UNDP, UNICEF and UN Women
EASTERN CARIBBEAN

COMMONWEALTH OF DOMINICA

COVID-19 HEAT REPORT
HUMAN AND ECONOMIC ASSESSMENT OF IMPACT

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COVID-19 MACROECONOMIC AND HUMAN IMPACT ASSESSMENT FOR COMMONWEALTH OF DOMINICA

INDICATORS	LATEST
Demographic	
Population	71,808
Labour Force Composition (sex disaggregation where available)[1]	31,222
Men	58.7%
Women	41.3%
Macroeconomic	
GDP per capita (USD)[2]	8,300.4
GDP growth rate[3]	5.68
Inflation[3] (2018)	1.51
Fiscal[3]	
Debt to GDP ratio (2018)	78.75
Fiscal Balance to EC$M (2018)	-284.10
Interest to Revenue Ratio (2018)	4.1%
Social	
Unemployment (sex disaggregated)[1]	11.1%
Men	12.0%
Women	9.9%
Poverty level (sex disaggregated including child poverty)[4]	28.8%
Adult	24.3%
Children	38.0%
Global Health Security Index rating[5]	24.0

[1] Central Statistics Office of Dominica (2018)
[2] World Bank (2011)
[3] Eastern Caribbean Central Bank
[4] UNICEF - Child Poverty in the Eastern Caribbean Area report 2017
[5] http://www.ghsindex.org/ (2019)

EXECUTIVE SUMMARY

The island of Dominica is less dependent on tourism than most of its Caribbean neighbours as the sector contributes directly less than 10% of both GDP and employment and, critically, arrivals are less directly dependent on the traditional markets of the US, UK and Canada. Nonetheless, tourism is the main foreign exchange earner, with remittances also playing a critical role in the accumulation of reserves. A key driver of growth and employment – the agricultural sector – is still recovering from the devastation wrought by Hurricane Maria in 2017. Construction has increased in its importance as an engine of income generation. However, the labour market remains depressed and the unemployment rate was projected to have remained well above the most recently available official data of 11% recorded in 2011 and, furthermore, to be over the IMF's post-Erika estimates of 23%. The current data also suggests a disparity in employment rates between men and women, with the latter experiencing rates of 30% compared to 20% among the former.

As a corollary to the levels of unemployment, poverty rates are high, with nearly one-third of the population noted as poor or indigent. Of those in poverty, 52% of them are under 25 years of age; one of every three children lives in poverty.

Government has responded to the social and economic challenges by increasing expenditures to directly support incomes, through the Public Assistance Programme and the National Employment Programme, as well as through a major capital works programme, funded mainly by the Citizenship by Investment (CBI) programme. As the NEP expanded and CBI receipts fell by over 30% in fiscal year 2018/19, the fiscal deficit doubled between the 2017/18 and 2018/19 fiscal years to the equivalent of nearly 18% of GDP. Fiscal space is therefore constrained in the short to medium term, limiting the strategic possibilities to respond to the COVID-19 pandemic.

The COVID-19 pandemic is projected to increase the strain on the economy as supply chain disruptions, reduced domestic consumption and lower remittances will increase the downward pressure on economic growth. Building on baseline scenarios, the report presents the likelihood of a GDP decline in excess of 6% in 2020, with unemployment levels in excess of 25% and a fiscal deficit exceeding 7% of GDP.

The report recommends a series of short and medium term interventions, including a grant-funded expansion of the Public Assistance Programme, transitioning of employees of the National Employment Programme to sustainable livelihoods, support for e-learning, increased support for both vertical and horizontal economic diversification and the development of a more resilient social protection system.

CONTEXT

MACROECONOMIC

Hotel and restaurant services in Dominica directly account for just over 10% of GDP and just 6.7% of employment. Using WTTC estimates for 2019, which include both direct and indirect contributions to economic output, leads to an expanded GDP contribution of 36.9% and a contribution to employment of 38.7% in 2019. Even with this much broader classification, the contribution of the tourism industry remains among the lowest in the region. Still, this broader definition illustrates that a slowdown in tourism will have adverse impacts on the wider economy.

Dominica also differs from other countries in the Eastern Caribbean in terms of its dependence on tourists from the U.S.A., U.K. and Canada, as the island received just 22.4% of its stay-over visitors from these countries in 2019, as compared to the 72.7% in the rest of the Eastern Caribbean. Instead, Dominica's main tourist market was the rest of the Caribbean, with 61.2% of arrivals coming from the region. Dominica also welcomed a greater proportion of persons from other countries in the world, 16.5% compared to 9.7%.

Available official statistical data indicate that similar to its Caribbean neighbours, in Dominica the vast majority – 70.2% – of those employed in the accommodation and food services activities are female, implying that the direct impact of any falloff in tourism will be disproportionately felt by women.

While the sector is less important to growth than in some of Dominica's neighbours, tourism is nonetheless the largest foreign exchange earning activity and the sector is responsible for 56% of all export earnings.

Inflows from remittances are also a key source of foreign exchange for Dominica. Except for the precipitous drop in 2016,[6] remittance inflows have grown consistently over must of the last decade and in 2018 and 2019 the island received just under US$50 million in foreign exchange as a result of remittance inflows. In addition to its role as a source of foreign exchange, remittances also help to supplement the income of the most vulnerable and, anecdotally, these resources are mostly used for basic consumption, including the purchase of food, schooling and medical care; following the structural damage left by a recent hurricane (i.e. Maria).

FISCAL

The overall deficit at the end of 2018 was equivalent to 7.9% of GDP which more than doubled the following period to 18.1%. This expansion was driven by the compounding effects of increased hurricane recovery-related outlays on goods and services and infrastructure repairs and reduced revenues from the Citizenship by Investment (CBI) programme. Nonetheless, the CBI remained a critical revenue-generating programme, accounting for nearly 1/4 of all revenue.

Excluding the CBI revenues, however, the deficit at the end of 2019 would have been estimated at 27.5 percent of GDP.

The country's level of indebtedness has generally fluctuated. In 2014, the island's debt to GDP ratio was 78 percent; by 2016 this had fallen to 68 percent of GDP; but by December 2019 had risen to 78.8 percent of GDP.

[6]The decline in 2016 was due to the derisking by international banks, which resulted in the closure of the bank accounts of many money transfer operators

Table 2: Fiscal Projections for Different Reopening Scenarios

	In EC$ Millions		As a % of GDP	
	2017/2018	2018/2019	2017/2018	2018/2019
Total Revenue	744	700.2	50.0%	45.06%
Current Revenue	717.1	685.8	48.2%	44.13%
Tax Revenue	404.7	431.4	27.2%	27.76%
Tax on Domestic Goods and Services	252.1	249.7	16.9%	16.07%
Non-Tax Revenue	312.4	254.4	21.0%	16.37%
Citizenship by Investment	277	208.3	18.6%	13.40%
Total Expenditure	861	999.7	57.9%	64.33%
Current Expenditure	477.6	610.8	32.1%	39.31%
Personal Emoluments	159.4	157.7	10.7%	10.15%
Goods and Services	172.4	268.6	11.6%	17.28%
Interest Payments	29.7	30.6	2.0%	1.97%
Transfer and Subsidies	116	153.9	7.8%	9.90%
Capital Expenditure (inc. Net Lending)	383.5	388.9	25.8%	25.03%
Overall Balance	-117	-299.5	-7.9%	-19.27%
Primary Balance	-87.3	-268.9	-5.9%	-17.30%

Source: Macroeconomic framework update 2020/21-2023/24 (December 11, 2019)

While nominal debt has grown over the past 5 years, debt service costs remain among the lowest in the region. Interest payments absorb less than 6% of revenue – compared to double-digits in most of the countries in the Eastern Caribbean.

In terms of financing, recent data on grant and loan realisation suggests that there is a weakness in loan and grant implementation, as inflows of both were significantly below what was budgeted. In particular, during 2018-19 FY, grant realisation was just 35% of the EC$125 million budgeted – a trend which is set to continue into 2019-20, as preliminary data indicated that only 5% of budgeted grant resources had been realised at end-2019

SOCIAL

While poverty in Dominica has been declining, the last estimate of poverty available for Dominica indicated that 28.8 percent of the population could be classified as poor, with 3.1 percent of this considered indigent.[7] In addition to those considered poor, a further 11.5 percent of the population were considered vulnerable due to downturns in the economy.

Table 3: Summary of Indicators

Indicator	Value
Population (000 persons, 2018)	71.8
Poverty rate (2008/9)	28.8
Life expectancy at birth (years, 2002)	77.0
Infant mortality rate (per 1,000 live births, 2018)	30.9
Physicians per 1,000 persons (2017)	1.1
Hospital beds per 1,000 population (2012)	3.8

Source: World Development Indicators

The most vulnerable groups were the indigenous people (Kalinago),[8] females, children and those living in rural parts of the island. Poverty in St. Joseph, St. Paul, St. Patrick, St. David and St. Andrew were all above the national average, with the most severe levels being recorded in St. Andrew and St. Joseph. Children and youth accounted for most of the poor. Children between 0-14 years of age represented 36 percent of the poor while young adults between 15-24 years of age accounted for another 16.4 percent of the poor. The indigenous groups residing in the Kalinago district were also particularly at risk, with almost 50 percent of these indigenous persons considered poor. Out of the 1,980 persons classified as poor, 1,092 were female (55 percent) indicating that females were somewhat more likely to be classified as poor.

Females were the main income earners in many households (39 percent) and often support much larger households than their male counterparts and are more likely to be poor or become poor as well as more likely to care for dependents. This, added to the fact that women make up the larger component of employment in the sectors that are likely to be hardest hit by the pandemic, including tourism and retail services, suggests that many children in these households are at risk of falling into poverty.

The high levels of vulnerability in the economy are also reflected in the significant rate of informality in the labour force. Vuletin (2008)[9] estimates that approximately 34 percent of economic activity is generated by informal employment, driven in part by the importance of the agricultural sector and labour market inflexibility. In line with the latter, informal workers and the households which they support are particularly vulnerable to shocks as earnings are often lower than in more formal arrangements and options for switching to alternate employment are limited.

These households also tended to be characterised by lower levels of education and school attendance rates as well as limited access to basic health care. Children in these households are unlikely to be able to access online education if this is offered by their school, due to the low level of internet penetration in this segment of society. The number of persons with a personal computer is estimated at 51.3 per 100 persons, with internet penetration estimated at 44.5 per 100 persons.[10] The majority of households will therefore require some degree of assistance with accessing online classes to continue their education.

In addition to education, abuse of children is an area that may be exacerbated by the psychosocial impacts of the pandemic. Between 2005 and 2015, over 70 percent of reported cases of child abuse were sexual[11] and anecdotal evidence suggests these ratios have continued.

7 https://prais.unccd.int/sites/default/files/2018-08/Dominica%20CPA%202009%20Main%20Report%20Final.pdf
8 The Kalinago account for just 5% of the population of Dominica
9 https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Measuring-the-Informal-Economy-in-Latin-America-and-the-Caribbean-21898
10 World Bank's World Development Indicators
11 UNICEF Situation Analysis of Children, Commonwealth of Dominica, 2015

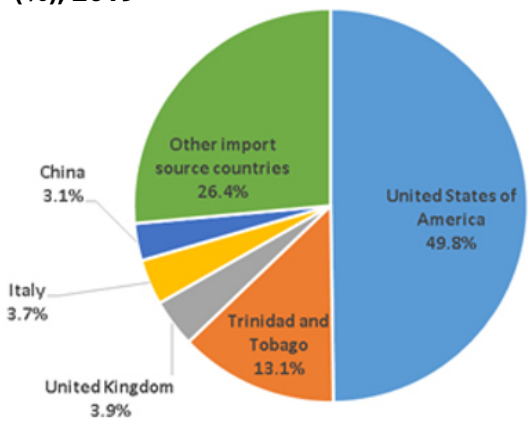
CHANNELS OF TRANSMISSION

EXTERNAL

Interruption of Supply Chains

Inbound logistics (flights and cargo vessels) help the island's daily operations (from healthcare to manufacturing) to run smoothly and reduce product prices. Evidence of Dominica's trade patterns demonstrates limited market diversity. As of 2019, 73.6% of all imports are provided by only five international partners, with the US accounting for 49.8% of this number. This reduces the sustainability and resilience of the country's supply chain network.

Figure 1: Dominica Import Source Country Share (%), 2019



As a result of the "new normal", diversification of supply chains offers greater immunity to external shocks. However, it may be less cost-efficient and thereby lead to higher market pricing due to imported inflation. With greater concerns of fiscal space to be expected, the growing, less-developed, labour-intensive nations in both Asian (outside China) and African regions may offer more price-competitive alternatives. However, with the global pandemic, questions regarding any country's capacity to accommodate a surge in demand while implementing their own preparedness strategies, which may limit available options, must be addressed. As the pandemic continues unabated, the less resilient smaller nations such as Dominica will be faced with secondary impacts of financial hardship in all sectors, creating unemployment and reduced consumption, which would lead to a possible contagion effect of increased hardship.

Impact on Travel and Tourism

The smaller proportions of visitors from the U.K., Canada and the U.S.A. may bode well for the industry in the recovery phase of the pandemic. With COVID-19 cases in the USA and the UK among the highest in the world, it is highly probable that visitor arrivals from these three countries will be slower to recover than visitors from countries with fewer cases of the virus, especially as the possibility of a "second wave" looms. Furthermore, as Caribbean travelers avoid these countries for fear of the pandemic, they may increasingly choose destinations closer to home with fewer cases, such as Dominica, when travel restrictions are lifted.

Table 4: Source Markets of Stayover Arrivals

Market	Dominica	Rest of ECCU	ECCU
United Kingdom	5.8%	17.3%	16.5%
United States of America	14.0%	45.8%	43.6%
Canada	2.6%	9.6%	9.1
Caribbean	61.2%	17.7%	20.7%
Other Countries	16.5%	9.7%	10.2%

Source: Eastern Caribbean Central Bank and authors' calculations

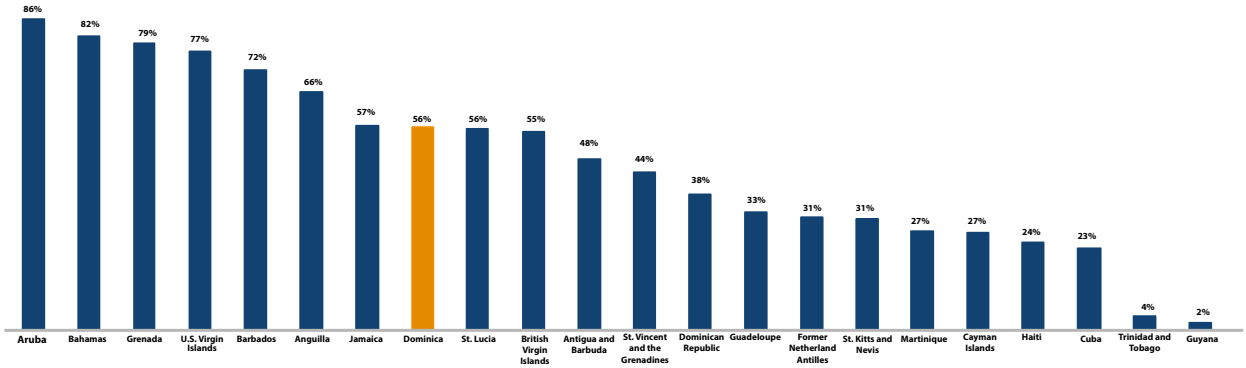
The lower level of tourism dependence also may redound to the benefit of the economy, as its performance will not hinge predominantly on the recovery of the tourism industry. The main area of concern is the country's dependence on tourism for export earnings. The WTTC report estimated that 56.4% of exports were from tourism earnings, which is higher than most of its peers in the ECCU (except Grenada and Anguilla). In fact, in the Caribbean, Dominica ranks 8th out of 22 territories in terms of the contribution of tourism and travel to total exports.

The main reason for the apparent disconnect between tourism's contribution to GDP and its contribution to export earnings lies in the fact that Dominica has a relatively small export base. Its main exports are agricultural products and the earnings received from tourists. The reduction in tourism earnings would therefore have a significant impact on its external current account balance, which is of particular concern in an environment where imports continue to be high to support the rebuilding efforts post hurricane Maria in 2017.

It is therefore vital that Dominica attracts visitors from the Caribbean and other countries to reduce the dependency on inflows on the external capital account to cover the potential wider shortfall on the external current account.

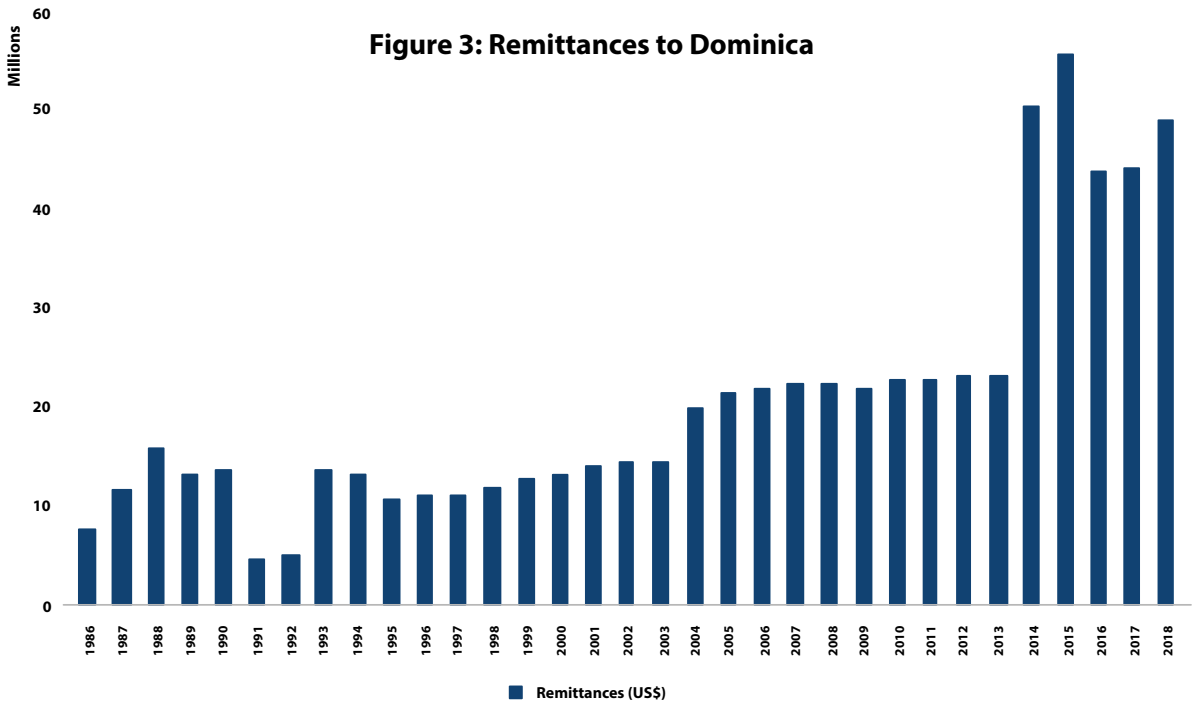
Remittances to Dominica are forecast to fall significantly. While remittance flows have been quite robust to the last two global recessions, given the significant impact of COVID-19 and the widespread impact of the pandemic on global employment levels, it is likely that remittance flows could be impacted.

Figure 2: Tourism and Travel Percentage of Total Exports, 2019



Source: WTCC reports, various

Figure 3: Remittances to Dominica



DOMESTIC

Dominica has implemented the following measures in its fight against COVID-19, these included:

- The Ministry of Health announced that medical personnel from Cuba, including 25 nurses, 5 doctors and 4 lab technicians, will assist the country battle the coronavirus (COVID-19) contagion.[12]
- A state of emergency was declared which included border restrictions and a curfew from 6 pm to 6 am Mondays to Fridays and a total lockdown on weekends from 6 pm on Friday to 6 am on Monday. Essential services (financial institutions, gas stations, supermarkets) were accessed by the public from 8 am to 2 pm Mondays to Fridays. The imposed state of emergency was extended for an additional three months while the curfew remained in place for an additional 21 days following April 20, 2020.
- Continuous education of the public regarding COVID-19
- The institution of a virtual customer service desk in efforts to promote social distancing to keep the public safe during the COVID-19 pandemic period.
- A ban of non-nationals on commercial passenger flights into Dominica effective March 26, 2020. Exit flights were allowed. Commercial flights were able to operate. However, crew members were not allowed to disembark. Upon entry, Nationals were placed in a 14-day mandatory quarantine

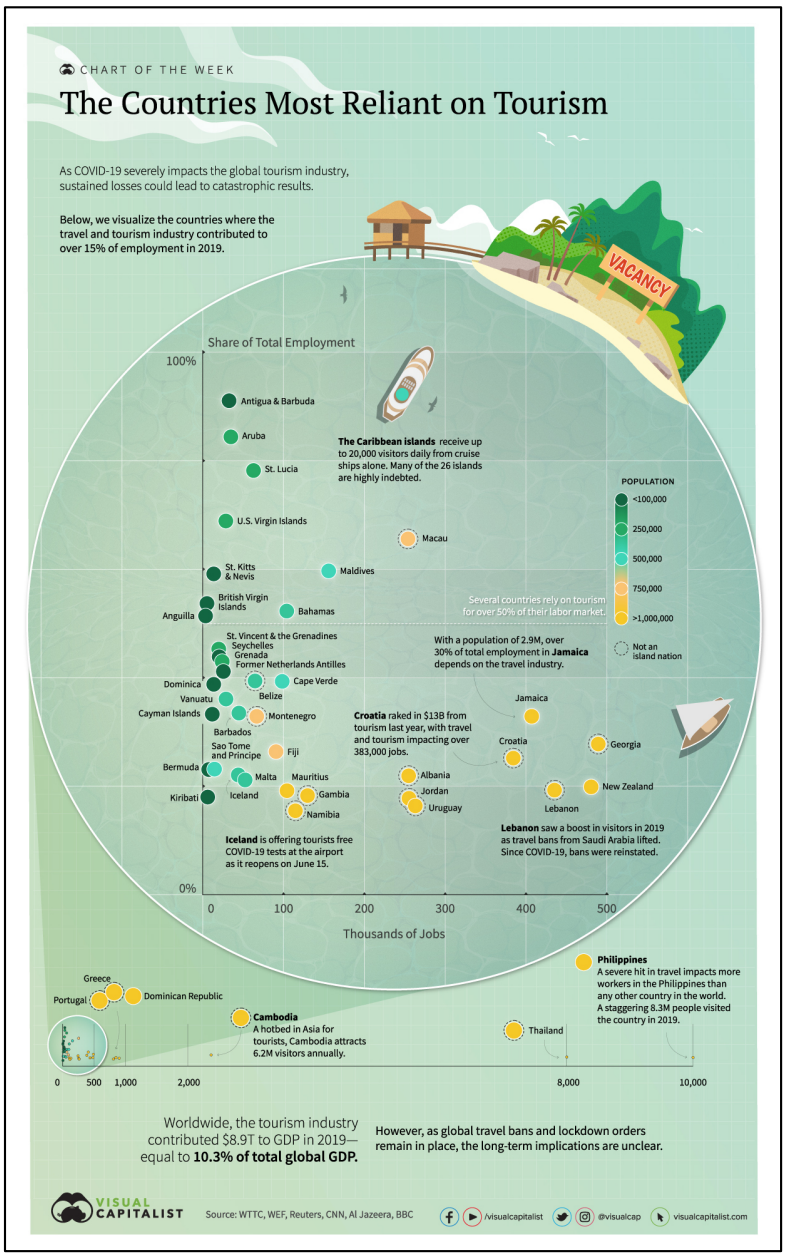


Image Source: Visual Capitalist: https://www.visualcapitalist.com/countries-reliant-tourism/

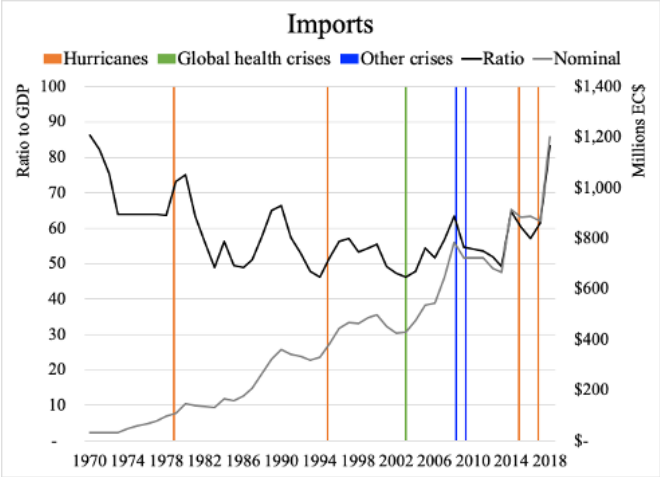
12 https://dominicanewsonline.com/news/homepage/news/dominica-to-receive-medicalhelp-from-cuba-to-fight-covid-19/

Consumption and Investment

Dominica's response to COVID-19 has focused on reducing the likelihood of further spread of the virus and mitigating the impact on livelihoods.

It is worth noting that Dominica was still in the process of rebuilding post-Hurricane Maria (which hit Dominica in 2017) when it was forced to close its borders and restrict economic activity. Estimates for 2018 showed that the trade imbalance in Dominica was significant, with the current account deficit deteriorating from -8.8% of GDP in 2017 to -44.6% of GDP in 2018, though preliminary figures from the IMF point to improvements in 2019 (-29.4% of GDP). In its latest World Economic Outlook (April 2020), the IMF's projections suggest another deterioration in 2020 (-33.8% of GDP) with some improvement in 2021 (-26.4% of GDP) in the wake of the pandemic.

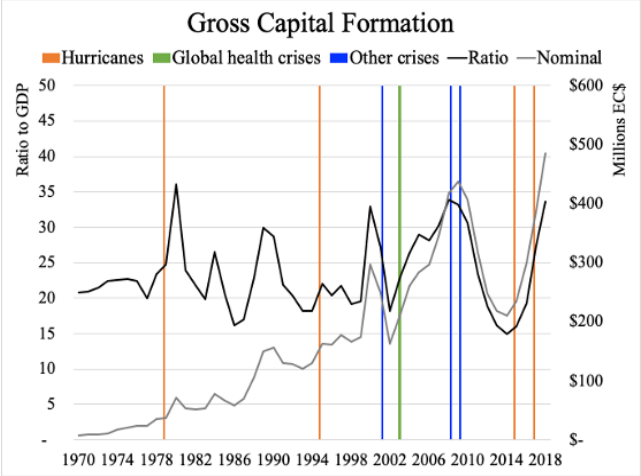
Figure 4: Trends in Imports



Source: International Financial Statistics, various newspapers and authors' calculations

Gross Capital Formation has been increasing since 2015 when Dominica was hit by Hurricane Erika, the most destructive natural disaster in Dominica since Hurricane David in 1979. Generally, when a hurricane strikes, Gross Capital Formation increases in the years following in line with the level of destruction. This pandemic, however, is not like a hurricane, as it is affecting global travel and trade, not simply travel and trade to Dominica. The most recent world event that could offer insights into the likely impact on Dominica would be the global financial crisis. The 2007-2008 global financial crisis was a severe world economic crisis that significantly affected business and consumer confidence worldwide. It is similar, though not in any way identical, to this current pandemic because of the expected plummet in confidence. Not only are current investment activities at a standstill, but it is also highly probable that planned investments will be delayed, be scaled back substantially, or not materialise at all.

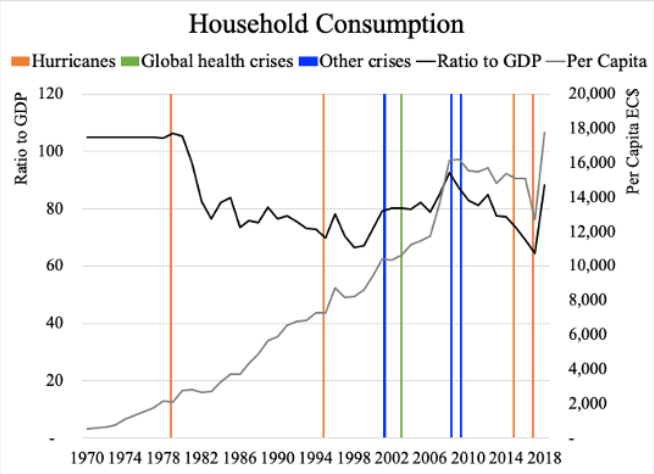
Figure 5: Trends in Gross Capital Formation



Source: International Financial Statistics, various newspapers and authors' calculations

In line with the historical response to previous shocks, downside risks to household consumption also exist. In particular, the knock-on effects of reduced tourism and remittance inflows and delayed capital investment are forecast to have a constraining impact on employment and household income. These adverse effects will be compounded in the event of a second wave. Uncertainty in the recovery ahead will also be a major constraint to the reactivation of private investment.

Figure 6: Trends in Household Consumption



Source: International Financial Statistics, various newspapers and authors' calculations

SOCIAL AND MACRO-FISCAL IMPACTS

ECONOMIC ACTIVITY

In its World Economic Outlook report for April 2020, the IMF revised its projections for economic growth to -4.7% in 2020 and 3.4% in 2021. While these revised projections take into account, the significant and dynamic changes since these forecasts, the current report factors these as baseline estimates and assesses the potential risks in the context of new and emerging data.

With the challenges in the agricultural sector, the key growth engine has been the construction industry, supported by related wholesale and retail companies, in light of the rebuilding efforts. Although the country is in a state of emergency, construction is one of the few economic activities that the Government permitted to continue, supported by hardware stores and other businesses that provide products to the construction industry (with limited hours). The Builders and Contractors Association of Dominica (BCAD), however, has objected to the continued operation of the industry, citing lack of forewarning, the impracticality of maintaining the required social distance on-site while working, productivity and cost concerns and the legal framework around health and safety. As such, BCAD recommended that all builders and contractors stay home and if they must do construction, focus on their own homes. As both the classification of construction as essential and the response of BCAD have only taken place during April 2020, it is still too early to gauge how the industry will be impacted over the course of the pandemic. With the 65% growth rate in construction being the lynchpin of growth in 2018, the downside risks of lower levels of construction would compound the forecasted decline of 4.7 to as much as 6%, depending on the severity of the slow down.

The legacy of the ubiquitous border closures during April and May and the shuttering of businesses globally have already led to major losses in tourism and travel services and current estimates are for a global decline in tourism arrivals of nearly 80% year on year. While the source market composition of Dominica's tourism sector may create a degree of insulation from these impacts, even at the lower end, the knock-on effects of declining arrivals on the wholesale and retail sector and household consumption will put further strain on growth prospects.

At the same time, the World Bank[13] is predicting that global remittances will fall by approximately 20 percent due to a fall in wages and employment of migrant workers. These workers, unfortunately, are more likely to lose their jobs due to an economic slowdown. The prediction is that remittances to Latin America and the Caribbean will fall by 19.3 percent in 2020, but will recover somewhat in 2021. If the decline in remittances is in line with World Bank predictions, remittances in 2020 could fall by US$10 million, leaving a significant hole in the foreign exchange inflows for the island as well as reducing significantly the income and consumption of many of the most vulnerable.

13 https://www.worldbank.org/en/news/press-release/2020/04/22/world-bank-predicts-sharpest-decline-of-remittances-in-recent-history

FISCAL

Given the dependence of the island on revenues from its Citizen By Investment (CBI) programme, it is anticipated that the fiscal situation in Dominica would worsen significantly in the short- to medium-term. In addition, given the difficulty of adjusting its fiscal position over this period, it is likely that the level of indebtedness on the island will rise significantly in the short-term. CBI revenues are expected to reflect trends in global economic growth. Given that the projections are for a 6-10 percent decline in the US economy for 2020 and a concomitant decline in global output. If the anticipated recession in the US and the global economy generally materialises, then CBI revenue could be in the region of 10% of GDP compared to 14% in the 2017/18 fiscal year. This would result in an increase in the fiscal deficit to almost 7 percent of GDP.

In addition, and in-line with the possible second wave, health care costs may also rise by as much as EC$2-3 million using the projections from Pan American Health Organisation of up to 159 acute cases of COVID-19 in Dominica.

In fiscal year 2017/18, the Government of Dominica would have financed its operations largely through borrowing from the ECCB as well as external loans. In that year, $37.8 million was borrowed from the ECCB while another $39 million was obtained from external lenders. Given the rising level of indebtedness, it is expected that borrowing from domestic and external creditors will become more difficult in the current environment. In addition, given the slowdown in foreign exchange earnings, foreign currency loans will put pressure on the reserves of the country.

SOCIAL

Unemployment, particularly in the tourism and related sectors, will increase in-line with the contraction in output. Using IMF unemployment estimates for 2018 as a baseline and an economic contraction of 4.7%, the rate of joblessness is forecast to increase, resulting in more than one in every four workers being unemployed. The scale and duration of this increased unemployment will depend on the speed of the reopening of the domestic economy, the resumption of tourism and whether there is a global “second wave” effect. Critically, while the impact on informal employment is expected to be significant, it is even more difficult to assess, given the lack of available data.

There are two main programmes to provide support to the poor and those at risk: the Public Assistance Programme and the Old Age Grant. Information regarding the criteria for the Public Assistance Programme is limited. In 2019, 2,200 beneficiaries were receiving $150 per adult and $127.50 per child and a maximum of $375 per family. The Old Age Grant is available to persons 70 and above. Persons receive $300 per month as a standard payment and $500 per month when they reach the age of 100 years or above.

Given the relatively high prevalence of cardiovascular diseases in Dominica, particularly among upper-income groups, the spread of COVID-19 could put significant pressure on an already weak healthcare system. While the initial government response has helped to limit the spread of the disease, the potential for a “second wave” remains. Any significant spread during this phase will result in a significant number of deaths among these persons with pre-existing conditions. The level of poverty, particularly among women and children could increase as the economic situation in the country worsens. These groups are likely to be significantly affected as women tend to work in industries and occupations that are likely to be most affected by the economic downturn.

As children are out of school, the risk of them becoming victims of abuse could rise. This will require not only increased surveillance in at-risk households but also additional resources to provide housing and psychosocial support for children and families. This will undoubtedly place an additional burden on the Social Welfare Division responsible for the care and protection of children, which will have to expand capacities to investigate all cases of abuse are investigated and ensure children protected.

POLICY OPTIONS

RESPONSE AND RELIEF EFFORTS

Transitioning the NEP

On the expenditure side, a freeze on new hiring in the public sector should be considered to slow the rate of growth in personal emoluments. In particular, while the expansion of the National Employment Programme (NEP) in the short-term has been necessary, efforts will need to be intensified to transition those on the roll of the NEP to private employment in 2021. Given the weak economic growth, this will be challenging in the short-term and will require the exploration of new livelihood opportunities that may include expanding resilient agricultural value chains that could support import substitution as well as the development of new e-commerce platforms to minimise dependence on in-person shopping and reduce income volatility in the event of a second wave shutdown.

Expand the Public Assistance Programme

The Public Assistance Programme appears to be a good target to offer support to Dominicans that might have lost their job. It is recommended that the existing mechanism to qualify for this support be harmonised with the rates paid to the elderly under the Old Age Grant: persons should be making $519 per month or less and would receive $500. To cover the 25% of the working-age population that would be unemployed would imply support to approximately 7,805 individuals at a cost of EC$11.7 million over three months. This approach will need also to reflect differential needs among women and men, as well as to take into account the higher levels of poverty among the Kalinago community.

Proactive Surveillance to Prevent Child Abuse

A programme to identify and prevent increases in abuse will be critical. This will require additional support to the Social Welfare Division responsible for the care and protection of children, including resources to expand surveillance capacities to ensure all cases of abuse are investigated and children are protected. Additionally, resources will be required to provide housing and psychosocial support for children and families.

Making Available Low-cost Options for e-Learning

As education responds to the requirements for physical distancing and contactless engagement, underlying inequalities in digital access can be reinforced as those without access to available, adequate and reliable internet service and necessary equipment will be disadvantaged. Internet service providers should be engaged to identify options for providing low-cost, internet access options, particularly in rural areas. For these firms, this approach will expand their customer base while improving the livelihoods of the most vulnerable. It limits the problem of educational inequalities due to moving to online learning by broadening access to the internet for children in poverty. At the same time, options for the provision of internet-capable devices will be critical. As part of the repurposing of funds discussed below, options for the provision of ICT equipment should be considered.

Development of a Phased Reopening Plan

Any meaningful assessment of the country's future economic prospects must be done in relation to the epidemiological strategy. The aim is to allow for an initial opening of the economy while upholding the health and protection of Dominica's citizens along the process. This is in the spirit of preserving both people's health and livelihoods. The main epidemiological considerations should be:

- Managing COVID-19 importation risks.
- Implementing risk mitigation measures at the workplace and in the journey to the workplace which is adequate to the level of risk and contact that each worker has.
- Reducing the number of contact at the community level, via the use of protective equipment and physical distancing measures.

The measures taken through the reopening of the economy need to be accompanied by very strong surveillance for the coronavirus disease. Assuming the possibility of there being some asymptomatic cases undetected in the community, diminishing the number of contagious contacts that people encounter should be a priority for the economic reopening. The number of people whom each person could infect once the economy reopens should be restricted to as few as possible. With this in mind, a re-opening plan should be produced that considers the strategic economic objectives in the context of COVID-19 surveillance and control strategies, planning for different scenarios depending on the evolution of the pandemic. One must go hand in hand with the other.

Financing Response and Relief Efforts

Given the anticipated continued decline in revenues from the CBI programme, the Government is unlikely to have significant fiscal space to develop these programmes. However, debt service costs are low, the ratio of interest payments to revenue is less than 5% and there may be some room to temporarily increase debt levels if borrowed funds can be used to capitalise a long-term, contributory fund, rather than to support one-off payments. Against the background of the low grant disbursement rate, efforts to implement the relevant administrative and technical requirements to unlock committed grant resources should be prioritised. Government should also continue to engage with external donors to repurpose committed funds to help provide support to workers that lose their jobs as a result of lay-offs from private sector agencies.

RECOVERY AND RESILENCE

Diversification for Resilience

Dominica has been focused on improving its vulnerability to natural disasters, and this must continue to be the focus of any long-term recovery and resilience efforts. Beyond its physical infrastructure, however, it is highly recommended that the country also returns to its focus on branding itself as an eco-tourism destination and improving its tourism infrastructure accordingly. Its dependence on agriculture has proven to be a structural weakness that has exposed the devastation of the industry. Diversification – both horizontal and vertical – will be critical. Government could build on its existing success in diversifying its tourism source markets beyond the Caribbean into other high-growth countries and regions to reduce market concentration exposure. The expansion of the tourism sector also has the added benefit of spurring the growth of a wide range of support industries that utilise human resources with all levels of education. It could therefore support the country's efforts to reduce poverty.

Sustainable, vertical diversification will also be necessary to ensure the viability of existing sectors. In agriculture, in particular, this will require the integration of climate-smart agriculture to make crops and livestock more resilient to climate change and expansion along the value chain to create new livelihood opportunities with higher income-generating potential.

The main two suggestions for the labour market are to improve data collection as well as to improve labour market flexibility. The latest official labour market statistics are from 2011, which makes them too dated to be useful for modelling purposes when estimating the impact of the COVID-19 pandemic. Similarly, with no currently available poverty data, the capacity to develop data-driven policies for targeted poverty-reduction programmes is limited. While the country may not have the resources at the moment to move to quarterly statistics, at least annual surveys should be conducted.

Fiscal Reprogramming

It is important that the Government puts policies in place to give it more fiscal space in the future. IMF debt analysis pointed to unsustainable dynamics[14] across a range of scenarios. This position will worsen over the short-term as a result of the response to COVID-19 and a strategic plan will be needed to reduce the island's level of indebtedness over the medium-term.

The largest category of government expenditure is goods and services, representing more than one-third of all spending. While adjustments in the short-term would be counter-productive, reducing government's spending on goods and services in the medium-term is critical as this single category has grown by $61 million since 2014, an increase of almost 50%. Spending on transfers and subsidies has risen by more than $40 million since 2014, a 60% increase. While approximately 40% of these relate directly to retirement benefits, a deeper analysis of the other transfers will be required to rationalise spending and improve fiscal space.

Social Protection

A detailed review of the Old Age Pension and Old Age Grants are recommended. This will require a detailed assessment of the existing system and relevant adjustments to the national contribution rates, which are already some of the lowest in the Caribbean.[15] The Public Assistance Programme should refine selection and disbursement criteria to improve system efficiency and limit the associated fiscal costs. Moreover, the PAP review should fully reflect the differential levels of vulnerability between women and men, including the higher livelihood volatility of women in certain industries and the higher burden of care. These differences imply heterogeneous income support needs between women and men and should be reflected in any strategic amendments to the assistance programme. It is recommended that system reform relies on new, dynamic living conditions and poverty data collection systems and that existing mechanisms be enhanced to determine needs and how individuals can qualify for and access this support.

14 Dominica 2018 Article IV Consultation, Press Release And Staff Report, IMF, 2018
15 National Insurance Scheme Reforms in the Caribbean, IMF, 2016

Improving Health Systems for Better Shock Response

In terms of building resilience, Dominica's health system is highly vulnerable to shocks, particularly in the area of primary care. With the potential for a second wave of the COVID-19 pandemic, projections for the emergence of other contagious diseases and growing incidences of NCDs, it will be critical that enhancing the quality of healthcare be prioritised. Improving the resilience of the health sector will require both improvements in the availability of quality services as well as to individuals' capacities to access care. The former will necessitate infrastructure investments as well as increasing the number of trained medical workers. In the short-term encouraging migration of persons with needed skills from other Caribbean islands could be considered while national scholarships in critical healthcare areas will help build long-term capacity.

As part of the health reform, it will be critical to more effectively manage medical costs as the broad budgetary allocation for health represents nearly 10% of the annual fiscal budget.[16] An ongoing pilot project designed to assess the feasibility of a targeted health insurance scheme has demonstrated some potential for the programme to reduce the healthcare burden on citizens, though the potential impact on the fiscal balance is difficult to assess as the framework of the pilot did not envision a sustainable financing mechanism and currently, increasing the pilot health insurance fund's reserves will rely exclusively on recapitalisation by Government. Nonetheless, an urgent review of the existing pricing structure for health services should be undertaken in the context of current user demands on the health facilities and capacity to pay for different health services. This should provide a platform for the introduction of relevant user fees that will not adversely impact access to healthcare generally, and for the most vulnerable, specifically.

Financing Recovery and Resilience

Using the Fiscal Space Diamond-4 Corners/Options there are four potential options for enhancing the fiscal outputs of Dominica in the short-term: foreign grants, sovereign debt, domestic revenue and efficiency. It will be impossible to overcome this COVID-19 crisis without some level of borrowing. With the likely further increase in non-performing loans (NPLs) and increased provisioning requirements, such a large financing requirement cannot be sourced entirely from the domestic market. Moreover, excessive additional borrowing could push the island's debt to a more unsustainable level. It will therefore be necessary to work with international partners to put together a financing package that includes:

1. Accelerating disbursements on existing foreign grant funding and support for implementation and monitoring of related activities.

2. The contracting of new, long-term concessional loans that will support sustainable infrastructure and social development programmes.

Implementation Schedule
Short-term
• Encourage the migration of healthcare workers to Dominica from other Caribbean islands • Seek grant funds to support critical, short-term projects • Increase the qualification threshold and the payments from the Public Assistance Programme
Medium-term
• Implement efficiency/fiscal cost-saving measures
Long-term
• Scholarships for persons pursuing studies in critical areas of need in healthcare

16 Ministry of Health budget allocation as a percentage of the total expenditure

Annex

COVID-19
The Model

June 3, 2020

Drawing from Eichenbaum et al. (2020) and Kaplan et al. (2020): combination of SIR and macro model to evaluate policy options in small open economies highly reliant on tourism.

SIR Model

SIR model for the epidemiological side. For sectors $i = (T, H, L, E)$ define

$$\text{Susceptible:} \quad S^i_{t+1} = S^i_t - T^i_t \tag{1}$$

$$\text{Infected:} \quad I^i_{t+1} = I^i_t + T^i_t - (\gamma + \mu) \cdot I^i_t \tag{2}$$

$$\text{Recovered:} \quad R^i_{t+1} = R^i_t + \gamma \cdot I^i_t \tag{3}$$

$$\text{Deceased:} \quad D^i_{t+1} = D^i_t + \mu \cdot I^i_t \tag{4}$$

$$\text{New infected:} \quad T^i_t = \beta \cdot (1+\delta)^m \cdot (1 + \alpha^i \cdot \delta) \cdot S^i_t \cdot \sum_i I^i_t \tag{5}$$

$$\text{Population:} \quad Pop_{t+1} = Pop_0 - \sum_i D^i_t \tag{6}$$

with γ recovery rate, μ death rate, β infection rate, δ extra exposure from market work (instead of remote work or the sector being shut), m number of sectors working market, and α^i sector-specific weight.

The infection rate β is a function of public and health policy, for example strictness of quarantine rules, how well informed the public is about preventive measures, etc. The infection rate β is augmented by a factor δ for every sector that is open and operating normally (i.e. market), with $\delta \in [0, 1]$ infection risk from in-person interaction at work and m number of sectors operating as normal (market). The effect is multiplicative: if more sectors are operating normally then the risk of infection increases exponentially. The sector-specific weight α^i captures the increased (decreased) chances of being infected if working market

(remote).

$$\alpha^i = \begin{cases} 0 & \text{if } m = 0 \text{ or } m = 4 \\ +\dfrac{1}{m} & \text{if } 0 < m < 4 \text{ and market} \\ -\dfrac{1}{4-m} & \text{if } 0 < m < 4 \text{ and remote/shut} \end{cases} \tag{7}$$

Working market implies more in-person interactions and therefore a higher risk of infection. Working remote, by greatly limiting in-person interactions, decreases the risk of infection. For simplicity we assume that the extent of exposure and risk of infection is the same for all those working market, regardless of their job or sector.

Macro Model

In real terms (i.e. no prices). Three types of agents: households, firms, government. Households consume all disposable income and supply labour inelastically. Firms can belong to four sectors: tourism ($i = T$), high flexibility ($i = H$), low flexibility ($i = L$), or essential ($i = E$). High flex is for example software engineering, low flex is restaurants, essential is pharmacies. Generally sectors can either work market (i.e. regular work), work remotely (i.e. telecommuting), or be shut. If they work remotely they will be $\phi^i \in [0, 1]$ as productive as working market. If they are shut they will not produce. Unless shut, firms produce final goods Y^i using labour and technology (we do not consider capital). Finally, the government pays unemployment benefits and transfers to households, subsidies to firms, collects income tax from the first and corporate tax from the second.

Phases

The model has four phases, which we define in periods of weeks.

1. **First phase:** pre-COVID-19 period where the economy operates without effect.

2. **Second phase:** COVID-19 first reaches the country and the infection spreads uncontrolled.

3. **Third phase:** the country shuts the tourism sector and the domestic economy, apart from essential workers, works remote. High flexibility workers are able to work at home albeit with reduced productivity. Low flexibility workers work with a substantially reduced productivity. Tourism workers become unemployed. Shutting tourism and switching high and low flex sectors to remote working slows down the infection and flattens the curve.

4. **Fourth phase:** post-COVID-19 period. It comprises of two sub-phases:

(a) the domestic economy returns to normal: high and low flex sectors work market. Tourism remains shut,

(b) Tourism re-opens.

The model

In the real world when a sector is shut firms have no revenues but still have to pay fixed costs. These fixed costs pile up, and at some point the firm will not have enough liquidity to cover them. The longer the shutdown lasts and the more liquidity constraint a sector is, the higher the share of firms that fail. In our model the share of firms failing in sector i is $\rho_t^i \in [0,1]$, and it follows

$$\rho_t^i = \begin{cases} 0 & \text{if } i = E \\ \dfrac{t - n^i}{n^{max}} \cdot \rho & \text{if shut} \\ \eta \cdot \dfrac{t - n^i}{n^{max}} \cdot \rho & \text{if not shut} \end{cases} \tag{8}$$

where n^i is the period when sector i shut down, n^{max} the maximum number of periods the sector can be shut for (i.e. length of periods 3 and 4), and ρ long-term failure probability.

We introduce this as a labour friction. If a share ρ_t^i of firms fail, since firms and workers are homogeneous and atomistic, it means that the same share ρ_t^i of workers is unemployed.

<u>Labour</u>

$$\text{if market/remote:} \quad N_t^i = (1 - \rho_t^i) \cdot \left(S_t^i + R_t^i\right) \tag{9}$$

$$\text{if shut:} \quad N_t^i = 0 \tag{10}$$

Healthy people can work. Unless the firms has failed or the sector is shut off, they do.

<u>Production</u>, with production function $Y = f(N_t) = A \cdot N_t$.

$$\text{if market:} \quad Y_t^i = A^i \cdot N_t^i \tag{11}$$

$$\text{if remote:} \quad Y_t^i = (\phi^i \cdot A^i) \cdot N_t^i \tag{12}$$

$$\text{if shut:} \quad Y_t^i = 0 \tag{13}$$

High-flex and low-flex sectors can switch to remote work, though this reduces their productivity by a factor ϕ^i, with $\phi^H > \phi^L$. Shut sectors do not produce any output.

<u>Profits</u>

$$\text{if market/remote:} \quad \Pi_t^i = (1 - \tau_F) \cdot \left(Y_t^i - w^i \cdot N_t^i - \lambda_F \cdot w^i \cdot (1 - \rho_t^i) \cdot I_t^i\right)$$

$$\text{if shut:} \quad \Pi_t^i = 0$$

If the sector is market or remote then firms who still operate have to pay wages and sick pay, as well as corporate tax τ_F. If the sector is shut then the firms

make no profits. Note that the failure rate is implicit in the workforce, and that only workers who are employed by firms that have not failed receive sick pay.

Income

$$\text{if market/remote:} \quad \Gamma_t^i = (1-\tau_I)\cdot w^i \cdot N_t^i + (\lambda_F + \lambda_G)\cdot w^i \cdot (1-\rho_t^i)\cdot I_t^i + \theta \cdot w^i \cdot (1-\rho_t^i)\cdot (S_t^i + I_t^i + R_t^i) + \Pi_t^i \tag{14}$$

$$\text{if shut:} \quad \Gamma_t^i = \theta \cdot w^i \cdot (S_t^i + I_t^i + R_t^i) + \Pi_t^i \tag{15}$$

with τ_I income tax (same for all sectors), $(\lambda_G + \lambda_F)$ sick pay rate with λ_G share paid by the government and λ_F share paid by the firm, $\theta \in [0,1]$ unemployment benefits rate paid by the government. Γ_t^i income, N_t^i labour in hours worked[1].

Consumption

$$C_t = (1-\tau_C)\cdot MPC \cdot \sum_i \Gamma_t^i \tag{16}$$

where MPC is the marginal propensity to consume and τ_C consumption tax.

Government

$$B_t = \sum_i \Big[\tau_I \cdot w^i \cdot N_t^i + \tau_F \cdot \big[Y_t^i - w^i \cdot N_t^i - \lambda_F \cdot w^i \cdot (1-\rho_t^i)\cdot I_t^i\big] + \tau_C \cdot MPC \cdot \Gamma_t^i - \lambda_G \cdot w^i \cdot (1-\rho_t^i)\cdot I_t^i - \theta \cdot w^i \cdot (1-\rho_t^i)\cdot \big(S_t^i + I_t^i + R_t^i\big)\Big] \tag{17}$$

The governments revenues come from the income tax on the healthy people who work in firms that have not failed and from corporate tax on those firms. The government pays welfare transfers to households, subsidies to firms that have not failed, sick pay to the unhealthy individuals employed in firms that have not failed, and unemployment benefits to all those who were working in firms that failed or those working in shut sectors.

Trade: net of tourism Y_t^H that is not consumed by locals, net imports are

$$(IM - X) = C_t - \big(Y_t^H + Y_t^L + Y_t^E\big) \tag{18}$$

Initial conditions

During phase 1 (of length n_1) the population does not change:

$$Pop_t = \sum_i S_t^i = 1 \quad \forall t = 0, ..., n_1 \tag{19}$$

[1] We assume that everyone works full time, so N_t^i is the share of healthy employed population working in the sector.

At time $n_1 + 1$, when the infection starts[2]:

$$I^i_{n_1+1} = \varepsilon \cdot S^i_{n_1+1} \tag{20}$$
$$S^i_{n_1+1} = 1 - I^i_{n_1+1} \tag{21}$$
$$R^i_{n_1+1} = 0 \tag{22}$$
$$D^i_{n_1+1} = 0 \tag{23}$$
$$Pop_{n_1+1} = Pop_{n_1+1} \tag{24}$$

and from time $t = n_1 + 2$ onwards the infections spreads as described in the SIR Model section.

Calibration

Table 1: Health parameters

Parameter	Description	Value
γ	Recovery rate	$0.99 \cdot \frac{7}{14}$
μ	Mortality rate	$0.01 \cdot \frac{7}{14}$
β	Infection rate (health policy)	0.40
δ	Extra infection risk (work)	0.30
ε	Initial impact	0.001

The model is weekly. Since the illness lasts roughly 14 days, we adjust the health parameters of table 1 to a period being $\frac{7}{14}$ of the illness. 1% of people who contract covid-19 pass away, giving us a mortality rate of $0.01 \cdot \frac{7}{14}$. The remaining 99% recover, hence the recovery rate of $0.99 \cdot \frac{7}{14}$. We calibrate β and δ to be in line with the R0 parameters inferred by, among others, Liu et al. (2020) or Hellewell et al. (2020). We get β and δ from assuming $R_0 = 2.5$ when all economic activity continues as normal and $R_0 = 1.1$ when only the essential sector operates normally and everyone else either is shut or operates remotely. It must be noted that these R_0 are on the conservative side: R_0 was estimated to be almost 5.0 for Lombardy, for example. We choose lower R_0 because of the

[2]Note that we assume the infection starts in all sectors simultaneously and with uniform probability

lower population density of the countries considered, as well as on the hypothesis that the virus spreads slower in hotter climates (Cookson, 2020). Then

$$\begin{cases} \beta \cdot (1+\delta)^4 = 2.5 \cdot \dfrac{7}{14} \\ \beta \cdot (1+\delta) = 1.1 \cdot \dfrac{7}{14} \end{cases}$$

and we approximate the results to $\beta = 0.4$ and $\delta = 0.3$. Last, the initial impact is $\varepsilon = 0.001$ as in Eichenbaum et al. (2020).

The model initial conditions are calibrated using data from the national statistical services. The economic parameters are the current tax rates, sick pay rates, and unemployment benefits rate. Productivity rates an educated guess, as there are no studies that measure the productivity of remote work. Changes in the productivity rates would rescale production during lockdown, but would not have long-term effects in this simple model. Last, we calibrate the probability of firms failing when shut down so that if the sector is shut until the end of the simulation (end of 2021) then 20% of the firms in the sector fail.

Note that we redistribute the elasticity of non-tourism activity to changes in tourism activity to high flex and low flex sectors only, leaving essential firms untouched, by calculating

$$\eta = \eta' \cdot \frac{A_t^H \cdot N_t^H + A_t^L \cdot N_t^L + A_t^E \cdot N_t^E}{A_t^H \cdot N_t^H + A_t^L \cdot N_t^L}. \tag{25}$$

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