

COVID-19: Socioeconomic Implications on Suriname

Jeetendra Khadan

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CET@IADB.ORG

Jeetendra Khadan Jeetendrak@iadb.org

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Abstract

As of May 5, the Surinamese authorities confirmed a total of 10 COVID-19 cases, including 1 COVID-19 related death and 9 people who have recovered. Sixty-nine people are in quarantine. The country confirmed its first imported COVID-19 case on March 13, 2020. The authorities acted swiftly to contain further importation of the virus by closing all borders—land, sea, and air— indefinitely. The authorities also limited social gatherings, closed all schools and universities, and restricted in-restaurant and bar dining services to prevent community spread. While these measures would have contributed to “flattening the curve,” they are having adverse socioeconomic implications. This note examines the forecasted macroeconomic impact and the vulnerability of households and firms to the ongoing shock.

Keywords: COVID-19, macroeconomics, poverty, private sector, Suriname

JEL Codes: I32, N16, L25

1. Introduction

At the start of 2020, the global economy faced a number of headwinds—trade policy uncertainty, geopolitical tensions, Brexit, stress in key emerging markets, intensifying social unrest, migration and refugee crises, as well as weather-related disasters (hurricanes in the Caribbean, droughts and bushfires in Australia, and floods in eastern Africa, to name a few). Those issues, though still pertinent, are now secondary to the ongoing global humanitarian challenge posed by the highly contagious Coronavirus (COVID-19). The Chinese authorities identified COVID-19 on January 7, 2020.¹ At that time, it was thought to be a “Chinese problem,” but on March 11, 2020, it was declared a global pandemic—an “everybody’s problem” (Baldwin and di Mauro, 2020). The virus has reached every continent except Antarctica, every European country, and the United States (all 50 states, the District of Columbia, and Puerto Rico). At the time of this writing, there were 3,723,554 confirmed COVID-19 cases, 257,972 confirmed COVID-19 deaths, and 1,239,368 persons recovered from COVID-19 globally.²

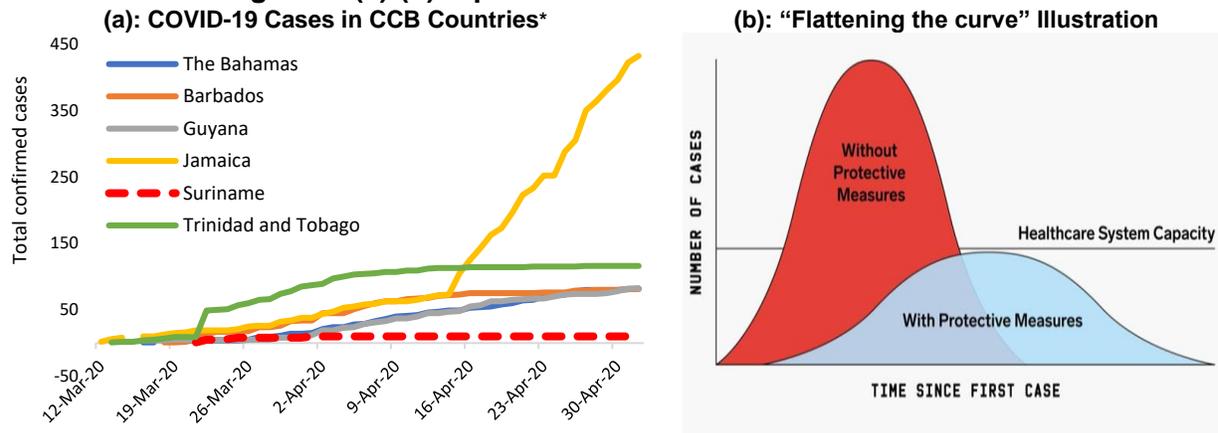
Suriname confirmed its first imported COVID-19 case on March 13, 2020. As of May 5, the authorities confirmed a total of 10 cases, including 1 COVID-19 related death and 9 recovered, and 69 persons in quarantine. Currently, Suriname has no active COVID-19 cases, and overall, it recorded the lowest number of confirmed cases among the six Caribbean countries in Figure 1-a. The rate of COVID-19 tests performed is also relatively lower than other Caribbean countries. As of May 1, Suriname reported a rate of 689 tests (per million population) which is higher than Guyana’s (660 per million population), but lower than the rate for Barbados (6,977 per million population), Jamaica (1,348 per million population), and Trinidad and Tobago (1,203 per million population).³

¹ See link for details: <https://bit.ly/3aqBWzf>

² See link for details: <https://www.worldometers.info/coronavirus/>

³ See link for details: <https://www.worldometers.info/coronavirus/>

Figure 1. (a)-(b): Spread of the Virus in CCB Countries⁴



Sources: ECDPC (2020) and IDB (2020a).
 Note: *Reported cases as of May 2, 2020.

Without a vaccine to stop the virus, governments are focused on reducing the spread, that is, “flattening the curve” through “social distancing” measures (see Figure 1-b).⁵ Countries have imposed travel restrictions and policies to limit face-to-face contact through temporary closure of schools and universities,⁶ implemented work-from-home polices where applicable, and imposed restrictions to business operations and quarantines. While those actions could contribute to reducing the spread of the virus, they also pose a major risk to the global economy, with possible contagion effects throughout the value chain of most industries. As Gourinchas (2020: 33) observed: “everyone is someone else’s employee, customer, lender, etc. If one of these buyer-seller links is ruptured by the disease or containment policies, the outcome will be a cascading chain of disruptions.” Indeed, the expected economic impact would come through both a supply shock resulting from morbidity, mortality, tightening of credit, disruptions of supply chains, and a demand shock caused by lower consumer demand, increased precautionary behavior, containment efforts, and the negative impact of uncertainty on investment plans. Moreover, with travel restrictions being imposed by most affected countries, one can expect a disproportionate effect on industries and countries that largely depend on the travel and tourism sector. Social distancing measures would further worsen domestic economic activity as businesses and governments are forced to temporarily reduce or altogether cease operations in some sectors of the economy.

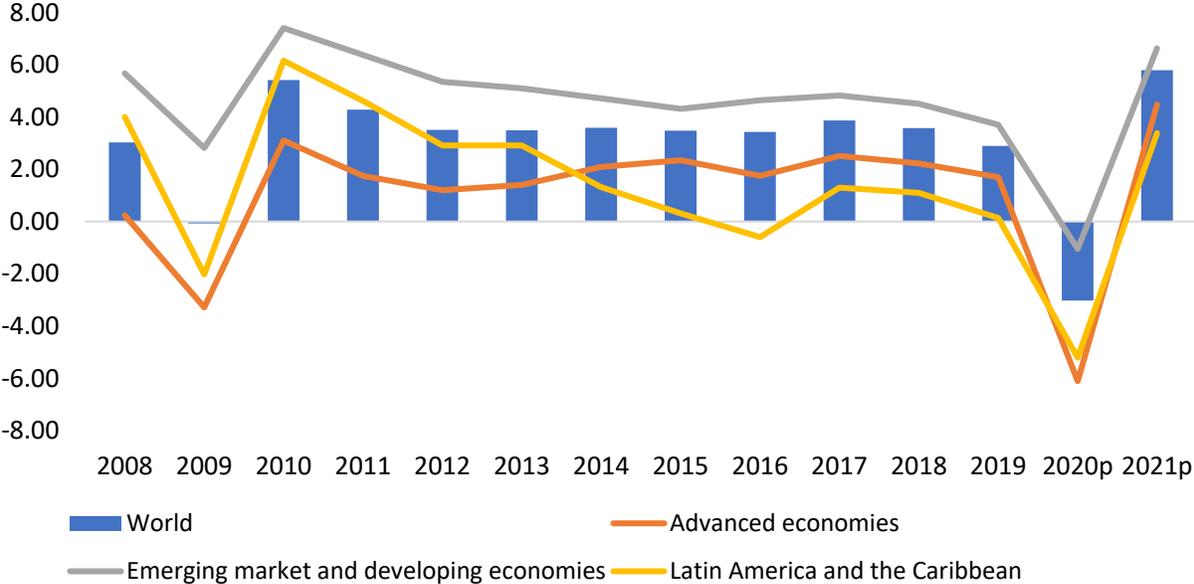
⁴ CCB countries are The Bahamas, Barbados, Guyana, Jamaica, Suriname, and Trinidad and Tobago.

⁵ Flattening the coronavirus curve through social distancing highlights the importance of keeping people apart to slow and spread out the wave of cases. This in turn will save lives as it provides more time for medical practitioners (and a vaccine) to respond to the virus without being overwhelmed.

⁶ Teaching is continuing through television, print media, and the internet.

While it will take more time to understand the full economic impact of COVID-19, preliminary data and forecasts show the large negative effects at the global level, with disproportionate effects on some industries (mainly “face-to-face” industries). Already, stock markets have plunged and commodity prices have collapsed. Some of the major central banks have responded by cutting policy rates and other monetary stimuli. Governments are approving fiscal relief packages with support for households and the private sector and increased budget allocations for the health sector (see IDB, 2020b for a discussion of ongoing macroeconomic policies in Latin America and the Caribbean).⁷ The International Monetary Fund’s (IMF) 2020 World Economic Outlook forecasted a synchronized contraction in real GDP growth across advanced and emerging markets—with global growth contracting by 3 percent in 2020 (Figure 2). As a caveat, it is important to note that there is considerable uncertainty around these forecasts (see IMF, 2020).

Figure 2. A Synchronized Contraction Across Advanced and Emerging Markets



Source: IMF (2020).

The rest of this note focuses on the socioeconomic vulnerability of Suriname to the ongoing shock. The analysis looks at the forecasted macroeconomic impact and the vulnerability of households and firms to the ongoing COVID-19 shock. Section 2 describes Suriname’s vulnerability to commodity shocks, Section 3 outlines the main transmission channels of the ongoing shock on households and firms, and Section 4 concludes.

⁷ Also, for country specific policy responses, see here <https://bit.ly/2Jsn33v>

2. A Tale of Commodity Shocks

Suriname is experiencing its second major economic shock in six years. A reversal of commodity fortunes in 2015 led to a sharp change in the country's economic performance, and Suriname is still recovering from that shock. Suriname's economy experienced a triple commodity shock in 2015 which pushed its economy into a recession. In 2015, the price of gold declined by 30 percent compared to 2012, crude oil prices declined by 56 percent compared to 2012, and alumina production came to a halt. With these three commodities being the mainstay of the economy, the country's growth rate declined by 3.4 and 5.6 percent in 2015 and 2016, respectively (IMF, 2019a). Economic growth returned, averaging 1.9 percent between 2017 and 2019, helped by increased gold production and commodity prices. The 2019 IMF Article IV (IMF, 2019b) projected that the country's economic growth would continue to improve over the medium term, with real GDP growth estimated to reach 2.5 percent in 2020. However, ongoing developments cast doubt on that projection.

3. Main Transmission Channels and Impact on Suriname

The main transmission channels of the ongoing shock for Suriname will be through an external shock, such as commodity prices (gold and oil), with second-round impacts on domestic economic activity through social distancing measures and travel restrictions. This section focuses on exploring Suriname's vulnerability to the ongoing shock through (i) commodity prices and (ii) social distancing and travel restrictions on firms and households.

3.1 Commodity Dependence and Macroeconomic Forecasts

Suriname is ranked as the 38th most resource-dependent country out of a group of 73 countries, according to Hailu's (2017) Extractive Dependence Index (EDI).⁸ The country's commodity dependence is derived largely from crude oil and gold.⁹ In 2018, mining and oil exports comprised 86 percent of total exports of goods and services, while both commodities accounted for 36 percent of government revenues.

In March 2020, crude oil prices fell by 50 percent compared to December 2019. From December 2019 to March 2020, gold prices increased by 8 percent over the same period (Figure 3).¹⁰ The IMF's working hypothesis is that the average price of oil will be US\$35.61 a barrel in

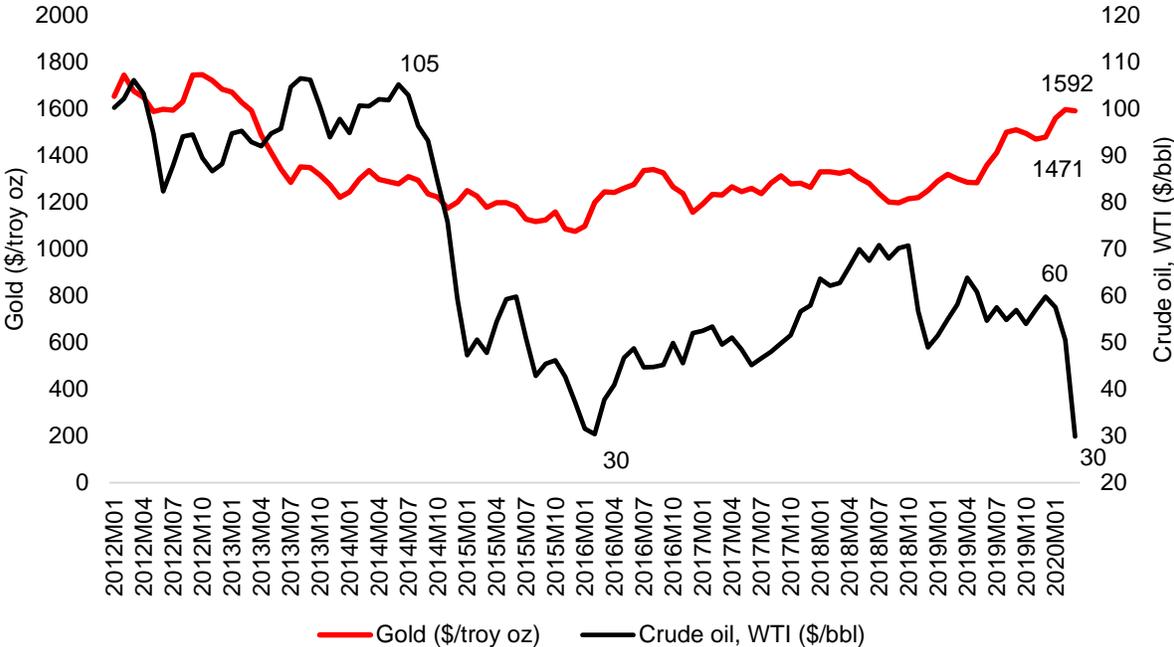
⁸ The EDI is formulated by accounting for the importance of export earnings from oil, gas, and mineral exports in total export revenue, the revenues generated by the extractive industry as a share of total fiscal revenue; total tax; and extractives industries' value added as a share of GDP.

⁹ Alumina production and exports ceased in 2015.

¹⁰ Gold prices are expected to further increase as the crisis deepens, which would benefit Suriname's economy.

2020 and US\$37.87 a barrel in 2021.¹¹ Based on these assumptions and the slowdown in domestic economic activity due to COVID-19 restrictions, Suriname’s economic growth is projected to decline by almost 5 percent in 2020. Inflation is expected to increase to 49 percent in 2020. The fiscal deficit is forecasted at 6.9 percent of GDP in 2020, and the current account deficit is projected increase to 12 percent of GDP in 2020 (see Figures 4-7). See appendix for an econometric assessment of the impact of commodity prices on Suriname’s growth.

Figure 3. Commodity Prices



Source: World Bank Commodities Price Data (2020).

Figure 4. Real GDP Growth

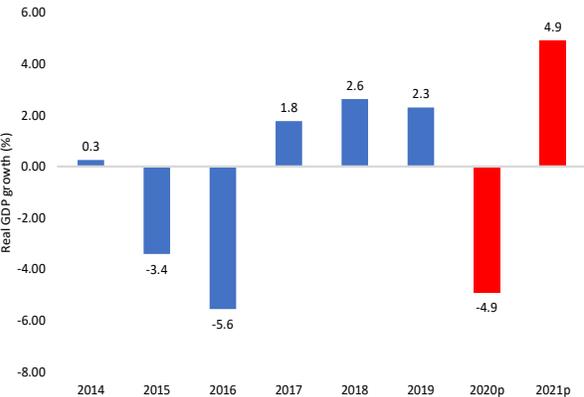
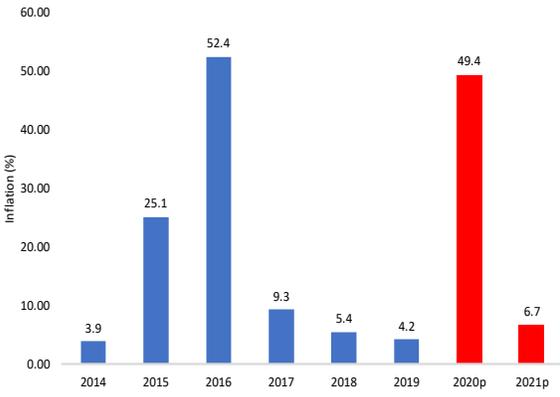
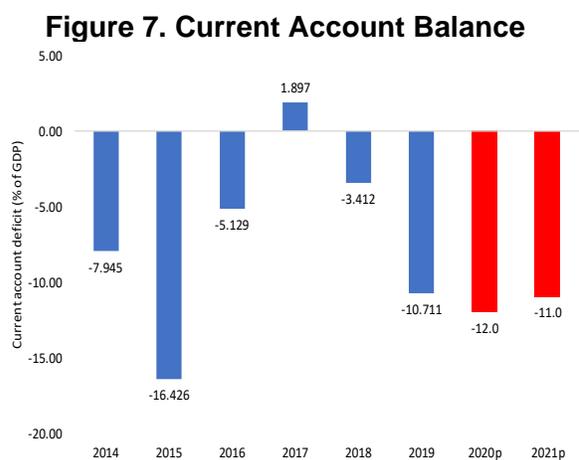
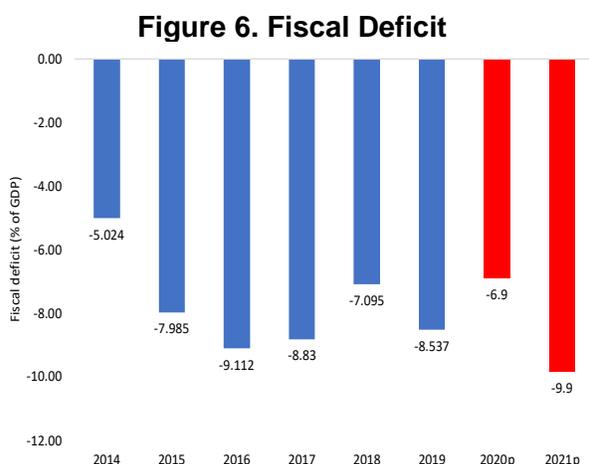


Figure 5. Inflation



¹¹ On April 21, the May futures contract for West Texas Intermediate crude oil fell to negative US\$37.63. Brent crude prices also declined sharply. This was mostly caused by lower demand for oil due to COVID-19 related lockdowns, increasing output by Russia and Saudi Arabia, and a lack of physical storage space, leading to a global supply glut that appears set to persist. This implies further downward revisions to short-term growth forecasts if oil prices remain lower for longer. The future price of crude oil for December 2020 is about US\$30 per barrel, as of May 1, 2020 (see cmegroup.com).



Source: IMF (2020).

3.2 Social Distancing Measures

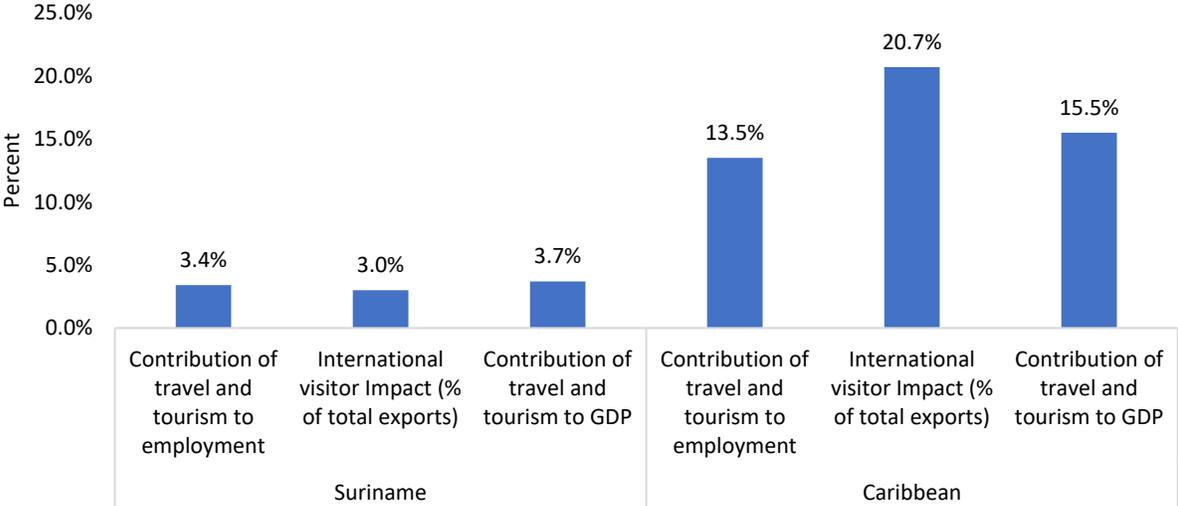
Social distancing refers to nonpharmaceutical infection control actions to slow the spread of a contagious disease, such as COVID-19. The aim is to minimize disease transmission by reducing the probability of contact between infected and non-infected people. Social distancing, if correctly implemented and on a large scale, significantly slows the chain of transmission from person to person. Many countries are implementing social distancing measures, such as closure of educational institutions and workplaces, measures to protect vulnerable groups, cancellation of mass gatherings (religious, sporting, and cultural events), and stay (and or work) at home recommendations. Thus far, Suriname has implemented (i) restrictions on social gatherings, (ii) temporary curfew, (iii) closure of all schools and universities, (iv) no in-restaurant dining (take-away services are allowed), and (v) controlled access to markets and supermarkets.

Travel restrictions also help to curb the spread of COVID-19. As of March 20, 111 countries/territories have either completely or partially closed their borders. Travel restrictions range from the suspension of all non-essential travel for a fixed period to the closure of all borders (air, land, and sea) indefinitely. After Suriname recorded its first imported COVID-19 case on March 13, the authorities took decisive action to immediately close all borders indefinitely. The authorities also announced measures to facilitate the transportation of foreigners back to their countries of origin and to retrieve Surinamese nationals in foreign countries.

International travel restrictions will have direct and indirect economic impacts. At the global level, the World Travel and Tourism Council estimated that approximately 50 million jobs could be lost due the COVID-19 pandemic, and it may take up to 10 months for the travel and tourism

industry to recover, after the outbreak.¹² In Suriname’s context, the macroeconomic impact of travel and tourism is likely to be small, as tourism accounts for a small share of employment, export revenue, and GDP (see Figure 8). However, there can be sizable impacts on households and firms that largely depend on the travel and tourism sector (see Table 1).

Figure 8. Tourism Dependence (2018)



Source: World Travel and Tourism Council (2019).

Four dimensions of vulnerability (dependence on tourism, share of employment in potentially vulnerable sectors, share of firms in potentially vulnerable sectors, and whether firms have loans from a financial institutions) across four sectors (hotel and restaurants, retail, transportation, and construction) are examined. Statistics reported in Table 1 shows that the sectors most likely to be affected by the ongoing shock account for over 60 percent of firms with retail (35.5 percent) and construction (16.5 percent) being the two largest. Based on statistics from the 2019 World Bank Enterprise Survey, firms in the four vulnerable sectors account for more than 72 percent of permanent full-time private sector employees. In terms of tourism dependence, not surprisingly, hotels and restaurants are highly dependent on sales to tourists. On average, 41 percent of the sector’s sales is attributed tourists, followed by the construction sector (24 percent), transportation (13 percent) and retail (12 percent). Moreover, more than half of the firms in the transportation sector and 42 percent of firms in the retail sector had a credit or loan from a financial institution at the time of the survey. These statistics imply that the exposure of private sector firms to the ongoing shock is not trivial and has implications for their balance sheets, employment, banks, and the financial sector.

¹² See <https://bit.ly/2UDTEc0> for more information.

Table 1. Exposure of Private Sector Firms to the Ongoing Shock

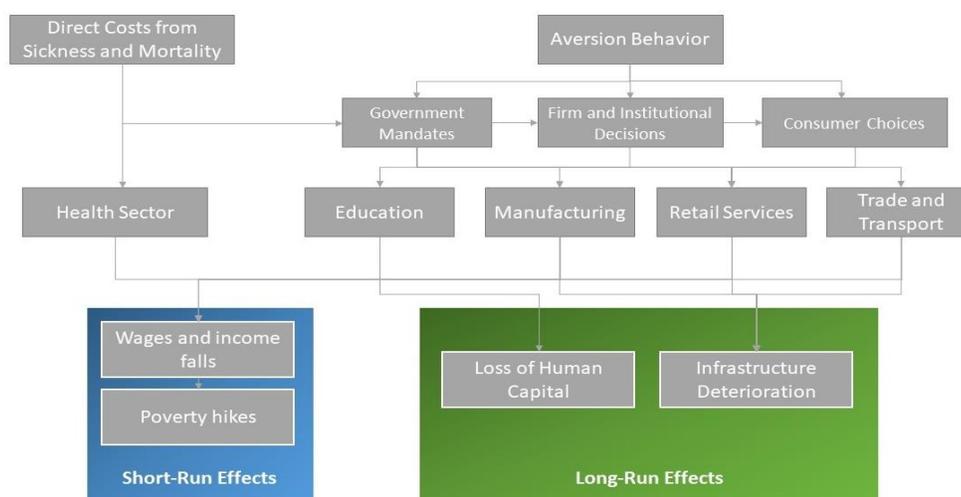
Potentially vulnerable sectors	Firms in sample (%)	Full-time employees (%)	Credit or loan from a financial institution (%)	Proportion of establishment's sales to tourists (%)		
				Average	Minimum	Maximum
Construction	16.5	13.1	31	24	15	30
Hotels and restaurants	11.5	8.5	23	41	3	100
Retail	35.5	24.5	42	13	1	40
Transportation	7.3	26.2	56	12	2	50
Other sectors	29.2	27.7	33			

Source: World Bank (2019).

Note: The data were collected between September 2018 and January 2019.

The ongoing combined shock of declines in commodity prices, travel restrictions, and social distancing would also affect poor and vulnerable groups. This section examines the vulnerability of households to social distancing and travel restriction measures through the employment channel. The assumption is that as businesses temporarily close their operations and the government keeps borders closed to curb the spread the COVID-19, temporary job losses will occur, resulting in poverty hikes. Figure 9 describes the channels of potential economic impact of COVID-19 on poverty in the short term due to job losses and the long-run effects related to loss of human capital and infrastructure deterioration. At the global level, Vos, Martin, and Laborde (2020) estimated that due to COVID-19 containment measures, global poverty could increase by an estimated 14 million people, but if trade channels were disrupted this number would increase to 22 million (i.e., a 3.0 percent increase).

Figure 9. Channels of Potential Economic Impact of COVID-19



Source: Evans and Over (2020).

In Suriname, as with many other countries, the impact would most likely be felt in face-to-face industries such as entertainment, restaurants, bars, retail, transportation, hotels, and home care services. The aim is to examine the vulnerability of employees to poverty in selected occupational categories and whether their coping mechanisms could be affected during the crisis and post-crisis periods. To do this, the 2017 Suriname Survey of Living Conditions (SSLC)¹³ is used to obtain estimates of poverty, extreme poverty, and vulnerability to poverty by occupational category. Before doing that assessment, we examine overall poverty and inequality metrics for Suriname.

3.3 Poverty and Inequality in Suriname

The overall poverty rate for Suriname was estimated at 26.2 percent in 2017, based on the 2017 SSLC (see Beuermann and Flores Cruz, 2018; Khadan, Strobl, Tuffour 2020). However, poverty in the interior region of Suriname is much higher, at 47.9 percent, with almost one in every two households being classified as poor. Extreme poverty was estimated at 5 percent, and the vulnerable to poverty group was estimated at 36.6 percent. Also, inequality in the distribution of per capita income (Gini coefficient) was estimated at 0.48.

As the impact of the ongoing shock on households would be channeled mainly through the loss of jobs and income, we examine the level of poverty and vulnerability across occupational categories. Table 2, using data from the 2017 SSLC, shows that the following occupations account for most workers: services and sales workers (18.8 percent), craft and related trades workers (14.2 percent), elementary occupations (13.1 percent), and professionals (12.2 percent). The estimates in Table 2 show that those classified as poor across occupations range from 30 percent of skilled agricultural, forestry, and fishery workers to 5.8 percent of workers in the professional's category. In terms of coping mechanisms, 7.4 percent of workers in the services and sales workers category benefit from remittances, while 8.4 percent of skilled agricultural, forestry, and fishery workers benefit from some form of government assistance. Except for two occupational categories (skilled agricultural, forestry, and fishery workers, and plant and machine operators and assemblers), more than half of all workers in each sector from the sample are currently repaying a personal loan (including mortgages).

While a cascading effect on employment across sectors of the economy is to be expected if the crisis deepens, we focus our attention on two occupational categories that are likely to be more vulnerable to the ongoing shock: services and sales workers and elementary occupations.¹⁴

¹³ See <https://publications.iadb.org/en/suriname-survey-living-conditions-2016-2017> for the dataset.

¹⁴ For detailed definitions of the tasks under services and sales workers and elementary occupations, see <https://www.ilo.org/public/english/bureau/stat/isco/isco88/51.htm>

Statistics from the SSLC show that these two occupational categories account for almost one-third of the employed persons. The data show that 17.6 and 26.3 percent of people working in services and sales workers and elementary occupations are classified as poor, respectively. Moreover, another 19 percent of workers in the services and sales workers and elementary occupations are classified as being vulnerable to poverty, respectively. A large percentage of people (roughly 60 percent) working in those two sectors are currently repaying loans (including mortgages) to banks. Also, increases in domestic inflation either through an external devaluation or pass-through of international food price increases can further affect those poor and vulnerable groups across occupational categories.

In terms of coping mechanisms, employees of both sectors benefit from remittances and government support programs.¹⁵ 6.4 percent of persons employed in services and sales and 6.3 percent of employees in elementary occupations benefit from remittances. Remittances are sent from The Netherlands (77 percent), French Guyana (8 percent), and the United States (4 percent). The majority of people who send remittances to households in Suriname work as clerical support workers (17.6 percent), elementary occupations (16 percent), and others (38 percent). With supply shocks and high unemployment levels ongoing in advanced economies, remittance flows could also be temporarily impaired, implying a stronger role for government support programs to assist the affected households.

¹⁵ Social programs include financial child support, school transportation, day care centers, housing program, foundation for mobilization and development, school clothing/uniform, financial assistance/Alivio, financial assistance - disability payment, food for kids (child feeding programs), scholarship allowance (school fees), foundation for productive working unities, community development program, elder care, youth care, and construction of/and home repair.

Table 2. Employment, Poverty, and Coping Mechanisms

	1	2	3	4	5	6	7
Occupational categories ¹⁶	Persons employed (%)	Extremely poor (%)	Poor (%)	Vulnerable to poverty (%)	Remittances (%)	Government support (%)	Repaying loan (%)
Managers	7.4	0.0	8.2	6.1	5.1	2.0	52.7
Professionals	12.2	0.0	10.1	4.7	6.2	5.2	63.0
Technicians and associates							
Professionals	10.1	0.0	5.8	7.6	5.5	3.5	58.1
Clerical support workers	7.9	0.0	13.2	8.6	3.9	1.4	65.6
Services and sales workers	18.8	0.6	17.6	11.6	6.4	5.9	62.0
Skilled agricultural, forestry, and fishery workers	5.5	1.1	30.2	19.4	2.8	8.4	33.5
Craft and related trades workers	14.2	0.5	24.3	13.4	2.6	3.3	59.2
Plant and machine operators, and assemblers	9.8	0.4	15.0	12.8	1.8	1.3	42.2
Elementary occupations	13.1	0.6	26.3	19.0	6.3	7.1	58.9

Source: SSLC (2017).

Notes: The poverty thresholds used are calculated using consumption data from the SSLC. For the overall poverty threshold, an adult needs SRD733.10, SRD590.23, and SRD533.27 a month to purchase essential food and non-food items in the Paramaribo district, other coastal areas, and the interior region, respectively. Similarly, for the extreme poverty threshold, an adult needs SRD265.29, SRD250.48, and SRD206.69 a month to purchase enough food to meet the World Health Organization's caloric requirement in the Paramaribo district, other coastal areas, and the interior region, respectively (see Beuermann and Flores Cruz, 2018 for further definitions). Remittances refers to the percentage of workers in each sector receiving remittances; government support refers to the percentage of workers in each sector receiving government assistance; repaying loan refers to the percentage of workers currently repaying any personal loan, including mortgage.

4. Conclusions

Responding to a global pandemic is uncharted territory for policymakers. It requires governments to develop and execute in real time an immense coordinated policy response—that is, extraordinary and targeted fiscal, monetary and social policies—to address a major public health risk and simultaneously manage the economic impact on households and businesses. The immediate priority is obviously strengthening the public healthcare response capacity to take care of those affected by the virus, including protecting the wellbeing of vulnerable groups and slowing the spread of the virus.

In Suriname, ongoing policies are focused on ensuring that the distribution of basic supplies, crucial government services, and utilities continue during the COVID-19 crisis period. The government established a National Response Plan to combat COVID-19, which includes the creation of a National COVID-19 Management Team. Moreover, the authorities established an Emergency Fund to finance measures to be taken for the COVID-19 pandemic, as well as to channel and manage both national and international resources obtained in a targeted manner for tackling the crisis.¹⁷ However, the challenging macroeconomic conditions and a precarious fiscal

¹⁶ The SSLC is only representative at the national level. See SSLC for further breakdown the occupational categories.

¹⁷ <http://www.dna.sr/nieuws/wet-uitzonderingstoestand-covid-19-goedgekeurd/>

position constrain the fiscal response. Nevertheless, a relatively large fiscal effort is needed in the short term to mitigate the effects of COVID-19 and support households and businesses. In that regard, it is essential to increase resources in the short term to (i) provide cash and or in-kind transfers, especially to vulnerable groups that are likely to lose their jobs and income during the crisis period, (ii) use and strengthen the effectiveness of the social safety net to respond to the ongoing shock, and (iii) pursue sector policies to ensure business survival post COVID-19. More importantly, these measures should be targeted and temporary and followed up by post-COVID-19 policies focused on strengthening the fiscal framework to support growth and fiscal sustainability.

In terms of monetary policy, a response could possibly include increasing liquidity to households and small and medium-sized enterprises, especially those in vulnerable sectors that may be less prepared to withstand prolonged disruptions. Banks and other financial institutions may also want to consider allowing affected households and businesses to defer loan installments without penalty during the crisis period.¹⁸ However, monetary policy is somewhat constrained by a relatively high level of non-performing loans, estimated at 12.5 percent of total gross loans as of July 2019, a *de facto* peg to the U.S. dollar, with a high and increasing parallel market rate (the current parallel market premium was estimated at about 100 percent in April 2020),¹⁹ and relatively low international reserves.²⁰ Nevertheless, if the ongoing crisis deepens, the trade-offs between possible long-term scarring on businesses and short-term economic health will need to be carefully considered.

Social support measures for vulnerable groups announced or being implemented include enhanced supervision to prevent price speculation, advising companies not to dismiss employees during the crisis period, and the provision of packages of food and basic items to vulnerable groups. As of May 4, 2020, over 2,300 food packages were reported to have been delivered to villages in the interior of Suriname. On the policy front, the country will need to strengthen its social safety net to effectively protect the most vulnerable populations as well as those in the informal sector to support post COVID-19 recovery.

Multisectoral policy reforms post-crisis will be needed as well. The ongoing shock will further expose vulnerabilities in public finances and in the private, financial, and social sectors.

¹⁸ Commercial banks have already increased withdrawal limits at automated teller machines (ATM) and are strongly encouraging the use of online banking. A privately owned commercial bank also announced that its customers would be eligible for deferred payment on their obligations if their business operations are affected by the COVID-19 virus.

¹⁹ The parallel market premium is estimated using data obtained from *cambios* and casinos in Suriname. A recent amendment to the Currency Control and Transaction Offices Control Act now stipulates that only the official rate of the Central Bank of Suriname should be used in all domestic transactions. The courts have since suspended the law.

²⁰ See <https://www.cbvs.sr/> and IMF (2019a).

Post COVID-19, restoring fiscal and broader macroeconomic stability should be the centerpiece of a broader multisectoral policy agenda. Policies to strengthen public finance institutions in the short term will be critical to put the fiscal and debt ratios on a sustainable path. Fiscal reforms should focus on measures to strengthen debt management, medium-term fiscal planning, tax and customs administration, public investment management, public procurement practices, and management of commodity-related revenues, with a view to achieving macroeconomic stability. Moreover, undertaking interrelated structural reforms to improve private sector competitiveness, provide social protection, and stimulate growth and investment will be crucial to support broad-based economic recovery and social development post COVID-19.

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Appendix 1: Econometric Assessment of Commodity Price Shocks on real GDP

Commodity price shocks have long-term impacts on economic growth. To better understand the long-run impact of a commodity price shock on economic growth, a vector error correction model of real GDP growth, commodity prices (gold, oil, and alumina), and European real GDP is estimated.²¹ Given the large decline in crude oil prices, a structural vector autoregressive model is also estimated to examine the asymmetric effect of oil prices on Suriname's real GDP growth.²² Annual data on real GDP for the period 1991–2017 was obtained from the Statistical Compendium of Suriname and the Central Bank of Suriname. As Suriname's economy historically depended largely on three commodities—alumina, crude oil, and gold—and the relative importance of these three commodities has changed over time, a trade-weighted commodity price index is constructed with weights reflecting the relative importance of each commodity in total exports. The weighted commodity price index along with the individual commodity price series are drawn in Figure A1 below.

The results presented in Figures A2–A6 show the impact on economic growth of a one standard deviation increase in the weighted commodity price index, real gold price, and real crude oil price. The findings show that a positive shock to the weighted commodity prices index, and separately for real gold and real oil prices, has a positive impact on economic growth. The impact is stronger for the overall commodity price index, followed by gold prices and oil prices: a one standard deviation increase in the weighted commodity price index permanently increases real GDP growth, on average, by 0.05 percentage points (pp.), while for gold and oil prices the effect is 0.04 pp. and 0.02 pp., respectively (similar to estimates from Mercer-Blackman, 2013). With respect to the short-term effects from the SVAR, it was found that a one standard deviation negative shock to real oil prices reduces real GDP growth by more than 0.01 pp. in the short run, while a positive shock has a positive effect, but it is statistically insignificant in this case.

The ongoing COVID-19 and resulting commodity price shocks are unprecedented. Unlike previous shocks to Suriname, the ongoing shock could have potentially large second-round effects through the temporary closure of businesses, among other domestic activities, and restrictions on international travel. Thus, both external factors modeled in the SVAR and domestic

²¹ The time series properties of all variables were examined using the Augmented Dickey and Fuller (ADF) test in both levels and first differences. Each variable was determined to be integrated to the order of one. Two lags were selected for the models based on the sequential modified likelihood ratio test statistic (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information Criterion (SC), and Hannan-Quinn information criterion (HQ). The Johansen test for cointegration revealed that one cointegrating vector exists for each model.

²² Mork (1989) formulation of positive and negative oil prices shocks was used (see Khadan, 2017 for details).

actions taken to contain the spread of COVID-19 will affect economic performance, as discussed in Section 3.

Figure A1. Commodity Prices

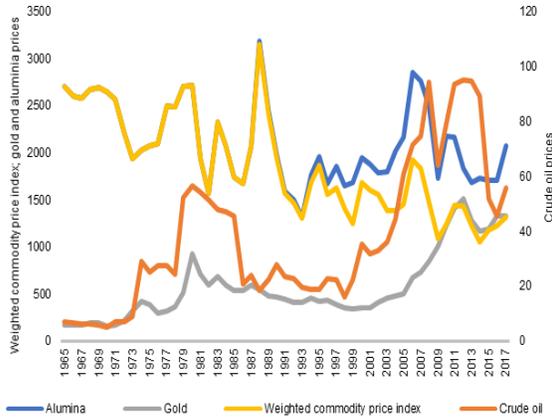


Figure A2. Real GDP Response to Commodity Price Index

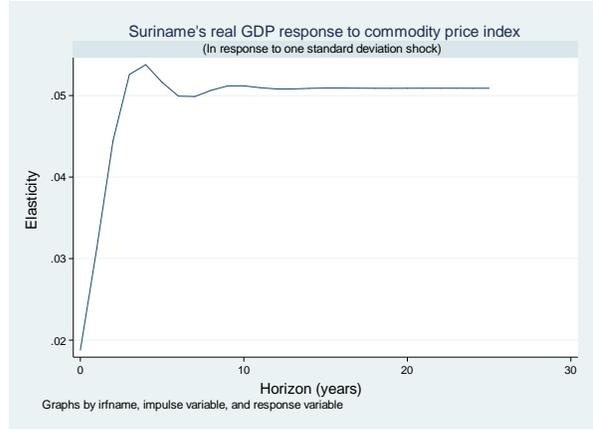


Figure A3. Gold Prices

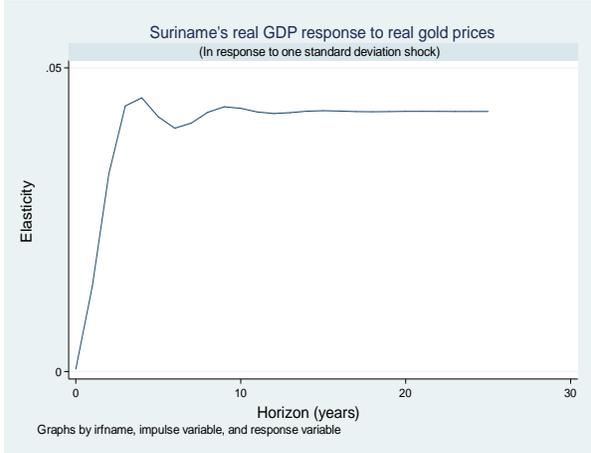


Figure A4. Oil Prices

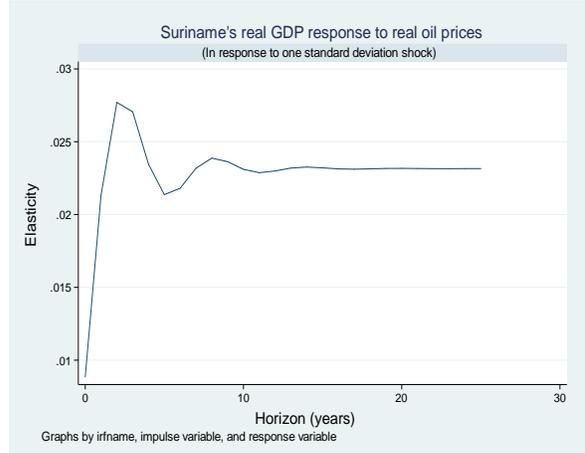


Figure A5. Commodity Prices

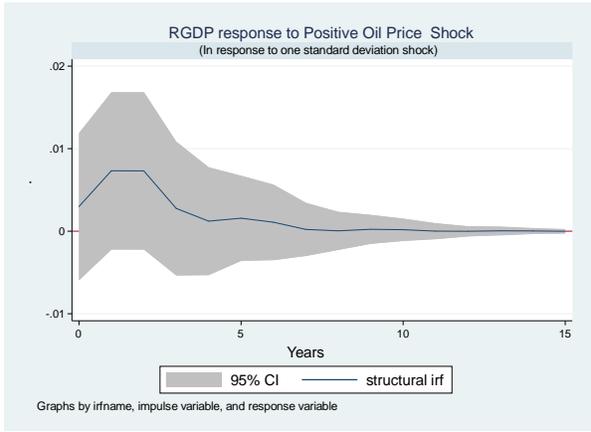
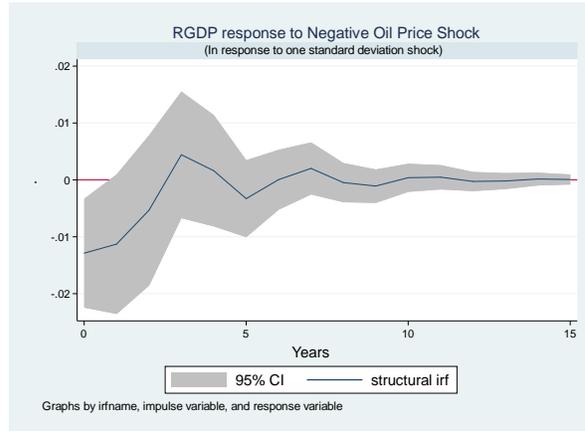


Figure A6. Commodity Prices



Source: Author's estimations.