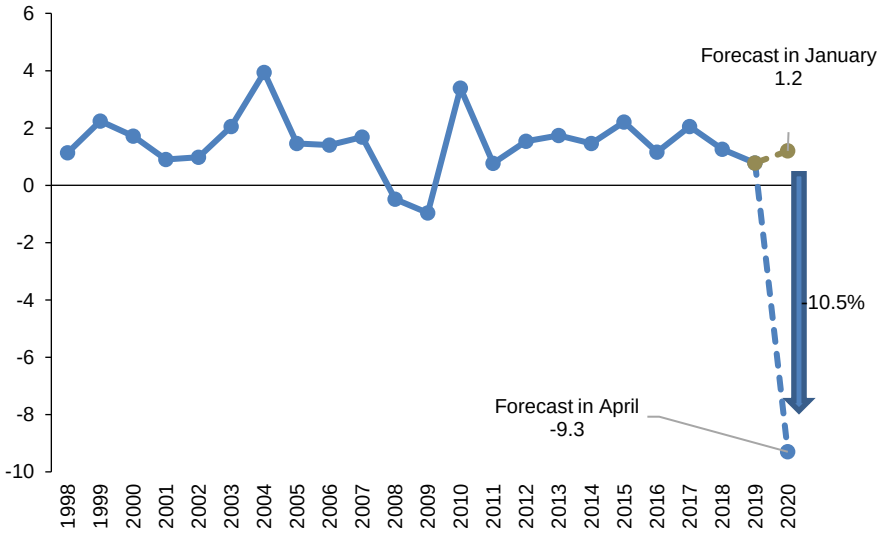
[16] It should be noted that the global energy prices remain low even after the oil price war ended. It would be reasonable to assume that the COVID-19 had greater impact on the oil price movement after the end of the oil price war.

[17] IEA (2020b).

[18] According to the IMF World Economic Outlook (WEO) April 2020, they predicted a negative 3.0% global growth in the baseline scenario and a negative 5.8% growth in the longer outbreak scenario. As their previous forecast (WEO update in January 2020) was a positive 3.3% growth, the impact of COVID-19 on growth rate is 6.3%-points in the baseline scenario and 9.1%-points in the longer outbreak scenario. Applying the ratio of the growth rate in the longer outbreak scenario to that in the baseline, which is 1.45 (=9.1/6.3), gives a 14.5% (=1.45*10%) decline in the global oil demand in the pessimistic scenario.

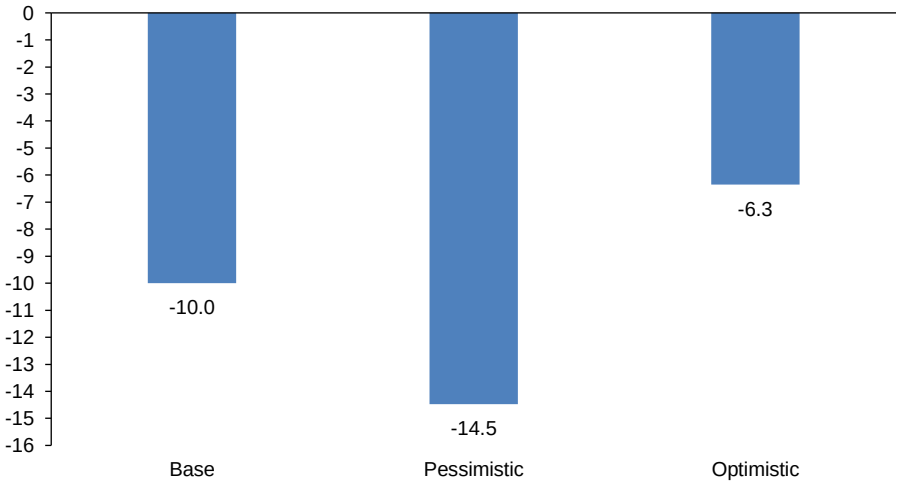
[19] In the optimistic scenario, the global growth rate is assumed to be a negative 4.0%, which is informed by the forecast by the OECD, the World Bank, Economist Intelligence Unit (EIU) and the Oxford Economics. Then, applying the ratio of the growth rate in the optimistic scenario to that in the baseline, which is 0.63 (=4.0/6.3), gives a 6.3% (=0.63*10%) decline in the global oil demand in the optimistic scenario.

Figure 17
IEA forecast of global oil demand
(Percentages)



Source: IEA and EIA.

Figure 18
Assumption about impact of COVID-19 on global oil demand
(Percentages)



Source: ECLAC.

(ii) Global oil and gas prices

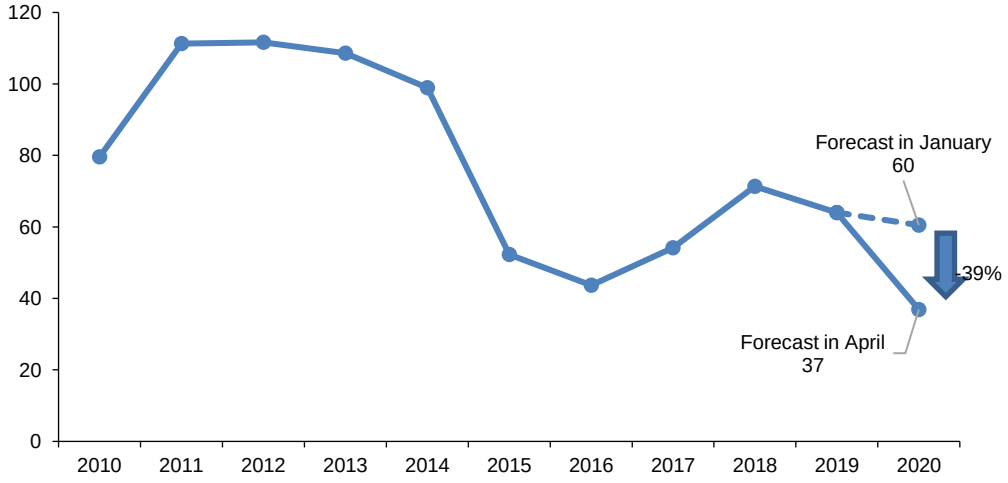
The decline in global energy demand as well as the oil price war caused a large decline in oil and natural gas prices. In April 2020, **IMF revised their forecast about the Brent crude oil price downward by 39%** to $37/barrel in 2020 from the previous forecast of $60/barrel, and **the natural gas price by 23%** to $1.98/MMBtu from the previous $2.57/MMBtu (figure 19). Moreover, after the publication of the IMF forecast on 6 April 2020, the oil price dropped further: the Brent spot price declined to $9/barrel on 21 April, although it partially recovered to around $25/barrel, according to the US Energy Information

Administration (EIA). In addition, while not considered in this analysis, it is noteworthy that the spot price of West Texas Intermediate fell to negative $37/barrel on 20 April from $60/barrel in early January 2020, although it too has since rebounded to around $24/barrel.

Given the development of the oil price, the base scenario of this study assumes more pessimistic scenario than IMF forecast, **a 50% decline in oil price** (figure 20). **The pessimistic scenario assumes a 60% decline**, which would be realized if the oil price should stay at around $15/barrel for the rest of 2020. **The optimistic scenario assumes a decline of 40%**, which requires the oil price to recover to around $35/barrel for the rest of 2020.

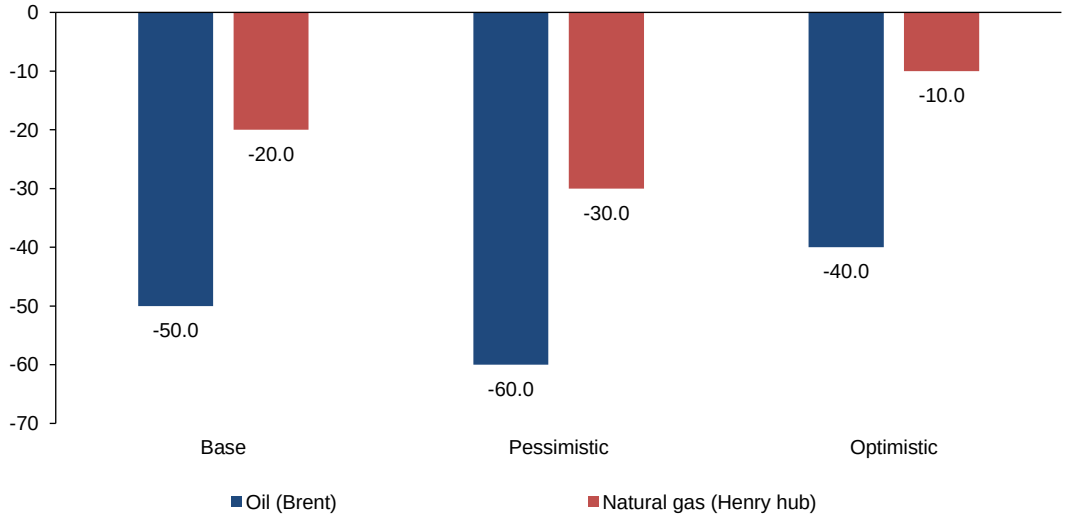
Regarding gas prices, **the base scenario assumes a 20% decline**, which is consistent with the IMF forecast, while **the pessimistic and optimistic scenarios assume a 30% and a 10% decline**, respectively.

Figure 19
IMF Brent oil price forecast
(US Dollars per barrel)



Source: IMF WEO.

Figure 20
Assumption about oil/gas price change after the pandemic
(Percentages)



Source: ECLAC.

Based on these assumptions coupled with estimates of elasticities of economic variables, the impact of COVID-19 on the energy sector will be assessed. The detail of the calculation procedure is explained in the respective footnotes in the following section.

3. Results

(a) Impact on real GDP

(i) Direct impact

The COVID-19 will impact the energy sector real GDP in the Caribbean through the decline in global oil demand, while the drop in energy prices would not directly impact real GDP, because real GDP computation assumes prices are constant. Exceptionally, a fall in energy prices could lead to a contraction in real GDP if prices should fall below the marginal cost of oil production (because this would force the countries in question to stop the oil production), or if the countries participate in the global production cut agreement. However, these cases are not incorporated in the three scenarios constructed in this study[20,21, 22].

The direct impact is calculated using the elasticity of the energy real GDP to the global oil demand, which is estimated at 0.73 in Trinidad and Tobago[23]. In Guyana, as the historical data is not available for the estimation[24], hence for the purposes of this analysis, the elasticity is conservatively assumed to be 1.00.

Given the elasticity, the direct real GDP impact is estimated at US$594 million (2.6% of total GDP)[25] in the base scenario for Trinidad and Tobago[26] (figure 21) and US$177 million (4.6% of total GDP)[27] for Guyana[28] (figure 22).

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[20] Marginal cost of oil production is considered to be around US$10/barrel in Trinidad and Tobago and Guyana (for Guyana: https://www.reuters.com/article/guyana-oil/update-2-oil-price-fall-has-had-no-impact-on-guyana-output-exxon-idUSL1N2BQ1FZ). In this study, oil price is not assumed to decline to below this marginal cost even in the pessimistic scenario.

[21] Trinidad and Tobago and Guyana did not participate in the global oil production cuts, which started from May 2020 (https://www.reuters.com/article/global-oil-opec-reductions/factbox-opec-and-its-record-output-cut-by-country-idUSL2N2C10YJ).

[22] It was reported that four petrochemical plants were temporarily closed in Trinidad and Tobago due to a high natural gas cost supplied by the Natural Gas Company of Trinidad and Tobago (NGC) (Trinidad Express "Downstream producers at Point Lisas: Cut our gas price" on 7 May 2020). As the four plants account for about 15% of the total natural gas supply to Point Lisas, the estimated impact on real GDP is 0.3% of total GDP if the plants are closed for 6 months. This impact is not added to the direct impact calculation below.

[23] The estimated equation is as follows (figures in parentheses are t-value):

$$\underset{}{\text{Energy real GDP in TT}} = \underset{(-0.59)}{-0.64} + \underset{(1.25)}{0.73} \times \text{Global oil demand} + \underset{(2.36)}{0.20} \times \text{Oil production in TT} + \underset{(13.27)}{0.73} \times \text{Gas production in TT}$$

(Sample is from 1998 to 2018, Adj-R^2 is 0.93, all data is in the form of YoY % change)

Only the estimated coefficient on global oil demand is used for the scenario analysis.

[24] The lack of historical data is due to that Guyana started the oil production in December 2019.

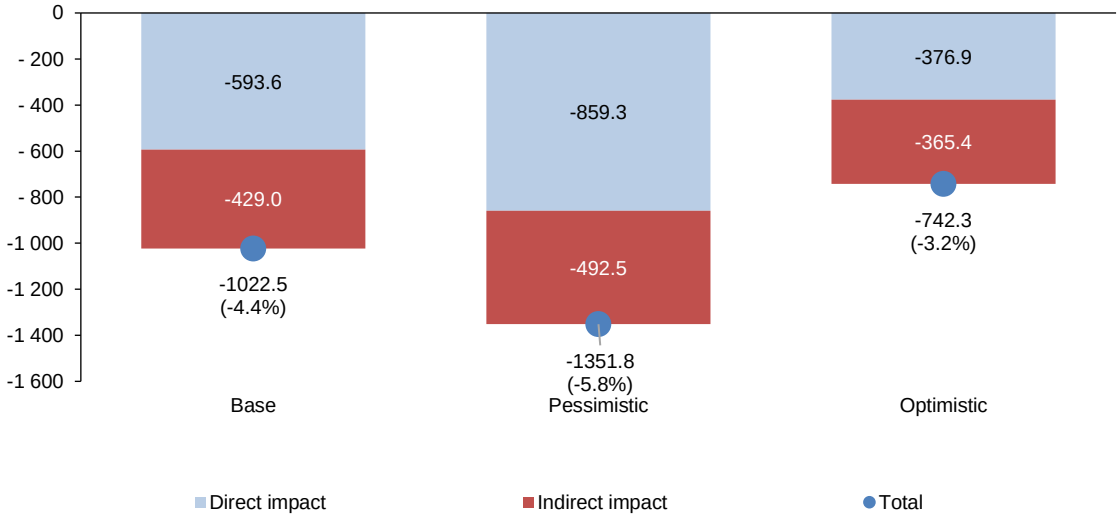
[25] Change in energy real GDP (-7.3%) = change in global oil demand (-10%) * the elasticity (0.73).
Change in total real GDP (-2.6%) = change in energy real GDP (-7.3%) * share of the energy sector in total real GDP (0.35).

[26] US$859 million (3.7% of total GDP) in the pessimistic scenario and US$377 million (1.6% of total GDP) in the optimistic scenario.

[27] Change in energy real GDP (-10.0%) = change in global oil demand (-10%) * the elasticity (1).
Change in total real GDP (-4.6%) = change in energy real GDP (-10.0%) * share of the energy sector in total real GDP (0.46).

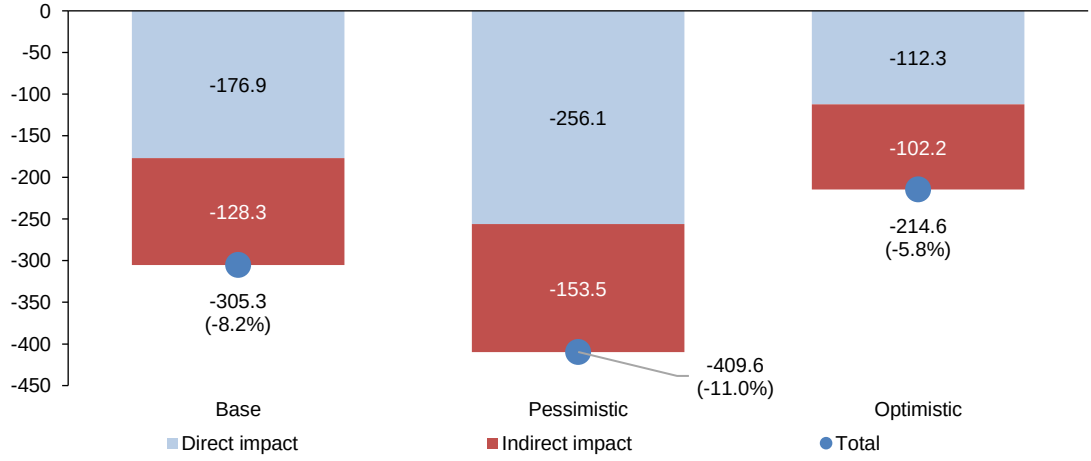
[28] US$256 million (6.7% of total GDP) in the pessimistic scenario and US$112 million (2.9% of total GDP) in the pessimistic scenario.

Figure 21
COVID-19 impact on real GDP in Trinidad and Tobago
(Millions of US Dollars and per cent of total GDP)



Source: ECLAC.

Figure 22
COVID-19 impact on real GDP in Guyana
(Millions of US Dollars and per cent of total GDP)



Source: ECLAC.

(ii) Indirect and total impact

The COVID-19 pandemic would also have an indirect impact on energy sector real GDP through a decline in energy related fiscal revenues. In Trinidad and Tobago, based on the experience of the oil price decline in fiscal 2015[29], it is assumed that 42% of the fiscal revenue loss[30] would be offset by an expenditure cut[31], while 58% of the revenue loss would be financed domestically or externally. Assuming that the fiscal multiplier is 1[32], the indirect impact on the real GDP is estimated at US$ 429 million (1.8% of total GDP)[33] in the base scenario[34], and the total impact on real GDP, which is sum of direct and indirect impacts, is estimated at US$1,023 million (4.4% of total GDP)[35] (figure 5 above)

In Guyana, it is assumed that all the energy related fiscal revenue loss[36] would result in a fiscal expenditure cut, because these expenditures would have been allocated to new projects, which have not been yet budgeted. The fiscal multiplier is also assumed to be 1 as in the case of Trinidad and Tobago. Based on these assumptions, the indirect impact on the real GDP is estimated at US$ 128 million (3.6% of total GDP) in the base scenario[37], and the total impact is estimated at US$305 million (8.2% of total GDP)[38] for Guyana (figure 6 above).

(b) Impact on nominal GDP

(iii) Direct impact

The direct impact on nominal GDP is the sum of the direct impact on the energy real GDP, which was calculated above, and the impact on the energy GDP deflator. The latter is calculated using the elasticity of the energy GDP deflator to the global energy prices (oil price and gas price), which is estimated at 0.66 for oil price and 0.25 for gas price in Trinidad and Tobago[39]. In Guyana, as the historical data is not available, the elasticity to oil price is assumed to be sum of the two elasticities in Trinidad and Tobago (0.66+0.25=0.91) because the Guyana's energy sector only consists of oil production.

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[29] In fiscal 2015, the current revenue was budgeted at TT$57.5 billion, while the actual result was TT$51.3 billion, resulting in a revenue loss of TT$6.2 billion. On the other hand, the total expenditure was budgeted at TT$64.5 billion, but the actual result was TT$62.0 billion, implying the expenditure cut was TT$2.6 billion. Therefore, 42% (=TT$2.6 billion/TT$ 6.2 billion) of the revenue loss resulted in the expenditure cut.

[30] In Trinidad and Tobago, the estimated fiscal revenue loss is US$1,028 million in the main scenario, US$1,181 million in the pessimistic scenario and US$876 million in the optimistic scenario. The detail is explained in the fiscal revenue section below.

[31] The size of fiscal expenditure cut could be reduced as discussed in the policy recommendations section, but for this scenario analysis the conservative assumption is adopted.

[32] The fiscal multiplier can be above or below 1 depending on the contents, timing and efficiency of the fiscal spending.

[33] The ratio of expenditure cut to revenue loss (42%) * revenue loss (US$ 1,028 million) * fiscal multiplier (1) = indirect impact on real GDP (US$429 million).

[34] US$493 million (2.1% of total GDP) in the pessimistic scenario and US$365 million (1.6% of total GDP) in the optimistic scenario.

[35] US$1,352 million (5.8% of total GDP) and US$742 million (3.2% of total GDP) in the pessimistic and optimistic scenarios, respectively.

[36] In Guyana, the estimated fiscal revenue loss is US$116 million in the main scenario, US$140 million in the pessimistic scenario and US$93 million in the optimistic scenario. The details are in the subsection below.

[37] US$154 million (4.3% of total GDP) in the pessimistic scenario and US$102 million (2.9% of total GDP) in the optimistic scenario.

[38] US$410 million (11.0% of total GDP) and US$215 million (5.8% of total GDP) in the pessimistic and optimistic scenarios, respectively.

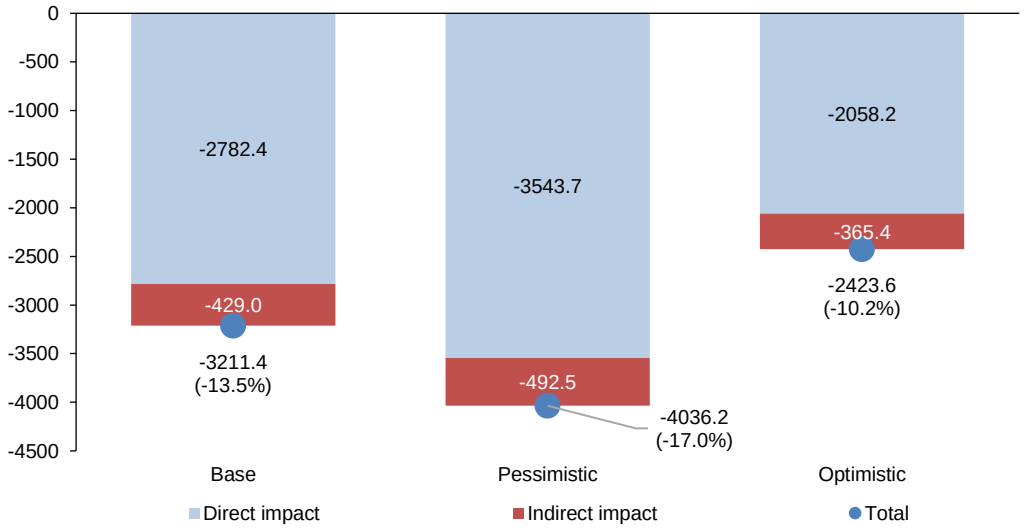
[39] The estimated equation is as follows (figures in parentheses are t-value):

$$\underset{}{\text{Energy GDP deflator in TT}} = \underset{(-0.89)}{-2.00} + \underset{(6.73)}{0.66} \times \text{Brent oil price} + \underset{(3.04)}{0.25} \times \text{Henry hub gas price}$$

(Sample is from 1998 to 2018, Adj-R^2 is 0.88, all data is in the form of YoY % change)

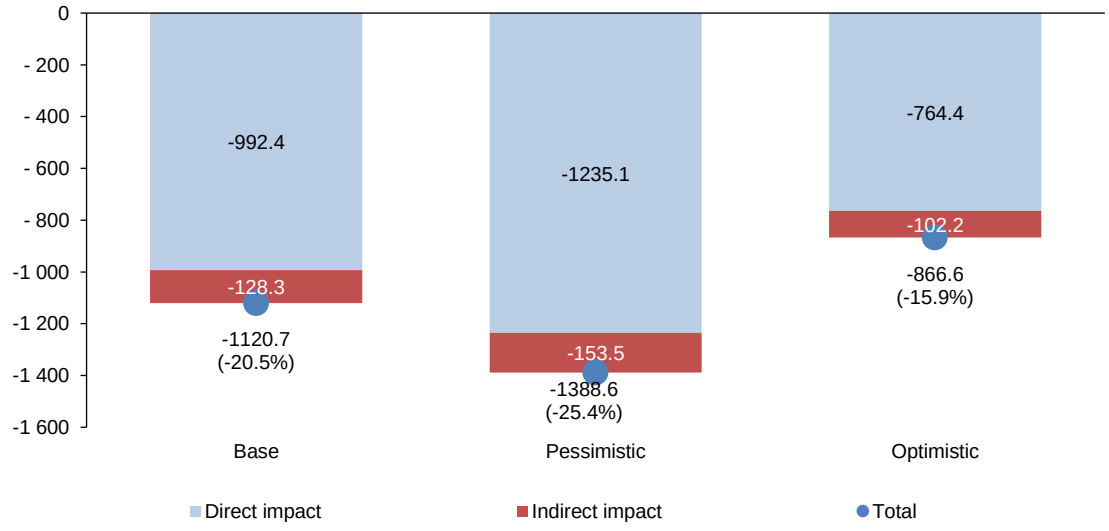
Given the price elasticities, the direct nominal GDP impact is estimated at US$2,782 million (11.7% of total GDP) [40] in the base scenario[41] in Trinidad and Tobago (figure 23), and US$992 million (18.2% of total GDP) in Guyana (figure 24).

Figure 23
COVID-19 impact on nominal GDP in Trinidad and Tobago
(Millions of US Dollars and per cent of total GDP)



Source: ECLAC.

Figure 24
COVID-19 impact on nominal GDP in Guyana
(Millions of US Dollars and per cent of total GDP



Source: ECLAC.

[40] Change in energy GDP deflator (-37.9%) = change in oil price (-50%) * the elasticity of deflator to oil price (0.66) + change in gas price (-20%) * the elasticity of deflator to gas price (0.25).
Change in nominal energy GDP (-45.2%) = Change in energy real GDP (-7.3%, from footnote 25) + Change in energy GDP deflator (-37.9%).
Change in nominal total GDP (-11.7%) = Change in nominal energy GDP (-45.2%) * share of energy sector in total nominal GDP (0.26).

[41] US$3,544 million (14.9% of total GDP) and US$2,058 million (8.7% of total GDP) in the pessimistic and optimistic scenario, respectively.

(iv) Indirect and total impact

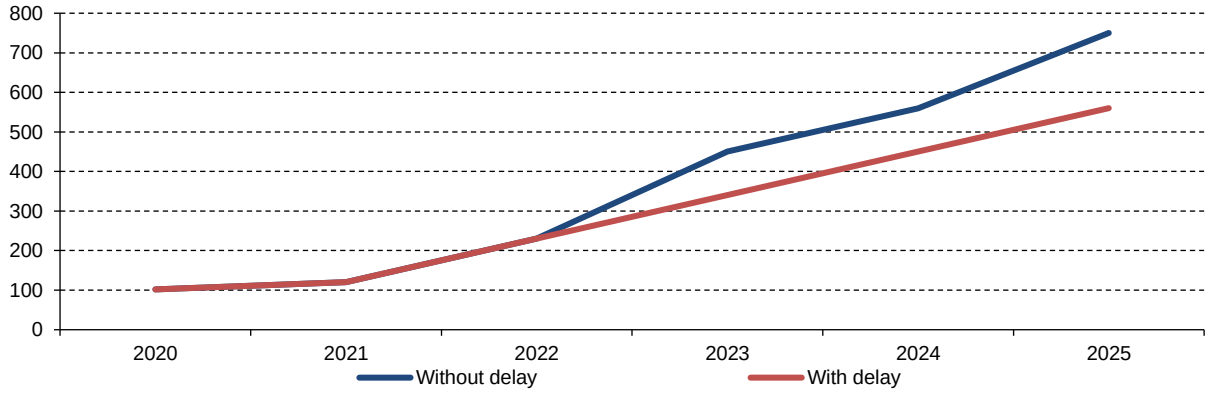
As the indirect impact is the same as the real GDP[42], the total impact on nominal GDP is estimated at US$3,211 million (13.5% of total GDP) in the base scenario[43] for Trinidad and Tobago (figure 23), and US$1,121 million (20.5% of total GDP) for Guyana[44] (figure 24 above).

(c) Long-term impact on GDP

The estimated impact on GDP above is short-term, because these negative impacts would be expected to fade when the restrictions on economic activities are lifted. However, as long as the low energy price environment continues, a part of the negative spill-overs would persist in the long-term. Further, if energy companies cut investment in response to the low energy prices, GDP would be further reduced in the long run. In this regard, energy companies are announcing suspension of investment globally, but its impact on the Caribbean region is still unclear[45].

In Guyana, ExxonMobil announced that current operations at Liza phase I were unaffected by a 30-per cent cut in global capital spending, and startup of the second phase of Liza also remains on track for 2022. However, at Payara, where ExxonMobil and partners are still awaiting approval from the government to send a third vessel to start offshore production, some activities are being deferred, potentially delaying its startup by 6 to 12 months[46]. **This possible delay in Payara development could reduce 2023 growth rate by 30%-point according to the calculation by ECLAC (figure 25)**

Figure 25
Projected oil production in Guyana
(Thousand barrel per day)



Source: ECLAC.

[42] Precisely speaking, the indirect impact would be different for real GDP and nominal GDP if government expenditure deflator is not 1. In this study, however, it is assumed to be the same for the simplicity of calculation.

[43] US$4,036 million (17.0% of total GDP) and US$2,424 million (10.2% of total GDP) in the pessimistic and optimistic scenarios, respectively.

[44] US$1,389 million (25.4% of total GDP) and US$867 million (15.9% of total GDP) in the pessimistic and optimistic scenarios, respectively.

[45] According to media reports, the total breakeven price of oil production is US$28/barrel for Trinidad and Tobago (https://wired868.com/2020/04/27/an-exceptionally-difficult-year-imbert-on-salary-grants-public-aid-and-recalibrated-budget/) and US$35/barrel for Guyana (https://oilprice.com/Energy/Crude-Oil/Political-Battle-Could-Jeopardize-Worlds-Most-Spectacular-Oil-Boom.html). If oil companies expect that the oil price would stay below this breakeven price, they would stop investment in new projects.

[46] ExxonMobil announced that the project in Guyana has been delayed by about six months to a year as a result of the country's election uncertainty and the challenges of rotating crews to prevent virus spread. It will push the target for producing 750,000 bpd from 2025 to 2026 (https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/050120-exxonmobil-to-curb-10-of-oil-gas-output-in-q2-permian-to-take-bigger-hit).

(d) Impact on employment

The contraction on the real GDP, estimated above, would in turn result in job losses due to a reduced labour demand. The direct impact on employment is calculated using the elasticity of energy sector employment to energy sector real GDP, which is estimated at 0.46 with 1-year lag in Trinidad and Tobago[47]. Similarly, the indirect impact is computed using the elasticity of non-energy sector employment to non-energy sector real GDP, which is estimated at 0.31 with no lag in Trinidad and Tobago[48], because the indirect impact due to the decline in fiscal expenditure is manifested in the non-energy sector, during the same period. For Guyana, the elasticities are assumed to be the same as in Trinidad and Tobago, because historical data for employment is not available[49].

Direct impact on energy sector employment would be limited, because employment share of energy sector is small[50], but the **indirect impact on non-energy sector would be significant**. In Trinidad and Tobago, the direct impact on employment is projected to be 483 job losses (0.08% of total employment)[51] in the base scenario[52], while the indirect impact would be 5,125 job losses (0.8% of total employment)[53,54] (figure 26). In Guyana, the direct impact on employment is forecasted to be 429 job losses (0.18% of total employment)[55] in the base scenario[56], while the indirect impact is estimated to be 4,225 job losses (1.7% of total employment)[57,58].

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47 The estimated equation is as follows (figures in parentheses are t-value):

$$\text{Energy sector employment in TT} = \underset{(-1.49)}{-2.97} + \underset{(2.63)}{0.46} \times \text{Energy real GDP (with 1 year lag)}$$

(Sample is from 1997 to 2017, Adj-R^2 is 0.24, all data is in the form of YoY % change)

48 The estimated equation is as follows (figures in parentheses are t-value):

$$\text{Non-energy sector employment in TT} = \underset{(0.42)}{0.24} + \underset{(2.81)}{0.31} \times \text{Non-energy real GDP}$$

(Sample is from 1997 to 2017, Adj-R^2 is 0.27, all data is in the form of YoY % change)

49 Guyana started regular Labour Force Survey from 2017.

50 2.4% in Trinidad and Tobago and 3.9% in Guyana.

51 Change in energy sector employment (-3.3%) = change in energy real GDP (-7.3%) * the elasticity of energy sector employment to energy real GDP (0.46).
Change in total employment (-0.08%) = change in energy sector employment (-3.3%) * share of energy sector employment in total employment (2.4%).

52 700 persons (0.12% of total employment) and 307 persons (0.05% of total employment) in the pessimistic and optimistic scenarios, respectively.

53 Change in non-energy sector employment (-0.9%) = change in non-energy real GDP (-2.8%) * the elasticity of non-energy sector employment to non-energy real GDP (0.31).
Change in total employment (-0.8%) = change in non-energy sector employment (-0.9%) * share of non-energy sector employment in total employment (97.6%).

54 5,884 persons (1.0% of total employment) and 4,366 persons (0.7% of total employment) in the pessimistic and optimistic scenarios, respectively.

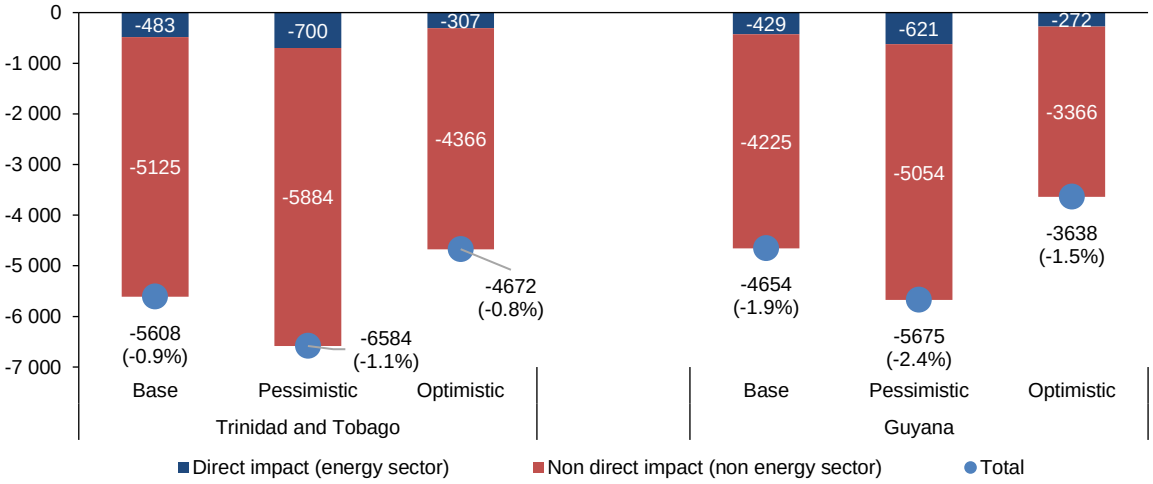
55 Change in energy sector employment (-4.6%) = change in energy real GDP (-10.0%) * the elasticity of energy sector employment to energy real GDP (0.46).
Change in total employment (-0.18%) = change in energy sector employment (-4.6%) * share of energy sector employment in total employment (3.9%).

56 621 persons (0.26% of total employment) and 272 persons (0.11% of total employment) in the pessimistic and optimistic scenarios, respectively.

57 Change in non-energy sector employment (-1.6%) = change in non-energy real GDP (-5.4%) * the elasticity of non-energy sector employment to non-energy real GDP (0.31).
Change in total employment (-1.6%) = change in non-energy sector employment (-1.6%) * share of non-energy sector employment in total employment (96.1%).

58 5,054 persons (2.1% of total employment) and 3,366 persons (1.4% of total employment) in the pessimistic and optimistic scenarios, respectively.

Figure 26
COVID-19 impact on employment
(Persons and per cent of total employment)



Source: ECLAC.

(e) Impact on trade

(v) Export

The mechanism through which COVID-19 would impact the energy export is similar to that of the nominal GDP: 1) the decline in global oil demand would reduce energy export volume; and 2) the drop in energy prices would reduce energy export prices. To calculate 1) the impact on energy export volume, it is assumed that the elasticity of energy export volume to global oil demand is identical to that of energy real GDP[59].

The calculation of 2) the impact on energy export prices uses the elasticity of the energy prices[60] to global energy prices. The elasticities are estimated at 0.67 (to oil price) and 0.25 (to gas price)[61] in Trinidad and Tobago, which are almost the same as the elasticities of nominal GDP. In Guyana, as the historical data is not available for the estimation, the elasticity to oil price is assumed to be sum of the two elasticities in Trinidad and Tobago (0.65+0.25=0.91).

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[59] This is due to the difficulty of getting historical series about energy export volume, because the reported export volume data is not so reliable, and estimated elasticity tends to be low. Instead, using the elasticity of energy real GDP would provide more conservative estimate.

[60] Index of energy export prices is constructed as a Fischer type chained price index, using export volume and unit value data from WITS.

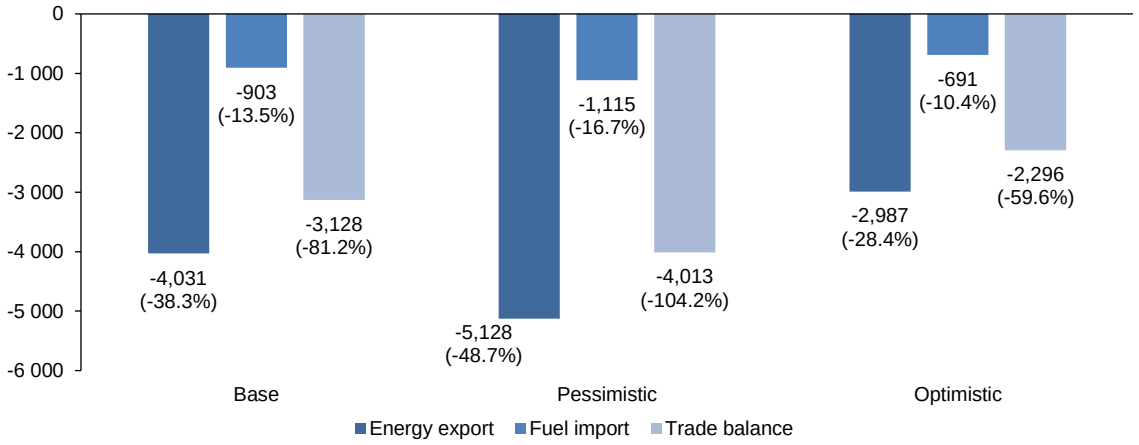
[61] The estimated equation is as follows (figures in parentheses are t-value):

$$\underset{}{\text{Energy export price in TT}} = \underset{(0.36)}{2.06} + \underset{(2.68)}{0.67} \times \text{Brent oil price} + \underset{(1.16)}{0.25} \times \text{Henry hub gas price}$$

(Sample is from 1998 to 2018, Adj-R^2 is 0.51, all data is in the form of YoY % change)

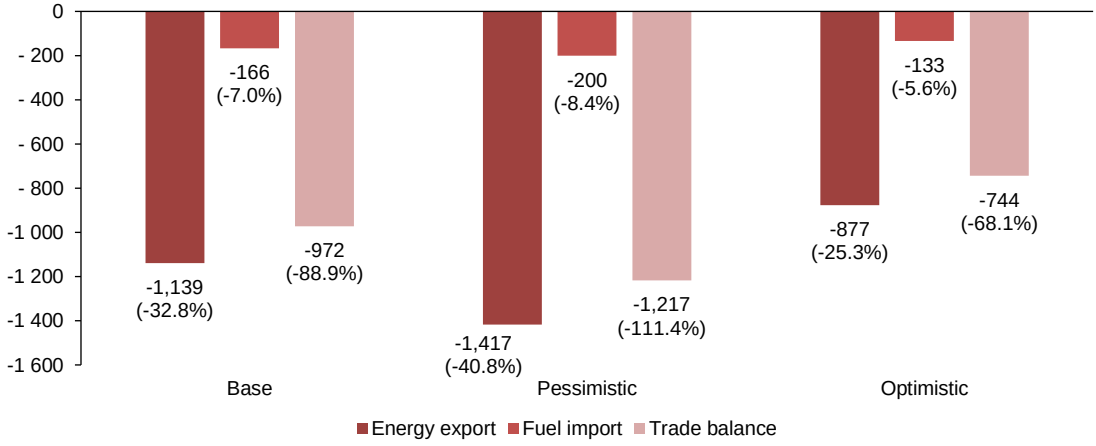
As a result, the impact on energy export is estimated at a decline of US$4,031 million (38.3% of total export)[62] in the base scenario for Trinidad and Tobago (figure 27), and US$1,139 million (32.8% of total export)[63] for Guyana[64] (figure 28).

Figure 27
Impact of COVID-19 on energy export/fuel import/trade balance in Trinidad and Tobago
(Millions of US Dollars)



Source: ECLAC.

Figure 28
Impact of COVID-19 on energy export/fuel import/trade balance in Guyana
(Millions of US Dollars)



Source: ECLAC.

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[62] Change in energy export price (-38.2%) = change in oil price (-50%) * the elasticity of energy export price to oil price (0.67) + change in gas price (-20%) * the elasticity of energy export price to gas price (0.25).
Change in energy export value (-45.5%) = Change in energy export volume (-7.3%, same as the footnote 25) + Change in energy export price (-38.2%).
Change in total export value (-38.3%) = Change in energy export value (-45.5%) * share of energy export in total export (0.84).

[63] Change in energy export price (-45.6%) = change in oil price (-50%) * the elasticity of energy export price to oil price (0.91).
Change in energy export value (-55.6%) = Change in energy export volume (-10.0%, same as the footnote 27) + Change in energy export price (-45.6%).
Change in total export value (-32.8%) = Change in energy export value (-55.6%) * share of energy export in total export (0.59).

[64] US$1,417 million (40.8% of total export) and US$877 million (25.3% of total export) in the pessimistic and optimistic scenario, respectively.

(vi) Import

The COVID-19 shock would reduce the energy import through 1) a decline in energy demand in the Caribbean and 2) a decline in energy import prices. In this study, the first transmission mechanism is excluded because its magnitude is unclear and expected to be much smaller than the second transmission mechanism. The impact of the second transmission mechanism is estimated using the elasticities of fuel import prices to oil price and gas price. In Trinidad and Tobago, the elasticities are estimated at 0.70 for oil price and 0.23 for gas price[65]. In Guyana, the elasticity of energy import price to oil price is estimated at 0.66 but the elasticity to gas price is not statistically significant[66].

Based on these elasticities, the COVID-19 impact on fuel imports is estimated to be (a decline of) US$903 million (13.5% of total import)[67] in the base scenario[68] in Trinidad and Tobago (figure 27 above), and US$166 million (7.0% of total import)[69] in Guyana[70] (figure 28 above).

(vii) Trade Balance

The impact on trade balance is calculated as the impact on export minus the impact on import. The result is a US$3,128 million (81.2% of total trade balance) deterioration in the base scenario[71] in Trinidad and Tobago (figure 27 above), and US$972 million (88.9% of total trade balance) in Guyana[72] (figure 28 above).

In Trinidad and Tobago[73], the decline in trade balance would have a significant negative impact on international reserves. If the decline in the net official reserves should accelerate by US$3.1 billion a year, the net official reserves would reach zero in two years[74].

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[65] The estimated equation is as follows (figures in parentheses are t-value):

$$\text{Energy import price in TT} = \underset{(0.99)}{5.14} + \underset{(3.10)}{0.70} \times \text{Brent oil price} + \underset{(1.18)}{0.23} \times \text{Henry hub gas price}$$

(Sample is from 1998 to 2018, Adj-R^2 is 0.57, all data is in the form of YoY % change)

[66] The estimated equation is as follows (figures in parentheses are t-value):

$$\text{Energy import price in Guyana} = \underset{(0.70)}{3.54} + \underset{(3.56)}{0.66} \times \text{Brent oil price}$$

(Sample is from 1992 to 2018, Adj-R^2 is 0.31, all data is in the form of YoY % change)

[67] Change in fuel import price/value (-39.8%) = change in oil price (-50%) * the elasticity of fuel import price to oil price (0.70) + change in gas price (-20%) * the elasticity of fuel import price to gas price (0.23).
Change in total import value (-13.5%) = Change in fuel import value (-39.8%) * share of fuel import in total import (0.34).

[68] US$1,115 million (16.7% of total import) and US$691 million (10.4% of total import) in the pessimistic and optimistic scenarios, respectively.

[69] Change in fuel import price/value (-32.9%) = change in oil price (-50%) * the elasticity of fuel import price to oil price (0.66).
Change in total import value (-7.0%) = Change in fuel import value (-32.9%) * share of fuel import in total import (0.21).

[70] US$200 million (8.4% of total export) and US$133 million (5.6% of total export) in the pessimistic and optimistic scenarios, respectively.

[71] US$4,013 million (104.2% of total trade balance) and US$2,296 million (59.6% of total trade balance) in the pessimistic and optimistic scenarios, respectively.

[72] US$1,217 million (111.4% of total trade balance) and US$744 million (68.1% of total trade balance) in the pessimistic and optimistic scenarios, respectively.

[73] In Guyana, the net international reserves are expected to improve as the commencement of oil export would bring a large foreign exchange earnings even though it would be reduced by the COVID-19 impact on export. Guyana would receive a foreign exchange of around US$1.1 billion in 2020 in the main scenario, which is nearly twice as large as the net international reserves at the end of 2019.

[74] Sum of the net official reserves and the HSF position (US$6.1 billion) would reach zero in four years.

Box 1
Impact on fuel import in other Caribbean countries

The impact of COVID-19 on fuel import in other Caribbean countries is calculated using estimated elasticity of fuel import price to oil price for each country. In total, it indicates that US$ 4,735 million would be saved due to the energy price decline in the base scenario.

Impact on fuel import in other Caribbean countries

	Base	Pessimistic	Optimistic	Base	Pessimistic	Optimistic
	(Millions of Dollars)			(Per cent of total import)		
Anguilla	-7.9	-9.5	-6.3	-3.4	-4.1	-2.7
Antigua and Barbuda	-32.6	-39.1	-26.1	-5.4	-6.5	-4.3
Aruba	-105.2	-126.3	-84.2	-8.6	-10.3	-6.8
Bahamas	-462.5	-555.0	-370.0	-13.9	-16.7	-11.2
Barbados	-112.8	-135.3	-90.2	-7.1	-8.6	-5.7
Belize	-42.5	-50.9	-34.0	-4.4	-5.3	-3.5
Bermuda	-29.2	-35.0	-23.3	-2.7	-3.2	-2.1
British Virgin Islands	-5.9	-7.1	-4.7	-2.0	-2.5	-1.6
Cayman Islands	-21.2	-25.5	-17.0	-1.7	-2.0	-1.3
Cuba	-445.6	-534.8	-356.5	-3.9	-4.6	-3.1
Dominica	-9.5	-11.4	-7.6	-3.1	-3.8	-2.5
Dominican Republic	-2 162.0	-2 594.4	-1 729.6	-10.7	-12.8	-8.6
Grenada	-16.5	-19.8	-13.2	-3.5	-4.2	-2.8
Haiti	-77.2	-92.7	-61.8	-1.6	-1.9	-1.3
Jamaica	-907.2	-1 088.7	-725.8	-14.8	-17.8	-11.8
Montserrat	-2.7	-3.3	-2.2	-8.0	-9.6	-6.4
Sint Maarten	-4.5	-5.4	-3.6	-0.5	-0.6	-0.4
Saint Kitts and Nevis	-1.5	-1.8	-1.2	-0.5	-0.5	-0.4
Saint Lucia	-167.5	-201.0	-134.0	-25.4	-30.5	-20.3
Saint Vincent and the Grenadines	-16.7	-20.0	-13.3	-4.7	-5.7	-3.8
Suriname	-103.9	-124.7	-83.2	-6.6	-7.9	-5.3
Total	-4 734.9	-5 681.9	-3 787.9	-7.9	-9.5	-6.3

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

4. Impact on fiscal revenue

The COVID-19 pandemic has had a huge impact on fiscal revenues from the energy sector. In Trinidad and Tobago, the original fiscal 2020 budget was based on an oil price of US$60/barrel and a gas price of US$3.00/MMBtu. As the oil and gas prices have dropped significantly, it is inevitable that there will be a downward revision of energy related fiscal revenues. In Guyana, the decline in oil price would also negatively impact fiscal revenues.

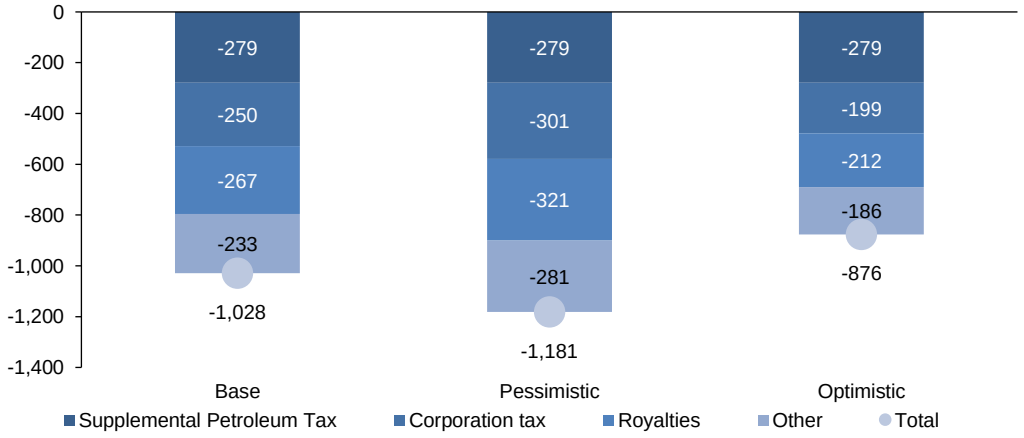
In Trinidad and Tobago, the oil price and gas price are estimated to decrease by 50.6% and 37.9%, respectively, in the base scenario[75] compared to the original budget assumptions. Given these price

[75] 60.5% (for oil price) and 45.6% (for gas price) in the pessimistic scenario and 40.8% (for oil price) and 30.1% (for gas price) in the optimistic scenario.

changes, the fall-out due to COVID-19 on fiscal revenues is estimated to be a decline of US$1,028 million (14.4% of total revenue and 4.2% of GDP) in the base scenario[76,77] (figure 29). As a result, the budget deficit is expected to increase significantly from US$789 million (TT$5,288 million) in the original budget to US$1,818 million (TT$12,178 million) [78] in the base scenario[79].

The Government of Trinidad and Tobago has been working on filling this huge financial gap. They have amended the legislation governing the Heritage and Stabilization Fund (HSF) to allow for an emergency withdrawal of up to US$1.5 billion. The government has been also receiving international financial assistance from various multilateral agencies, including the World Bank, the Inter-American Development Bank and the Development Bank of Latin America.

Figure 29
Impact on fiscal revenues in Trinidad and Tobago
(Millions of US dollars)



Source: ECLAC.

In the case of Guyana, given the assumptions about oil price and estimated decline in energy GDP, total oil revenues, including government revenues as well as company profits and cost recovery, is estimated at US$1,327 million (55% of total oil revenue) [80] in the base scenario[81] (figure 30). As 14.5% of total oil revenues is supposed to be allocated to the government[82] and 67% of that total government revenue will be

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[76] The impact on fiscal revenue is estimated for major energy revenue items, namely dividends from the National Gas Company of Trinidad and Tobago (US$49 million), production sharing contract (US$50 million), petroleum profit tax (US$67 million), supplemental petroleum tax (US$279 million), royalties (US$267 million), withholding tax (US$35 million), unemployment levy (US$18 million), surplus income from the sole of petroleum products (US$15 million) and corporation tax from energy companies (US$250 million; the figures in the parentheses are the estimated impact in the main scenario).

[77] US$1,181 million (16.0% of total revenue and 4.8% of GDP) in the pessimistic scenario and US$876 million (11.9% of total revenue and 3.6% of GDP) in the optimistic scenario.

[78] The Minister of Finance announced that the budget deficit is expected to increase to TT$15.5 billion (US$2.3 billion; http://www.guardian.co.tt/news/imbert-now-forecasts-15b-budget-deficit-6.2.1106018.b01b06af30). This figure includes not only a decline in energy revenues but also a decrease in non-energy revenues and an increase in fiscal spending. On the other hand, the estimated fiscal revenue loss in this section only includes a decrease in energy revenues.

[79] US$1,970 million (TT$13,199 million) and US$1,665 million (TT$11,157 million) in the pessimistic and optimistic scenarios, respectively.

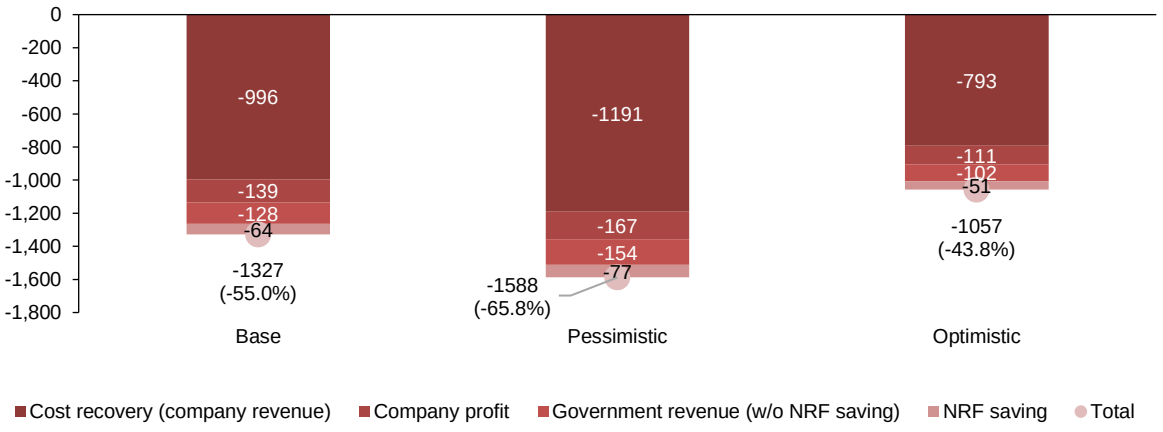
[80] Change in total oil revenue (-55%) = change in oil production (-10%, from direct impact on energy real GDP) + change in oil price (-50%) (+ approximation error).

[81] US$1,588 million (65.8% of total oil revenue) in the pessimistic scenario and US$1,057 million (43.8% of total oil revenue) in the optimistic scenario.

[82] The government share of total oil revenue (14.5%) = the share of profit oil (25%) * the share of government in the profit revenue (50%) + the share of royalty in the total oil revenue (2%).

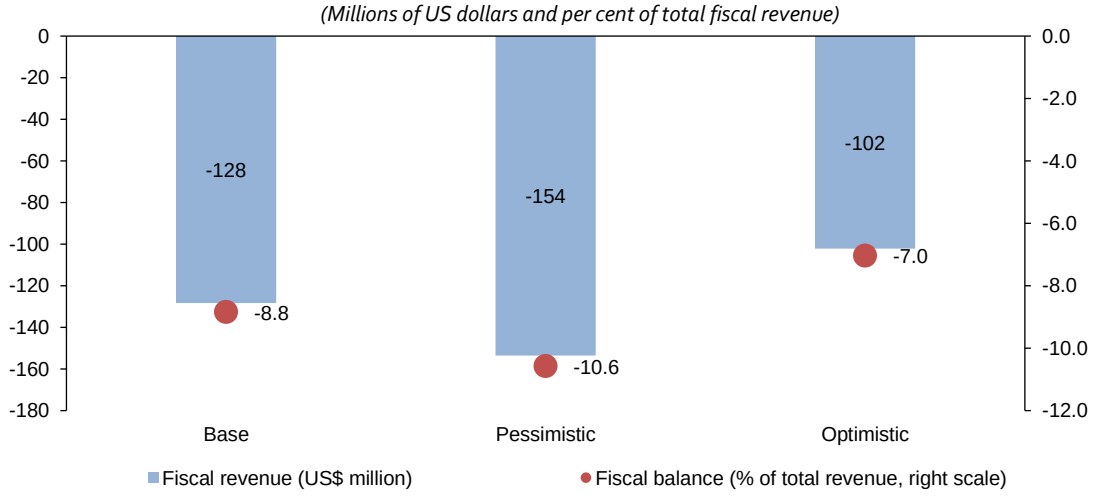
transferred to the budget[83], the estimated impact on the fiscal revenue (excluding NRF saving) would be a decline ofUS $128 million (8.8% of total fiscal revenue) in the base scenario[84] (figure 31).

Figure 30
Impact on oil revenues in Guyana
(Millions of US dollars and per cent of total revenue)



Source: ECLAC.

Figure 31
Impact on fiscal revenue in Guyana
(Millions of US dollars and per cent of total fiscal revenue)



Source: ECLAC.

5. Conclusion

(a) Summary of the results

The results of the scenario analysis are summarized in table 12. Under the base scenario assumptions of a 10% decrease in global oil demand, a 50% decline in oil price and a 20% drop in natural gas price, total real GDP is estimated to fall by 4.4% in Trinidad and Tobago and by 8.2% in Guyana, and total nominal GDP is expected to decline by 13.5% and 20.5%, respectively. Further, using the

[83] 33% of total government revenue will be saved in the Natural Resource Fund (NRF).
[84] US$154 million (10.6% of total fiscal revenue) in the pessimistic scenario and US$102 million (7.0% of total fiscal revenue) in the optimistic scenario.

pessimistic scenario[85] , it is estimated that for Trinidad and Tobago, the impact on nominal energy sector GDP (-57.5%) would be relatively larger than the decline observed during the Global Financial Crisis (-52.9%) of 2009.

The downward pressures on employment would be amplified by the indirect impact of the cut in fiscal expenditure, with total employment being reduced by 0.9% in Trinidad and Tobago and by 1.9% in Guyana. Total exports are expected to drop by 38.3% and 32.8%[86], for Trinidad and Tobago and Guyana respectively, which would result in a significant loss of foreign exchange earnings, particularly in Trinidad and Tobago. Total fiscal revenue is also projected to decline by 14.4% in Trinidad and Tobago and by 8.8% in Guyana, although the governments have been working on filling this huge fiscal gap.

Table 12
Summary of the COVID-19 impact on the energy sector

			Trinidad and Tobago			Guyana		
			Base	Pessimistic	Optimistic	Base	Pessimistic	Optimistic
Assumptions about global trend	Oil demand		-10.0	-14.5	-6.3	-10.0	-14.5	-6.3
	Oil price	(% change)	-50.0	-60.0	-40.0	-50.0	-60.0	-40.0
	Gas price		-20.0	-30.0	-10.0	-20.0	-30.0	-10.0
Real GDP	Direct	(% change of total GDP)	-2.6	-3.7	-1.6	-4.6	-6.7	-2.9
	Indirect		-1.8	-2.1	-1.6	-3.6	-4.3	-2.9
	Total		-4.4	-5.8	-3.2	-8.2	-11.0	-5.8
Nominal GDP	Direct	(% change of total GDP)	-11.7	-14.9	-8.7	-18.2	-22.6	-14.0
	Indirect		-1.8	-2.0	-1.5	-2.3	-2.8	-1.9
	Total		-13.5	-17.0	-10.2	-20.5	-25.4	-15.9
Employment	Direct	(% change of total employment)	-0.1	-0.1	-0.1	-0.2	-0.3	-0.1
	Indirect		-0.8	-1.0	-0.7	-1.7	-2.1	-1.4
	Total		-0.9	-1.1	-0.8	-1.9	-2.3	-1.5
Trade balance	Export	(% change of total export)	-38.3	-48.7	-28.4	-32.8	-40.8	-25.3
	Import	(% change of total import)	-13.5	-16.7	-10.4	-7.0	-8.4	-5.6
	Balance	(% change of total balance)	-81.2	-104.2	-59.6	-88.9	-111.4	-68.1
Fiscal revenue		(% change of total revenue)	-14.4	-16.6	-12.3	-8.8	-10.6	-7.0

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

(b) Policy implications

The scenario analysis conducted in respect of the energy sector revealed several economic and policy-setting challenges for Trinidad and Tobago and Guyana, which are outlined hereunder.

(viii) A possible decline in FDI and a long-run negative impact on the economy:

If oil companies anticipate that the oil prices would persist below the breakeven price, which is around US$28/barrel for Trinidad and Tobago and US$35/barrel for Guyana (see footnote 45), they would be inclined to defer investment in new oil projects. The resulting decline in the FDI would have a negative long-run impact on the economy, particularly on employment, foreign exchange earnings and fiscal revenues.

[85] The pessimistic scenario assumes a 14.5% decrease in global oil demand, a 60% decline in oil price and a 30% drop in natural gas price.

[86] On the other hand, fuel import would be reduced due to a decline in energy prices. In other Caribbean countries, the total savings in fuel import cost would amount to US$ 4,735 million (7.9% of total import) in the main scenario.

(ix) Indirect impact on the non-energy sector employment:

Although the direct impact on energy sector employment would be limited, the indirect fall-out on non-energy sector employment could be large, particularly if the government reduces fiscal expenditure in response to the decline in fiscal revenues.

(x) Lower export and reduced foreign exchange availability in Trinidad and Tobago:

The decline in energy exports would accelerate the decrease in foreign reserves in Trinidad and Tobago. If, however, the decline in the net official reserves should keep apace at US$3.1 billion a year, the net official reserves would be exhausted in two years.

(xi) Lower fiscal revenues:

In Trinidad and Tobago, the fiscal revenue would be reduced by around US$1 billion in the base scenario. This revenue loss would persist in the long run if the low oil price environment should continue[87].

6. Recommendations

In order to meaningfully address the identified economic challenges, the following recommendations are suggested:

(i) A broadening and/or deepening of incentives to oil companies may be required to encourage investment in new oil projects under the current low oil price circumstance, but the additional fiscal cost should be balanced with the benefit from new projects; and political uncertainty should be removed, especially in Guyana, where ExxonMobil is awaiting the government approval to send a third vessel for Payara development.

(ii) Any downward adjustment in fiscal expenditure, due to declining revenue streams derived from the energy sector, should be postponed at least for one year to avoid creating further unemployment, as there is already a surge in job losses due to border closures and lockdowns. While taking care to ensure prudent management, available fiscal buffers such as HSF in Trinidad and Tobago should be utilized to provide social sector support, as well as facilitate business continuity and job retention not only in the energy services industry, in order to keep the economy afloat. In the short-term, in order to ensure businesses continue to operate, targeted fiscal interventions and other policy measures to improve liquidity (e.g. deferral of and/or reduction in tax payments, grants to SMEs, interest free working capital loans and loan guarantees) are needed. In addition, cash transfers to unemployed persons should be considered and, where already in place, strengthened[88].

(iii) In the short-run, the Government of Trinidad and Tobago should continue to prioritize the use of foreign exchange for the import of essential goods as well as capital goods. In the long-run the government needs to consider:

- reducing the dependence on food imports through a dedicated focus on increasing domestic agricultural production and safeguarding food security;
- accelerating the development of renewable energy to ensure that the country can export more petroleum products; and

[87] In Guyana, the expected revenue loss would not cause an increase in fiscal deficit, if the government cuts the corresponding fiscal expenditure on new projects. This is relatively easy to achieve, because the new projects financed by oil revenues has not been budgeted (as Guyana has not published 2020 budget before the pandemic).

[88] Trinidad and Tobago implemented salary relief grant, which provides TT$1,500 a month to workers who lost jobs or salary, initially for up to three months.

- diversifying goods exports by implementing the Trinidad and Tobago Trade Policy 2019-2023.

(iv) While Trinidad and Tobago's HSF has sufficient resources to cover the increased fiscal deficit in the short-term, the government should explore every available avenue for concessional financing from International Financial Institutions (IFIs) and other development partners. In order to avoid a large structural adjustment in fiscal expenditure, the government should also engage a gradual adjustment once the negative economic impact of border closures and lockdowns diminishes. A long-term fiscal consolidation programme should also be developed. In Guyana, the government should avoid budgeting new projects whose expenditure exceeds the reduced oil revenues[89].

(v) Although there is an excess energy supply globally in the short-term, the Caribbean should prepare for a possible shortage of energy supply in the long-term. The long-term energy supply would be scaled down as global energy companies severely cut investment in response to the oil price decline after the COVID-19 pandemic. When economic activities return to pre-COVID-19 level after the pandemic, the world may face acute energy shortage. The Caribbean needs to put in place a long-term plan to promote energy independence of the region by, for example, continuing investment in the renewable energies even though available fiscal resources were reduced and its price advantage over conventional energy sources diminished due to the oil price decline in the short-term.

E. Education sector

1. Introduction

The right to education is often threatened in times of crisis, and the Caribbean subregion has had recent experience of severe disruptions to the education sector as a consequence of natural disasters such as hurricanes, earthquakes, or floods. As in other crises, the COVID-19 pandemic and its impact on the education sector has not affected all families equally; indeed, it has disproportionately impacted children from low-income and less educated households.

In order to contain the spread of the pandemic, governments announced the temporary closure of all educational facilities across the subregion, impacting nearly 12 million learners in 29 Caribbean countries[90]. School closures, interruption in classes, and the postponement of assessments and examinations are likely to come with severe consequences for children's education. In addition, many parents are now coping with new pressures in allocating time for housework, paid work, and a sudden and unexpected increase in childcare responsibilities. This increased stress and burden on families, coupled with social isolation, may also increase socio-emotional challenges, including mental health and wellbeing of families. Furthermore, without child protection measures, COVID-19, which is causing effects similar to a "war economy" (ECLAC, 2020), risks to have similar catastrophic impacts for many children –due to the containment and mitigation measures adopted by countries– and evolve into a broader child-rights crisis (UN, 2020). The UN Secretary General warned against risks of child abuse and neglect, noting that children are both victims and witnesses of domestic violence and abuse, and

[89] US$105 million (or US$157 million if savings in the NRF is utilized) in the main scenario.

[90] This estimate is based on enrolment figures from UNESCO Institute for Statistics and includes pre-primary, primary, secondary and tertiary education enrolment for 29 Caribbean countries which are members and associate members of the Caribbean Development and Cooperation Committee (CDCC): Anguilla, Aruba, Antigua and Barbuda, Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Cayman Islands, Cuba, Curaçao, Dominica, Dominican Republic, Grenada, Guadeloupe, Guyana, Haiti, Jamaica, Martinique, Montserrat, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Sint Maarten, Suriname, Trinidad and Tobago, Turks and Caicos Islands, and United States Virgin Islands.

acknowledging the important monitoring role of the education sector: "with schools closed, an important early warning mechanism is missing."

The most important socioeconomic impacts of school closures include interrupted learning, lost access to nutritious school meals, gaps in childcare, high economic costs from absenteeism and productivity loss, indirect impact on health-care systems, potential increase in dropout rates[91], as well as social isolation. In terms of meals provided to students during school closure, food insecurity is recognized as a growing concern in the subregion and school closures may indirectly affect growing inequalities, poverty, hunger and health. Critically, the transition to online learning modalities deepens existing inequalities. Unequal access to technology and digital learning portals, homeschooling in shared spaces with other family members in small housing units, lack of parental skills to adjust to distance and homeschooling, are obstacles to continued learning (UNESCO, 2020).

2. Measuring the costs of school closures in the Caribbean

Due to data limitations, the socioeconomic impact of COVID-19 on the Education sector reported in this study is captured mainly through productivity loss and the provision of meals to students during the period of school closure from March to June 2020. The combined value of this productivity loss, additional teachers' stipends in support to national assessments preparations, and the cost of providing school meals to students through alternative means equals US$ 92.5 million Caribbean wide.

Table 13
Estimates of teachers' salaries for the Caribbean, during the period of school closures

Country	Mean monthly salaries of teachers (Dollars)[(a)]	Number of teachers[(b)]	Number of days schools were closed (without online/distance learning) [(c)]	Estimated loss (Dollars)
Anguilla	4 074	253	0	0
Antigua and Barbuda	2 978	2 019	0	0
Aruba	1 894	997	1	62 939
The Bahamas	3 746	3 845	0	0
Barbados	2 690	3 343	52	15 587 295
Belize	2 635	5 426	0	0
Bermuda	5 220	1 092	0	0
The British Virgin Islands	3 548	686	0	0
The Cayman Islands	2 833	590	0	0
Dominica	1 070	1 276	28	1 274 299
Grenada	1 630	1 880	9	919 320
Guyana	1 000	8 314	1	277 133
Jamaica	1 500	31 600	13	20 540 000
Montserrat	1 000	84	38	106 400
Puerto Rico	1 760	32 533	0	0
Saint Kitts and Nevis	996	1,078	1	393 803
Saint Lucia	1,096	2 732	15	2 495 901
Saint Vincent and the Grenadines	822	2 074	32	1 818 975
Sint Maarten	2 272	719	0	0
Suriname	1 028	10 550	42	15 185 777
Trinidad and Tobago	1 796	14 112	15	21 125 749
Turks and Caicos Islands	1 560	628	8	587 808
US Virgin Islands	4 139	1 739	17	5 278 329
Caribbean (23 countries)				**85 653 727**

Sources:
[(a)] Salaryexporter.com; Ministry of Education of Trinidad and Tobago.
[(b)] CEPALSTAT/UNESCO/WB.
[(c)] ECLAC calculations, based on official data.

The productivity loss, equivalent to the earnings of teachers during the corresponding period of school closure in each country[92], amounts to US$ 85.7 million (see table 13). In estimating productivity loss, the

[91] Early school dropout may "disproportionately affect adolescent girls, further entrench gender gaps in education and lead to increased risk of sexual exploitation, early pregnancy and early and forced marriage" (Giannini and Albrectsen, 2020).

[92] Since schools were schedule to be closed during the Easter break, the Easter period was not included in the productivity loss calculation.

calculations assume that all teachers and educational professionals were affected by school closures. However, productivity loss may differ in transitioning to distance learning strategies. It is estimated that approximately 471,372 teachers have been affected. Unfortunately, accurate student-educational professional ratios are unavailable for most Caribbean countries.

Governments throughout the Caribbean provide food programmes through schools, that secure meals for children, and support nutrition and child development, especially to those from low income households. Countries have established additional social protection measures during the period to help to ensure the continuity of these programmes, often in collaboration with the private sector and international agencies, such as UNICEF.

Caribbean countries are providing emergency response to vulnerable families who rely on the school meals through different modalities, via a Food card, in the case of Trinidad and Tobago, and in other countries meals are delivered at schools in the form of a weekly food kit, corresponding to the food required to cook 7 daily meals for one child per week, or through daily food meals collected in different school locations. In the case of Antigua and Barbuda, the package also includes a Vitamin-C supplement. Antigua and Barbuda's regular school-meals programme serves 5,670 students who receive daily meals at school, while the COVID-19 school meals replacement programme only covers 1,500 children from vulnerable families. Trinidad and Tobago is administering food cards for children from vulnerable households. Each family is receiving a food card with a monthly amount of 510 TTD (approximately US$ 76) for each child, to cover for lunch meals. The government has budgeted US$ 3.7 million for this emergency relief programme while the regular programme targets 130,729 children with an estimated cost of US$ 17.2 million for the duration of school closure. In the case of Anguilla, support was provided in partnership with UNICEF, covering 67 students that receive regular school feeding and whose families will instead receive an amount of XCD 200 per month (approximately US$ 74) for an initial period of 3 months.

In addition, several Caribbean countries[93] have introduced further investments in food security during the period, under an integrated effort in connection with the Education sector, aiming to reintroduce children to dishes that incorporate locally grown indigenous foods and promoting educational activities related to backyard gardening and the consumption of immune system-boosting foods. This is an important measure to reeducate families to more affordable and healthier options, while also supporting the objective of food security and the local economies.

(a) Assessments

While the postponement or canceling of assessments may not bring a direct additional cost to the governments, canceling exams affects the learning process[94]. In the Caribbean, all examinations for the main external qualifications – CXC, CSEC, CAPE and other examinations– have been rescheduled from May/June to July/August 2020. The revised examinations strategy will employ the e-testing modality (online and offline) aiming to reduce time in the administration of the exams and minimize disruption to the 2020/2021 academic year. In addition, online assessment tools are being promoted in lieu of traditional exams in many schools and universities. In preparation for national exams in Trinidad and Tobago, Standard Five teachers will be paid additional stipends to the amount of TT$ 20.2 million (US$ 3 million). This is a good alternative, which will still guarantee a degree of preparation for final

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93 See, for example, the efforts made by the Healthy Caribbean Coalition (HCC) and the Organisation of Eastern Caribbean States (OECS) Commission to 'Promote access to, and consumption of, healthy foods': https://www.healthycaribbean.org/strengthening-food-and-nutrition-security-in-the-caribbean-a-legacy-response-to-the-covid-19-pandemic/.

94 In fact, previous research has identified a correlation between learning outcomes and assessments. Andersen and Nielsen (2019) estimated the impacts of an IT crash in the testing system in Denmark, which prevented some children from taking a test, and concluded that taking the test increased the score in a reading test two years later by 9% of a standard deviation, with similar results in mathematics, and largest effects for children from disadvantaged backgrounds.

examinations, avoiding to further exacerbate pre-existing inequalities in students' socioeconomic background, and with little additional costs to the system.

Further to impacts in assessment processes, the short to medium term career development of this year's graduate students may also be affected by the COVID-19 pandemic. Not only have they experienced major interruptions in their studies and final evaluations, they are likely to graduate at the beginning of a major global recession, which may negatively impact on job market opportunities, lower pay and overall career prospects (Burgess and Sievertsen, 2020).

(b) Unintended strain on health-care systems

UNESCO has identified challenges to the health care systems arising from the indirect impacts of school closures, since an important share of health-care workers are parents living in households with no other adults available to look after their children. These impacts may be substantial and cut across different areas of health care support systems, such as nursing homes or first responders. In fact, recent research has identified a threshold at which school closure impacts on reduced health care capacity may lead to a higher incidence of COVID-19 mortality than would occur without school closures, due to the absenteeism of healthcare professionals during the health crisis (Bayham and Fenichel, 2020). Additional measures may be required to address these impacts, such as providing childcare for essential workers. This strategy is currently being implemented in Bermuda, where the Ministry and Department of Education has developed a childcare programme specifically for children of essential services workers aged 5 to 10 years old, targeting a total of 68 children.

(c) Post COVID: New pathways for the education sector

There is the need for a comprehensive cost-effectiveness analysis of lockdowns on the education sector. Among these are the increase in e-learning modalities, as well as savings of staying at home, for example in school transportation, costs of school security, and other indirect costs of education both for the public systems and at household level.

There have been important benefits in the acceleration of innovative digital solutions, 'flexible learning', knowledge sharing and capacity development to facilitate educational content and ensure continuity of teaching-learning and assessment processes during the pandemic. In parallel, a range of innovative e-learning packages have been produced far quicker than usual (Robbins, 2020), and many restrictions in access have been lifted, unlocking opportunities for upskilling the workforce in different sectors.

School closure has created new opportunities for teachers to rethink pedagogical tools and find alternative strategies for engaging with the student community. Online flexible learning approaches are learner-centred, offering a variety of choices and presuming students are more likely to take ownership for their own learning. There are good examples of innovative e-learning packages to support preparedness in the Caribbean subregion, including the Caribbean Examinations Council (CXC) Learning Hub which provides the opportunity for learning continuity for teachers and students across the region, to create virtual classrooms for online interaction, incorporating their own content as well as content available on the CXC Learning Hub. Resources previously offered on various CXC websites have now been consolidated into the Learning Hub including past papers, interactive syllabuses, digital toolkits, subject reports and exemplars (CXC, 2020). Partnerships with the private sector have also offered new innovation tools for Caribbean digital learning and knowledge sharing[95].

[95] For example, the Cable and Wireless Charitable Foundation (CWCF) has partnered with Flow and One on One Educational Services Limited to provide free access to a virtual education platform, available to all students across the Caribbean regardless of their network operator. Students in Antigua & Barbuda, Anguilla, Barbados, British Virgin Islands, Cayman Islands, Dominica, Grenada, Montserrat, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Trinidad & Tobago and Turks & Caicos are benefiting from this initiative. The Universal Service Funds have also provided digital devices to students during the COVID lockdown.

Box 2
Coordinated response and preparation for reopening in Curacao

In Curacao, as in many other Caribbean countries, a crisis team was created to coordinate the immediate response, with representatives of all sectors and led by the Health representative. An epidemiologist expert provided regular updates on the medical situation. The Prime Minister was responsible for decision making. Within this coherent and coordinated approach, the decisions related to the education sector were taken, including on school closures and reopening. In the initial phase, the process included weekly meetings with all school boards on teaching continuity plans. The timeline and preparations for school reopening include important key steps such as the evaluation of the adapted education program, based on an assessment of student learning, and the decision to reopen the school year earlier than usual as a measure to compensate for learning losses which may have occurred during the distance learning period. According to the Ministry of Education Science Culture and Sport, additional budget will be required to adjust to the new proposed measures. In addition, communication efforts will need to be strengthened, to achieve greater regularity with school boards, parents and the overall school community.

Timeline of preparations for school reopening, following COVID-19 lockdown in Curaçao

Date	Action
May 18th 2020	Start exam classes
May 18th 2020	Start higher education
June 1st 2020	Start date FO (Primary Education)
June 1st – 15th 2020	Start up remaining educational types
June 24th 2020	Result final exams VO & SBO (Secondary Education)
June 26th 2020	Retake of final exams VO (Secondary Education)
July 3rd 2020	Evaluation of adapted education program
July 10th 2020	Summer vacation for students
August 1st 2020	Submission of adapted education program, PTO & PTA 2020-2021
August 10th 2020	Proposal for the start of the 2020-2021 school year

Source: Government of Curaçao, 2020.

In late March 2020, a Global Partnership for Education (GPE) grant of US$ 70,000 was awarded to the Organization of Eastern Caribbean States (OECS) in support to the COVID-19 related response. The grant was used to provide tablets to disadvantaged children in OECS countries. In addition, a US$ 3 million GPE grant was approved in June 2020, covering the nine English-speaking OECS Member States[96], and will support, among other education related activities, the procurement and distribution of devices for primary and lower secondary school students. In the case of Saint Vincent and the Grenadines, the country has allocated an additional EC$ 4 million (US$ 1.48 million) for the purchase of over 12,000 tablets to be distributed to secondary school and Grade 6 students, aiming to close the digital divide and reach all vulnerable students. Saint Vincent and the Grenadines has allocated EC$ 4 million (US$ 1.48 million) for the purchase of over 12,000 tablets to be distributed to secondary school and Grade 6 students.

For those without Internet access or who do not have access to a device, several governments have developed hard copies of learning packets delivered to their mailboxes by post office staff. Apart from the inequality of access to technology, the means of delivery is critical as one size cannot fit all. Governments have adjusted different modalities for different age groups and particular needs. For example, the government of Belize, further to the online learning modalities, has developed specific resources and alternatives targeting the early childhood and primary education levels, developing daily audio-lessons on local FM radio stations, and a printed publication for students who may not have access to internet. At the secondary and TVET levels, the government of Belize assisted each high school and ITVET in developing learning continuity plans, specifically aiming to leave no one behind, addressing

[96] Anguilla, Antigua and Barbuda, British Virgin Islands, Dominica, Monserrat, Grenada, Saint Lucia, Saint Vincent and the Grenadines, and Saint Kitts and Nevis.

hard-to-reach children and youth, especially those who may already be marginalized or become so due to the current socio-economic situation, assisting with providing printed materials for those who may have difficulties in access to technology, and monitoring and supporting the implementation of school plans to ensure quality, equity and compliance with established guidelines (Belize Ministry of Education, Youth, Sports & Culture, 2020).

(d) Recommendations

The lockdown of education institutions caused major and uneven disruptions in students' learning and assessments and in families use of time and productivity.

In the short term, priority should be given to the following critical areas:

- Ministries of Education and school administrators should consider **flexible learning approaches** and continue to provide alternatives to online learning, as well as contextualized learning tools to fit the learner's circumstances and specific needs;
- Ministries of Education, in collaboration with Ministries of Health, should provide **psychosocial support** and safeguard access to mental health resources for students and their families to address the mental health consequences of COVID-19;
- Governments, through the relevant child protection agencies, should provide specific **protection for vulnerable children** including migrants, the displaced, refugees, minorities, children living with disabilities, and children in state institutions;
- Ministries of Education should **secure schools for the children of specific groups of 'essential workers'**, thus minimizing strain on vital sectors such as the healthcare system.

This unprecedented crisis required the Caribbean education sector's swift and inventive response, taking stock of its previous experience in handling emergency response, tapping into Universal Service Funds and collaborating with the private sector to address inequalities in access to services. Governments are now faced with the difficult task of preparing to reopen the education system, knowing that the risk of a second wave of infections exists and the potential of other lockdowns cannot be disregarded. Hence, governments need to prepare to readjust to a "new normal" with financial implications for countries that are already heavily indebted and who may require debt relief in exchange for investment in human capital development post-COVID. Importantly, governments should in the long-term:

- **Reassess new technological tools and distance learning methods utilized** during this period, as well as requirements in access to broadband, adjusting their monitoring mechanisms to diagnose, identify, get feedback and address how different categories of children are coping with the new learning modalities;
- **Provide additional resources for schools to rebuild the loss in learning,** once they reopen;
- Address the specificity[97] of **private schools** affected by the impacts of the recession;

[97] Private schools face severe strains in relation to the reopening of the school year, in the face of recession and revenue losses for many Caribbean families, particularly those working in the tourism sector. Caribbean governments have been called to intervene, offering financial assistance (for example, extending preferential loans) to the private school system. Moreover, debate is ongoing on the human resources impact of school closures and the required adjustments in school fees should closures continue. "Higher discounts will undoubtedly result in some adjustments to human resources and therefore programmes. In addition, there is the risk of losing well-trained staff who would help to get regular schools up and running quickly post-COVID-19," Jamaica Independent Schools Association (JISA), April 2020.

- Support **new programmes for new graduates**, considering how the crisis will affect the already very high youth unemployment rates throughout the subregion and to avoid longer unemployment periods.

F. Social protection

1. Introduction

Social protection systems play a vital role in the response to biological hazards just as they do in the aftermath of natural disasters. In normal circumstances, social protection systems provide financial security for workers in the face of individual risks: ill-health, unemployment, care responsibilities, old age etc. However, societal threats such as the novel coronavirus (Covid-19) pandemic can create a sudden wave of people all requiring financial support or other forms of assistance. In such situations the social protection system, with its administrative and institutional capacity, provides the crucial mechanisms which enable government to rapidly deliver temporary or emergency support to those who need it. These mechanisms have been instrumental in providing social protection support to households across the Caribbean in the wake of the Covid-19 pandemic.

2. Methodology

This social protection support constitutes extra budgetary spending for all countries which will potentially lead to increased debt burden and a reduction in fiscal space for other needs. The budget allocations for Covid-19-related social support as announced by countries have been aggregated. Unfortunately, in some cases, the nature and scope of support was announced without a budget figure. Where possible, using available information on the population, a country's social safety net programme, and the rate and scope of support that was announced, an estimation of the minimum cost of providing such support was estimated. The social cost of the COVID-19 pandemic reported in this study, therefore, reflects the aggregate sum of announced social spending and the estimated cost of social support programmes for which a budget was not provided.

2. Fiscal Impact analysis

Table 14 shows the additional expenditure on social protection introduced in the second quarter of 2020 by Caribbean governments in response to Covid-19. The largest area of expenditure is on unemployment benefits (US$509 million), with more than half of Caribbean countries having introduced some form of benefit for unemployed persons in response to the pandemic. In the majority of cases, these are new temporary/emergency benefits which have been introduced in countries where the social security system does not normally provide an unemployment benefit. The second largest area of expenditure is payroll support, that is, financial support provided to companies to cover some, or sometimes all, of workers' salaries for the period during which they are unable to work. These subsidies are generally restricted to salaries beneath a certain level so that taxpayers are not subsidizing executive salaries. Around half of countries have introduced a scheme of this kind. This payroll support accounts for US$352 million of announced expenditure.

However, it is likely that during the second quarter, expenditure on payroll support will actually be higher than expenditure on unemployment benefits. If the social protection measures enacted by governments remain in place until 30 June, it is estimated that expenditure on payroll support in the second quarter would be US$504million compared to US$282 million on unemployment benefits in the same period. Spending more on payroll support certainly makes sense in the short term: it's better to help businesses to retain their employees rather than see people lose their jobs and then have to claim unemployment benefit. The explanation for governments anticipating and therefore budgeting for greater overall expenditure on unemployment benefit is most likely that whereas payroll support will

probably be provided for an initial relatively short period, the medium-term economic impact of the pandemic will mean high levels of unemployment for some time to come. It should also be noted that governments have announced an additional US$201 million of grants to businesses (not to mention loans and deferrals of taxes) which, while not explicitly tied to salary support, could certainly be used for that purpose.

Governments announced additional expenditure of US$143 million in a wide range of new and existing public assistance schemes targeted at the most vulnerable households. This public assistance includes, for example, cash transfers and food vouchers or food packages. There is also US$125 million of non-means tested financial support for households. This includes the stimulus cheques received by residents of the United States Virgin Islands as part of the United States Government's economic stimulus measures. There are a small number of citizens in other Caribbean countries who have recently worked in the United States, for example for summer work, who are receiving stimulus cheques and residents of Puerto Rico are also due to receive cheques. Caribbean governments are not distributing stimulus cheques although to reduce pressure on household budgets, several Caribbean countries have implemented temporary price reductions on water and/or electricity bills or implemented price controls for essential goods.

In total, US$1.3 billion of expenditure was announced of which US$1.1 billion is expected to be disbursed in the second quarter of 2020. The second quarter figures provide a good indication of the costs that would be involved in continuing all these measures beyond 30 June;- for example, the total expenditure works out at around US$370 million per month.

Table 14
Estimated total cost of social protection measures enacted by Caribbean countries in response to Covid-19

	Additional spending on social protection announced as part of COVID-19 responses		Projected Q2 expenditure assuming measures remain in place until 30 June 2020	
	Millions of Dollars	Percentages	Millions of Dollars	Percentages
Payroll support	352	26	504	46
Other support to business	201	15	98	9
Unemployment benefit	509	38	282	26
Public assistance	143	11	99	9
Other support to households	125	9	123	11
Total	1 330	100	1 106	100

Source: Economic Commission for Latin America and the Caribbean (ECLAC) on the basis of government information, announcements and statements addressing the Covid-19 pandemic.

3. Payroll support

With the shutdown of large parts of the economy, governments have sought to minimize job losses and bankruptcies which cause not just short-term hardship but also longer-term damage to the economy. Many Caribbean governments have provided financial support to cover some or all of the salaries of workers who are inactive while businesses are closed. The Government of Bahamas announced a Tax Credit & Tax Deferral Employment Retention Programme for medium sized and larger businesses to help protect up to 10,000 jobs. A total of US$30 million is being provided through tax credits (that do not have to be paid back) with a further $30 million of tax deferrals, which must be used to cover non-executive payroll expenses. The Government are also making available grants and loans to small businesses totaling US$5 million and US$20 million respectively to assist with payroll expenses. Jamaica has introduced the Business Employee Support and Transfer of Cash (BEST Cash) Programme which

will provide temporary cash transfers to businesses operating in the tourism industry based on the number of workers they keep employed (below a certain income threshold). For each of these employees, businesses will receive US$67 per fortnight. The Government are also providing a one-off grant of US$187 for barbers, hairdressers, beauty therapists, cosmetologists, taxi operators, bus operators and market vendors and US$300 for bar and night club operators, craft vendors and tour operators. Schemes of this kind aimed at small businesses have also been introduced in Barbados and Saint Vincent and the Grenadines, and in Grenada with a particular focus on the tourism sector.

The most well-financed payroll support schemes are in the overseas territories. For example, Aruba's salary subsidy scheme sees the government covering 60 % of salaries in affected businesses (for all salaries beneath an upper threshold). In this way, all employees should receive this amount as a minimum which may be further topped up by the employer. In Martinique, Guadeloupe and Saint Martin the State covers 84% of the net pay of employees who are placed on "partial activity." This applies up to a limit of 4.5 times the minimum wage and those workers on the minimum wage receive 100 % of their salary. Sint Maarten, Curacao, Montserrat and Turks and Caicos Islands also have similar schemes.

In addition, governments are providing other forms of financial support to companies. Aruba, Cayman Islands, and Guyana have all provided grants to small and micro-businesses. Jamaica, Dominica, Saint Vincent and the Grenadines and the British Virgin Islands have provided support to farmers to boost domestic food production. Some governments have granted tax reliefs, for example in Saint Kitts and Nevis the corporate tax rate was reduced from 33% to 25% for the period April to June 2020 for businesses that retain at least 75 percent of their employees, while the unincorporated business tax rate is being reduced from 4% to 2% over the same period. The government of Dominica granted corporate tax rebates of a similar magnitude, while in Anguilla social security contributions have been waived for three months.

4. Special credit facilities

For the business community, loans on favorable terms can provide essential liquidity to companies dealing with the sudden economic downturn. For example, the government of Antigua and Barbuda is providing US$37 million in loans and credit guarantees, to small and medium sized businesses to assist with their liquidity and to preserve jobs. In Guadeloupe, US$319 million is being provided in state guaranteed loans, deferral of charges, tax credits and deferrals of customs debts. The Cayman Islands Development Bank is providing loans to small and micro-businesses with no repayments required for the first 6 months while in Grenada, additional credit is being made available to hoteliers and small businesses. These measures are designed to reduce the financial pressure on companies and to avoid bankruptcies which would impair the economic recovery.

5. Unemployment benefits

The complete stoppage of economic activity in many sectors has resulted in the loss of jobs and livelihoods. In most Caribbean countries, social security systems do not routinely provide unemployment benefits for formal sector workers, and certainly not for those in the informal sector. Governments are therefore having to introduce unemployment benefits and reinforce the provision of public assistance as a matter of urgency to provide for those who are out of work.

Governments which have introduced some system of unemployment benefit for those that have lost their jobs due to the virus include Anguilla, Belize, Dominica, Grenada, Jamaica, Montserrat, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago and Turks and Caicos Islands. In Saint Lucia, temporary income support is being provided to insured workers who will receive a monthly payment of between US$185 and US$556 dependent on their salaries. Uninsured workers will receive US$185 paid for by the government, a precondition being that they sign up with the National Insurance Corporation. In Anguilla, a temporary Covid-19 unemployment benefit has been

introduced. This benefit is paid at the full rate to insured workers and at 80% of the full rate to uninsured workers. In Saint Kitts and Nevis and Saint Vincent and the Grenadines, the new temporary unemployment benefits provided through the social security system are restricted to insured workers only. Other countries have thus far decided against introducing an unemployment benefit, including Dominica and the British Virgin Islands.

Barbados and Bahamas are among the relatively few Caribbean countries that provide unemployment benefits as part of their social security systems:- since 1981 in Barbados and 2009 in Bahamas. Not surprisingly, there has been a dramatic increase in the payment of unemployment benefits. In the Bahamas, US$29 million was paid out in response to Covid-19 related unemployment benefit claims during the period up until 15th May. This compares to unemployment benefit payments of around US$2 million for a 'normal' six to eight week period.

Even in Barbados and the Bahamas where established unemployment benefits were already in place, it was necessary to supplement these schemes to address the needs of the self-employed who were not eligible for these benefits. In Barbados, a temporary benefit has been introduced for self-employed persons who have paid national insurance contributions while in the Bahamas, a temporary benefit has been introduced for all self-employed persons working in the tourism sector not contributing to national insurance. In Antigua and Barbuda, the Social Security Board does not provide an unemployment benefit but 2020 workers who have lost income and who contribute to the ABHTA/ABWU - Thrift Fund (a retirement fund for workers at 17 Antigua resorts) are receiving a fortnightly cash relief payment of US$237.

Governments have had to expand social protection to respond to what is effectively an emergency situation. In such circumstances, it is probably not possible to do the level of analysis, consultation and piloting that might normally be carried out in the implementation of a new benefit programme. Nevertheless, the urgency of the situation demands that governments do whatever possible to provide income protection to unemployed workers and must try to do so in a way which builds trust in the social protection system and reinforces, rather than undermines, the principle of social solidarity.

6. Public assistance

Where informal sector workers have been laid off or lost income, they are generally dependent on public assistance programmes. Governments have injected greater funding into public assistance and added new cash transfers to cater for the immediate needs of at least some of these citizens but public assistance still provides a much less reliable and secure safety net, compared to contributory social security. Resources are more limited and therefore eligibility requirements will tend to be stricter and may be more subjective or lack in transparency.

Barbados has created the Household Survival Programme to provide a minimum income to vulnerable families identified by the Welfare Department. The Government of Antigua and Barbuda has introduced the Covid-19 Emergency Food Assistance Programme, which is aimed specifically at elderly persons living alone, persons with disabilities, and unemployed persons with children. The Cayman Islands Government provided a food voucher worth US$183 to work permit holders without employment due to Covid-19 who have insufficient income or savings to provide for their immediate needs. Meanwhile, the Government of Trinidad and Tobago has boosted payments to current recipients of public assistance and disability assistance grants as well as providing US$4.5 million to religious organizations to provide food for the poor and needy through their normal distribution programmes. Recipients of assistance through Jamaica's PATH programme and the United States Virgin Islands' Supplemental Nutrition Assistance Program (SNAP) are also receiving additional supplemental support.

7. Housing

Workers who have experienced a loss of income due to the pandemic are at risk of repossession or eviction and governments are working with financial institutions to prevent this. A number of strategies have been employed across the region. For example, the Trinidad and Tobago Mortgage Finance and Home Mortgage Bank defferedpayments for three months, and the Housing Development Corporation implemented a two-month moratorium for mortgage and rental payments. The Government are also providing a temporary rental assistance grant for individuals and families affected by retrenchment or termination of employment.

Reducing utility bills and/or allowing deferred payment is another relatively easy way of relieving the pressure on household budgets and has been adopted by numerous countries. Water changes were completely waived for three months in Turks and Caicos Islands; electricity bills will be subject to a 20% reduction for three months in Antigua and Barbuda; while VAT has been removed on water and electricity in Guyana for the same period.

8. Recommendations

To mitigate the economic consequences of the Covid-19 pandemic, governments should consider implementing the following temporary measures (if not already done so):

(i) Governments should consider providing payroll support so that workers who are inactive due to restrictions on economic activity receive an agreed proportion of their salary, with special protection for the lowest paid.

(ii) Provide unemployment benefit to workers that have lost their jobs (or sickness benefits to those ill with Covid-19 or in self-isolation). There should be provision for the self-employed and informal sector workers who have lost income, jobs and livelihoods.

(iii) Prevent evictions and repossessions for those unable to meet rent or mortgage repayments due to loss of income through cancelation and deferment of payments and/or provision of rental assistance.

(iv) Reduce pressure on household budgets through measures such as price controls, tax reliefs and concessions on utility bills.

(v) Adapt benefit application and delivery processes so that people can apply for, and receive, benefits without breaching lockdowns, quarantines, self-isolation or social distancing.

To address the deficiencies which Covid-19 has highlighted in Caribbean social security systems, in the longer term, government must seek to:

(i) Consolidate permanent unemployment benefits into their social protection systems.

(ii) Improve social protection coverage for informal sector workers through reinforcement of existing means-tested public assistance and non-contributory benefits such as old age pensions, combined with a programme of measures to bring uninsured workers, sector by sector, into the contributory system.

II. The case for financing resilience: what needs to be done

This study sought to complement several other impact assessment studies that recognize the devastating impact of COVID-19 on the Caribbean people and economies. Its purpose is to lay out the challenges and make a case for providing external concessional financial support to economies that were already facing many headwinds and would confront a dark future without such support. There has been a virtual collapse of the tourism sector and it is predicted that the mainstay stay-over visitor arrivals will fall between 58 and 78% in 2020 and direct losses will be between US$ 22 and US$ 28 billion. With respect to energy, total real GDP is estimated to fall by 4.4% (US$1,023 million) in Trinidad and Tobago and by 8.2% (US$305 million) in Guyana, and total nominal GDP is expected to decline by 13.5% (US$3,211 million) and 20.5% (US$1,121 million), respectively. ECLAC projects that overall economic growth for the region will decline in 2020 by at least -7.9% in 2020. The service producers which rely more heavily on tourism services are likely to be more affected.

The health sector, over a short time, has already accrued costs of US$260.2million in expenditures and this is just the beginning. This does not address the long-term vulnerability issues to develop an early warning health infrastructure and build "smart hospitals" to anticipate and mitigate future health pandemics and climate change effects. Further, social protection, citizen security and education systems will require considerable resources to build out the broadband infrastructure, managerial and operations structures that will include the poor and vulnerable and other groups including persons with disabilities. These are areas of great significance as COVID-19 has exposed the inequalities and inefficiencies in the delivery of public service across the region.

The fall in tourism receipts and energy prices plus their indirect effects, combined with weak health systems has meant that no economy in the Caribbean has been spared from hardships wrought by COVID-19. The tentative opening of their economies may very well see many countries going into recession since a number of businesses are likely to fail without solid support to keep them in operation when the lockdowns are lifted.

A swift recovery which would be the best outcome, depends on an effective domestic response, but a quick return to robust external demand is unlikely. As the health sector assessment suggests, that sector will need to be shored up to provide rigorous random testing both for citizens and visitors, while providing care for non-COVID-19 patients. The health systems are already affected by the high burden of care for patients with NCDs, which is a drag on labour productivity in the workplace.

The support provided thus far by Caribbean economies can only be short-lived under current budgetary constraints, as the region does not have fiscal space to implement anything near the stimulus packages, relative to GDP, that have been rolled out in OECD economies. Therefore, the big question is how to fill the resources gap to allow for as swift a recovery as possible, while staving off a rising debt crisis. To answer this question, it is important to set the context of this crisis and suggest how the region might circumvent a prolonged economic decline.

Caribbean economies are not entitled as so-called "middle income" countries to concessional support at a time when, despite their large debt burden, fiscal stimulus is needed to flatten the fall-out in the economy. The region has not yet recovered fully from the global crisis of 2008-2009 and has generally been progressing to address its debt overhang by raising taxes and reducing public spending. This has made it difficult for the region to make the investment needed to address the SDGs which must remain an important vision, and as part of its planning to achieve sustainable development. Added to this, the region has been devastated by a number of hurricanes which, resulted in significant loss in GDP. The empirical evidence shows that the Caribbean is the most vulnerable of all SIDS regions in relation to the frequency of disasters and the cost of such disasters and as we approach another hurricane season it must be remembered that each year the region sustains at least US$3b in damage and losses.

These several shocks identified, demand a careful look at how to build the region's resilience as it grapples with social, economic and environmental challenges. In the case of the last, climate change has been an existential threat which can undermine all the efforts made and the progress achieved. The region is doing its best in these difficult circumstances but must be supported in this effort by the international community, especially the international financial community, to prevent the loss of its hard-won socio-economic progress. As was suggested, flattening the infection curve has come at the price of a steepening macroeconomic recession curve, which also needs to be flattened as the situation normalizes.

A number of useful short- and medium- term recommendations are put forward to support the region in its effort to limit the fall-out in economic activity, employment and livelihoods.

The region faces a dilemma in that the efforts and costs of dealing with the pandemic over a very short time have been enormous and of the US$1.2billion in funding that has been received so far, more than 50% has been contracted loans, thereby adding to its debt burden.

ECLAC supports the UN in calling for a number of measures to relax the debt service payments and provide additional grant resources at a time when resources must be found to support economic recovery. Among these are the following:

Immediate responses

- Across-the-board debt stand still for all developing countries that have no access to financial markets and cannot service their debt.
- Provide foreign currency liquidity to developing countries through dollar swaps

Short term and medium-term responses

- Establishment of sovereign debt restructuring mechanisms
- Increase IMF quota subscriptions or issue additional special drawing rights (SDRs)
- Raise the lending capacity of the MDBs

Additionally, Caribbean countries must be supported by the IFIs in the adoption of hurricane clauses, GDP indexed bonds and other vulnerability-based state contingent instruments as part of future debt service obligations to address environmental, economic and now pandemic shocks.

Two additional strategies are proposed by ECLAC which speak to the Caribbean very specifically and which will directly address the large numbers of vulnerabilities that have been alluded to. These are (1) the launching of a Caribbean Resilience Fund (CRF) and (2) a debt for climate adaptation swap initiative designed to reduce the debt burden and enhance long term sustainable growth. In light of COVID-19 we also embrace the need for a pandemic relief fund to help vulnerable states. ECLAC is also integrating into its debt swap initiative; the notion of credits, applied through debt relief, for investment already made in renewable energy; climate adaptation and green technology.

The Caribbean Resilience Fund is conceived of as a special purpose vehicle for attracting large scale development finance to the Caribbean. Such a fund could be housed at an appropriate regional financial institution and designed to secure the resources needed for reducing vulnerability. It is anticipated that under the UN leadership such a fund can attract substantial resources for the region's sustainable development including its SDG thrust.

The CRF in turn would use its resources to attract concessional matching finance for region wide projects It would also leverage it resources to catalyze funds at low interest rates to support risk reduction, resilience building and related projects in the region. Many Caribbean countries have few options for financing outside of short term borrowing because of high sovereign risks and relatively lower bond requirements. A CRF could access larger issues at lower administrative costs for a variety of resilience building projects. Among these could be greening Caribbean economies and making resilient major infrastructure vulnerable to hurricanes and climate change.

The second aspect of the strategy is to use the resilience fund to support debt for climate adaptation swap initiatives especially in collaboration with institutions like the Green Climate Fund (GCF) since concessional financing might be used to invest in green growth industries. Initially, the countries Antigua and Barbuda, Saint Lucia and Saint Vincent and the Grenadines will be in the first phase of this initiative, which will be subsequently extended to other indebted Caribbean counties.

Considerable progress has been made and as part of the suite of initiatives ECLAC and the Phase One countries have initiated the process of seeking support from Green Climate Fund through its Project Preparation Facility (PPF) to conduct a prefeasibility study for the climate resilience projects, as well as seeking limited accreditation with the GCF for this initiative, with the help of the Antigua and Barbuda's Department of Environment. For that purpose, among the activities identified as priority works for ECLAC was the creation of a list of regional climate resilience projects.

In the context of the challenges faced by member states, these various initiatives need to be urgently speeded up. The COVID-19 crisis has been both sudden and severe, and scarce budgetary resources have had to be reoriented, but the region can overcome this with committed domestic policies and the support of the international and regional financial community.

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Annexes

Annex 1

Table A1
Estimated National Economic Impact of COVID-19 on the Health Sector of Caribbean Countries by cost categories
(Dollars)

	Prevention Cost		Testing Cost		Treatment Cost		Infrastructure Cost		Total Cost
Country/Territory	US$	% of total	US$	% of total	US$	% of total	US$	% of total	US$
Anguilla	23 769	32.35	2 878	3.92	18 411	25.06	10 539	14.35	73 466
Antigua and Barbuda	154 322	33.01	63 736	13.64	180 955	38.71	68 424	14.64	467 437
Aruba	187 939	9.86	826 731	43.39	807 346	42.37	83 329	4.37	1,905,346
The Bahamas	1 004 967	29.97	927 394	27.65	975 584	29.09	445 588	13.29	3,353,533
Barbados	676,561	19.93	1 529 141	45.05	888 517	26.18	299 977	8.84	3,394,195
Belize	666 575	42.49	468 228	29.84	138,569	8.83	295 550	18.84	1,568,922
Bermuda	273 424	4.86	3 211 469	57.14	2 014 368	35.84	121 232	2.16	5,620,492
The British Virgin Islands	78,183	36.52	29 339	13.71	71,874	33.58	34,665	16.19	214,061
The Cayman Islands	224 740	6.93	1 758 838	54.26	1 158 232	35.73	99 647	3.07	3,241,456
Cuba	12 477 823	29.59	15 810 663	37.49	8 349 715	19.80	5 532 487	13.12	42,170,688
Curacao	296 264	40.35	172 059	23.44	134 496	18.32	131,359	17.89	734,179
Dominica	128 271	25.70	182 895	36.65	131 022	26.25	56,874	11.40	499,061
The Dominican Republic	17 238 530	17.99	12 821 922	13.38	58 098 268	60.64	7 643 316	7.98	95,802,035
Grenada	197,863	17.75	659 901	59.21	169,018	15.17	87 730	7.87	1,114,511
Guyana	979,343	47.18	193 128	9.30	469,030	22.60	434 226	20.92	2,075,728
Haiti	10 314 579	53.98	386 860	2.02	603,088	3.16	7 804 327	40.84	19,108,854
Jamaica	5 289 330	37.29	2 697 176	19.02	3,850,899	27.15	2 345 213	16.54	14,182,617
Montserrat	10 784	7.73	19,854	14.24	104,032	74.60	4,781	3.43	139,451
Puerto Rico*	10 159 826	19.23	11 137 767	21.08	27 031 216	51.16	4 504 720	8.53	52,833,528
Saint Kitts and Nevis	78 981	23.63	117 436	35.14	102 746	30.75	35 019	10.48	334,181
Saint Lucia	334 518	39.33	217 342	25.55	150 418	17.68	148 320	17.44	850,598
Saint Vincent and the Grenadines	174 767	40.35	57 818	13.35	123 031	28.41	77 489	17.89	433 106
Sint Maarten	76 772	8.76	154 406	17.61	611 648	69.75	34 039	3.88	876 865
Suriname	781 753	58.61	144 218	10.81	61 215	4.59	346 618	25.99	1 333 804
Trinidad and Tobago	2 378 300	44.67	984,787	18.50	906 429	17.03	1 054 504	19.81	5 324 020
Turks and Caicos Islands	103 389	29.17	58 979	16.64	146 224	41.26	45 841	12.93	354 434
US Virgin Islands	341 426	15.47	745 825	33.80	968 020	43.87	151 384	6.86	2 206 654
Caribbean	**64 652 998**	**24.85**	**55 380 789**	**21.28**	**108 264 369**	**41.61**	**31 897 200**	**12.26**	**260 213 225**

Source: Economic Commission for Latin Amercia and the Caribbean. based on official figures.

Table A2
International & Regional Support to Health systems for COVID-19 in the Caribbean
(Assistance in Dollars, unless otherwise stated)

Region/Country/Target Audience	Supporting Agency/Countries	Assistance
Caribbean (Suriname, Jamaica, Dominica, Belize, Grenada, Saint Vincent and the Grenadines, St. Kitts and Nevis and Trinidad and Tobago)	Cuba	About 1,200 Cuban health experts have joined the battle against COVID-19 around the globe. They have rendered assistance to 23 nations across Europe, Africa, the Middle East and Latin America and the Caribbean. Within the region, over 600 Cuban health professionals are on the ground assisting the situation.
Caribbean (CDB Member countries)	Caribbean Development Bank (CDB)	The Caribbean Development Bank (CDB) has committed to providing $3M for procuring COVID-19 PPE for borrowing member countries.
Caribbean (CARPHA member states)	European Union (EU)	The European Union has committed $8.6M to the region to purchase materials for testing, laboratory and epidemiological training; CARPHA will implement the grant.
Caribbean (incl. T&T, Grenada, Guyana, Barbados, Suriname, Cayman Islands, St Lucia, St Vincent & the Grenadines, St Kitts & Nevis, St. Maarten, Anguilla & Dominica)	Republic Bank (Republic Financial Holdings Ltd.)	Republic Bank has provided $2M to the region through its “Power to Make a Difference programme”.
Caribbean	The United States of America	The United States through the Centre for Disease Control (CDC) has also provided $3M to aid in the fight. The United States Embassy indicated that Trinidad and Tobago and CARPHA will each receive $475,000.
Caribbean (Dominica, Trinidad and Tobago,	China Embassy of the People's Republic of China	China through its embassies have provided support to countries in the Caribbean for detection and testing of COVID-19. This includes: ventilators and forehead thermometers for Dominica and PPE to Trinidad and Tobago (14,200 masks and 100 protective overalls).
Dominica, Jamaica	China Jack Ma Foundation and Alibaba Foundation	Donation of medical equipment and supplies Dominica: 1,536 nucleic acid test kits and 30,000 surgical masks Jamaica: 3,000 testing kits, four ventilators and 30,000 surgical masks
Dominica, Grenada, St. Vincent and the Grenadines	The Bolivarian Republic of Venezuela	Donation of medical equipment and supplies Dominica: 3,000 rapid COVID tests and fifty (50) reagents for PCR machine testing St. Vincent and the Grenadines: 3,000 rapid test kits for the COVID-19 and a relevant quantity of reagents for the PCR test
Eastern Caribbean Currency Union (ECCU)	Eastern Caribbean Central Bank (ECCB)	EC$4M to procure equipment, supplies and drugs through the OECS Pharmaceutical Procurement Service
Grenada	Eastern Caribbean Central Bank (ECCB)	EC$500,000 to assist in the fight against COVID-19
Haiti	PAHO	The donation of 500 test kits to the Haitian Ministry of Health
Haiti	The World Bank	$20M grant for the Haiti COVID-19 Response Project. This is aimed at improving testing and treatment.
Jamaica	Universal Service Fund (USF)	JM$17.5 to support ICT development in the health system
Jamaica	United States (USAID)	$700,000 towards Jamaica’s emergency response to mitigate the spread of the COVID-19
OECS (Dominica, St. Lucia, St. Vincent	The World Bank	$5M each for the Contingency Emergency Response Components (CERCs); funds have been provided to boost Dominica’s health system capacity to manage COVID-19. Funds will be available to purchase drugs, medical supplies and equipment, and laboratory supplies to boost testing capacity and for minor retrofitting of isolation units.

Region/Country/Target Audience	Supporting Agency/Countries	Assistance
		Funds were mobilized under the Organisation of Eastern Caribbean States (OECS) Regional Health Project
UK Overseas Territories	UK Government	UK government is procuring medical equipment and support for each territory

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from the countries.

Table A3
Policies and Initiatives announced to support of the Tourism sector

Country	Policies/ Initiatives to support the Tourism sector
Antigua and Barbuda	The Antigua and Barbuda government announced several measures aimed at supporting the tourism sector, including: A 20 percent reduction in electricity costs to the public and fuel costs to fishermen for 90 days; Suspension of the common external tariff on food imports and all new tax measures announced in 2020 budget; Expansion of social safety net programs.
Bahamas, The	Fiscal: The government announced various support measures totaling B$65.7 million (0.6 percent of GDP) including (i) B$4 million for the health sector and ((ii) B$4 million for food programs and B$5.9 million as income support for the self-employed, (iii) B$ 20 million to support business loans to SMEs and B$30 million to provide tax deferrals (or tax credits) to companies retaining at least 80 percent of staff, and (iv) B$1.8 million to support to Family Island administrators (local public officers). Monetary and macro-financial: The Central Bank of The Bahamas has arranged with domestic banks and credit unions to provide a 3-month deferral against repayments on credit facilities for businesses and households that were negatively impacted by the pandemic. Forbearance will be provided for borrowers who maintained their accounts in good standing before the onset of the pandemic. The government is also setting aside $4 million to provide food assistance and social support for displaced workers directly impacted by the virus, through the Ministry of Social Services. This allocation will allow for up to eight weeks of benefit payments but may be adjusted according to need. The government is allocating $10 million to provide for a temporary unemployment benefit, administered through the National Insurance Board, for self-employed persons working in the tourism industry.
Barbados	All commercial banks have agreed to a six-month payment moratorium on existing loans and mortgages for persons and businesses directly impacted by COVID-19. Employers who are retaining more than [three quarters/two-thirds] of their staff complement will be able to defer the employer's contributions to the NIS for the next three months in the first instance, with another three months if necessary. National Insurance scheme (NIS) support – The government will provide supplemental support to the NIS Unemployment Fund as needed and within the context of available fiscal space. Unemployment benefits –Those who are laid off fully will receive unemployment benefits for six months and those on short weeks will receive 60 percent for the days they are not working. Bank financing – All commercial banks have agreed to a six-month payment moratorium on existing loans and mortgages for persons and businesses directly impacted by COVID-19. Household Survival Program – A Household Survival Program (injecting BBD 20 million) will be implemented consisting of three initiatives to assist displaced workers. Those being laid off are entitled to unemployment benefits. Welfare Support – Where, as a result of COVID-19, a household is left with no person employed, the government will provide a minimum income for those households and make available through the Welfare Department an amount up to $600 per month during this period of hardship. Adopt-a-Family Program – The government is working with persons who have been fortunate to be earning more than BBD 100,000 a year to "adopt" a vulnerable family and provide them with very much needed support of BBD 600 per month or to contribute to an Adopt-a-family fund chaired by the Director of Finance.
Dominica	Given the significant economic impact which the coronavirus pandemic will have on the tourism industry, the Dominica Hotel and Tourism Association is advocating for fiscal and other support from local banks and the government for its membership. The Ministry of Tourism, International Transport and Maritime Initiatives is working with stakeholders within its portfolio to collect data to galvanize assistance for the tourism sector.

Country	Policies/ Initiatives to support the Tourism sector
Belize	The tourism industry is already taking a serious financial hit resulting from this global crisis. The bi-partisan committee, in an effort to mitigate the effects, announced some early actions being taken in response to the economic impact. At the next sitting of the House of Representatives to debate the budget, the Appropriations Bill will be passed and will include an additional BZ$25M loan to be used as relief for employees affected by this crisis, especially those in the tourism industry. Two percent of the recurrent budget will be allocated to assist with repayment of the BZ$25M and is expected to be recovered through cost savings measures across all ministries. A committee will be formed comprising relevant agencies such as the tourism sector to look at tax relief measures. The Government and the Opposition will each appoint a representative to serve on the committee which will also work out the mechanism for how relief funds will be disbursed. Belize will be finalizing discussions with the international financial institutions to receive US$20M in emergency relief funding. The Central Bank of Belize is prepared to utilize all available macro-prudential instruments in its toolkit to strengthen the resilience of the financial system against any emerging threat. Alongside coordinated monetary policy measures, sector-specific interventions will also be employed where areas of vulnerability emerge. Extend the time period to classify targeted non-performing loans in affected sectors, such as the accommodation sector from three months to six months; Encourage domestic banks and credit unions to provide grace periods for servicing interest and/or principal components of commercial loans and mortgages as needed; Encourage financial institutions to refinance loans in affected sectors, including downstream service-oriented businesses like restaurants as well as transportation and distribution firms; Reduce risk-weights for tourism-based loans from 100% to 50%; Review financial institutions' business continuity plans to ensure that adequate level of financial services will be available to the public; and Cut the interest rate at which the Central Bank grants loans to domestic banks down from 11.5%.
Grenada	The government of Grenada will adjust the small hoteliers' facility, at the Grenada Development Bank, to support all hoteliers, by injecting an additional seven million EC dollars into this facility, and work with the National Insurance Scheme (NIS) to provide unemployment benefits support, initially-estimated at EC$10 million. The two percent increase in NIS premiums for the period will be suspended. Trade unions are encouraged to work with the business community to support the use of vacation leave, as a first option, in the event of businesses having to resort to skeleton-staff mode. There are plans to expand the public sector investment programs, in an effort to boost employment at the community level; as well as to suspend the monthly, advance payment on corporate income tax, for the period. The government will suspend the installment payments on the Annual Stamp Tax, for the three-month period, and expand the small business, soft-lending facility, at the Grenada Development Bank, by an additional five million EC dollars. Financial institutions have agreed, in principle, to provide a moratorium on principal and interest payments to their clients, on condition, for the three-month period in question, in the first instance.
Jamaica	The Government of Jamaica is providing a $25 billion stimulus, the largest fiscal stimulus in Jamaica's history The Banking sector has volunteered to forgo the reduction of the asset tax for one year, which adds $3 billion to the $7 billion Covid Contingency announced in the recent budget presentation bringing the total Covid Fiscal Contingency to $10 billion. The Government is implementing and considering further fiscal action to cushion the economic impact of COVID-19. These include: Waiving the Special Consumption Tax on approximately 100,000 liters of alcohol for use in making (or substituting for) sanitizers that will be donated to the National Health Fund and Ministry of Health. This will ensure that sanitizers remain available in Jamaica. • Waiving Customs Duty on the importation of masks, gloves, hand sanitizers and liquid hand soap for a 90 day period. • Waiving requirement to keep equipment used in their operations physically at their place of business for a specific period to facilitate working from home and for business continuity. Under normal circumstances, Customs requires BPO firms to keep the equipment used in their operations physically at their place of business. Discussions with commercial banks for them to provide temporary cash-flow support to businesses and consumers in affected sectors through deferral of principal payments, new lines of credit and other measures • Introduction of the Covid Allocation of Resources for Employees (CARE) programme which has four elements Business Employee Support and Transfer of Cash (BEST Cash) – which will provide temporary cash transfer to businesses in targeted sectors based on the number of workers they keep employed

Country	Policies/ Initiatives to support the Tourism sector
	Supporting Employees with Transfer of Cash (SET Cash) – which will provide temporary cash transfer to individuals where it can be verified that they lost their employment since March 10, (the date of the first Covid case in Jamaica) due to the Covid virus and this will be available for a specific period Offering special soft loan funds to assist individuals and businesses that have been hard hit Supporting the poor and vulnerable with special Covid related grants.
Saint Lucia	The Saint Lucia government announced the Social Stabilization Plan (2 percent of GDP), including Temporary income support An extension of tax payments, (iii) tax credit to companies that at least retain part of their staff, Suspension of rental payments for six months for small enterprises renting from government, Government assistance to local entrepreneurs that produce certain sanitary products. The suspension of all rent payments for six (6) months for vendors and operators of hospitality operations, including restaurants, which are accommodated in units owned by the government, for SMMEs with can demonstrate loss of business. Provide direct support to local indigenous farmers to support increased productivity and inputs to supply the local and regional markets. Provide relief to minibus operators through the payment of $1.1 million in fuel rebate. Provide targeted support to farmers and fishermen adversely affected through the purchase of products from farmers and fishers
Saint Vincent and the Grenadines	The government will provide XCD 65 million, representing 3 percent of GDP, to assist the economy in various ways. This will be funded by the World Bank, the IMF, the ECCB, NIS – these bodies have announced an extensive stimulus package for companies and individuals including: The provision of supplementary income to displaced hotel and other affected workers for up to three months in the first instance; Banks and credit unions to grant all customers a six-month moratorium on payment of principal and interest on mortgages, loans, and credit card debt; No disconnections of electricity or water will be permitted and no fees for reconnections for an eight-month period; No VAT on electricity and domestic, hotel or guest-house customers from March 30 – June 30; The National Insurance services will provide a two-month pre-payment of pension benefits to pensioners and XCD 1.25 million in temporary unemployment relief to displaced active registrants; A one-time support payment will be made to water taxi and tour operators affected by the cancellation of cruise ships; XCD 3 million for small businesses and cultural workers; XCD 12 million direct support to farmers and individuals engaged in the fishing sector; A XCD 30 million job stimulus package; and Assistance benefits for vulnerable citizens including home help for the elderly.
Trinidad and Tobago	Government will provide $50 million as part of a grant facility for Tobago hoteliers to upgrade their premises. Government will also supplement the THA's Enterprise Development Facility with up to an additional $5 million.

Source: Economic Commission for Latin America and the Caribbean on the basis of government information, announcements, statements addressing the Covid-19 pandemic and newspapers.

Annex 2
Average cost of products used by sector per month (TT Dollars)

Product	Material	Bakery	Caterer	Food manufacturer	Restaurant	Supermarket	Vegetable market
Burger containers	Styrofoam	425.00	170.00	42.50	510.00	510.00	42.50
Straws (long)	Plastic	120.00	48.00	12.00	240.00	72.00	12.00
Spoons	Plastic	200.00	80.00	20.00	400.00	120.00	20.00
Forks	Plastic	200.00	80.00	20.00	400.00	120.00	20.00
Plates (large)	Plastic	324.00	144.00	36.00	432.00	144.00	21.60
Plates (small)	Plastic	126.00	56.00	14.00	168.00	56.00	8.40
Plates (small)	Styrofoam	402.00	234.50	33.50	536.00	1 608.00	33.50
Plates (large)	Styrofoam	510.00	297.50	42.50	680.00	2 040.00	42.50
Bowls (small)	Plastic	330.00	55.00	27.50	330.00	550.00	-
Food Containers (medium)	Styrofoam	275.00	192.00	27.50	440.00	2 200.00	27.50
Food Containers (large)	Styrofoam	1 110.00	647.00	92.50	1 480.00	7 400.00	92.50
Food Containers (small)	Plastic	1 120.00	448.00	3 360.00	896.00	8 960.00	-
Food Containers (large)	Plastic	2 880.00	720.00	5 400.00	1 440.00	14 400.00	-
White Bags (medium)	Plastic	6 660.00	550.00	1 100.00	880.00	16 500.00	330.00
TOTAL		**14 622.00**	**3 723.00**	**10 228.00**	**8 832.00**	**54 680.00**	**650.50**

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