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Tourism in the Post-Pandemic World

Economic Challenges and Opportunities for Asia-Pacific and the Western Hemisphere

Prepared by an IMF team led by Manuela Goretti and Lamin Leigh, comprising Aleksandra Babii, Serhan Cevik, Stella Kaendera, Dirk Muir, Sanaa Nadeem, and Gonzalo Salinas, with support from other staff in the IMF Asia Pacific and Western Hemisphere departments.

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Contents

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Executive Summary

The COVID-19 pandemic, a global crisis like no other in modern history, has led to a sudden stop in travel and a collapse in economic activity worldwide. A major economic driver, tourism accounts for more than 10 percent of the global economy and in many countries a large share of exports and foreign exchange earnings. The industry is also highly interconnected; multiple sectors are dependent on its performance. The pandemic has had severe repercussions on the complex global tourism supply chain, putting millions of tourism jobs at risk. Informal and migrant workers, particularly women and youth, have suffered disproportionately from diminished employment opportunities and lack of access to social safety nets, leading to increased poverty and slowing progress toward the UN Sustainable Development Goals.

This departmental paper analyzes the impact of the COVID-19 pandemic on tourism in the Asia Pacific region, Latin America, and Caribbean countries. Many tourism dependent economies in these regions, including small states in the Pacific and the Caribbean, entered the pandemic with limited fiscal space, inadequate external buffers, and foreign exchange revenues extremely concentrated in tourism. The empirical analysis leverages on an augmented gravity model to draw lessons from past epidemics and finds that the impact of infectious diseases on tourism flows is much greater in developing countries than in advanced economies. Given the unprecedented nature of the COVID-19 crisis, forward looking model simulation results for tourism dependent economies show scope for a faster recovery, if rapid advancements in vaccine distribution were to bring back travel to pre-pandemic levels, but also significant downside risks from protracted uncertainty and limited vaccine effectiveness and availability, with deep and long-term scarring effects potentially amplifying existing vulnerabilities.

The paper also explores several innovations given the peculiarities of the tourism industry and high degree of pandemic uncertainty. The paper finds

strong correlation between the spread of COVID-19 and big data high-frequency indicators on travel, which suggests that the quality of healthcare systems will be pivotal in the post-pandemic recovery of the tourism sector. The analytical and modeling techniques leverage the interaction among epidemiology, tourism development models, and macro structural features of tourism dependent economies. The analysis suggests, among other things, the challenges that tourism-based economies could face in leapfrogging from high-density to socially distanced tourism. For some countries, the inherent rigidities of switching from one tourism business model to another, combined with the likely protracted process of building consensus across stakeholders, could amplify the pre pandemic macro and structural vulnerabilities and make the transition to the new normal more challenging.

The paper examines policy options to navigate the post-pandemic world. Although tourism bounced back relative quickly from the impact of past epidemics like SARS, the COVID-19 pandemic could create long-term scarring effects. How tourism recovers will depend on the availability and distribution of an effective vaccine and policy choices made during the pandemic, specifically:

- Phase 1, crisis mitigation: In response to the COVID-19 shock, many countries have provided fiscal support to buttress demand for the industry and preserve jobs. Further support may be needed and there is scope for well designed fiscal stimulus to support the most affected sectors including the poorest households and businesses, while being mindful of available fiscal policy space and debt sustainability concerns.

- Phase 2, reopening: As countries reopen their economies and borders, special attention should be devoted to health and hygiene protocols. During this transition phase, domestic tourism is being incentivized in several countries through attractive offers from hotels and tour operators and the tourism sector is being integrated into governments' re opening strategies. The creation of COVID-free travel bubbles also shows some potential across regions, despite implementation challenges. Targeted policies to address the pandemic impact on youth and women, enhancing access to new opportunities, including through digitalization, can help mitigate the scarring effect in the tourism sector, broaden inclusion, and help lift potential growth. As many firms in the industry, especially small and medium enterprises (SMEs), are at risk of slipping from liquidity stress into insolvency, monitoring and promoting needed restructuring and retooling in a timely manner will be critical to the recovery.

- Phase 3, recovery: As the recovery takes hold, a shift to eco-sustainable tourism services with lower density, higher value-added, and greater digitalization may allow countries to reduce the health risks potentially asso-

ciated with mass travel, foster a greener recovery, as well as diversify their economies to increase their resilience to future shocks. This challenging juncture presents an opportunity to accelerate long term structural transformation, within and beyond the tourism sector, to mitigate the impact on output and jobs and adapt to the post pandemic normal. Harnessing a long term solution will require global cooperation, starting with the immediate priority of establishing global safety and health protocols as well as making a reliable vaccine widely available.

Introduction

Tourism has become one of the world's most important growth engines, accounting for more than 10 percent of global GDP directly and indirectly. Over the last decade, the number of travelers and related spending has increased significantly, bolstered by rising incomes, falling travel-related costs, and an increasing range of available tourist activities. The tourism sector is closely linked to others in the economy, including accommodation and dining, retail and marketing, and transportation and aviation, forming increasingly complex tourism supply chain. This departmental paper focuses on tourism-dependent countries (TDCs), where the contribution of tourism and related sectors was above 10 percent of GDP during 2016–18 and accounting for a large share of export revenues. Tourism also contributes significantly to employment, with above 300 million globally, providing critical jobs to youth and women and, in several higher-income economies, to a significant share of migrant workers. Moreover, considering the high degree of informality in many TDCs, employment in the tourism sector is likely to be even higher than reported.

The COVID-19 pandemic has had an enormous impact worldwide on the travel and tourism industry. The widespread containment and mitigation measures to slow the spread of the virus have severely affected travel and tourism. Although countries are slowly moving toward a phased relaxation of measures, the risk of sudden policy changes around air travel, visas, and quarantine requirements remain elevated, together with long-lasting confidence effects, especially among the older and more affluent travelers. The large economic and social costs of the pandemic will likely result in permanent scarring effects on TDCs—ushering in a post-pandemic "new normal."

Although most TDCs will depend on global developments to exit the crisis, policy and institutional choices will play a critical role in the economic recovery. Tourist behavior is likely to change, with a shift away from

high-density, long-haul, shorter-stay travel, which may raise the costs of travel and change the rate of return of tourism relative to other sectors, prompting a reallocation of capital and human resources to more viable sectors where feasible. This trend will have broader repercussions on other sectors, including accommodation, retail, and transportation. Despite the recent approval of COVID-19 vaccines in major advanced economies, confidence effects, including a looming uncertainty toward the likelihood of future epidemics, might persist. Many countries were already considering a shift toward more sustainable tourism, in view of ecological concerns and climate change risks, as well as a move to higher value-added tourism services. This juncture may present an opportunity to accelerate this shift to adapt to the post-pandemic normal.

A key aim of this paper is to understand the impact of the pandemic on the economy, both during the COVID-19-induced recession and the recovery phase. To that end, after drawing lessons from key stylized facts on the tourism industry and its repercussions for the rest of the economy in Chapter 1, the paper uses an augmented gravity model framework to understand the historical impact of infectious diseases on international tourism flows, in Chapter 2, and the IMF's Global Integrated Monetary and Fiscal model (GIMF) to conduct forward-looking scenarios to assess the possible impacts on tourism and spillovers to the rest of the economy, in Chapter 3.

The paper also explores policy options to navigate the post-pandemic world, most notably its expected long-lasting scarring effects. Policies are considered during the pandemic shock, as lockdown and containment measures are phased out and tourism reopens, as well as in the long-term to address the long-term scarring faced by the tourism industry. Chapter 4 discusses policy options to rethink the tourism sector, including toward more health-oriented and eco-sustainable solutions for the economy as whole, and strengthen non-tourism sectors to partly offset any long-term decline on tourism. While country-specific initiatives will be critical to mitigate the scarring effects of the pandemic, the paper concludes by highlighting the need for global coordination, given the worldwide role of tourism as well as the inherent complexity of the global tourism supply chain.

CHAPTER

1 The Tourism Landscape

The Role of Tourism in the Global Economy before COVID-19

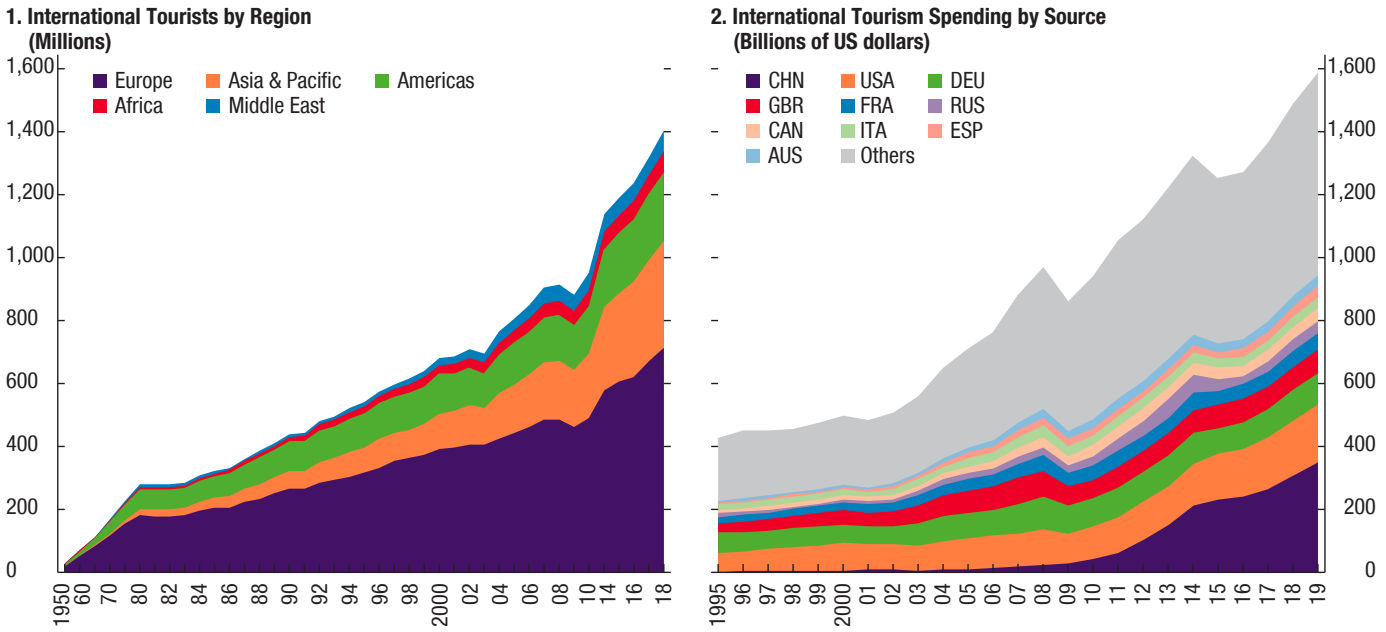
Driven by rising income levels and falling costs in aviation and accommodation, the number of international tourists rose to more than 1.5 billion by the end of 2019 from 680 million in 2000 (Figure 1).

Spending by international tourists amounted to nearly US$1.6 trillion as of the end of 2019. By source, most international tourists came from Europe and more recently from Asia, driven by China, which now accounts for a fifth of international tourism spending and tourist arrivals. By destination, Europe remained the most visited region, with Asia catching up as the fastest-growing destination for international tourism, followed by a significant share of regional travel within the Western Hemisphere. About three out of four international trips were taken within the same geographical region, with about half of travel undertaken for leisure, followed by visits with friends and relatives, and business travel (UNWTO 2019).

Domestic tourism comprises an even larger market than the international one globally, with more than 70 percent of total tourism spending in 2019 (Figure 2). Domestic tourism spending, that is, within the country of residence, has nearly doubled in value from US$2.2 trillion in 2005 to US$4.5 trillion by 2019; China is the leading market, accounting for over a fifth of such spending, followed by the United States, Germany, India, and Japan.

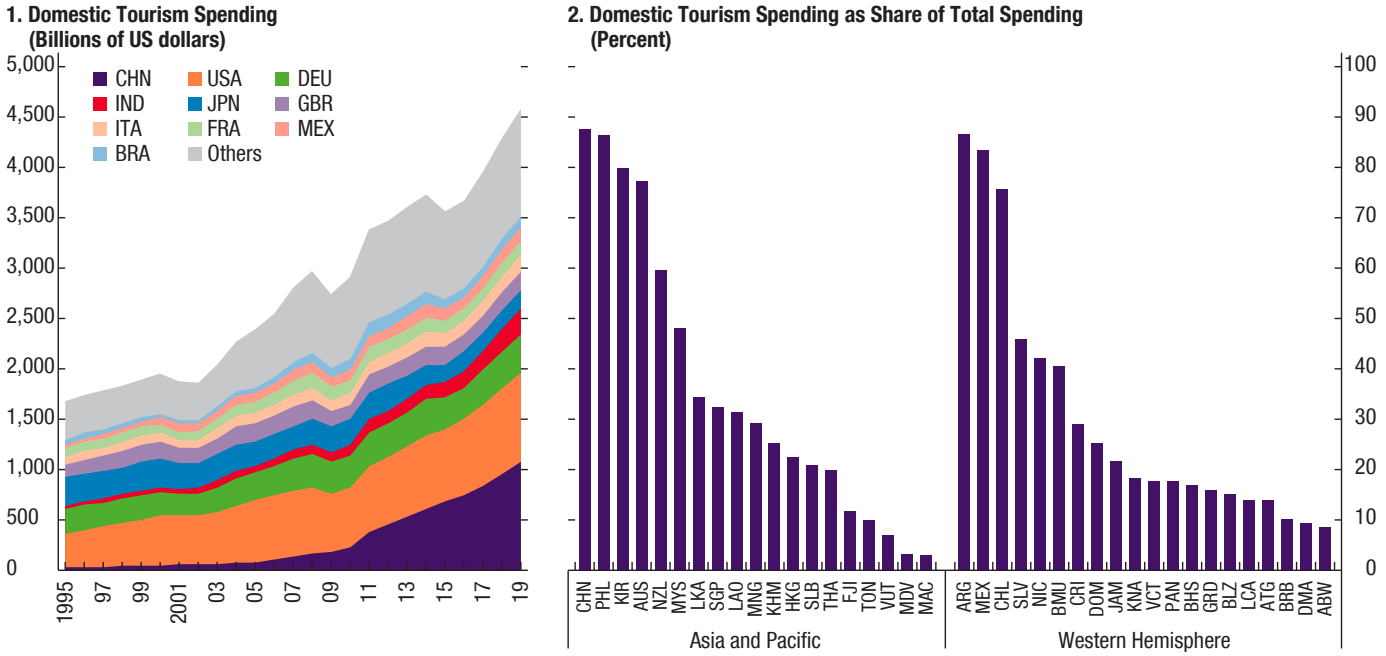
Tourism plays a pivotal economic role, particularly in the Asia-Pacific and Western Hemisphere regions. On average, tourism directly accounts for about 3½ percent of global GDP; according to the World Travel and Tourism Council (2020), this direct contribution "includes GDP generated by industries that deal directly with tourists, including hotels, travel agents, airlines and other passenger transport services, as well as the activities of restaurant

Figure 1. International Tourism by Source and Destination



Sources: UN World Tourism Organization; and IMF staff calculations.
Note: Country list uses International Organization for Standardization (ISO) country codes.

Figure 2. Domestic Tourism Spending by Country



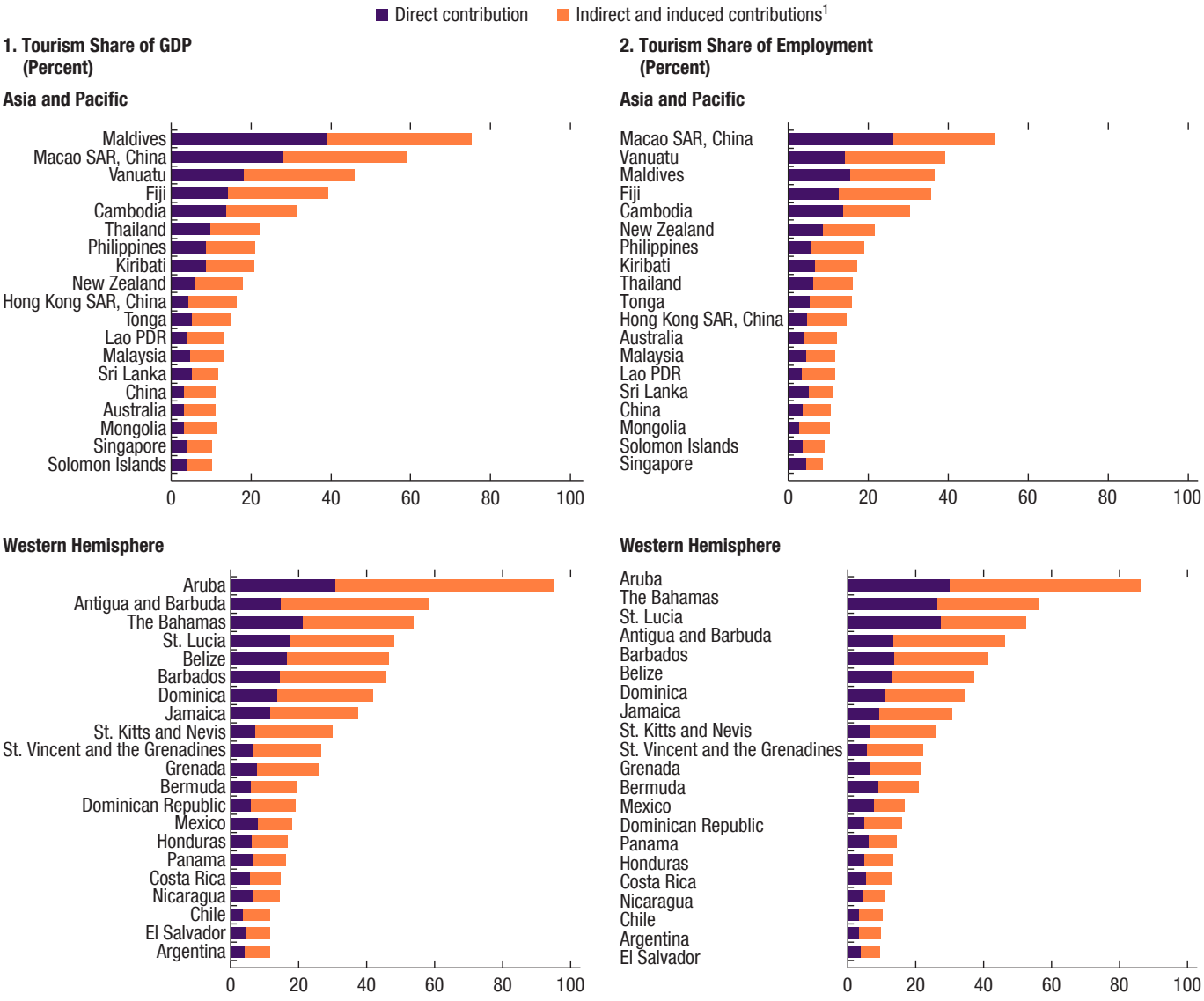
Source: UN World Travel and Tourism Council.
Note: Country list uses International Organization for Standardization (ISO) country codes.

and leisure industries that deal directly with tourists." However, given tourism's significant interlinkages with other sectors and complex supply chain—its *indirect* contribution, including capital investment, government spending in support of tourism activities, and supply chain effects, and *induced* contribution, including spending by those directly or indirectly employed by tourism—are sizeable. Thus, the total contribution of tourism accounting for direct, indirect, and induced components is estimated to extend to more than 10 percent of global GDP. For many countries, particularly the smaller island states in the Asia-Pacific and Caribbean regions, tourism represents by a large share the predominant source of growth and export revenues (Figure 3).

Tourism's contribution to total employment is also significant, especially considering related sectors, with a high share of youth, women, and migrant workers:

- The tourism sector contributes a sizable share to total employment in TDCs, including from related sectors. This contribution is particularly large in small island countries (Figure 3, panel 2). Tourism employs a high share of young workers (aged between 18 and 25) and is estimated to generate 1 out of 10 youth jobs (WTTC, 2019) (Figure 4, panel 1). Moreover, in many TDCs, women tend to comprise the majority of the sector's workforce, accounting on average for 54 percent of those employed in the sector compared to 39 percent in the broader economy (Figure 4, panel 2). Women also tend to hold lower level or informal positions in the sector (UNWTO 2019).
- The tourism sector is also characterized by low-skill intensity and a high degree of informality, which is due in part to its seasonality, combined with weak regulations and enforcement (Figure 4, panel 3). A large number of workers tend to be employed in the sector on a part-time or occasional basis, or as an additional job, and the sector is characterized by high turnover. The high degree of informality also suggests that the actual number of workers employed in the sector may be significantly larger than official figures.
- In some countries, there is a significant share of migrant workers in the sector, notably lower-wage workers from neighboring countries or workers from rural areas within the same country. For example, it is estimated that 16 percent of tourism workers in the European Union and 20 percent in the United States are foreigners. In Australia, the tourism and hospitality industry are one of the largest users of temporary work visas. In Thailand, it is estimated that a fifth of workers in the hospitality sector come from lower-wage neighboring countries (Cambodia, Lao PDR and Myanmar). Such workers tend to have limited access to social safety nets. For example, a recent International Labour Organization survey of migrant workers in

Figure 3. Tourism in Selected Asia-Pacific and Western Hemisphere Countries, 2018



Sources: Oxford Economics Research; and UN World Travel and Tourism Council.

[1]"Direct contribution" refers to total spending on travel and tourism by residents and nonresidents and government spending on travel and tourism. "Indirect and induced contributions" include investment spending, collective government spending (for example, administration, marketing), and domestic supply chain purchases by sectors dealing with tourists (such as food and catering, fuel, technology). See the World Travel and Tourism Council/Oxford Economics Research Methodology Report.

the Association of Southeast Asian Nations (ASEAN) region reveals that nearly 97 percent of unemployed migrants in the tourism sector have no access to their host country's social safety nets (ILO 2020).

The confluence of these factors—the prevalence of women, young, and migrant workers, low skill intensity, and informal work arrangements—tend

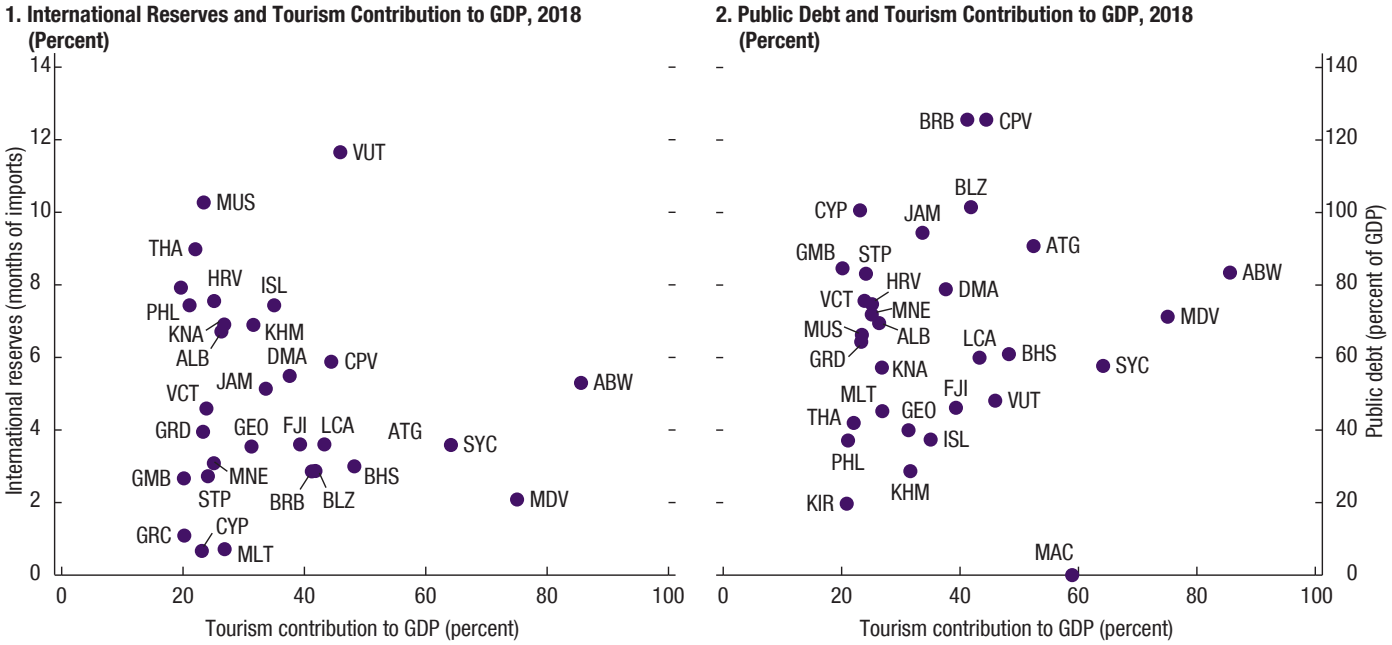
Figure 4. Tourism and Employment in Selected Countries

Sources: International Labour Organization Statistics database; national statistical offices; Organisation for Economic Co-operation and Development; and World Travel and Tourism Council.

Note: Panel 1 includes paid employment or self-employment in the hotels and restaurants for available Asia-Pacific and Western Hemisphere countries, in the latest period available between 2010 and 2018. Panel 2 includes countries in the Asia-Pacific and Western Hemisphere regions with a total employment contribution to tourism of above 10 percent. The wage gap is defined as the average wage of women employed in all food and accommodation (as a proxy for the tourism sector) sectors as a share of that of men. Dots below 100 imply women are on average paid less than men. Panel 4 refers to the average wage differential for accommodation and food services for tourism relative to the average wage in the economy. Data are for latest available year. Country list uses International Organization for Standardization (ISO) country codes.

to explain the wage differential that exists in tourism and related sectors relative to other sectors in the economy (Figure 4, panel 4). For many countries where tourism has a high total contribution to employment, there also tends to be higher gender wage gap relative to the broader economy, particularly in lower-income countries (Figure 4, panel 2).

Figure 5. Macroeconomic Initial Conditions in Tourism-Dependent Economies

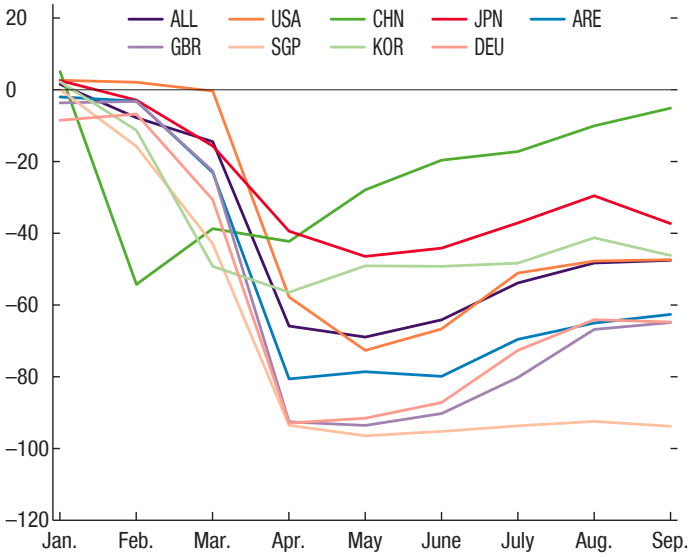


Source: IMF staff calculations.
Note: Country list uses International Organization for Standardization (ISO) country codes.

A large share of the tourism sector features limited buffers and access to finance in the face of shocks. Although there are large enterprises in the accommodation and airline sectors, the sector tends to be characterized by a high share of micro, small, and medium enterprises (MSMEs), often individually or family-owned, particularly in emerging and developing economies, notably in the accommodation, restaurant, and tours and services segments (OECD 2008). In Costa Rica, for example, 94 percent of hotel and lodging firms are classified as micro and small enterprises; in Thailand, SMEs comprise more than 90 percent of firms in the hospitality sector. Owing to their size and constrained access to finance—compared, for example, to large multinational groups—these companies have fewer resilience and diversification options to deal with shocks.

Prior to the COVID-19 outbreak, several TDCs were already characterized by macroeconomic and structural vulnerabilities. Although there is significant country diversity, many countries entered the pandemic with limited fiscal space and weak public sector balance sheets, together with inadequate external buffers and foreign exchange revenues highly concentrated in tourism, particularly small states in the Pacific and the Caribbean (Figure 5). Several also face longstanding structural challenges, such as rising inequality, infra-

Figure 6. Global Scheduled Flights, Major Airline Hubs
(Percentage change, year-over-year)



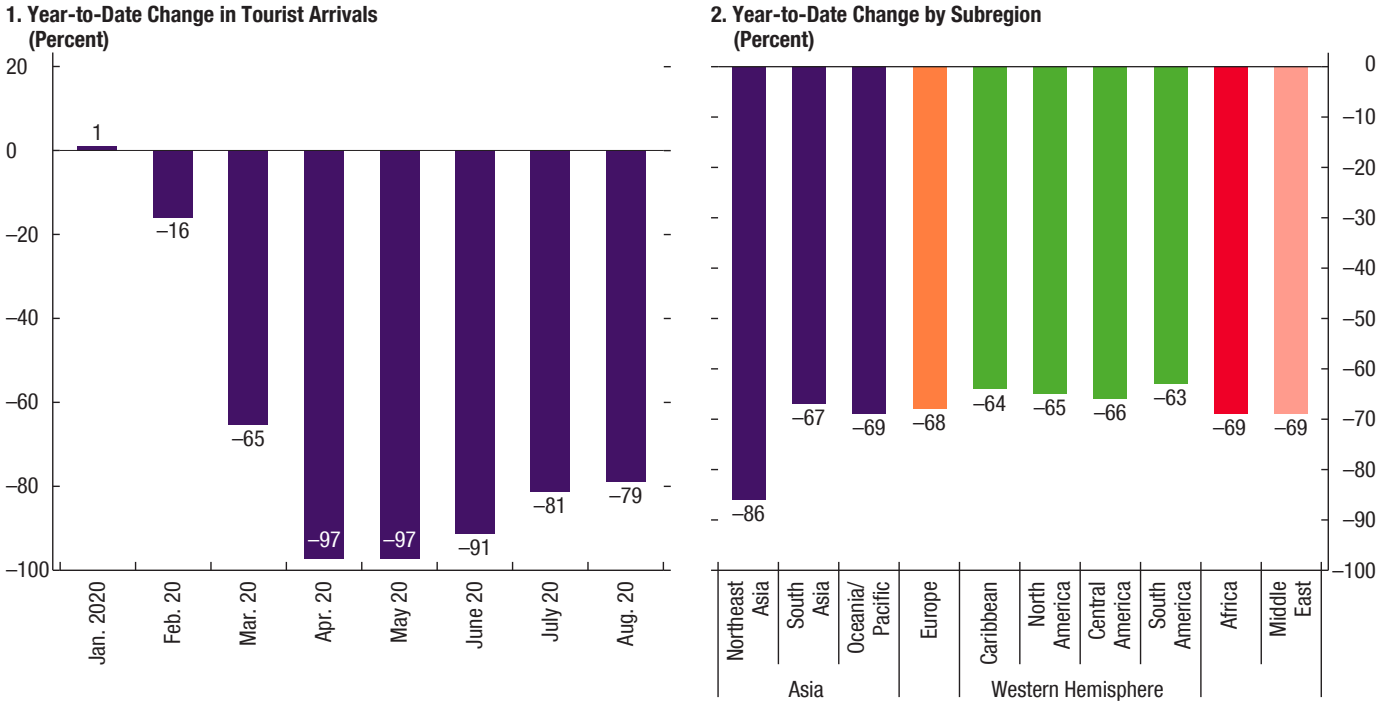
Source: OAG.
Note: Country list uses International Organization for Standardization (ISO) country codes.

structure gaps (for example, Cambodia, Lao PDR, Myanmar, and Vietnam), high private debt (Thailand) and limited access to financing for SMEs, pervasive informality, and capacity constraints (small island states).

COVID-19: A Shock to Tourism Like No Other

The COVID-19 pandemic has had devastating repercussions on mobility and travel, because it is so contagious. The virus outbreak has prompted extensive containment measures to slow its spread. Long (usually two-week) quarantine requirements and the potential for unexpected health costs also serve to deter travelers by making trips longer and costlier. Although countries have moved toward a gradual sector-based relaxation of measures, depending on the contact intensity, hotels, retail, indoor gatherings (such as restaurants and entertainment) remain with restrictions or carry a high level of risk. Air travel remains constrained (with global flight numbers declining by 46 percent year over year by October 2020), and there remain entry restrictions on countries with high caseloads (Figure 6). The risk of sudden policy changes around visas and quarantine requirements remains elevated.

Figure 7. International Tourism Flows as of August 2020

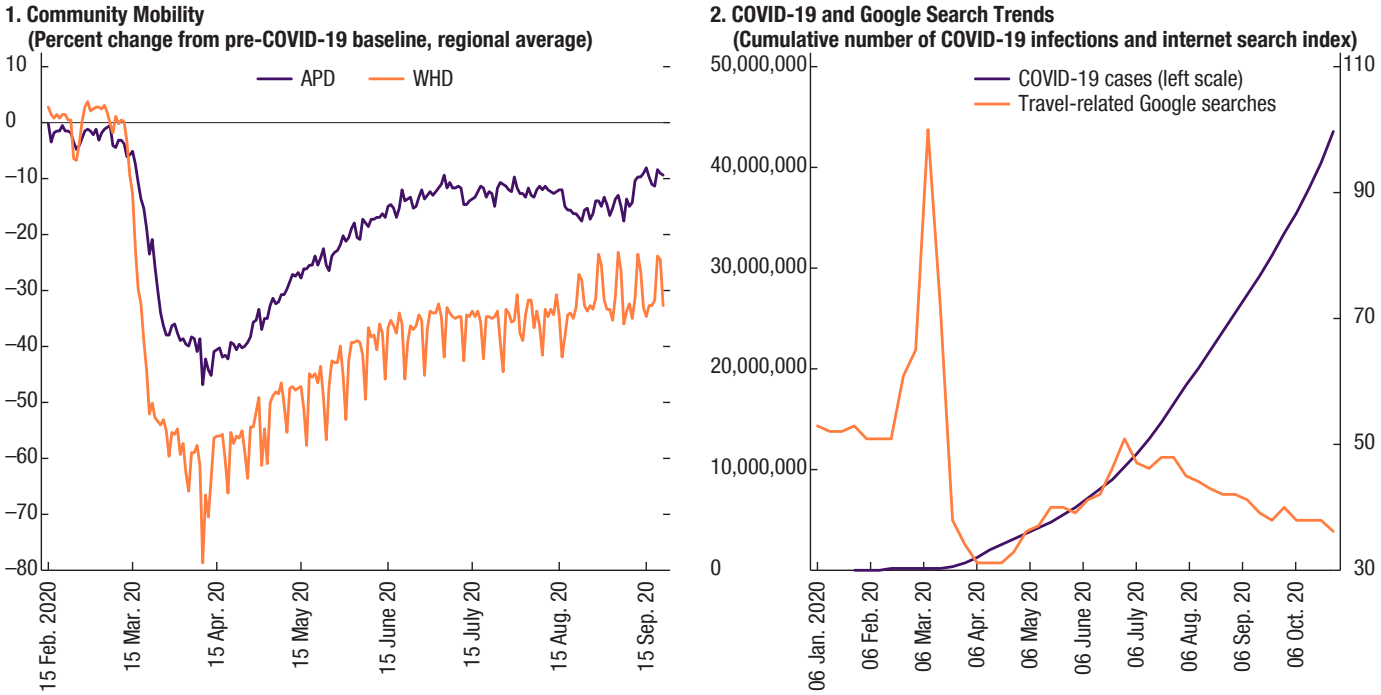


Source: UN World Tourism Organization.

These measures, together with broader economic uncertainty, have led to a dramatic collapse in international tourist arrivals. According to preliminary data published by the United Nations World Tourism Organization (WTO), strict containment measures imposed to prevent and slow the spread of COVID-19 have already caused a fall of 70 percent in international tourist arrivals in the first eight months of 2020, with an 80 percent drop in August, compared to the same period in 2019 (Figure 7). UNWTO (2020) also suggests that a drop in tourist arrivals of 78 percent in 2020 would translate into a loss in visitor spending of US$1.2 trillion, placing more than 100 million direct tourism jobs at risk, many of them in MSMEs in the sector. By comparison, it is estimated that domestic tourism has recovered somewhat relative to international tourism, mainly because of lower domestic mobility restrictions. For example, as of July 2020 in the European Union, tourist nights by domestic travelers had fallen by about 40 percent compared to 70 percent by nonresidents relative to the previous year.

Community mobility and internet search data highlight the unprecedented impact of COVID-19 on travel and tourism. Considering the unparalleled and fast-evolving nature of this health crisis, big data sources, based

Figure 8. COVID-19, Mobility, and Internet Searches on Travel



Sources: Google Mobility; and IMF staff calculations.
Note: Average of retail and recreation, groceries and pharmacies, parks, transit stations, and workplaces.

Sources: Google Trends; and John Hopkins University.

on mobile phone usage and internet searches, provide valuable information to estimate the impact of the COVID-19 on international tourism at high frequency. Using community mobility reports released by Apple and Google (as well as other internet service providers like Baidu in China), it is possible to track the severe disruption caused by COVID-19 in mobility across the world in real-time. For example, the average decline in overall mobility relative to the pre-pandemic baseline reached as much as 47 percent in Asia-Pacific and 75 percent in the Western Hemisphere (Figure 8, panel 1). There is also a strong correlation between the spread of COVID-19 and the volume of travel-related internet searches (Figure 8, panel 2). According to the Google Trends data, the emergence of COVID-19 worldwide led to a collapse in internet searches related to travel, after a temporary spike in March, possibly due to re-bookings. Although consumers' interest in travel started to recover during the summer, the second wave of the pandemic appears to have depressed travel-related internet searches again.

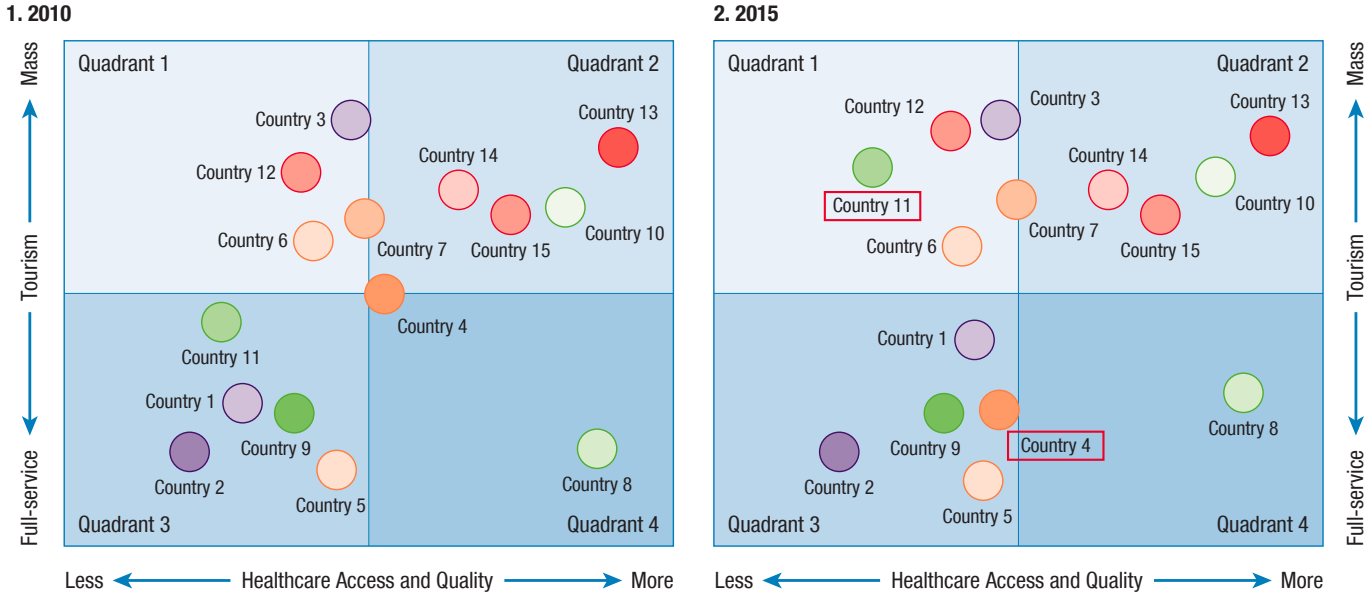
The shock to international travel and tourism is generating significant macroeconomic and social challenges. Small states in the Pacific and the Carib-

bean regions are expected to be the most severely hit, due to the high share of tourism in their economies in output and employment as well as external and fiscal positions (Figure 5). Given the high rate of informality in many of these economies particularly among women, the youth, and migrant workers, such groups are being more severely impacted from diminishing employment opportunities, especially when combined with lack of access to safety nets. Women may also be more likely to drop out of the labor force given increasing demands on domestic responsibilities related to the pandemic. Because of the contraction in international travel and tourism, migrant workers have been significantly hit, affecting also their families and countries dependent on their remittances—an important outward economic spillover channel to migrant-originating countries. Global remittances fell significantly in the second quarter of 2020, although they recovered in many countries in the third quarter as lockdowns in source and destination economies eased. Accordingly, the World Bank estimates that an additional 100 million people could be pushed into extreme poverty this year due to the impact of COVID-19.

Economic strains in MSMEs as much as larger-service industry firms, such as airlines, could have spillovers to the financial sector, further hampering the recovery. As the pandemic is protracted, liquidity problems can transform into solvency ones, straining the capacity of the tourism sector to repay its debts, further endangering the economic outlook. While MSMEs, as noted earlier, tend to be less resilient to shocks, the severity of this pandemic is also impacting large players (international hotel and restaurant chains, global and low-cost airlines, packaged tour operators). Monitoring and dealing with stressed or nonperforming loans in a timely manner will be critical to the recovery for all countries, but especially for those banking systems that entered the crisis with already weak balance sheets.

TDCs also vary greatly by tourism model and health capacity. Conceptually, countries can be positioned across a scale of the cost and density of tourism, such as low-cost mass tourism versus full-service (including niche) tourism (*y* axis in Figure 9). They can also be compared across the quality of their healthcare systems, including their responsiveness to health emergencies (*x* axis). The classification of tourist-dependent economies across these two dimensions provides a helpful framing device to analyze how international tourists may weigh their decision where to travel and the likely policy options countries can feasibly pursue. For example, between 2010 and 2015, out of a sample of 15 lower- and middle-income countries from the Asia-Pacific and the Western Hemisphere, countries have tended to improve their healthcare quality (three countries shifted to the right). However, it has been difficult for these countries to shift toward the more full-service model of tourism (one country), with more moving toward mass tourism (three countries).

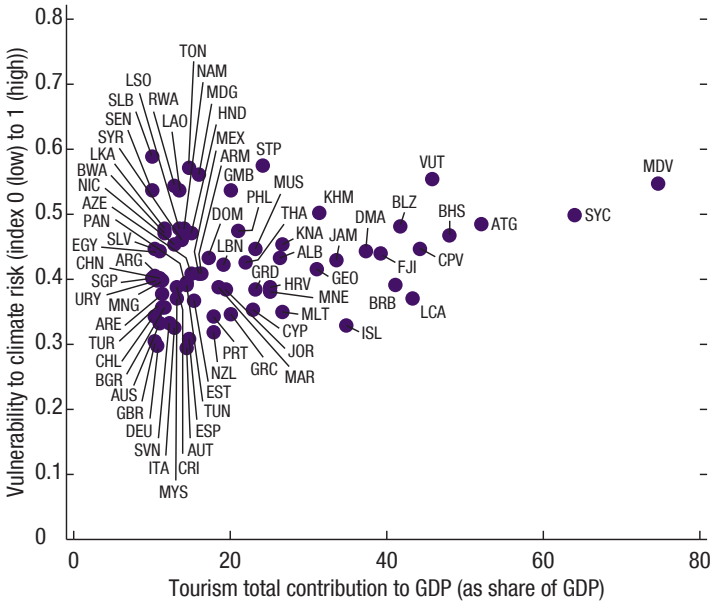
Figure 9. Tourism Differentiation and Healthcare



Sources: Institute for Health Metrics and Evaluation, Healthcare Access and Quality Index; World Bank, World Development Indicators; IMF Week at the Beach Index; and IMF staff calculations.
Note: The "Healthcare Access and Quality" axis measures from worst to best based on death rates from 32 causes of death that could be avoided by timely and effective medical care. The "Tourism" axis is tourism spending per arrival, deflated by the IMF's Week at the Beach Index (2014 for 2010, panel 1, due to data availability; 2015 for 2015, panel 2).

As they are trying to mitigate the impact of the pandemic, many TDCs face an added threat from climate change (Figure 10). With the global average surface temperature rising by 1.1 degrees Celsius since 1880, risks of extreme weather events and large-scale disasters have increased across the world. TDCs are especially vulnerable given their reliance on vulnerable natural resources such as beaches and coral reefs, or particular weather patterns (beach and ski resorts). For example, Cevik and Ghazanchyan (2020) find that a one standard deviation increase in climate change vulnerability is associated with a decline of 9.2 percentage points in international tourism earnings (or a loss of 1.5 percent of GDP) in the Caribbean.

Figure 10. Vulnerability to Climate-Related Risks in Tourism-Dependent Economies



Sources: Notre Dame Global Adaptation Initiative; and World Travel and Tourism Council.
Note: Country list uses International Organization for Standardization (ISO) country codes.

CHAPTER

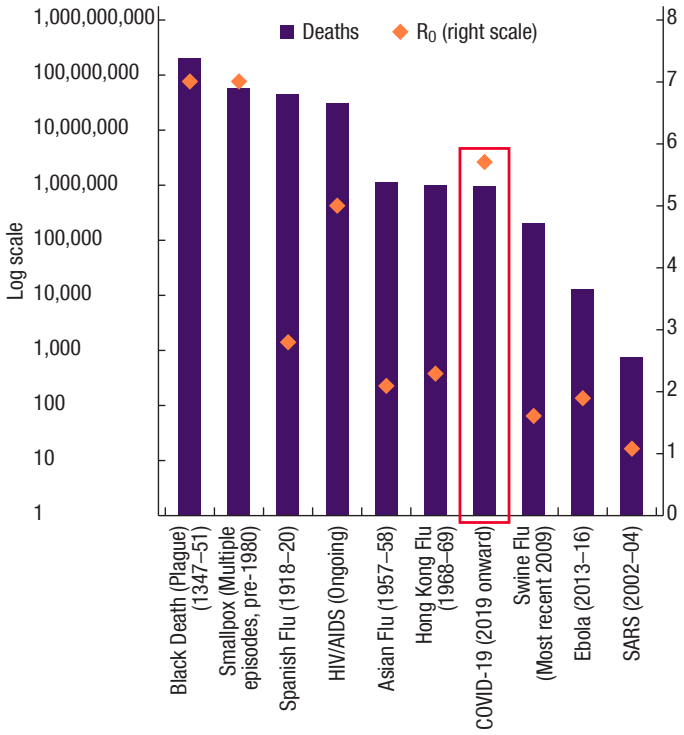
2 Lessons from Past Epidemics

Analyzing the evolution of international tourism flows during past epidemics can help better understand the impact of COVID-19. Other infectious diseases have had significant economic effects across the world, including several pandemics in the 20th and 21st centuries caused by an influenza virus or a coronavirus. However, although the mortality rate for COVID-19 is found to be lower than past epidemics, it is having unprecedented health, social, and economic consequences, given its high contagion rate—as shown by the R_0 or reproduction number (Figure 11)—and global spread. Although past pandemics have generally been short-lived, how each country comes out of the current crisis will depend on policy choices made during the pandemic, the required adjustment, and the economic and institutional strength prior to COVID-19. Therefore, analyzing the evolution of international tourism flows following previous epidemics can shed light on the country-specific impact of the COVID-19 pandemic and improve its recovery trajectories.

An augmented gravity framework and data on previous infectious-disease episodes are used to predict international tourism flows, building on Cevik (2020). The standard gravity equation states that bilateral flows between two countries are proportionate to economic size and inversely proportionate to geographic distance (see Annex 2). Since the objective is to understand the effect of infectious diseases on international tourism, we augment the parsimonious gravity model with the number of confirmed infectious-disease cases scaled by population and additional control variables and use a large data set of 38,184 pairs of countries during 1995–2017.

Past infectious-disease episodes are found to have a significant negative effect on bilateral tourism flows across the world. A specification including only macroeconomic and demographic variables and standard gravity factors is presented in column (1) of Annex Table 2.1 as a point of baseline reference. The number of infectious diseases is then introduced into the regression

Figure 11. Past Epidemics: Total Deaths and Contagiousness



Sources: Centers for Disease Control and Prevention; World Bank; and World Health Organization.
Note: The COVID-19 R0 is a median estimate without mitigation measures (see Sanche and others 2020). R_0 = reproduction number.

in column (2) for Ebola, column (3) for malaria, column (4) for SARS, and column (5) for yellow fever.

- **Standard gravity indicators**. The results demonstrate a consistent picture with the signs of all estimated parameters corresponding to their expected values across different specifications. The level of income and proximity between countries or geographical contiguity are positively associated with tourist flows. Cultural similarities and historical ties, proxied by common official language and colonial relations, as well as demographic factors, such population and life expectancy, also contribute to stronger tourism flows.
- **Role of infectious diseases**. With regards to the main explanatory variable of interest, estimation results establish a significant effect of infectious-disease episodes on international tourism flows, but with variation in magnitude and statistical significance depending on the nature of the disease. The estimated coefficients on malaria and yellow fewer are considerably smaller in magnitude, whereas the coefficients on Ebola and SARS are found to be both statistically and economically significant. These results are robust to alternative estimations and specifications, including after controlling for health infrastructure (Annex Table 2.2–3). In the case of SARS, for example, a 10 percent increase in the number of confirmed cases leads, on average, to a reduction of 4.7 percent in international tourist arrivals (Table 1). There is, however, significant heterogeneity across country groups in the impact of pandemics on tourism, depending on the level of income and health infrastructure.

The estimated differences in how infectious diseases affect international tourism flows likely reflect disease-specific characteristics.

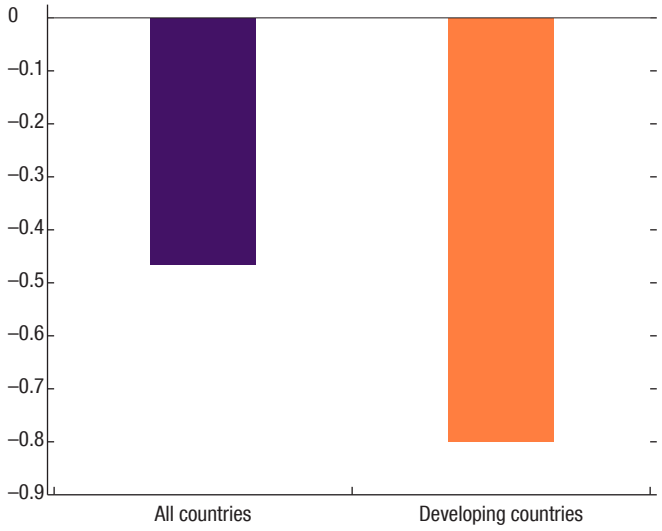
Table 1. Infectious Diseases and International Tourism: 2SLS-IV Estimations

	(Dependent variable: Bilateral tourism flows)			
Ebola				
Origin	−0.065***			
	[0.005]			
Destination	−0.089***			
	[0.008]			
Malaria				
Origin		−0.001		
		[0.001]		
Destination		−0.007		
		[0.001]		
SARS				
Origin			−0.387***	
			[0.092]	
Destination			−0.078***	
			[0.104]	
Yellow fever				
Origin				0.004
				[0.012]
Destination				−0.017
				[0.104]
Controls	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes
Adjusted R^2	0.83	0.82	0.83	0.82

Source: IMF staff estimates.

- *Vector of transmission.* While malaria and yellow fever are transmitted by mosquitoes, Ebola and SARS—similarly to COVID-19—are spread from human to human. Accordingly, while malaria and yellow fever may be endemic in rural areas, Ebola and SARS could spread more easily in densely populated cities and airports.
- *Existence of treatment or vaccine.* Although a vaccine for yellow fever and treatments for malaria exist, to the authors' knowledge there is no such treatment or vaccine against Ebola or SARS. Consequently, infection risks of these diseases have a greater effect on international tourism flows, especially to countries with weak health infrastructure.
- *Temporary outbreak vs. endemic presence.* When a disease is endemic like malaria and yellow fever, there is no point in delaying travel as long as precautions can be taken. Outbreaks of Ebola and SARS, on the other hand, are temporary in nature and, without any treatment or vaccine, incentivize tourists to delay visiting a particular country until the outbreak is over.

Figure 12. Impact of SARS on Tourism Flows[1]
(Coefficient)



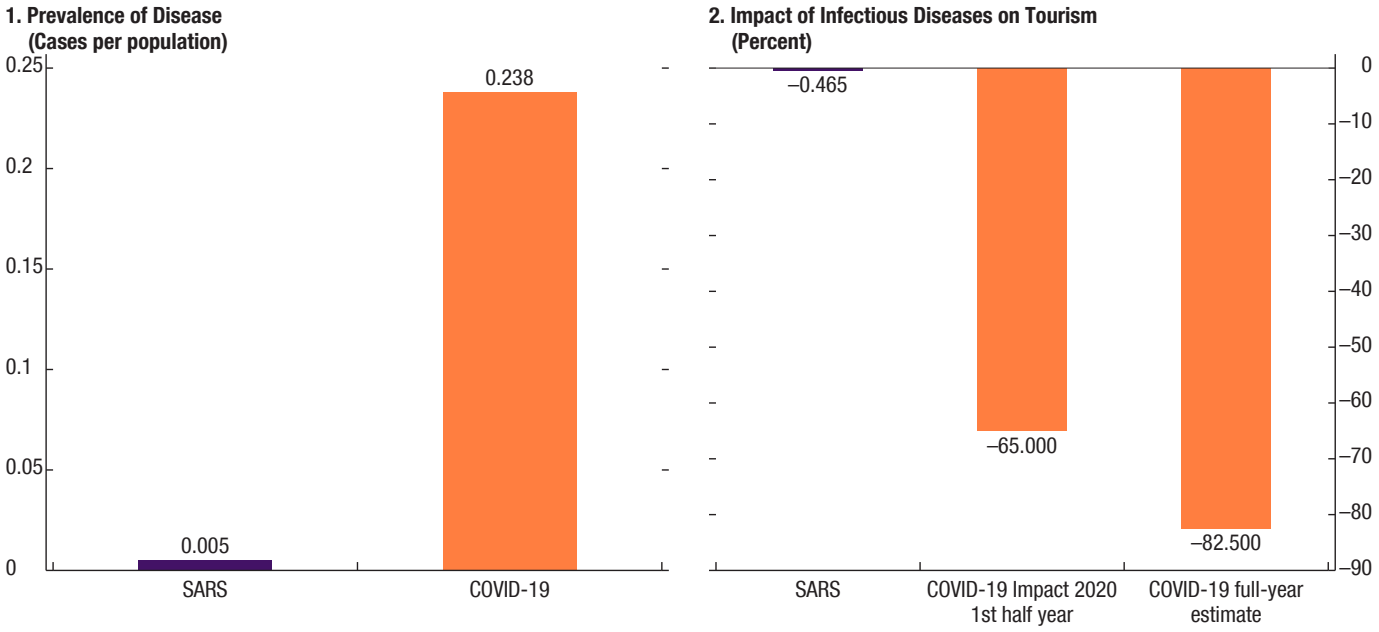
Source: IMF staff calculations.
[1]Coefficient estimates are based on regressions including control variables and fixed effects.

The impact of infectious disease is significantly higher in developing countries, notably in Asia, Latin America, and the Caribbean. Partitioning the sample into income groups and geographical regions highlights heterogeneity on how the risk of infectious diseases affects international tourism flows. These estimation results, presented in Annex Table 2.4, show a substantial contrast between advanced economies and developing countries. Although infectious diseases appear to have statistically insignificant effect on tourism flows to advanced economies, the magnitude and statistical significance of the impact of infectious diseases are much greater in developing countries, where such diseases tend to be more prevalent and health infrastructure lags behind (Figure 12).[1] For example, in the case of SARS, a 10 percent increase in the number of confirmed infections led to a decline of about 8 percent in international tourist arrivals to developing countries—almost twice as much as the average impact on all countries (Annex Table 2.4). These findings show systemic differences among geographical regions: the disease impact on international tourism flows is significantly greater in Asia, Latin America, and the Caribbean than the rest of the world.

The magnitude of these effects is likely to be much greater in the case of the highly contagious COVID-19. Every infectious disease is different in important ways, but there are significant similarities between COVID-19 and SARS, which belong to the same family of coronavirus. Scaling the estimated coefficient of SARS to the prevalence of COVID-19 as measured by the number of confirmed cases in population would yield an approximate decline of 82.5 percent in international tourism flows across the world (Figure 13). This is broadly consistent with the actual impact of –65 percent registered in the first half of 2020. These estimates for the impact of the COVID-19 pandemic on tourism, especially in developing countries, should be consid-

[1]Unlike past episodes, however, the impact of COVID-19 on tourism flows will be similar across all country groups, given the extent of containment measures put in place by all countries regardless the level of income.

Figure 13. Potential Impact of COVID-19 on International Tourism Flows

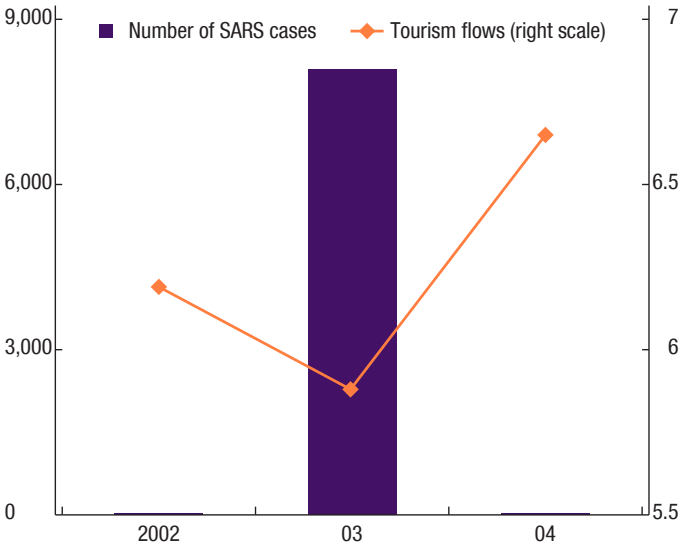


Sources: UN World Tourism Organization; World Health Organization; and IMF staff calculations.

ered an upper bound. First, the COVID-19 pandemic is a global phenomenon, causing widespread infections and casualties across the world. Second, economic growth—a key determinant of international travel and tourism—is projected to decline by 7 percentage points in 2020 relative to 2019, while past epidemics lowered growth by 0.6 percentage points on average.

The pace and scope of recovery in tourism will depend on the evolution of the pandemic and cross-country policy response. The epidemiological path, duration, and magnitude of the COVID-19 pandemic remains extremely uncertain, making it far more challenging than any other crisis to estimate the recovery trajectory of international travel and tourism. In the case of SARS, for example, the outbreak disappeared within a year and tourism flows recovered quickly (Figure 14). In the case of COVID-19, however, bringing the pandemic under control and restoring the normal functioning of economic activity will depend on global efforts to ensure the swift deployment of vaccines and treatments and policy interventions that can help cushion income losses and address long-term scarring effects. Therefore, it is reasonable to assume that ascending back to pre-pandemic level will take multiple years and remain subject to greater uncertainty and setbacks.

Figure 14. SARS and International Tourism



Sources: UN World Tourism Organization; and World Health Organization.

CHAPTER

3 Analyzing Macroeconomic Scenarios Under the New Post-Pandemic World

A theoretical model can help identify potential macroeconomic scenarios and in turn draw policy implications. Using a large-scale macroeconomic model helps to better understand the impact of COVID-19 on the tourism sector and the broader economy relative to benchmark scenarios. Such a theoretical model is also not as bound by historical estimates of parameters like the gravity model, and can accommodate a unique shock like the pandemic, as well as provide some insights about the nature of long-term economic scarring. To that end, this paper uses a customized version of the IMF's large-scale dynamic stochastic general equilibrium model, the Global Integrated Monetary and Fiscal model (GIMF). The customized framework includes a module for tourism, although without a direct epidemiological dimension.[1] First, a benchmark scenario is built broadly consistent with the assumptions and forecasts of the October 2020 *World Economic Outlook* (WEO) related to tourism to outline the collapse and one possible recovery path for global tourism, focusing on emerging markets and small developing states in the Asia-Pacific and Western Hemisphere regions. Second, a pair of alternative scenarios on the downside and the upside are used to highlight uncertainty about the COVID-19 shock and the post-pandemic recovery. Two policy scenarios presented in Chapter 4 demonstrate how governments could help shape the recovery.

The benchmark scenario assumes a near-total shutdown of tourism followed by an illustrative gradual recovery, hampered by permanent economic scarring. The sudden stop in tourism is caused by a shift in households' preferences, deciding not to travel either domestically or abroad. The scenario does not combine the halt in travel and tourism with other pandemic-related shocks such as lockdowns that hamper manufacturing and the trade in goods

[1]For more on the structure and theory behind GIMF as well as the inclusion of a customized tourism sector for this paper, see Annex 3, first subsection.

(to use but one example). International tourism begins to resume in the second year, but the recovery is only gradual and limited in scope. The baseline assumption on the speed of recovery relies on a relatively equitable and consistent distribution of a COVID-19 vaccine that restores tourist confidence over several years. As a result of economic scarring, international tourism is expected to return near the pre-pandemic level after three years and reach its previous growth path a few years later in line with the IMF's global projections presented in the October 2020 WEO.

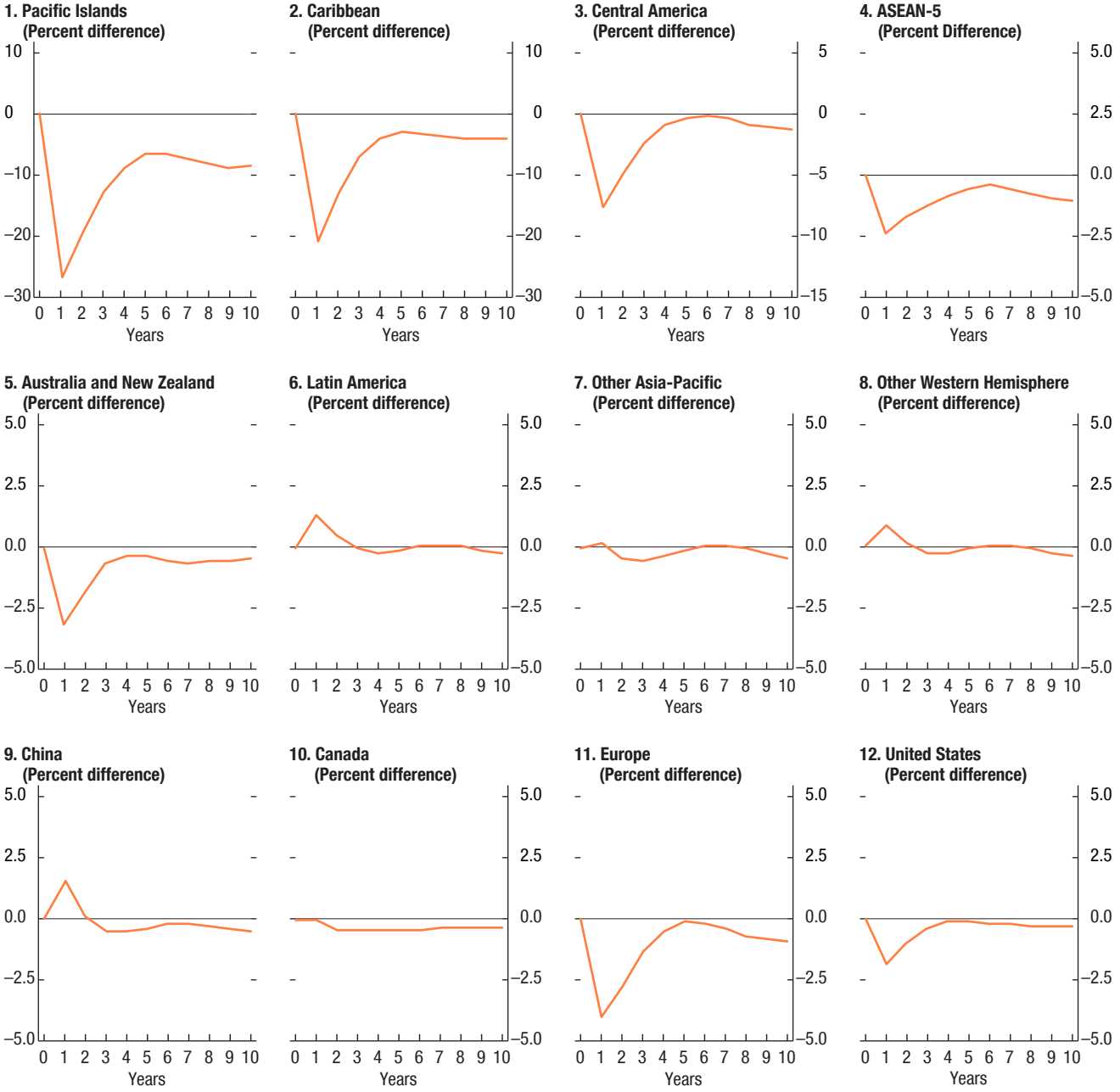
The assumption as to long-term economic scarring is still difficult to assess at this stage of the pandemic, although there is support in recent literature. In this paper, economic scarring from tourism is presented as a reduction in productivity in the sector itself arising from additional costs to tourism operators and firms. These costs can include health and cleaning protocols, social distancing measures, and contactless measures for accommodation and food services. This is consistent with the emerging literature on economic scarring from the pandemic. Research by the World Bank (Dieppe, Kilik Celik, and Okou 2020) suggests that productivity after epidemics has declined in the past anywhere from 6 to 15 percent and could be worse after the COVID-19 pandemic owing to its global reach, the role of social distancing, and the compounding effects of financial stresses. There is also the theoretical model of Kozlowski, Veldkamp, and Venkateswaran (2020) that can endogenously produce a long-term, persistent, productivity decline based on a pandemic of the magnitude of the COVID-19 shock, which supports the assumptions here.[2] Absent a large body of reliable estimates for the magnitude of economic scarring within the tourism sector, the assumption is that, for a given allocation of capital and labor, the amount of tourism services produced would be 10 percent lower than before.

Regions with larger tourism sectors experience the largest losses while source countries have mixed results (Figure 15).[3] The magnitudes of the losses are linked to the share of tourism, with the Pacific Islands and the Caribbean the hardest hit, although the impact in the other major tourism regions is still notable. This is even the case for advanced economies with significant tourism sectors, such as Australia and New Zealand and Europe. Some regions (Latin America and China in particular) are net importers of tourism services, so they actually experience increases in real GDP. However, their

[2]While both papers point out that a strong coordinated and comprehensive policy response can offset many of these effects, this paper's benchmark scenario does not assume such comprehensive policy action.

[3]For the complete definition of the regions used in the GIMF simulations, see Annex 3, second subsection. In particular, note that the Caribbean includes Belize, the Dominican Republic, and Jamaica, as well as eight small states. The Pacific Islands are calibrated only based on the five largest tourist economies, including Fiji and Vanuatu.

Figure 15. Benchmark Scenario—Impact on Real GDP, Globally
(Percent deviation from the pre-COVID-19 forecast)



Source: IMF staff calculations.
Note: ASEAN = Association of Southeast Asian Nations.

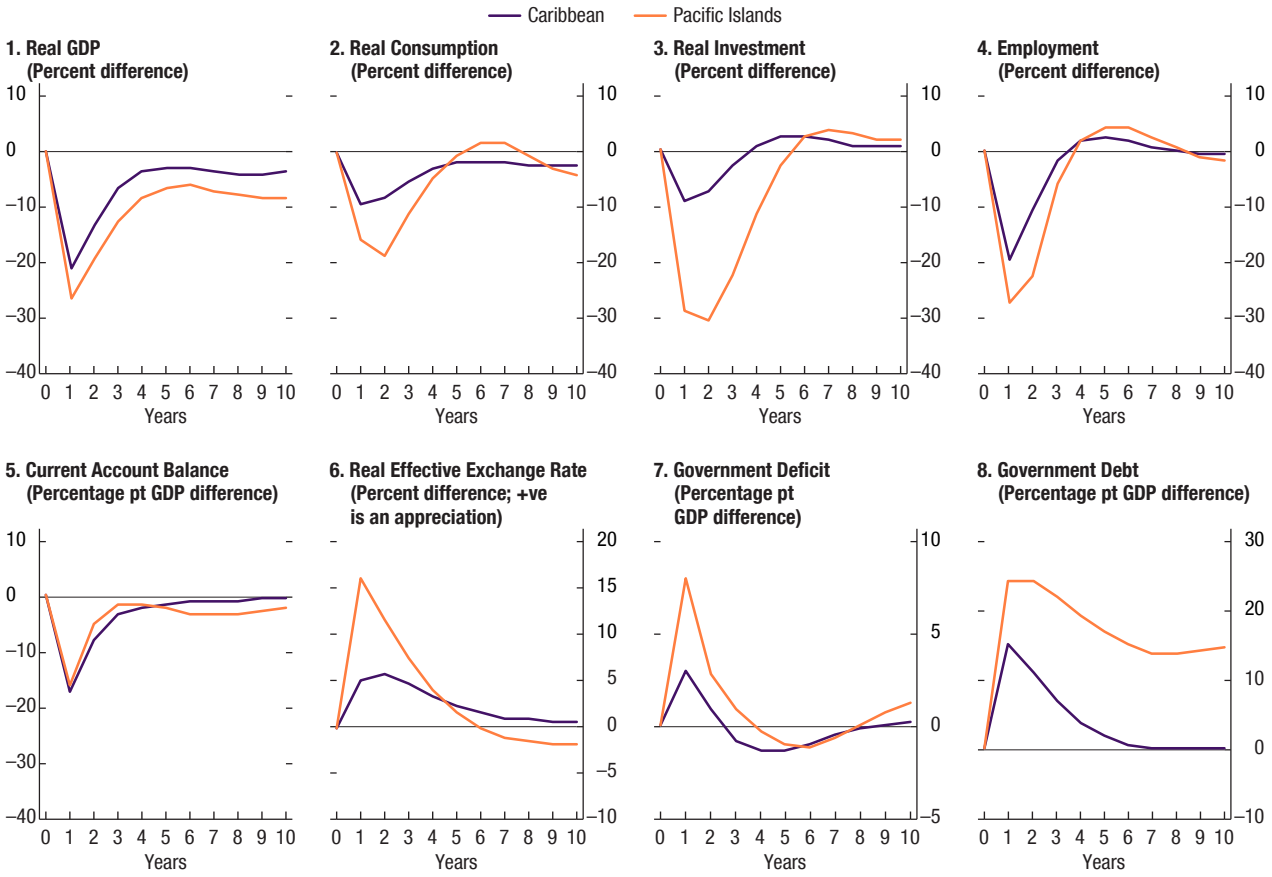
tourism sectors still strongly contract because of the cessation of tourist flows domestically and from abroad.

What drives the losses in tourism-dependent regions can vary between the domestic and external sectors, as best illustrated by the Caribbean and Pacific Island regions (Figure 16).[4] Both regions' real GDP falls by more than 20 percent. The fall in tourism leads to large falls in employment, which reduces household income and hence consumption, as most households are not able to smooth consumption (unlike in advanced economies). Investment is mainly related to tourism, so it also contracts. Since the tourism sector is relatively larger in the Pacific Islands, there is a larger wealth shock, leading to a significantly larger depreciation in the real effective exchange rate (REER). This is analogous to when oil exporters face a large fall in global oil demand. The Pacific Islands are expected to have a stronger net export response, with lower imports and higher exports from the shift in the REER. Comparing only real GDP for economies such as the Pacific Islands and the Caribbean masks the different impacts between the domestic and external sectors.

Many governments in the Pacific and Caribbean have also accumulated significant debt, whose burden is exacerbated by the COVID-19 shock and weighing on the recovery. The benchmark scenario assumes a deterioration in countries' fiscal positions and a sharp increase in debt, due to the growth and exchange rate shocks. It is assumed that government's discretionary spending is unchanged from pre-pandemic budget plans. On the other hand, both regions' governments provide small automatic stabilizers. The share of government spending as a percent of GDP is higher in the Pacific Islands than in the Caribbean, so as real GDP recovers, the debt-to-GDP ratio returns faster to its pre-pandemic values in the Caribbean than in the Pacific Islands. However, while the benchmark scenario assumes that all the debt can be financed easily, at the (low) global interest rate, a mix of financing, including at better terms from development partners, and policy adjustment is more likely in many of regions' countries, also given limited market access. If affordable financing were to be replaced by cuts in government consumption or social transfers, the fiscal position would not improve, while private consumption would be substantially weaker, in turn having negative impacts on real GDP and increasing the debt-to-GDP ratio.

[4]The results for the Caribbean could be slightly different depending on whether the monetary policy framework is based on a flexible or fixed exchange rate, as in the Eastern Caribbean Currency Union (ECCU). Under a fixed exchange rate, the recession could be slightly deeper and the recovery process more prolonged. However, by pegging to the US dollar, the ECCU has also benefited from unconventional monetary policy stimulus that the region could not generate under an independent monetary policy framework with a flexible exchange rate. More information is available upon request from the authors.

Figure 16. Benchmark Scenario—Focus on the Pacific Islands and the Caribbean
(Percent deviation from the pre-COVID-19 forecast)



Source: IMF staff calculations.

Given the highly uncertain nature of the pandemic, both alternative upside and downside scenarios are considered.[5] Most of the uncertainty stems from the length of the pandemic, and how the economy will recover. The global trough for the tourism sector is still in 2020, but the two alternative scenarios diverge from the benchmark as the recovery begins in 2021, due to the path of pandemic. There are clear upsides, from a large pent-up demand for tourism following the lockdowns across many countries, if the vaccine can be smoothly rolled out globally. If enough herd immunity is achieved by the second half of 2021, an earlier-than-expected return of mobility and travel to pre-pandemic levels is a distinct possibility. Nevertheless, there are still important downside risks, with greater long-term scarring effects, despite the

[5]Annex 3, fourth subsection, provides a decomposition of the benchmark, downside and upside scenarios, and also discusses a range of possible outcomes from each of the components used to construct the three scenarios.

positive news on vaccines, given the many outstanding unknowns about their effectiveness, as well as expected storage and distribution challenges in many developing economies.

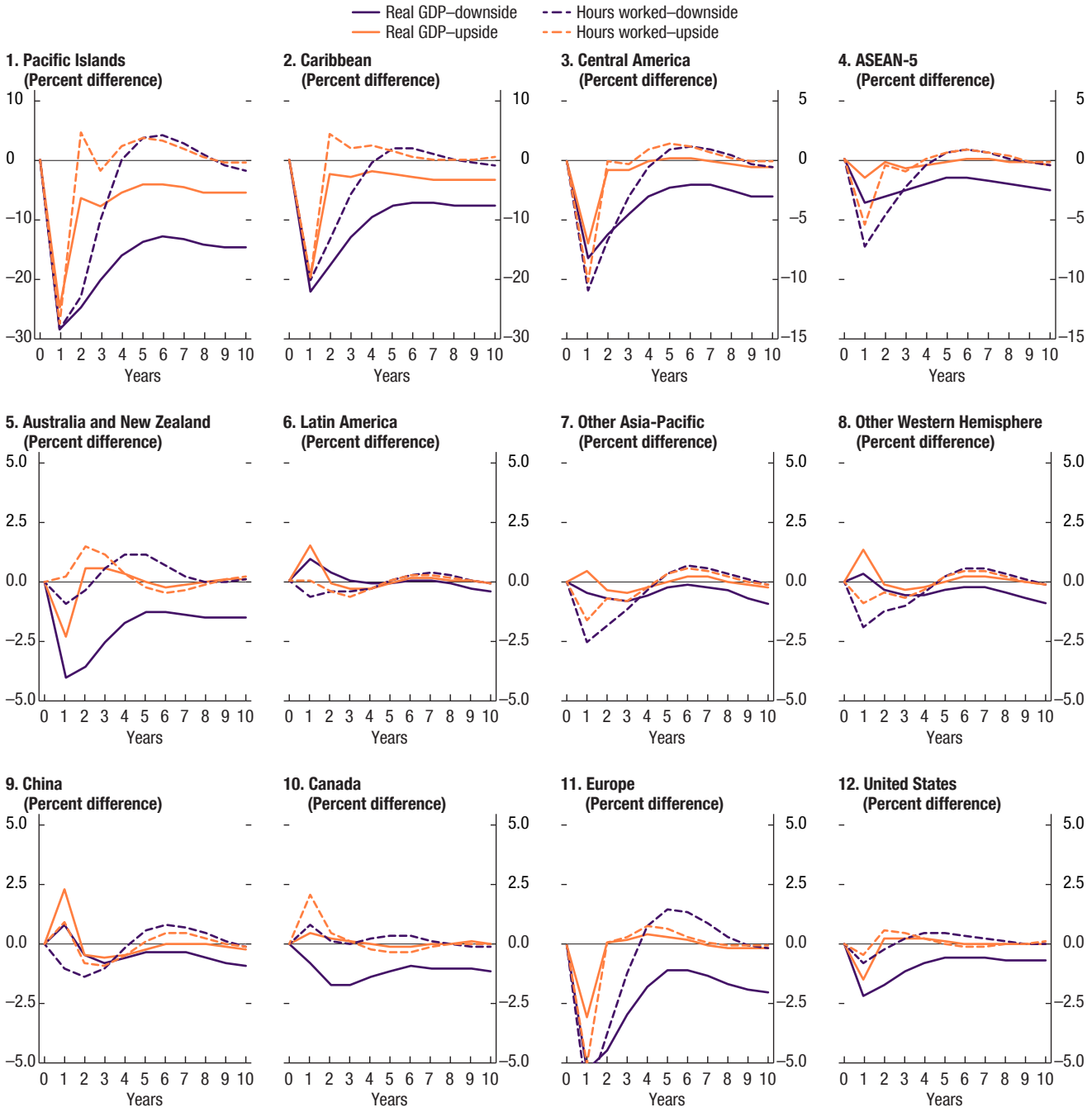
The downside scenario sees a worse outcome from the pandemic. It features a slower recovery for tourism demand, coupled with differentiation by tourists between those regions that are perceived to have stronger healthcare systems, which leads to greater costs to firms in the tourism sector and reduces sectoral productivity by 20 percent, instead of only 10 percent in the benchmark. There is a larger permanent loss of GDP (Figure 17, solid lines). Those countries that tourists perceive as having weaker healthcare systems suffer even greater GDP losses. Because the tourism sector is permanently less productive even after a slow recovery, the recovery in employment slows considerably although it does return to its former levels eventually (Figure 17, dashed lines). Employment will overshoot in the short term even in the downside scenario, as firms try to move to profitability as quickly as possible by hiring more labor as investment takes time to increase the capital stock needed to produce more output.[6]

Conversely, the upside scenario considers a faster recovery for tourism demand and supply. There is a temporary surge in international tourism in 2021 because of pent-up consumer demand from the pandemic period. Moreover, economic scarring does not materialize in the upside scenario, with no productivity shock to the tourism sector. Real GDP and employment recover more rapidly, and to a higher level than in the benchmark (Figure 17), because of the surge in tourist demand, with no productivity constraints. For regions such as the Pacific Islands and the Caribbean, measured real GDP will not recover as much as other countries, although all of the components of real GDP (consumption, investment and exports) and real income do fully recover.[7]

[6]Employment here is not necessarily only an increase in people working—it could be an increase in average hours worked. Moreover, it is not possible to distinguish between a lower unemployment rate and a higher participation rate.

[7]For a more detailed explanation of this technical phenomenon, please see the discussion of the benchmark scenario in Annex 3, fourth subsection, starting with the third paragraph.

Figure 17. Alternative Scenarios—Impact on Real GDP and Employment
(Percent deviation from the pre-COVID-19 forecast)



Source: IMF staff calculations.
Note: ASEAN = Association of Southeast Asian Nations.

CHAPTER

4 Policy Options Toward a New Normal

The Tourism Sector Challenge Post-COVID-19

While most TDCs will depend on global developments to exit the crisis, policy and institutional choices will also play a critical role in the economic recovery. Given the high degree of uncertainty surrounding the post-pandemic world and the expected deep and long-lasting economic scarring, TDCs will need to proactively identify and calibrate a well-sequenced and comprehensive set of policy solutions, in coordination with the private sector to establish and comply with health and safety protocols, while communicating those with clarity and consistency to potential travelers to rebuild their trust and confidence. Close coordination among sectors such as aviation, hospitality, and insurance will be also needed to adapt to the evolving health situations in specific countries. This section discusses a range of immediate and medium-term policy priorities, by both public and private sector, first to underpin support from financial sector, and then sequenced in three main phases (mitigation, reopening, and recovery), drawing early lessons and policy implications from selected case studies in the Asia-Pacific region (Fiji, Thailand, and Vanuatu) and Western Hemisphere (Costa Rica, Jamaica), as detailed in Annex 1.

Monitoring and supporting stressed firms early on will be critical to set the stage for a smooth recovery. As mentioned in Chapter 1, a protracted pandemic can turn firms' liquidity stress into bankruptcies, if unaddressed, with important macro-financial spillovers. Supportive monetary and financial policies, aimed at creating a favorable environment for borrowers, can help support affected firms. Central banks can help through cuts in the policy rate, while financial authorities can use the flexibility embedded in existing regulations or providing temporary regulatory and supervisory measures, including using capital and liquidity buffers. However, the domestic financial

sector may remain unable able to provide the entire support needed. Even with the tourism sector in financial distress, banks might be forced to cut back on lending and tighten lending standards, to protect and repair their balance sheets. If so, the recovery would likely have to depend even more than the usual on projects from development partners in small TDCs and tourism-specific fiscal support in those TDCs with sufficient fiscal space. Moreover, caution should be exercised not to relax loan classification (and definitions of nonperforming loans), provisioning rules, or debt restructuring processes (Awad and others 2020; Harjes and others 2020; Liu, Garrido, and DeLong 2020). Banks could provide firms with the opportunity to restructure debt, possibly facilitated through central bank funding support (Awad and others 2020, Bauer and others 2021, Muir and Nadeem forthcoming). Stronger and enhanced legal frameworks, including to allow for out-of-court procedures, can allow less-burdensome and more-expeditious restructuring of viable firms. Such measures are especially relevant to encourage viable tourism SMEs to determine ways of repositioning themselves in either the tourism or the broader corporate sector, preempting bankruptcies and liquidation (Bauer and others 2021, Garrido and others 2020).

In Phase 1, the crisis-mitigation phase, countries have introduced tourism-specific measures to benefit businesses and workers that help offset the immediate impact of the COVID-19 shock but may need to provide further support. Some countries have proactively provided fiscal stimulus and financial support for tourism and related sectors, including for workers, businesses, and national airlines—through either direct support to SMEs in the industry or through loans and guarantees for the industry. However, countries with more diversified economies and adequate fiscal space can consider more broad-based stimulus to activate the economy, even as the tourism sector is in recovery, as is analyzed in Box 1 for the ASEAN-5 countries.

Governments and the industry can consider launching initiatives to reignite the tourism sector prior to a reopening to regular tourism. In China, the nascent post-COVID-19 recovery in tourism is being led by domestic demand. Thailand has allocated US$700 million to spur domestic tourism, while Jamaica has been promoting discounted domestic travel and Fiji has introduced a subsidy of US$400 for the first 150,000 tourists. In Costa Rica, Congress approved a law that will move several national holidays to Mondays to extend weekends in 2020 and 2021 to boost domestic tourism. Barbados' Welcome Stamp visa—a one-year residency permit that allows remote employees to live and work from the country—has generated significant demand and could potentially endure as the pandemic may have permanently boosted remote working across the world. While these efforts can help smooth the shock, they are unlikely to compensate for the decline of inter-

Box 1. Illustrative Fiscal Stimulus Scenario to Offset the Impact of the Tourism Collapse

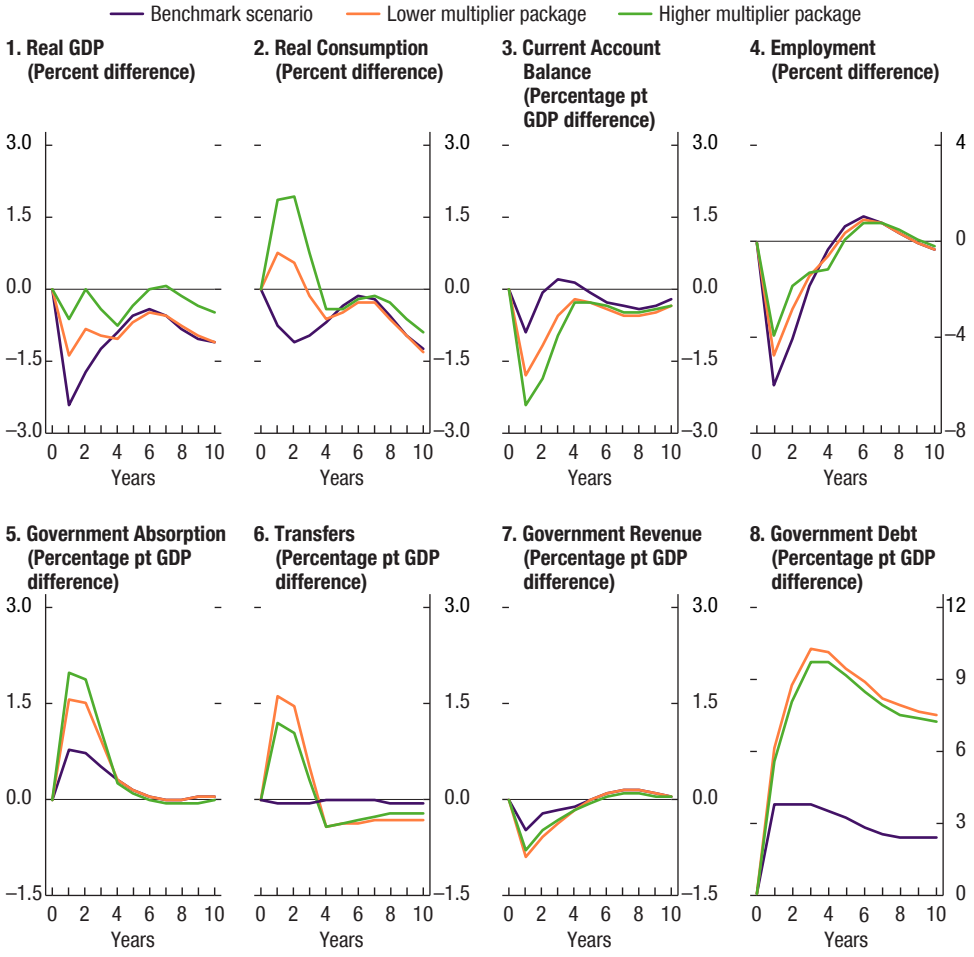
Fiscal support can help offset some of the losses in the economy. ASEAN-5 (Indonesia, Malaysia, Philippines, Thailand, and Vietnam, in this application) is an instructive case, as countries in the region are somewhat diversified and some fiscal space is available. Therefore, fiscal stimulus can at least temporarily shift employment and spending into other segments of the economy, as well as support the tourism sector. This option is not as accessible to less economically diversified regions or regions with tight fiscal space such as many Caribbean and Pacific island countries. The member countries of the ASEAN-5 have differing amounts of fiscal space (some much more limited than others) but could still consider this sort of stimulus because of the extraordinary circumstances of the pandemic.

Fiscal stimulus will be more beneficial when directed toward aiding the recovery and transition of the tourism sector. This concept can be illustrated in GIMF using two versions of a three-year fiscal stimulus package (3 percent of GDP for two years and 1.5 percent of GDP in the third year; Box Figure 1.1). A *lower multiplier package* (blue lines) focuses on public consumption, transfers to all households, and cuts in labor income taxes. A *higher multiplier package* (red lines) focuses on infrastructure investment, transfers targeted to poorer, liquidity-constrained households, and a cut in the value-added consumption tax (VAT). The higher multiplier package is more effective at addressing concerns in the tourism sector. Infrastructure investment directed at regions more dependent on tourism can help update facilities or shift the local economy into new areas and, unlike other subsidies through public consumption, provide a longer-term increase in economywide productivity. Transfers targeted to poorer households that are most likely unemployed (including those in tourism) can support their consumption now, and therefore with more spillovers to the economy as a whole. Households that are wealthier and employed are more likely to save instead to smooth consumption. A VAT cut has the same motivation—in the ASEAN-5, only wealthier households pay labor income taxes as a rule, so the multiplier will be more limited than reducing the VAT for all households. Moreover, a VAT cut could be targeted to support demand for tourism-related industries such as accommodation and restaurants.

Under both packages, the first-year real GDP loss is less severe than under the benchmark scenario 1.6 percent under the lower multiplier package, but only 0.8 percent under the higher multiplier package. The impact of the lower multiplier package is mostly from public consumption, but household consumption, the key driver of domestic tourism, plays a greater role under the higher multiplier package because of the targeted transfers and VAT cut. In the medium term, the higher multiplier package continues to have an impact from the infrastructure increase.

Box 1. Fiscal Stimulus Scenario *(continued)*

Box Figure 1.1. Possible Fiscal Stimulus Packages in the ASEAN-5
(Percent deviation from the pre-COVID-19 forecast)



Source: IMF staff calculations.

Gains come with the cost from higher public debt. But with the extra growth from the stimulus, the debt-to-GDP ratio increases by less than the cumulative deficit of 7.5 percent of GDP—6.6 percent of GDP under the lower multiplier package, and only 6.1 percent of GDP under the higher multiplier package.

national tourism flows in smaller states and need to be phased in carefully, based on COVID-19 developments, to preempt second waves of infections.

As cases drop and economies gradually reopen in Phase 2, or the reopening phase, special attention should be devoted to health and hygiene protocols to facilitate social distancing norms. Stringent health protocols and certified hygiene standards can restore traveler confidence and ensure the safety of tourists and workers in the industry. Costa Rica and Jamaica introduced strict health and hygiene protocols for tourism-related activities earning them the World Travel and Tourism Council's Safe Travels Seal. Thailand has strict quarantine requirements in place and programs with limited travel in the country for tourists. Costa Rica and Thailand appear to be well-positioned to accommodate new travel habits and protocols with high-quality healthcare systems, which can cater to visitors in need of medical assistance and thereby partly mitigate health concerns. However, capacity constraints, especially in healthcare systems, in many small states might complicate adoption of safety protocols, in turn delaying the reopening of their economies.

Travel bubbles could also facilitate a gradual reopening of tourism in regions with a low incidence of COVID-19 cases, despite some implementation challenges. Box 2 presents a potential application to Australia and New Zealand and the Pacific Islands, showing the role a travel bubble could have in speeding economic recovery for its members, with a reduced risk of a resurgence of COVID-19 cases. Nevertheless, travel bubbles also face several operational issues, for example, related to travel insurance policy and care responsibility. Collaboration among governments, airports, and airlines is vital for travel corridors to work effectively. Standards are important to ensure all stakeholders are following the same protocols, and real-time data are required to respond to issues with speed.

Once countries are in Phase 3, the recovery from the crisis, they will need to craft sustainable, long-term, durable policy solutions to the expected permanent scarring of the tourism industry. Once a safe reopening strategy has been successfully implemented, governments should transition from providing exceptional liquidity support to affected firms to promote and support corporate restructuring of viable ones. Given the heterogeneity of countries reliant on tourism, one policy will not be relevant for all at the same time; policies will need to be calibrated to each countries' situation. Subject to available fiscal space, targeted fiscal interventions could be considered to support laid off workers moving from shrinking parts of the tourism sector to new and expanding sectors, such as digital services, including through job training. A policy taxonomy for long-term sustainability could embrace the granular elements discussed in the following paragraphs.

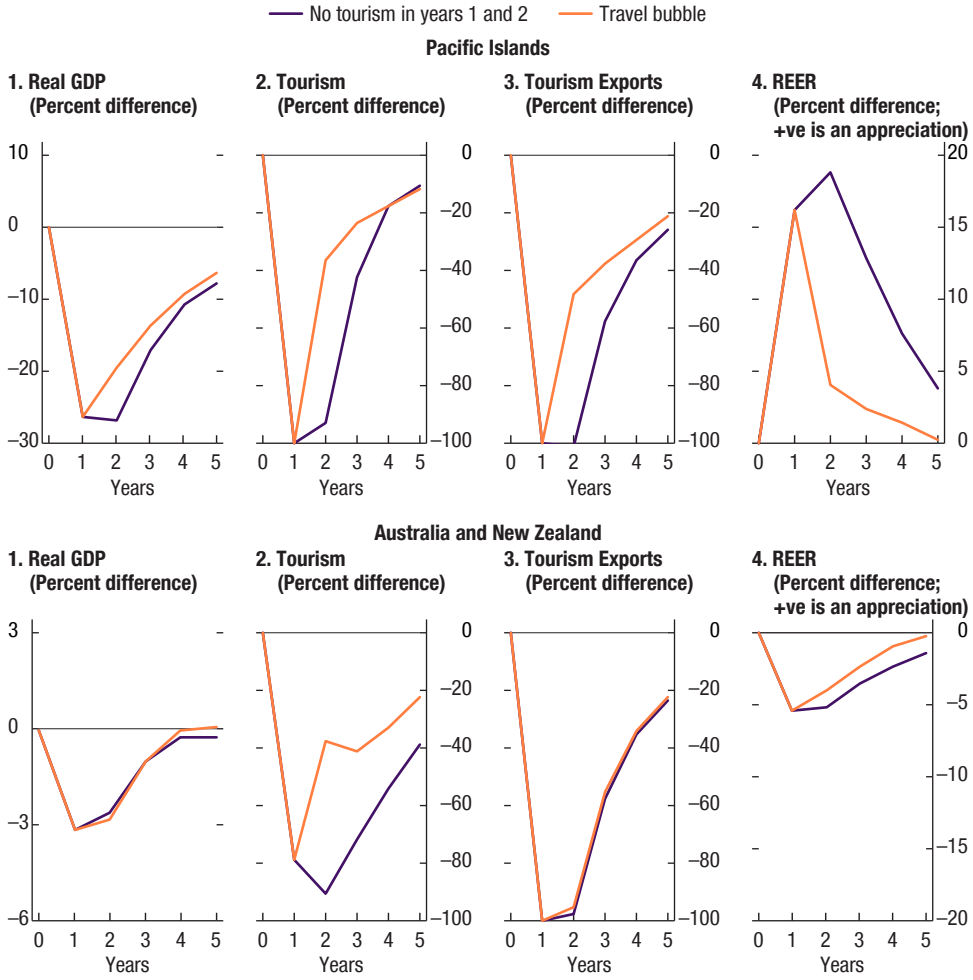
Box 2. Implementing a Travel Bubble

The recovery of tourism during the pandemic may involve the use of a "travel bubble." A travel bubble is an arrangement in which regions with low (or no) incidence of COVID-19 allow the free flow of people (and thereby tourists) between their regions to the exclusion of the rest of the world. The travel bubble discussion has been prominent for Australia, New Zealand, and the Pacific Islands, because of their strong tourism links and their (relatively) low incidence of COVID-19. This box starts with a scenario worse than the benchmark, when tourism is shut down for the first two years, instead of only the first year, as the pandemic persists (Box Figure 2.1, purple lines). The alternative is for the two regions to pursue a travel bubble in the second year, before the general reopening of tourism begins in the third (Box Figure 2.1, orange lines). Both regions reopen their tourism sectors, internally and to each other. Given the outsize role of tourism in the Pacific Islands, they have very large GDP gains, while those in Australia and New Zealand are more modest, mostly from reviving investment. The Pacific Islands benefit more in terms of tourism exports as demand from Australia and New Zealand is greater than pre-COVID-19, as they lack choices to go elsewhere. Tourism exports by Australia and New Zealand barely move, as the Pacific Islands send relatively few tourists due to their income levels and small size, as was the case before the pandemic. However, tourism still recovers as the Australia–New Zealand linkages drive the overall rise (in GIMF, modelled as "domestic tourism" as both countries are treated as a single region) under the travel bubble. The change in tourism patterns between the two regions begin to revert to their pre-COVID-19 levels with the gradual global reopening beginning in Year 3, in which they participate as well. Another benefit that cannot be quantified here: the elimination of the risk of COVID-19 cases caused by tourists from outside the bubble.

Box 2. Implementing a Travel Bubble *(continued)*

Box Figure 2.1. Impact of a Travel Bubble on Australia, New Zealand, and the Pacific Islands

(Percent deviation from the pre-COVID-19 forecast)



Source: IMF staff calculations.
Note: REER = real effective exchange rate.

Strengthening TDCs' health systems can enhance their attractiveness in a post-COVID-19 era, while promoting a health tourism industry in some. Early detection, treatments, and social distancing should continue to improve COVID-19 health outcomes. A global solution would help facilitate and accelerate the production and distribution of a vaccine as a global public good and would facilitate the complementary macro and financial policies discussed in this paper. It would also minimize the risks of crowding out many small and highly-tourism based economies with weak healthcare systems who could face delayed vaccine access with limited storage capabilities. In countries with relatively weak healthcare infrastructure, governments should support the building, upgrading and accreditation of healthcare facilities, capacity building of medical personnel and support staff, and promotion of measures to ensure the availability and access to quality medicines and diagnostic equipment. These upgrades could send a strong signal to tourists that they would be taken care of in the event of health emergencies (moving their economies to the right quadrants in Figure 9). Countries with relatively strong health systems and important tourist attractions such as Costa Rica or Thailand are well placed to develop and enhance health tourism potential. Accreditation of health facilities by reputable institutions is important to lure visitors for a variety of medical treatments. Political stability and general efforts to enhance infrastructure and education, especially medical education, are similarly important.

Greater focus on low-density and eco-sustainable tourism services can help reduce health risks. Adjusting to a new business model will require a coherent, multi-sectoral strategy involving the industry, the private sector, government, and civil society to find the right balance for countries and embed those plans in national development frameworks. A focus on eco-tourism where possible, is warranted because it is a fast-growing and higher value-added industry, with significant demand by high-income foreigners in advanced economies who will likely receive a vaccine early and return to travel more quickly. This is already a key element of Costa Rica's tourism strategy, which has been focusing on eco-sustainability and reforestation underpinned by extensive marketing campaigns to enhance the country's potential ecotourism locations and ensure their sustainability including cooperation with international researchers to understand and ensure sustainability of its biology and natural assets. The Costa Rican government has also been attentive to developing needed infrastructure to access ecotourism sites and provided business development advisory to enhance the quality of services supporting ecotourism and enhancing its social impact. In Thailand, ongoing development plans embed a shift from mass tourism to a more niche and higher-value added tourism to move up the value chain and also to reduce the carbon footprint and the damage to natural resources. This does not mean that mass tourism will have to stop altogether, however, all countries

will have to explore ways to manage tourism in a more sustainable manner, promoting social distancing. Political stability and overall efforts to enhance the country's infrastructure and human capital will help countries stand out relative to other destinations with similarly attractive natural assets.

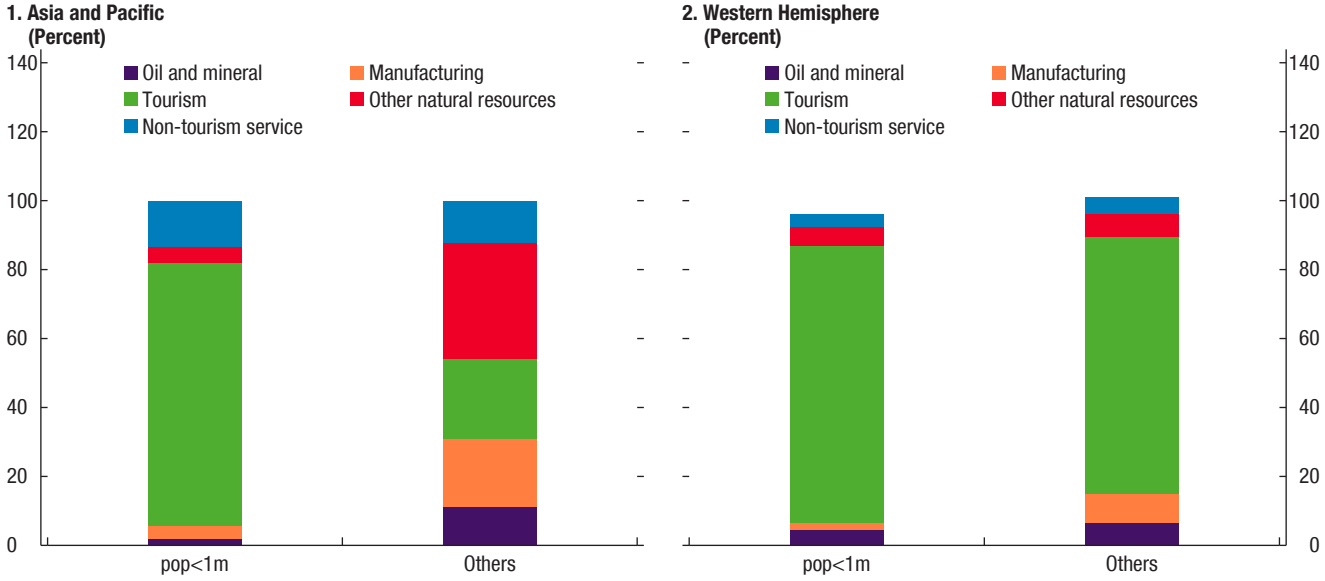
Technological innovation would ensure the safety and protection of tourists and workers in the industry and enhance access to information to stay on top of disruptions and rapid changes. This requires that industry, governments, and tourists work together to create transparency and enable seamless data flow. Countries are already leveraging digital resources to share relevant information, enhance contact tracing, and support touchless service delivery (for example, digital concierge) that can be especially valuable for large resorts and mass-tourism destinations. Technology can also facilitate a shift toward digitally self-guided tourism, that does not require group travel and is therefore consistent with social distancing norms that are likely to persist for a long period. As more tourism-related transactions go digital, it will be vital that SMEs accelerate integrating digital capabilities into their businesses, bridging the digital divide. Automation will likely make obsolete a number of jobs in the sector, change the tasks and the nature of work for others, but also create new job opportunities. As Ivanov (2020) points out, the impact of automation on jobs will depend on the balance of substitution and enhancement effects in the tourism industry. As a result, reskilling and training tourism employees to interact with the digital resources and adapt to different customer service requirements will be critical to adjust to the new normal, mitigating labor market dislocations. Digitalization can also help facilitate greater access to opportunities to women, for example, through telework, broadening inclusion.

What Is the Scope for Strengthening Other Sectors of the Economy?[1]

Aside from diversifying within the tourism sector, TDCs could offset the impact of a permanent decline in arrivals by strengthening other sectors. Many TDCs, including some small countries, have already significant non-tourism exports per capita relative to other countries (Figure 18). Natural resources are abundant in some of them (Chile, Mexico) and, if reserves allow, they could further expand these exports to offset any long-term tourism decline (Annex Figure 4.1). Many others, including few micro-states, have significant non-commodity goods (for example, agriculture, fisheries, and manufacturing products) and non-tourism service exports. On the latter, however, small TDCs tend to rely on passport sales and financial services

[1]The analysis in this section focuses on emerging market developing economies as many of them have significant room for export development. China is excluded considering significant idiosyncrasies related to its size.

Figure 18. Composition of Exports in Tourism-Dependent Countries



Source: UN Comtrade database.
Note: Averages in 2016–18.

benefiting from low taxation, which are subject to risks. Further diversification could help strengthen resilience to tourism volatility.

However, while some small states have significant non-tourism exports per capita, their size and high tourism dominance limit their potential for a substantial diversification. Tourism exports per capita in most small TDCs are so high that they are multiple times higher than manufacturing exports in successful East Asian exporters like Malaysia and Thailand. As a result, rebalancing their export baskets would require a significant structural adjustment.[2] Moreover, some microstates have labor forces in the tens of thousands, which are already directly or indirectly employed in the tourism cluster. Even in small and microstates with substantial non-tourism exports, such as Mauritius, Seychelles, or St. Kitts and Nevis, tourism dominates their export baskets. That said, despite these challenges, partly strengthening other export sectors can still help offset to some extent a potential long-term decline in tourist arrivals.[3]

[2]As shown in Salinas (forthcoming-b), in 2019, per capita tourism exports of micro-state St. Kitts and Nevis at about US$7,500 was about three times higher than Malaysia's manufacturing exports per capita.

[3]If ECCU micro-states would increase their manufacturing exports per capita to the level of St. Kitts and Nevis, it would allow them to offset more than a 10 percent permanent decline in their tourism exports.

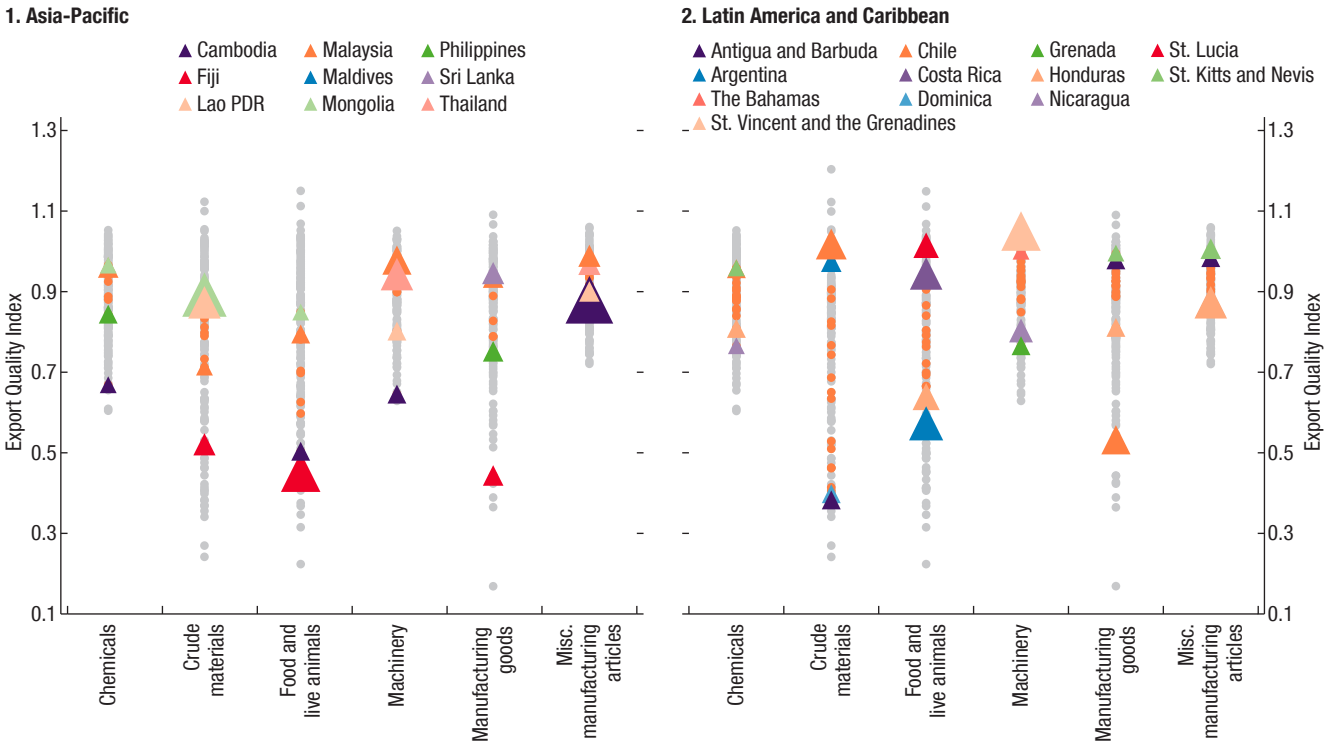
A natural option to foster export diversification would be to enhance tourism linkages to other sectors and thus increase domestic value added. Stronger links between tourism demand and locally produced agriculture, manufacturing, and entertainment could increase domestic production.[4] This requires understanding local supply chains and identifying constraints on tourism linkages with the local economy. For example, one obstacle for Caribbean farmers to supply agricultural products to the hotels is their limited capacity to consistently produce high-quality products in large quantity (JSIF 2015; Ford and Dorodnykh 2016; Hans, Stern, and Weiss 2016). Poor market information and a rudimentary market structure reduce buyers' incentives to purchase locally. To strengthen the connection between tourism and agriculture, the Jamaican authorities launched the Agri-linkages Exchange (ALEX) online platform that allows buyers within the hotel industry to directly purchase goods from local farmers. Such information and communication technologies can be used to match hotels' demand for fresh food with local suppliers. Although such policies would not reduce a country's dependency on the tourism sector, they would promote an increase in GDP for a given level of tourist arrivals, especially for small states with limited resources to develop new products or upgrade existing sectors.

When feasible, TDCs can also enhance exports through quality upgrades or expansion of existing products. The quality of the goods produced by a country is linked to its level of economic development (IMF 2014, Henn and others 2020). Many TDCs have significant scope for quality upgrade across several export sectors, including food and live animals, crude materials, machinery, and manufacturing goods (Figure 19 and Annex Figure 4.4). Upgrading the quality of agricultural and manufacturing products might also enhance the tourism-sector linkages with the rest of the economy—it could make local supplies more attractive for hotels and resorts. At the same time, countries that have capacity to produce goods already close to the world quality frontier might have scope to further expand production and market shares in these sectors. For example, some micro-states in the Caribbean produce high-quality machinery and manufactured goods, including ships and boats and measuring instruments.

Development of new products in many TDCs can foster innovations and human capital, but can prove more challenging, especially for small states. Hausmann and others (2014) argue that countries would normally tend to move from existing products to new products that require similar know-how, as this demands a smaller amount of additional production knowledge. Accordingly, they find that existing production capabilities, as reflected in the diversity and complexity of a country's existing export basket, determine

[4]World Bank and FAO (2008) shows that the Eastern Caribbean hotels imported about US$94 million of food items in 2008, which constitutes about 20–25 percent of these countries' food imports.

Figure 19. Quality Ladders



Sources: Henn, Papageorgiou, and Spatafora (2013); and IMF staff calculations.
Note: Orange dots show tourism-dependent countries; triangles indicate countries with two lowest and highest positions on the quality ladders for each sector. The size of squares and triangles reflects the share of each sector in total export of goods. Export quality index is calculated as the unit value of exported goods adjusted for differences in production costs and for the selection bias stemming from relative distance.

its ease of developing new products, with the greater gains arising from a move toward more complex products. As presented in Annex Figure 4.2, several TDCs, such as Cambodia, Dominican Republic, Honduras, Jamaica, Nicaragua, Mongolia, and Panama do not have very complex export baskets and have limited options to move to more complex products. For example, Jamaica is connected to a few production opportunities, with industrial machinery products and plastics having the highest potential (Annex Figure 4.3). Agricultural products have smaller product complexity and opportunity gains for Jamaica, but smaller distance to existing know-how.

Although it is difficult to determine in advance whether TDCs should specifically nurture non-tourism rather than tourism exports, they can seek to foster overall exports development. TDCs can increase their exports levels, as well as their quality and complexity, by strengthening export diversification determinants identified in the literature (see Annex Figure 4.5). Export development is expected to be easier for Central American and Caribbean countries because of their proximity to the US market, whereas Pacific islands and

Southern Cone countries (for example, Chile and Uruguay) may need to rely more on exports of services, which are less penalized by distance. Regardless of their geographical location, all TDCs could enhance exports and sectoral allocation flexibility by:

- *Strengthening education*, in general by expanding educational attainment but also paying attention to retraining programs that allow for swifter sector reallocation especially in a scenario of declining tourism. Greater opportunities for vocational training can especially benefit women and strengthen female labor force participation.
- *Upgrading ports and telecommunications infrastructure*, the latter being key to nurture the digital economy. Building infrastructure resilient to natural disasters is particularly important for many TDCs, for both their tourism and non-tourism activities, as they are highly vulnerable to these events.[5]
- *Eliminating policy bias unduly favoring tourism relative to other sectors*. Most TDCs have scope to lower their relatively high average tariffs (about 10 percent), while others could reduce existing bias on imports tariffs and overall taxation that favors tourism, leveling the playing field.
- *Reducing labor market rigidities*, which are particularly high in Latin America and the Caribbean, not only to strengthen competitiveness but also to allow for any needed sector reallocation. Flexible labor policy arrangements can help ensure competitive unit labor costs, especially in Caribbean countries with strong unionization.

Implementing these and other export promotion policies can be particularly challenging for small TDCs, given their more limited capacity to provide the public services that are key to support export industries. Cooperation among regional peers can help address the constraints imposed by low economies of scale on export competitiveness. It has been also observed that small states strongly compete among themselves to attract foreign direct investment through tax incentives or to sell citizenships by lowering fees and other requirements, which entails large fiscal costs while economic benefits are marginal (IMF 2019). Regional agreements on harmonization of fiscal incentives and overall coordination can help overcome their collective action problem. Caribbean countries have been working toward further integration including through the establishment of CARICOM's Single Market and Economy in 2001. The Pacific Agreement on Closer Economic Relations (PACER Plus) is establishing a comprehensive free trade agreement covering goods, services, and investment that intends to deepen regional economic integration for Pacific Island countries. The PACER Plus opened for signatures in

[5]In general, natural disaster preparedness activities are of key importance to these countries.

June 2017, and entered into force in December 2020 with Australia, Cook Islands, Kiribati, New Zealand, Niue, Samoa, Solomon Islands, and Tonga.

Because broad policies and institutional choices are rather horizontal, they do not require the government to target specific non-tourism sectors, and they can foster tourism exports. Since strengthening some of these areas would require public investments, support from larger countries as well as development partners is critical in many countries facing limited fiscal space. Specific policies would need to be multifaceted, and could involve developing new capabilities, leapfrogging to higher-quality export ladders, using new digital economy tools. In many TDCs, this could also be more effectively done with support from development partners.

Conclusion

The recovery in international travel and tourism will be protracted and subject to a high degree of uncertainty. The analysis presented in this paper shows that past infectious diseases had a significant negative effect on international tourism flows worldwide, varying according to disease-specific characteristics such as vector of transmission, existence of treatment or vaccine, and the nature of the pandemic. The magnitude of this effect is much greater in the case of COVID-19, given its highly contagious spread throughout populations across the world. Furthermore, the empirical evidence from past epidemics is also in line with the model-based scenario analysis that shows a gradual recovery, hampered by permanent economic scarring, after a near-total shutdown of the tourism industry. There are also important upsides to the outlook, with the confluence of a large pent-up demand on tourism and rapid advancements on vaccine rollout across many countries leading to a faster return of mobility and travel to pre-pandemic levels, minimizing risks of long-term economic scarring.

Fiscal and macro-financial policies can play a critical role in mitigating the deep and long-lasting economic scarring in many tourism-dependent economies. Carefully designed fiscal stimulus targeted to help the ailing tourism sector would be needed in many such economies, while being mindful of available fiscal policy space and debt sustainability concerns. Targeted policies to address the pandemic impact on the youth and women, including through digitalization, can broaden inclusion and help the recovery. Monetary and financial policies can also play a critical role in providing credit relief to borrowers. However, the key for policymakers is to monitor closely the health of the corporate and financial sector, with early interventions and restructuring of distressed but viable firms, before they approach insolvency, to mitigate macro-financial spillovers. Given the limited fiscal resources in many countries and the need to avoid hindering resource allocation, governments' interventions should be aimed at solvent strategic firms facing

pandemic-related difficulties. There might also be a need explore opportunities for regulatory reforms to mitigate the economic scarring effect of the COVID-19 pandemic.

Countries will need to rethink the tourism model, while creating opportunities for diversification within and beyond the industry, through policy support and structural reforms. No one-size-fits-all solution can rejuvenate the tourism sector in every country. The new normal for international tourism will certainly differ from country to country—and even within a country. Thus, this paper has crafted a policy taxonomy for long-term sustainability to embrace the granular and idiosyncratic elements of the transition. The pace and scope of recovery in most tourism-dependent economies will of course depend on global developments, but policy and institutional choices will also play a critical role in shaping and driving the post-pandemic economic recovery. Beyond the initial response designed to mitigate the immediate impact of the pandemic, the focus needs to be on developing long-term policy solutions to heal the scars of COVID-19 and create the new normal for the tourism industry by strengthening healthcare systems, shifting to sustainable tourism models, investing in new technologies, and diversifying within and away from the tourism industry to avoid dependence on a single sector of the economy.

Sustainable and broad-based recovery in international travel and tourism requires global cooperation. Although the immediate priority at the global level is to produce, purchase, and distribute medical treatments and vaccines to halt the COVID-19, the pandemic offers an opportunity to explore long-term solutions to the pandemic and to restructure and rebuild tourism to suit the needs of more-resilient and environment-friendly economies. Global cooperation and guidelines on health and safety protocols, and secure platforms that unify a consortium of individuals, governments, and the travel industry in sharing information would provide tourists with good practice guides and information on travel requirements—such as a negative viral test and health insurance coverage.

Annex 1. Case Studies

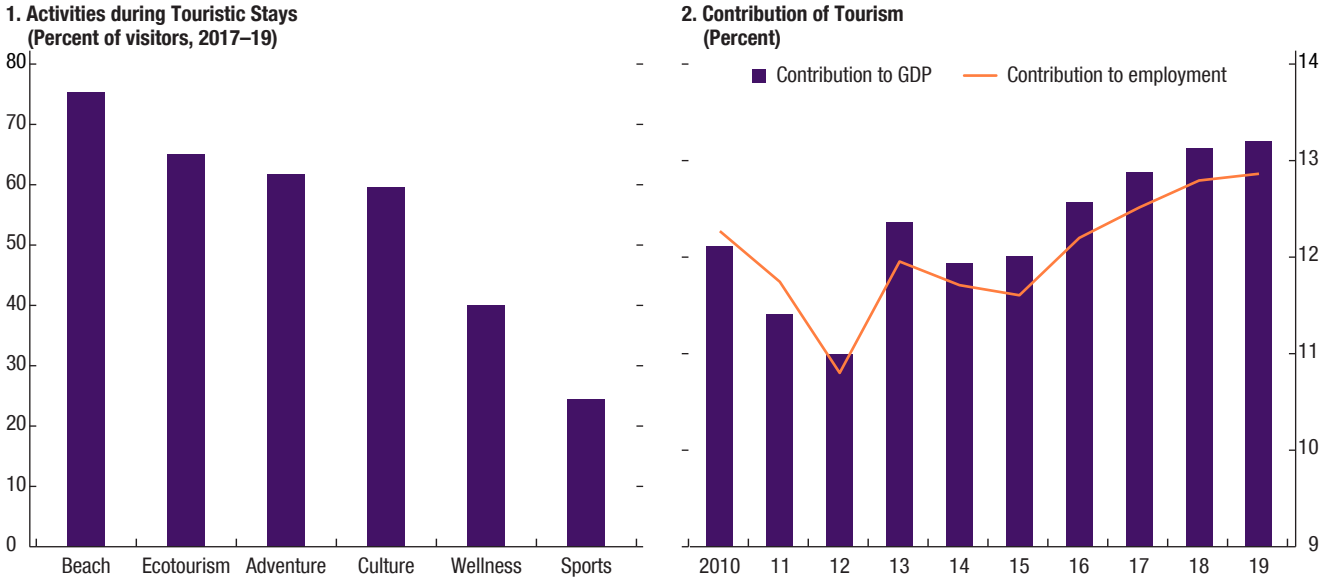
Costa Rica: Tourism in the Post-COVID-19 Normal

Background

Since the late 1980s, Costa Rica has established itself as a prime destination for green and sustainable tourism. Many tourists are drawn to Costa Rica's varied national parks and protected areas—which cover about 25 percent of the national landmass—and provide opportunities for a wide range of activities, including beach holidays, ecotourism, and adventure trips (Annex Figure 1.1). In 2019 the country attracted more than 3 million international visitors, mainly from North America (53.1 percent), Central America (22.3 percent), and Europe (15.9 percent). While leisure accounts for the largest share of tourism revenues (66 percent), tourism for health (13.4 percent), business (12.7 percent), and education purposes (7.7 percent) also play an important role, according to 2016 survey data.

Tourism contributes significantly to employment and economic activity. The tourism sector is a leading source of jobs and—directly and indirectly—supported an estimated 12.9 percent of total employment in Costa Rica in 2019. Informal employment in the tourism sector has been increasing, accounting for 59 percent of all jobs in 2019 (compared to about 46 percent in other sectors of the economy). More than half of the sector's employees are women. Tourism's direct and indirect contribution to GDP has increased over the past decade, from 12.1 percent of GDP in 2010 to an estimated 13.2 percent in 2019 (Annex Figure 1.1). It is also a large component of trade, accounting for about 20 percent of the country's exports.

Annex Figure 1.1. Costa Rica: Type of Tourism and Contribution to Economic Activity



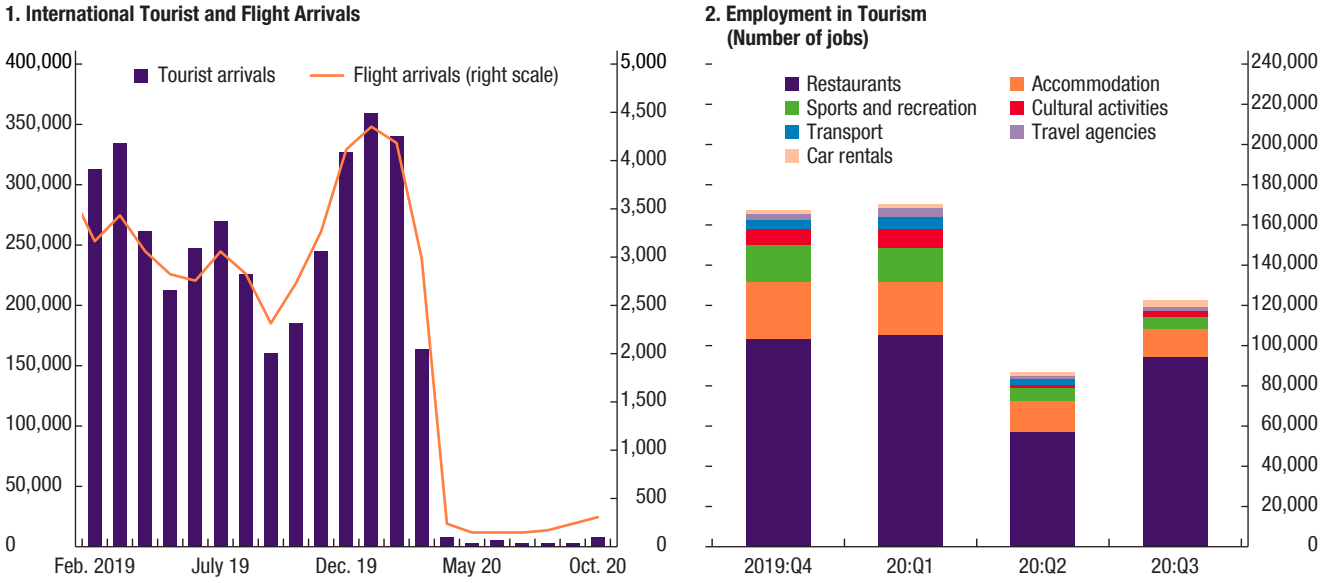
Sources: Banco Central de Costa Rica; Instituto Costarricense del Turismo; World Travel and Tourism Council; and IMF staff estimates.

The Impact of COVID-19 on the Tourism Sector

The COVID-19 pandemic and necessary containment measures have caused an unprecedented decline in tourism activity. International tourist arrivals dropped by 98.7 percent year over year in the third quarter of 2020. As a result, direct employment in the tourism sector declined by 28.0 percent year over year (up from a decline of 51.6 percent year over year in the second quarter 2020), driven by restaurants and hotels, which generate the largest share of jobs in the sector (Annex Figure 1.2). Overall, economic activity in the tourism sector is estimated to decline by 40 percent in nominal terms in 2020.

Costa Rica has begun to open its borders to international visitors, but restrictions remain in place. Following the closure of its borders in March 2020 to contain the spread of the virus, Costa Rica has since August 2020 gradually relaxed entry restrictions for foreign visitors. As of November 2020, tourists from 44 countries, including from the United States, have been authorized to visit. While entry requirements—such as health insurance coverage from local or international providers—as well as domestic containment measures remain in place, quarantine restrictions have been removed to support the tourism sector.

Annex Figure 1.2. Costa Rica: Impact of the Pandemic on the Tourism Sector



Sources: Banco Central de Costa Rica; FlightRadar24; Instituto Costarricense del Turismo; and IMF staff estimates.

Policy Responses to Support the Tourism Sector

Costa Rica's tourism sector is well-positioned to accommodate new travel habits and protocols. Considerable natural attractions and accommodation in resort destinations—rather than urban centers—provide an opportunity to attract visitors with preferences for outdoor activities and social distancing. Costa Rica's growing high-end ecotourism and wellness niche can benefit from post-COVID-19 travel habits favoring outdoor activities and increasing demand for sustainable travel. In this context, the country has been able to create crucial synergies between its efforts to preserve forests to promote climate change mitigation and adaptation and the ecotourism sector. Another factor that might draw tourists to Costa Rica, compared to other destinations in the tropics, is its high-quality healthcare system, which can cater to visitors in need of medical assistance and thereby partly mitigate health concerns during the pandemic.

Costa Rica has launched a roadmap to reactivate the sector and adjust to the new normal. The roadmap contains several initiatives to restore travelers' confidence and attract visitors:

- The Costa Rican Tourism Institute (ICT), in collaboration with the private sector, has launched 16 health and hygiene protocols for tourism-related activities. Adopting these protocols allowed Costa Rica to earn the World

Travel and Tourism Council's Safe Travels Seal in July. The ICT has also provided tourists with good practice guides and a mobile app to share relevant information and enhance contact tracing on a voluntary basis.

- To initiate the reactivation of the sector, the ICT launched national and international campaigns. The national campaign Vamos a Turistear (let's go sightseeing) aims at incentivizing domestic tourism through attractive offers, discounts, and financing options until the end of December 2020. In July 2020, Congress also approved a law that moved several national holidays to Mondays to extend weekends during 2020–24, thereby boosting domestic tourism. To promote international tourism, Costa Rica launched its campaigns Only the Essentials in the United States and Canada, and in Costa Rica Un Sanctuaire de Vie (a sanctuary of life) in France, embodying the country's pura vida or "full of life" mindset.
- Other measures concentrate on improving the tourism experience, for example, through offering services for small groups with a mandatory local guide and a focus on sustainable tourism. In addition, the roadmap reinforces efforts to attract foreign direct investment in the tourism sector, transform the Guanacaste area into a tourism hub, and promote maritime tourism.

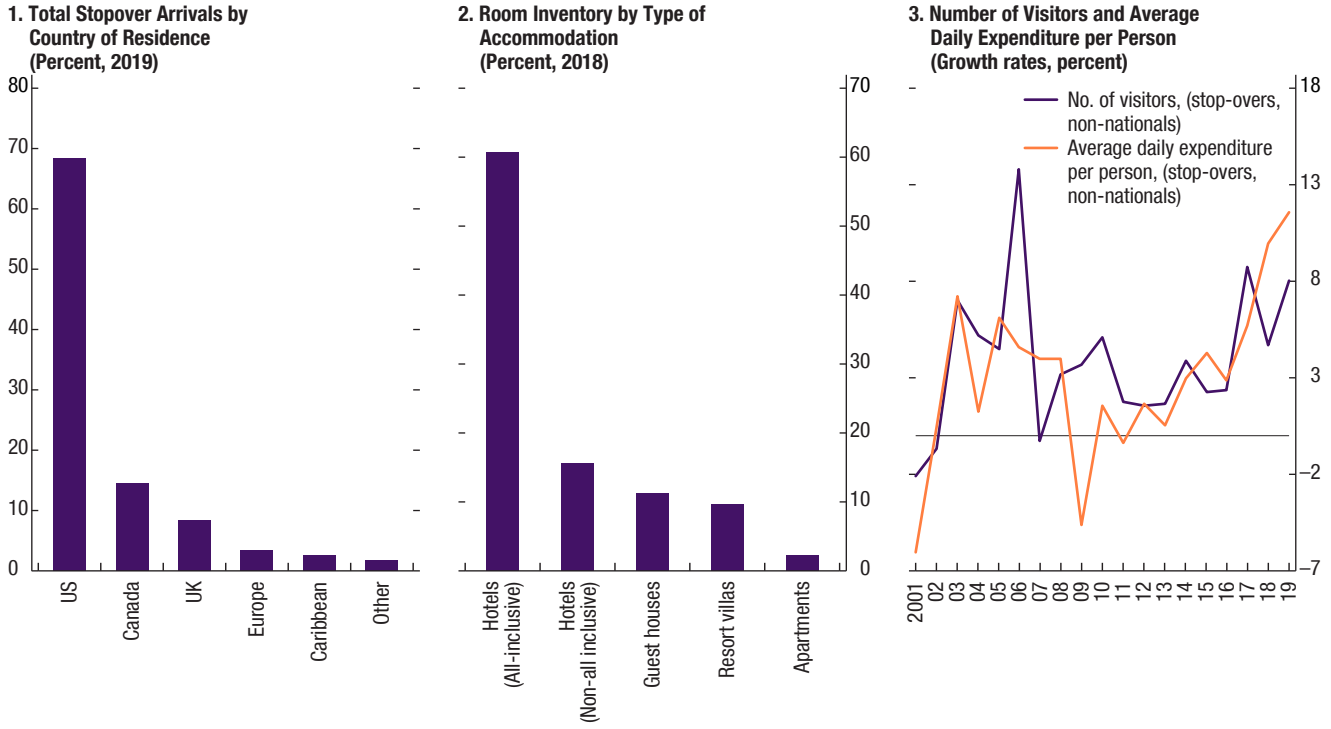
Jamaica: Tourism in the Post-COVID-19 Normal

Background

Jamaica's successful "all-inclusive" "sun, sand, and sea" tourism model has flourished, especially among North American tourists (Annex Figure 1.3). Nearly 80 percent of foreign nationals visiting Jamaica are leisure and holiday travelers, predominantly from three English-speaking countries (Canada, United Kingdom, United States). About one-third of Jamaica's tourists are older than 50, with relatively higher levels of disposable income. Jamaica has thus excelled in the all-inclusive tourism model, with all-inclusive hotels representing 60 percent of the total accommodation infrastructure. Stopover visitors and the average per-person daily expenditure have grown by an annual average of 3.9 percent and 3 percent, respectively, over the last 20 years, in spite of Jamaica's relatively low-price competitiveness based on the 2019 Travel and Tourism Competitiveness Index (T&TCI).

Tourism, a critical driver of the Jamaican economy, has long benefited from active prioritization by the government. According to the World Tourism and Travel Council, tourism and travel together represented 31 percent of GDP in 2019. Net tourism receipts account for 56 percent to total exports and are a critical source of foreign exchange. The share of employment in sectors with direct or indirect interlinkages to tourism is more than 30 per-

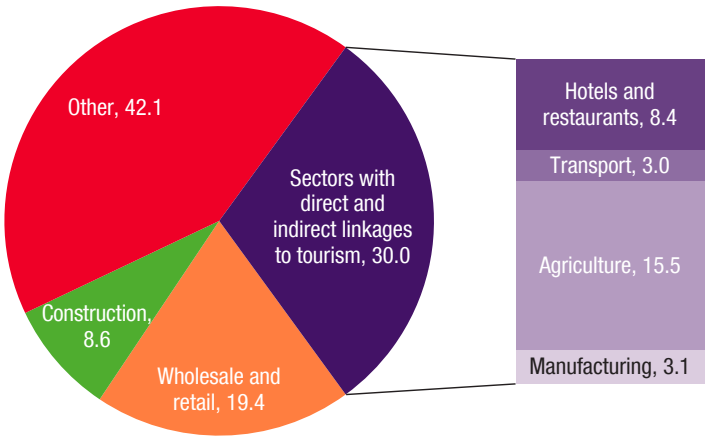
Annex Figure 1.3. Jamaica: Tourism Model and Tourist Flows



Sources: Jamaica Tourist Board; and IMF staff calculations.

cent (Annex Figure 1.4). Tourism and entertainment sectors constitute 7 percent of the commercial banks' loans portfolio. The 2019 T&TCI ranks Jamaica second globally in terms of the government's prioritization of the sector in its policy matrix. Key initiatives include the worldwide marketing campaign by the Jamaica Tourist Board, the tourism sector plan included in the Vision 2030 National Development Plan, a national strategy to stimulate community-based

Annex Figure 1.4. Jamaica—Average Share of Employment by Sector, 2012–20
(Percent of total labor force)



Sources: Statistical Institute of Jamaica; and IMF staff calculations.
Note: Labor data are only available until January 2020; Figures for transport and manufacturing estimate the direct linkages between those sectors and tourism.

tourism, the establishment of tourism linkages network, and the lower VAT rate relative to other sectors.

The Impact of COVID-19 on the Tourism Sector

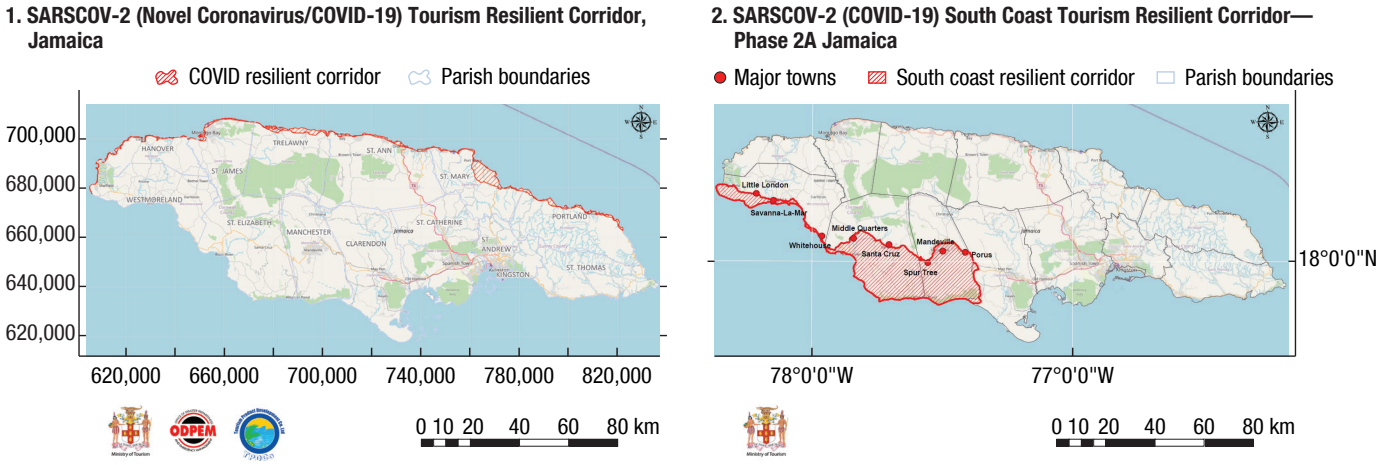
The COVID-19 pandemic has significantly impacted Jamaica's tourism sector. A near-total shutdown of the sector between April and June 2020, largely associated with the halt in North American travel, led to a 66 percent decline in tourist arrivals as of the end of October 2020. As a result, the real value added of the hotels and restaurants sector declined by 14 percent in the first quarter of 2020, by 86 percent in the second quarter of 2020, and by 65.2 percent in the third quarter of 2020. The output of the recreational activities sector has also significantly contracted due to the drop in foreign tourist arrivals, while the transport sector has been impacted by the sharp reduction in air flights and absence of cruise passenger arrivals. The closure of hotels has negatively affected the agricultural sector, especially sales of coffee and cocoa, as well as food processing, manufacturing, and air transport.

Policy Responses to Support the Tourism Sector

The Jamaica authorities' COVID-19 response has aimed at limiting the economic fallout and ensuring that Jamaica remains a safe tourism destination:

- The Government of Jamaica reopened its borders to all international travelers on June 15, 2020. COVID-19 travel protocols, that include prior-to-departure travel authorization for international visitors, followed by the risk-based quarantines and movement limitations, received the World Travel and Tourism Council (WTTC) Safe Travels stamp of approval. The authorities have established two Resilient Corridors—special zones in which tourism operators have been trained and certified for adherence to COVID–19 protocols—where all tourists assessed as low risk are required to stay. The two Resilient Corridors cover the most popular tourism destinations within Jamaica on the north and south coasts Motivated by the successful implementation of COVID-19 protocols by the tourism sector, the Jamaica Hotel and Tourism Association launched training for local communities, to help prevent the spread of the virus. Despite the travel restrictions, Jamaica staged virtually its premier tourism industry marketplace, JAPEX, attracting a record number of participants. The Jamaican authorities leveraged the lower tourism arrival numbers to increase skills and qualifications of 10,000 tourism workers, via free online training certification classes. In November 2020, the authorities also introduced a first-of-its-kind traveler protection and emergency service program,

Annex Figure 1.5. Jamaica—Resilient Corridors



Source: Jamaica Tourism Board: https://www.visitjamaica.com/travelauthorization/resilient-corridors.

Jamaica Cases, that includes field rescue and repatriation for medical emergencies, including COVID-19 and natural disasters.

- The Jamaican authorities also implemented policies to avoid bankruptcies and sustain jobs in the tourism sector. These include programs to help retain tourism workers through temporary cash transfers and safety nets for lower earning dismissed workers as well as grants for smaller tourism operators and informal businesses supporting the sector. In parallel, the Jamaica Tourist Board's Rediscover Jamaica campaign is encouraging discounted domestic travel, although, according to the WTTC, domestic spending contributed to only 21 percent of total tourism and travel spending in 2019. In addition, commercial banks have provided temporary moratoria on loan repayments to tourism operators.

The recovery of the Jamaica's tourism sector could be complicated by a shift in preferences, and key pre-existing factors. The older-age profile of Jamaica's tourists could result in a slower recovery in arrivals as travelers rebuild confidence only gradually in international travel. The concentration of room capacity in large hotels, the high crime and weak infrastructure outside the resorts, and low-price competitiveness may reduce Jamaica's attractiveness to North American travelers who will be demanding more competitive and social-distancing friendly destinations.

The post-COVID-19 new normal in tourism presents opportunities to increase resilience and boost inclusive economic growth. According to the Compete Caribbean-Caribbean Tourism Organization, 79 percent of US tourists are interested in community-based tourism (CBT). The Jamaican

authorities announced a plan to encourage the development of CBT with a special focus on rural communities, including the establishment of a special Community Tourism Unit within the Ministry of Tourism. Developing Jamaica's CBT—as envisioned in the authorities' 2015 National Community Tourism Policy and Strategy—would usefully complement Jamaica's dominant beach tourism and increase the resilience of the sector by allowing the health- and wellness-minded tourist to leverage Jamaica's rich and unique culture and varied geographical features. Moreover, CBT would also allow for greater community participation, generating new employment opportunities across a broader segment of the population. However, this will require addressing structural challenges, including the high level of crime and poor road and water infrastructure, to make remote communities accessible to tourists.

Fiji and Vanuatu: Tourism in the Post-COVID-19 Normal

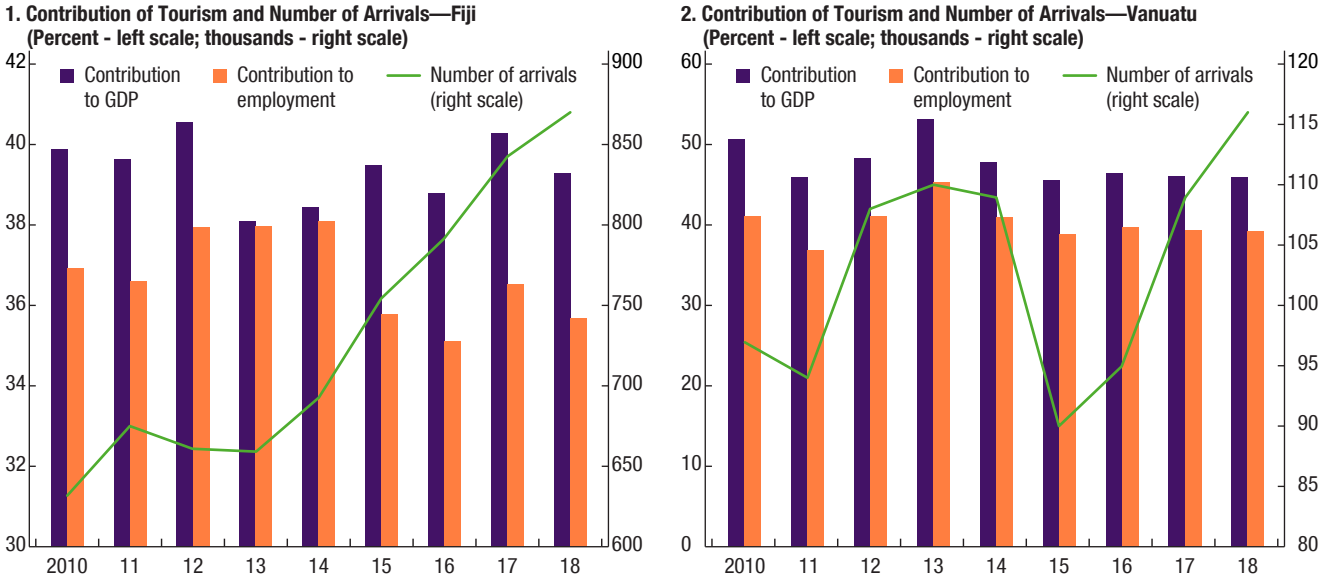
Background

Fiji and Vanuatu are two Pacific island countries heavily dependent on tourism. In 2019, Fiji and Vanuatu received about 900,000 and 120,000 visitors by air, respectively, with tourism contributing to more than a third of GDP and employment in both countries (Annex Figure 1.6). About 70 percent of visitors to both countries come from Australia and New Zealand, predominantly for leisure. While Fiji offers mid-range to luxury tourism, Vanuatu relies more on mass tourism at the mid-range:

- Fiji consists of 333 islands, with tourism concentrated on the largest two, Viti Levu and Vanua Levu. Fiji is known for its beautiful beaches, friendly people, and year-round warm climate. Attractions include lagoons, coral coasts and ancient archeological sites.
- Vanuatu consists of 83 islands, with tourism concentrated on Efate with the capital Port Vila, along with unique islands such as Tanna (volcano), Espiritu Santo (wreck diving), Pentecost (cultural experience), and Aneitym (cruise ships).

Both countries are highly vulnerable to shocks impacting tourism, including natural disasters. For example, tourism arrivals in Fiji fell during 2012–13 due to Tropical Cyclone (TC) Evan and tourism plunged in Vanuatu in 2015 due to TC Pam. Most recently, Fiji and Vanuatu were hit by TC Harold in April 2020.

Annex Figure 1.6. Tourism Contribution to the Economy



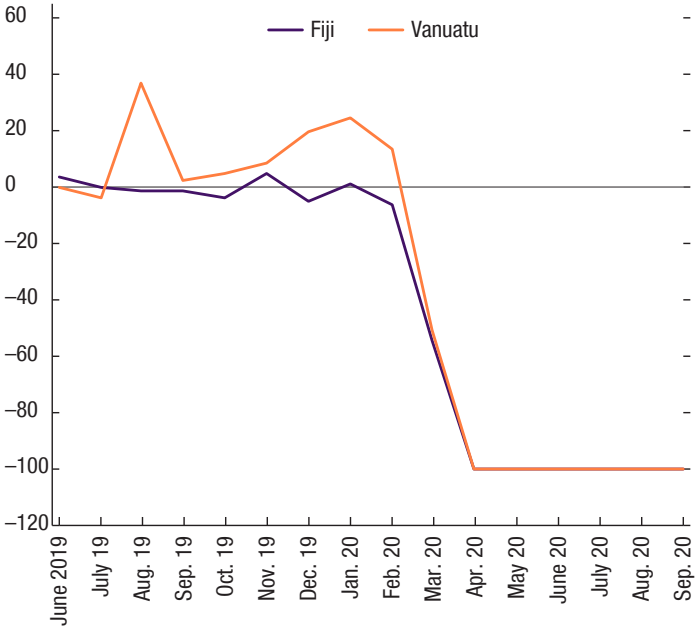
Source: UN World Tourism Organization, *Yearbook of Tourism Statistics*.

The Impact of COVID-19 on the Tourism Sector

In response to the COVID-19 pandemic, both countries enacted strict border controls in late March and remain closed to most international travel. These stringent measures have enabled both countries to keep COVID-19 at bay, with only 38 confirmed cases recorded in Fiji and one in Vanuatu as of November 2020. Nonetheless, the suspension of commercial air travel has decimated the tourism sector (Annex Figure 1.7). Since April 2020, Fiji's tourism revenue has been minimal. Vanuatu has received no revenue from foreign visitors, with 70 percent of employees in its tourism sector estimated to have lost their jobs by May 2020. Real GDP is estimated to have contracted by 19 percent (Fiji) and 9.2 percent (Vanuatu) in 2020.

Cruise ships are a significant source of revenue for both countries. In 2018, Fiji received 188,000 cruise arrivals while Vanuatu had 235,000 cruise arrivals, with average passenger spending estimated at US$44 and US$85, respectively. With the COVID-19 pandemic and border closures, there have been no cruise ship landings since March. The recovery of the cruise industry is likely to be protracted, clouding Vanuatu's and Fiji's prospects for a recovery in tourism as well, especially for small private businesses that cater to visitors from cruise ships.

Annex Figure 1.7. Visitor Arrivals
(12-month percent change)



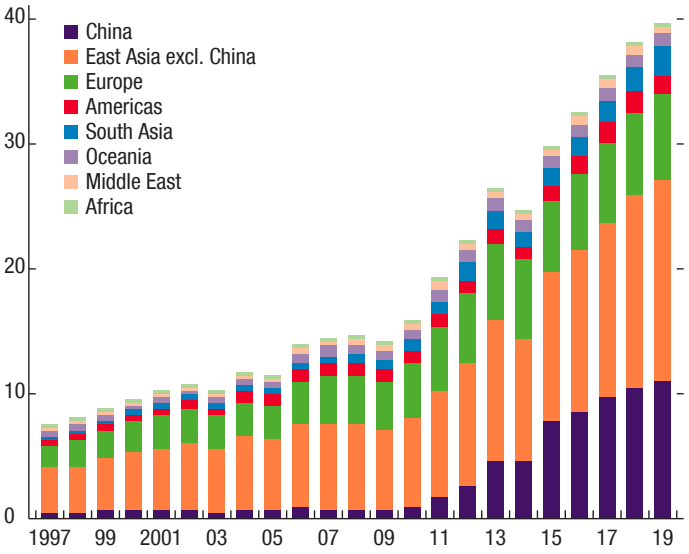
Sources: Country authorities; and IMF staff estimates.

Policy Responses to Support the Tourism Sector

Both governments have implemented bold fiscal stimulus measures to support their tourism industries and position them for an eventual recovery. Fiji's fiscal support includes tax cuts, transfer payments, and a subsidy to Fiji Airways to incentivize the first 150,000 tourists in the new fiscal year. Vanuatu's package included reimbursing registered employers 30,000 vatu per employee (US$266) for four months to help retain their workforce, along with some business tax relief and SME grants, with the tourism industry being a prime target of all the measures. Both countries have also drawn on their national pension funds to support affected households in all sectors of the economy, but at the cost of reducing future retirement income. The Fiji National Provident Fund (NPF) paid out an estimated US$24 million (0.5 percent of GDP) to its members by early July while the Vanuatu NPF paid out US$12.5 million (1.5 percent of GDP). However, with the borders still largely closed and fiscal space limited, it is increasingly challenging for businesses to survive and for workers to support their families.

Both Fiji and Vanuatu are eager to join travel bubbles, but none have yet materialized. Initially, when Australia and New Zealand were discussing a potential Trans-Tasman travel bubble, Fiji and Vanuatu expressed interest to join. Fiji tried launching its own Bula bubble and Vanuatu proposed a Tamtam bubble that would allow for entry of tourists from some countries with limited restrictions. However, with local outbreaks in key source countries, Australia and New Zealand have delayed the prospects for a functioning international travel bubble. In August 2020, Fiji launched a Blue Lanes initiative that allows yachts to berth in its marinas after meeting strict quarantine and testing requirements. Fiji has received more than 90 yachts through this initiative.

Annex Figure 1.8. Thailand: Tourist Arrivals by Country
(Millions of persons)



Sources: Haver Analytics; and Ministry of Tourism and Sports.

Fiji and Vanuatu are well positioned to cater to new tourism demands, with some forms of tourism having more potential than others. Having successfully kept the virus in check, both countries could benefit from the diversion of visitors that would otherwise travel to other destinations, such as the United States or the ASEAN region. Moreover, many tourists from key sources countries would prefer to remain within their region in the near term due to accessibility and familiarity. Both Vanuatu and Fiji have direct flights to Australia and New Zealand, mostly within four hours. Bubbles could be set up to enable tourism without significant risk of outbreaks in the islands. Over the medium term, island nations such as Fiji and Vanuatu may be better placed than others in offering socially distanced vacations. For example, Vanuatu offers an off-the-beaten-path experience with low-density tourism where families can find it easier to isolate in nature. It also has the potential to expand on ecotourism to attract more visitors.

Potential challenges to a recovery of tourism in Fiji and Vanuatu relate to their remoteness and relatively weak health infrastructure. Both countries have their own national airlines, which have been hard hit by the COVID-19 crisis. This may also be true of international air carriers from Australia and New Zealand and international cruise lines. Even if tourists are ready to return, there may be limited access, given the severe disruption to airline and cruise operations. Another potential challenge is that health considerations may gain in importance for potential visitors in the wake of the pandemic. In the Global Health Security Index, Fiji and Vanuatu rank in bottom quartile, which could hold back some visitors in the future.

Thailand: Tourism in the Post-COVID-19 Normal

Background

Tourism has grown to play a pivotal role in Thailand's externally oriented economy. Thailand is a leading global tourist destination, ranking ninth for tourist arrivals and fourth for tourism receipts in 2018 (UNWTO 2019). At the end of 2019, tourism comprised 12 percent of Thailand's GDP, and nearly a fifth of the economy, once accounting for related services. Supported by investment in accommodation and transportation infrastructure, Bangkok is now one of the world's most visited cities, and a gateway point tourist hub in Thailand, including tropical beaches (such as Phuket, Samui, and Pattaya) as well as cultural heritage sites.

The tourism industry employees are about 15 percent of Thailand's total employment, though the number is likely larger once accounting for seasonal and informal workers. In addition, it is estimated that nearly a fifth of workers in the tourist industry are rural domestic migrants who return to farms once the tourist season is over. As real wages have risen in Thailand, the tourism industry has also increasingly employed migrant workers from neighboring countries (Cambodia, Lao PDR, Myanmar, Vietnam), estimated at 5 percent of total workers, though given the high degree of informality suggests this number may be larger. Women comprise 65 percent of employment in the accommodation and food services sector, earning about 80 percent of men's wages in the sector, a larger wage gap compared to the rest of the economy (where women's wages are 99.5 percent of that of men).

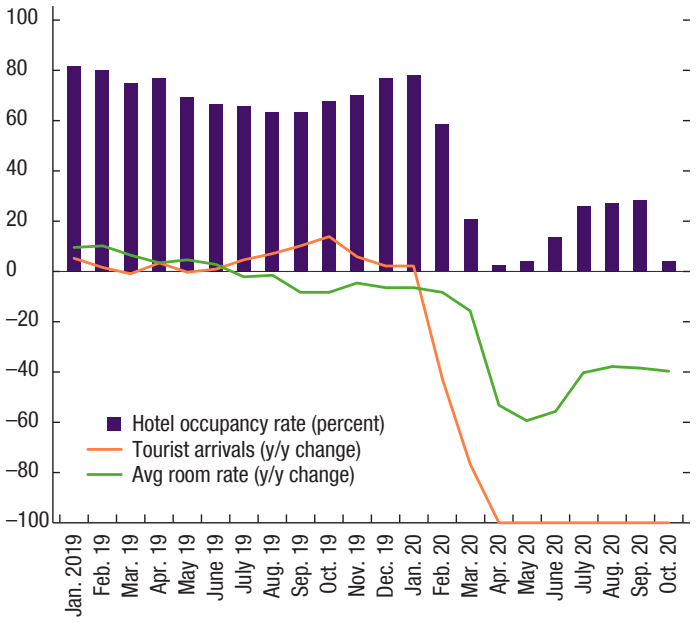
Incoming tourists are mainly mass-market tourists, with smaller luxury component. Nearly 40 million tourists visited Thailand in 2019, mainly for leisure, followed by business and conferences, and a growing market for medical and wellness tourism (of which Thailand is 4th ranked globally). Most tourists are mass-market tourists (historically supported by a favorable exchange rate), as the average spend per tourist in Thailand remains below countries with higher or similar arrivals numbers, though the luxury market has been growing. International tourists come mainly from China, ASEAN, and Russia; the domestic tourism market has generally been small by both trip size and value. The main tourist centers are Bangkok (with a large retail centers and cultural sites), the beach resort areas (Phuket, Samui), and more recently, mountainous areas.

The tourist sector is closely linked to the retail sector. In addition to the accommodation and transportation sectors, the tourist sector is closely linked to several high-end shopping malls, real estate (particularly for long staying and/or frequent tourists), entertainment, and dining. The tourist sector also

supports intracountry remittances from seasonal workers to rural areas.

The Impact of COVID-19 on the Tourism Sector

Annex Figure 1.9. COVID-19 Impact on Tourist Arrivals and Accommodation



Sources: Haver Analytics; and Ministry of Tourism and Sports.

The tourism sector has faced a collapse from the unprecedented COVID-19 shock. Thailand was the first country outside of China to register a COVID–19 case, and the country was adversely affected in the outbreak's early stages due to restrictions on Chinese tourists. Once the pandemic spread, the authorities quickly declared a state of emergency, putting in place stringent containment measures and strict travel restrictions. As a result, tourist arrivals, hotel occupancy, and average room rates have fallen dramatically – tourist arrivals are expected to decline to just 6.7 million tourists by the end of 2020.

There was a large dislocation in labor markets. In the first quarter of 2020, there were 139,000 job losses related to the tourism sector, and the Thai Chamber of Commerce estimates up to 6 million could be lose employment by the end of the year given ongoing restrictions. Given the high rate of informality, informal and migrant workers, particularly women, are likely to suffer disproportionately, as they are unlikely to have access to safety nets if they to fall ill or lose employment. As a result, the shock can exacerbate already rising poverty rates and inequality. The Thai authorities have also closed borders to neighboring countries to prevent infections, which contributed to slowing external migrant flows and outward remittances. The shock has also financially strained airlines in the region, including Thai Airways, the country's leading carrier, as well as several budget airlines.

Nevertheless, the infections curve was quickly flattened, particularly when compared with other countries in the region, in part due to strin-

gent lockdown measures, followed by a cautious reopening in the backdrop of a robust and integrated public health response. Cases plateaued by April 2020, and Google-based mobility indicators suggest foot traffic has quickly recovered as the economy reopened. Although this would support the resumption of tourism, including through confidence effects, the authorities have remained generally cautious about the risk of a second wave of infections, which materialized in late December 2020.

Policy Responses to Support the Tourism Sector

Thailand can be thought of having several comparative advantages prior to COVID-19. According to the World Economic Forum Global Competitiveness Index, Thailand scores well in the quality and availability of infrastructure, has a high quality of medical facilities and a pre-existing reputation for medical tourism, has available capacity for high end tourists, and has experience in prior epidemic outbreaks, such as SARS. The sector has also proved resilient in the past, weathering episodes of political unrest and natural disasters. It is also supported by longstanding accommodative visa policies, a well-connected airport hub, and strong strategic oversight through the Tourism Authority of Thailand (TAT) under the Ministry of Tourism and Sports.

The Thai authorities have taken proactive measures to support the tourism sector. Together with a program of providing soft financing to tour operators of US$3 million, as part of their COVID-19 fiscal package response, in the near term, these centered on:

- **Promoting domestic tourism**. In June 2020, following the easing of lockdown restrictions, the government swiftly approved three programs worth US$700 million (about 0.14 percent of GDP) to support domestic tourism. These include funds for: subsidizing travel for healthcare workers, subsidizing accommodation, food and other travel expenditures for qualifying domestic tourists, and subsidizing transportation costs for long distance domestic trips. The incentives covered domestic travel undertaken between July and October.
- **Phased reopening for international tourists**. The authorities have considered several ways to resume international tourist arrivals:
  - **Travel bubbles** involve exclusive travel between countries that have COVID-19 infections under control. However, reciprocal market size is an important consideration. Travel bubbles, aimed for Summer 2020, were postponed after second wave breakouts in several candidate countries (Australia, Vietnam), while designing the needed travel insurance policy to support it remains elusive.

- **Long-term stay with mobility restrictions** have been rolled out, with the Thailand Special Tourist Visa (STV) for long-stay visitors, introduced and made effective in October 2020. This scheme requires visitors from countries with low COVID-19-incidence, with adequate medical insurance and proof of accommodation for the visit period, to be quarantined for 14 days upon arrival at a certified quarantine facility, and upon completion of the quarantine, receive a negative COVID-19 test, and they must have a mobile phone app to use an application that tracks their location during their stay. The scheme is valid for stays up to 90 days and renewable twice. As of the end of November 2020, the scheme drew 825 visitors from 29 different countries (mainly China). In early December 2020, the authorities approved the expansion of the STV to visitors from every country.

- **Encouraging mixed use of physical and human resources**. Some hotels have switched to provide quarantine facilities and accommodation for medical workers, though occupancy rates still remain at historically low levels.

With an eye toward the post-pandemic new normal while alleviating the extent of economic scarring due to the shock, the authorities are also exploring other areas to support a more robust tourist sector, including:

- *Shift from mass tourism to low-density high-end tourism.* This is in line with the authorities' intended long-term goal of promoting more sustainable tourism with a lower ecological footprint.
- *Further strengthening the healthcare system*, for rapid and responsive prevention, detection, and treatment, including via access for tourists.
- *Investments in digital/mobile resources and connectivity* to support touchless service delivery (hotel check-ins, temperature monitoring). In addition, with the spread of the coronavirus pandemic, digital technologies have become more crucial than ever before. The travel industry and various tech companies are increasingly experimenting with ways to use virtual reality tourism to give people the same basic experience of tourism. In addition, technology can facilitate a shift toward digitally self-guided tourism, that does not require group travel and is therefore consistent with social distancing norms that are likely to persist for a long period.

Annex 2. Applying A Gravity Model to Predict Post-Pandemic Tourism Flows

The gravity model framework is widely used in the economic literature to analyze the patterns of international trade and capital movements, as well as migration and tourism flows (Anderson and van Wincoop 2003; Bergstrand and Egger 2007; Gil-Pareja, Llorca-Vivero, and Martínez-Serrano 2007; Head and Ries 2008; Santana-Gallego, Ledesma-Rodríguez, and Pérez-Rodríguez 2010). But there is scarce research on modeling bilateral tourist movements in a gravity framework, especially taking into account the effect of infectious diseases. Most studies in this context look at the impact of disease outbreaks, such as the SARS and avian flu epidemics, on tourism in a specific country or region over a short period of time (Zeng, Carter, and De Lacey 2005; Cooper 2006; Wilder-Smith 2006; Kuo and others 2008). Using dummy variables infectious diseases, Roselló, Santana-Gallego, and Awan (2017) show that the eradication of infectious diseases benefits countries in terms of tourism flows and revenues. More recently, using a data set of 38,184 pairs of countries over the period 1995–2017, Cevik (2020) finds strong evidence that infectious diseases have a significant negative effect on international tourism flows.

The empirical analysis is based on an unbalanced panel of annual observations for 38,184 pairs of countries during the period 1995–2017. Bilateral tourism flows for 172 countries of origin and 222 countries of destination are taken from the WTO database, yielding a data set of more than 261,488 observations over the sample period. The main explanatory variable of interest is the number of confirmed infectious-disease cases, including Ebola, malaria, SARS, and yellow fever, which is obtained from the WHO database. Following the literature, real GDP, population and the real effective exchange rate (REER) are introduced as control variables, drawn from the IMF World Economic Outlook (WEO) database and the World Bank World Development Indicators (WDI) database.

Standard gravity variables such as bilateral distance between countries, common official language, colonial history, and geographical contiguity are taken from the Centre d'Etudes Prospectives et d'Informations Internationales (CEPII) database, as presented in Mayer and Zignago (2011). Geographic distance is measured as the great-circle distance in kilometers between the capital cities of each country pair. Binary variables for language, colonial history and geographical contiguity are assigned a value of 1 if a country pair share a common official language, a colonial tie, and an adjacent border and a value of 0 otherwise.

Bilateral flows between two countries tend to increase with per capita income and decline with transportation costs as proxied by physical distance between the countries. This gives a simple gravity model, in which the number of tourists traveling in one direction between two countries depends on the economic sizes of the countries and the geographical distance between them. Building on Santos Silva and Tenreyro (2006), the baseline gravity specification takes the following form in a panel data context:

$$ln(T_{ijt}) = \beta + \alpha\, ln(GDP_{it}) + \gamma\, ln(GDP_{jt}) + \vartheta\, ln(Dist_{ij}) + \eta_i + \varphi_j + \mu_t + \varepsilon_{ijt} \quad (1)$$

in which T_{ij} denotes international tourist flows between countries i (origin) and j (destination); GDP is the level of per capita income in origin and destination country, respectively; $Dist_{ij}$ is the physical distance between countries i (origin) and j (destination); thenη_i, φ_j and μ_t coefficients designate the country fixed effects capturing all time-invariant factors in origin and destination country and the time fixed effects controlling for common shocks that may affect international tourism across all countries in a given year, respectively. ε_{ijt} is an idiosyncratic error term that meets the standard assumptions of zero mean and constant variance.

Since the objective is to understand the effect of infectious diseases on international tourism, the parsimonious gravity model is augmented with additional control variables along with the number of confirmed infectious-disease cases:

$$ln(T_{ijt}) = \beta + \alpha ln(GDP_{it}) + \gamma ln(GDP_{jt}) + \vartheta ln(Dist_{ij}) + \delta X_{ijt} + \varphi \ln(Vir_{ijt}) + \eta_i + \varphi_j + \mu_t + \varepsilon_{ijt} \quad (2)$$

where X_{ijt} denotes a vector of control variables, including the logarithm of population in origin and destination countries, the REER in destination

country, binary variables for common language, colonial history and geographical contiguity, and life expectancy and government effectiveness in destination countries; Vir_{ijt} denotes the number of confirmed cases of Ebola, malaria, SARS, and yellow fever scaled by population in origin and destination countries. To account for possible heteroskedasticity, robust standard errors are clustered at the country-pair level.[1]

We compare the out-of-sample forecasting performance of alternative gravity models of bilateral tourism flows by partitioning the original sample period (1995–2017) into two subsamples: (1) the estimation sample (1995–2014) and the forecasting sample (2015–17). To evaluate forecast accuracy of these alternative models, the mean absolute error (MAE), the root mean squared error (RMSE) and the Theil Inequality Coefficient (U-Theil), the most commonly used metrics in the literature, are employed as defined by the following equations:

$$MAE = \frac{1}{n}\sum_{t=1}^{n} |\hat{A}_{t,c} - A_{t,c}| \tag{3}$$

$$RMSE = \sqrt{\frac{1}{n}\sum_{t=1}^{n} (\hat{A}_{t,c} - A_{t,c})^2} \tag{4}$$

$$U - Theil = \frac{\sqrt{\frac{1}{n}\sum_{t=1}^{n} (\hat{A}_{t,c} - A_{t,c})^2}}{\sqrt{\frac{1}{n}\sum_{t=1}^{n} (\hat{A}_{t,c})^2} + \sqrt{\frac{1}{n}\sum_{t=1}^{n} (\hat{A}_{t,c})^2}} \tag{5}$$

in which $\hat{A}_{t,c}$ and $A_{t,c}$ are the predicted and actual bilateral tourism flows at time t, respectively, and n is the number of observations in the sample. The model with the lowest MAE, RMSE, and U-Theil values is considered to better forecast accuracy. These computations, presented in Annex Table 2.4, confirm the relevance of infectious-disease episodes in several out-of-sample forecasting exercises—lowering the RMSE of bilateral tourism flow forecasts by as much as 7 percent compared to the standard model without the number of infectious-disease cases.

[1]The results remain broadly unchanged when standard errors are clustered at the country level.

Annex Table 2.1. Infectious Diseases and International Tourism—PPML Estimations

	(Dependent variable: Bilateral tourism flows)				
	[1]	**[2]**	**[3]**	**[4]**	**[5]**
Real GDP, origin	0.129***	0.127***	0.127***	0.127***	0.131***
	[0.006]	[0.006]	[0.006]	[0.006]	[0.006]
Real GDP, destination	0.129***	0.129***	0.129***	0.129***	0.132***
	[0.007]	[0.008]	[0.008]	[0.008]	[0.008]
Distance	−0.228***	−0.232***	−0.231***	−0.232***	−0.229***
	[0.004]	[0.004]	[0.004]	[0.004]	[0.004]
Common language	0.176***	0.174***	0.174***	0.174***	0.180***
	[0.007]	[0.007]	[0.007]	[0.007]	[0.007]
Colonial history	0.080***	0.083***	0.083***	0.083**	0.076***
	[0.016]	[0.016]	[0.016]	[0.016]	[0.016]
Geographical contiguity	0.034	0.035	0.035	0.035	0.031
	[0.019]	[0.016]	[0.016]	[0.016]	[0.016]
Population, origin	0.063***	0.065***	0.059***	0.063***	0.066***
	[0.011]	[0.011]	[0.011]	[0.011]	[0.011]
Population, destination	0.080***	0.078***	0.082***	0.078***	0.084***
	[0.012]	[0.012]	[0.012]	[0.013]	[0.012]
REER, destination	0.000***	0.000***	0.000***	0.000***	0.000***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Life expectancy, destination	0.097	0.103	0.113	0.091	0.088
	[0.043]	[0.043]	[0.044]	[0.044]	[0.043]
Ebola					
Origin		−0.013***			
		[0.001]			
Destination		−0.010***			
		[0.002]			
Malaria					
Origin			0.001		
			[0.000]		
Destination			−0.001		
			[0.000]		
SARS					
Origin				−0.003***	
				[0.02]	
Destination				−0.040***	
				[0.02]	
Yellow fever					
Origin					0.003
					[0.000]
Destination					−0.001
					[0.001]
Number of observations	224,019	215,589	215,589	215,589	219,132
Origin FE	Yes	Yes	Yes	Yes	Yes
Destination FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.77	0.84	0.80	0.83	0.80

Note: The dependent variable is bilateral tourism flows (in log form). Robust standard errors, clustered at the country level, are reported in brackets. A constant is included in each regression, but not shown in the table. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Annex Table 2.2. Infectious Diseases and International Tourism—2SLS-IV Estimations

(Dependent variable: Bilateral tourism flows)				
	[1]	**[2]**	**[3]**	**[4]**
Real GDP, origin	0.933***	0.935***	0.959***	0.957***
	[0.012]	[0.012]	[0.014]	[0.012]
Real GDP, destination	0.865***	0.856***	0.861***	0.896***
	[0.013]	[0.013]	[0.015]	[0.013]
Distance	−1.717***	−1.717***	−1.716***	−1.717***
	[0.015]	[0.015]	[0.015]	[0.015]
Common language	1.241***	1.241***	1.241***	1.272***
	[0.034]	[0.034]	[0.034]	[0.034]
Colonial history	0.849***	0.850***	0.850***	0.832***
	[0.086]	[0.086]	[0.086]	[0.084]
Geographical contiguity	1.210***	1.207***	1.208***	1.163***
	[0.067]	[0.067]	[0.067]	[0.066]
Population, origin	0.523***	0.517***	0.514***	0.498***
	[0.022]	[0.023]	[0.023]	[0.022]
Population, destination	0.526***	0.562***	0.514***	0.576***
	[0.023]	[0.024]	[0.024]	[0.022]
REER, destination	0.001***	0.001***	0.001***	0.001***
	[0.000]	[0.000]	[0.000]	[0.000]
Life expectancy, destination	0.097	0.039	0.214	0.209
	[0.070]	[0.078]	[0.081]	[0.068]
Ebola				
Origin	−0.065***			
	[0.005]			
Destination	−0.089***			
	[0.008]			
Malaria				
Origin		−0.001		
		[0.001]		
Destination		−0.007		
		[0.001]		
SARS				
Origin			−0.387***	
			[0.092]	
Destination			−0.078***	
			[0.104]	
Yellow fever				
Origin				0.004
				[0.012]
Destination				−0.017
				[0.104]
Number of observations	210,221	210,221	210,221	213,645
Origin FE	Yes	Yes	Yes	Yes
Destination FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Pseudo R^2	0.83	0.83	0.83	0.84

Note: The dependent variable is bilateral tourism flows (in log form). Robust standard errors, clustered at the country level, are reported in brackets. A constant is included in each regression, but not shown in the table. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Annex Table 2.3. Infectious Diseases and Tourism—Robustness Checks (2SLS-IV)

	(Dependent variable: Bilateral tourism flows)		
	Truncated sample	**Sub-sample (1995–2007)**	**Additional controls**
Real GDP, origin	0.961***	1.259***	1.023***
	[0.013]	[0.028]	[0.018]
Real GDP, destination	0.808***	0.751***	0.967***
	[0.015]	[0.028]	[0.019]
Distance	−1.632***	−1.688***	−1.704**
	[0.015]	[0.021]	[0.018]
Common language	1.202***	1.170***	1.233***
	[0.033]	[0.046]	[0.039]
Colonial history	0.755***	0.919***	0.864***
	[0.089]	[0.106]	[0.093]
Geographical contiguity	1.116***	1.232***	1.261**
	[0.072]	[0.084]	[0.074]
Population, origin	0.478***	1.224***	0.554***
	[0.022]	[0.057]	[0.033]
Population, destination	0.478**	0.305***	0.625***
	[0.023]	[0.057]	[0.032]
REER, destination	0.001**	0.001**	0.001**
	[0.000]	[0.000]	[0.000]
Life expectancy, destination	0.151	0.060	0.711***
	[0.078]	[0.136]	[0.194]
Hospital beds, destination			0.027***
			[0.010]
SARS			
Origin	−0.224***	−0.281***	−0.224***
	[0.085]	[0.041]	[0.095]
Destination	−0.028***	−0.016***	−0.011***
	[0.091]	[0.050]	[0.103]
Number of observations	176,489	96,416	111,591
Origin FE	Yes	Yes	Yes
Destination FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Adjusted R^2	0.79	0.83	0.83

Note: The dependent variable is bilateral tourism flows (in log form). Robust standard errors, clustered at the country level, are reported in brackets. A constant is included in each regression, but not shown in the table. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Annex Table 2.4. Infectious Diseases and Tourism—Estimations by Income Group and Region (2SLS-IV)

(Dependent variable: Bilateral tourism flows)

	Advanced	Developing	Africa	Asia	Europe	Latin America	Middle East
Real GDP, origin	1.008***	0.935***	0.860***	1.044***	0.754***	0.889***	1.169***
	[0.017]	[0.020]	[0.044]	[0.054]	[0.044]	[0.035]	[0.052]
Real GDP, destination	1.083***	0.744***	0.304***	1.201***	0.575***	0.744***	0.371***
	[0.044]	[0.024]	[0.040]	[0.077]	[0.045]	[0.047]	[0.060]
Distance	−1.351***	−1.821***	−1.512**	−1.932***	−1.518***	−1.737***	−1.482***
	[0.026]	[0.019]	[0.053]	[0.077]	[0.085]	[0.051]	[0.072]
Common language	0.584***	1.404***	1.170***	0.697***	0.863	1.451***	0.781***
	[0.054]	[0.040]	[0.058]	[0.112]	[0.406]	[0.064]	[0.126]
Colonial history	1.164***	0.848***	0.231	1.116**	0.109	0.541	0.526
	[0.082]	[0.146]	[0.499]	[0.409]	[0.208]	[0.529]	[0.388]
Geographical contiguity	0.480***	1.307***	1.126**	0.936***	1.525***	0.970***	1.662***
	[0.106]	[0.079]	[0.148]	[0.185]	[0.167]	[0.150]	[0.198]
Population, origin	0.219***	0.660***	1.010***	0.824***	0.860***	0.797***	0.156
	[0.030]	[0.031]	[0.065]	[0.084]	[0.068]	[0.060]	[0.084]
Population, destination	0.231***	0.433***	0.398***	0.393	0.316	0.729***	0.885***
	[0.063]	[0.031]	[0.133]	[0.179]	[0.148]	[0.114]	[0.065]
REER, destination	0.006***	−0.000***	0.000	−0.002***	0.000	0.000***	0.000
	[0.000]	[0.000]	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]
Life expectancy, destination	5.847***	0.585***	0.366*	1.668**	3.911***	0.745	0.887
	[0.528]	[0.087]	[0.146]	[0.554]	[1.264]	[0.420]	[0.659]
SARS							
Origin	−0.472	−0.556***	−0.362	−0.993***	−0.144	−0.455**	−0.850*
	[0.136]	[0.120]	[0.221]	[0.315]	[0.322]	[0.219]	[0.331]
Destination	−0.246	−0.243***	−0.207	−0.311***	−0.761	−0.204	−0.229
	[0.110]	[0.091]	[0.544]	[0.191]	[1.505]	[0.630]	[0.371]
Number of observations	70,721	139,500	36,232	23,922	23,794	33,750	21,802
Origin FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Destination FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.88	0.85	0.81	0.86	0.85	0.85	0.81

Note: The dependent variable is bilateral tourism flows (in log form). Robust standard errors, clustered at the country level, are reported in brackets. A constant is included in each regression, but not shown in the table. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Annex Table 2.5. Out-of-Sample Forecast Performance

(Dependent variable: Bilateral tourism flows)

	Standard	Ebola	SARS
PPML models			
MAE	5.103	5.086	**4.954**
RMSE	5.806	5.791	**5.675**
U-Theil	0.625	0.624	**0.613**
2SLS-IV models			
MAE	1.168	1.165	**1.096**
RMSE	1.675	1.652	**1.561**
U-Theil	0.118	0.116	**0.111**

Note: Each model is trained with the data covering the period 1995–2014, then tested in forecasting on the period 2015–2017. The model with the lowest MAE, RMSE, and U-Theil values is considered to better forecast accuracy, which is shown in bold.

Annex 3. Analyzing Macroeconomic Scenarios Using GIMF

Summary of New Features in the Theoretical Model

The IMF's Global Integrated Monetary and Fiscal model (GIMF) is an annual, multi-region, micro-founded general equilibrium model of the global economy. Readers are pointed to the documentation for the core model in Kumhof and others (2010) and Anderson and others (2013).

The tourism sector is a special feature of this application of GIMF. It is not documented in the two aforementioned papers. While tourism is a service, a tourism bundle is produced in the same manner as consumption and investment goods from a combination of tradable and nontradable goods, with one added feature—there is also a term for productivity, which is used in this paper to capture the costs incurred from the pandemic, including health costs, social distancing requirements, new technologies, and the like. The bundle of tourism services can be consumed by domestic households or by foreigner visitors, in which case it registers as tourism exports for the region and as imported tourism for the visitor's region. Consequently, households have a two-item consumption bundle made up of tourism services and other goods and services. The tourism portion consists of domestic tourist services produced (visiting within the region), and imports from foreign markets (visiting a foreign region). As with consumption goods, based on its production and consumption structure, tourism has a price, and forms part of the consumption basket, thereby having a role in determining consumer price index (CPI) inflation. Trade in tourism services is tracked bilaterally between all regions, just like consumption, investment, and intermediate goods.

Because of the tourism sector, this version of the model has more detail in trade overall. Unlike in the standard GIMF, consumption and investment goods are always treated separately, and not just as a single imported final good. Non-tariff barriers (NTBs) are also present, where country A

imposes the NTB, but country B will bear the cost in its production processes, and then have to pass it back to the importing consumers through higher prices. This is unlike tariffs, which would be imposed by country A on country B, and country A's government then collects the tariff revenues which it can then redistribute. Country B facing the tariff only experiences shifts in demand from the importing consumers in country A who bear the cost of the tariff.

Summary of the Calibration of the Asia-Pacific and Western Hemisphere Versions of GIMF

Two structurally identical eight-regions versions of GIMF are used, with some overlap in the regions used. One is focused on Asia-Pacific regions (ASEAN-5, Pacific Island 5, Australia and New Zealand, China and the other Asia-Pacific block), along with Europe, the United States, and the remaining countries. The other is focused on the Western Hemisphere (Caribbean, Central America, Latin America, and the other western hemisphere block) along with Canada, Europe, the United States, and the remaining countries to round out the model.[1]

Structurally, each country/regional block is close to identical, but with different key steady-state ratios and behavioral parameters (Annex Table 3.1). These are drawn from stylized data set consistent with 2018, and assumptions on long-term values for certain stocks, such as the capital-to-output and government debt-to-GDP ratios. There are data also for tourism services, for exports, imports and consumption, from which its production data are derived. The tourism economies vary markedly in their share of global GDP, as does the size of tourism exports and the balance between consumption and production of tourism services. As a share of their own GDP, tourism exports

[1]The more precise definitions of the regions are as follows: ASEAN-5 (ASE) comprises Indonesia, Malaysia, Philippines, Thailand, and Vietnam; Australia and New Zealand (ANZ) comprises Australia and New Zealand; the Pacific Islands (PIC) comprises Fiji, Palau, Samoa, Tonga, and Vanuatu; the Caribbean (CRB) comprises the Eastern Caribbean Currency Union (ECCU—Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines), Bahamas, Barbados, Belize, Dominican Republic, and Jamaica; Central America (CAM) comprise Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama; Latin America (LAM) comprises Argentina, Brazil, Chile, Colombia, Mexico and Peru; Other Asia-Pacific (OAP) comprises India, Japan, Korea, the rest of South and Southeast Asia and the other Pacific island states; Other Western Hemisphere (OWH) comprises Bolivia, Ecuador, Guyana, Paraguay, Surinam, Trinidad and Tobago, Uruguay, Venezuela, and the remaining Caribbean islands; Europe (EUR) comprises the European Union, Albania, Iceland, Montenegro, North Macedonia, Norway, Serbia, Switzerland, and the United Kingdom; the Remaining Countries for the Asia-Pacific model (RC1) comprises any countries not in ASE, ANZ, China (CHN), PIC, OAP, EUR, and the United States (USA); and the Remaining Countries for the Western Hemisphere model (RC2) comprises any countries not in CRB, CAM, LAM, OWH, Canada (CAN), EUR, and USA.

Annex Table 3.1. Key National Accounts Ratios in GIMF

(Percent of a region's GDP, unless otherwise stated)

	Caribbean	Pacific Islands	ASEAN-5	Central America	Australia/ New Zealand	Canada	China	Europe	Latin America	United States
Share of Global GDP (%, US$)	0.15	0.01	3.04	0.31	1.91	2.01	15.74	21.79	5.26	24.23
Domestic Demand										
Household Consumption	63.9	51.1	61.0	65.3	57.4	56.8	47.5	57.0	65.6	65.2
Private Investment	21.0	24.8	22.6	18.5	18.9	18.6	27.5	20.7	16.0	17.4
Government Absorption	15.1	24.1	16.4	16.2	23.7	24.6	25.0	22.3	18.4	17.4
Tourism										
Consumed	5.0	8.0	6.0	4.0	5.0	5.0	3.6	5.5	2.6	2.0
Produced	18.3	28.9	7.8	9.6	5.3	3.9	2.0	7.3	1.9	2.8
Trade										
Goods Exports	12.6	20.7	171.2	17.9	18.8	30.5	18.7	18.5	22.8	12.1
Consumption	*7.9*	*16.2*	*143.8*	*13.8*	*7.4*	*11.6*	*8.7*	*8.6*	*7.5*	*5.4*
Investment	*0.7*	*3.0*	*6.8*	*0.6*	*0.6*	*4.2*	*4.9*	*4.2*	*1.5*	*2.0*
Intermediate	*4.0*	*1.5*	*20.6*	*3.5*	*10.8*	*14.7*	*5.1*	*5.7*	*13.8*	*4.7*
Tourism Service Exports	18.7	28.4	6.1	8.8	3.6	2.4	0.7	3.2	2.3	1.7
Goods Imports	26.9	43.1	44.4	23.8	19.2	29.6	17.1	20.4	19.5	12.9
Consumption	*12.9*	*25.0*	*11.1*	*10.0*	*9.5*	*12.9*	*3.5*	*8.6*	*6.7*	*6.5*
Investment	*3.9*	*9.6*	*10.2*	*3.9*	*4.3*	*7.4*	*2.5*	*3.7*	*4.5*	*2.6*
Intermediate	*10.1*	*8.5*	*23.1*	*9.9*	*5.4*	*9.3*	*11.1*	*8.1*	*8.3*	*3.8*
Tourism Service Imports	4.5	6.4	4.0	2.8	3.1	3.3	2.4	1.3	1.7	0.9

Sources: National statistical agencies; UN Comtrade database; and IMF staff calculations.

AQ1 Note: GIMF = ; ASEAN = Association of Southeast Asian Nations.

Annex Table 3.2. Calibration of Goods Trade and Tourism Elasticities

Elasticity between =>	Consumption and Tourism	Domestic/ Foreign Tourism	Foreign Tourist Destinations
Tourism	0.9	0.9	1.5
Elasticity between =>		Domestic/ Imported Goods	Different Regions' Goods
Consumption	–	1.5	1.5
Investment	–	1.5	1.5
Intermediates	–	1.5	1.5

Sources: IMF staff calculations.

and production are largest in the Pacific Islands and the Caribbean. All of this data allow for the calibration of the model parameters.

Many of the elasticities in GIMF are calibrated the same across regions, but each region has a unique set of related bias parameters. The bias parameters, given the elasticities, are computed based on the calibration of key steady-state ratios. This is also true of the bias parameters for trade. Those for goods trade rely on the UN Comtrade database and the IMF Direction of Trade Statistics. Those for tourism rely on the UN and OECD EBOPS databases for services, augmented by national authorities' data on visitor arrivals from different countries and regions.

Behavior is governed by elasticities calibrated with some differences from the goods sectors (Annex Table 3.2). The demand between tourism services and other consumption is relatively inelastic; the demand between tourism in the region or abroad is also relatively inelastic, but between different foreign markets, it is more elastic. This is in contrast to the trade in consumption, investment, and intermediate goods, which is relatively elastic between domestic and foreign goods, with the same higher elasticity among foreign markets.

In the short term, the degree and rapidity with which various sectors of the economy adjust are governed by real rigidities and nominal adjustment costs. Real rigidities play a small role in GIMF's annual dynamics and are set to 1 across all regions for all variables (labor demand, liquidity-constrained households, investment, and imports of consumption, investment and intermediate goods, and tourism) except consumption by saving households which is set to 2. For the COVID-19 pandemic shocks, real rigidities in the tourism sector are set to zero to account for the unusually rapid adjustment. Nominal adjustment costs are set the same across domestic (tradable intermediates, nontradable intermediates, final consumption goods, final investment goods, tourism), although they are higher in Europe to reflect greater structural rigidities. However, they vary widely across regions for imports (Annex Table 3.3). Countries which are large import markets (like the United States) have high adjustment costs, meaning exporters can only adjust their prices slowly in those markets. Smaller markets (such as the Caribbean

Annex Table 3.3. Calibration of Nominal Adjustment Costs

	United States		Europe		China		Canada, Other Asia-Pacific, Latin America	
	Baseline	COVID-19 Shock	Baseline	COVID-19 Shock	Baseline	COVID-19 Shock	Baseline	COVID-19 Shock
Real wage	100	100	150	150	100	100	100	100
Consumption price	100	100	150	150	100	100	100	100
Tourism price	100	50	150	50	100	50	100	50
Investment price	100	100	150	150	100	100	100	100
Intermediate prices	100	100	150	150	100	100	100	100
Price of imports of								
Goods	100	100	50	50	25	25	10	10
Tourism	100	8	50	8	25	8	10	4

Sources: IMF staff calculations.

and Pacific Islands, along with other emerging markets) are essentially price takers—exporters can shift their prices quickly in these smaller markets. For the COVID-19 pandemic shocks, the nominal adjustment costs for both domestic and imported tourism prices are greatly reduced in all regions, reflecting the involuntary and highly unusual adjustment of prices that have occurred, largely driven by exogenous factors (such as the sudden shutting of international borders).

Summary of Assumptions Underpinning the Use of GIMF

Readers should keep in mind that the results from the scenarios simulated with GIMF are underpinned by the following assumptions:

1. All agents in the model (including households, firms, and the fiscal and monetary authorities) have perfect foresight.
2. All regions in GIMF have the same economic structures, differing only through their parameterization and calibration.
3. The model is at an annual frequency, so degree of detail for some of the economy's dynamics are lost, particularly in the first year for investment.
4. The baseline calibration of GIMF is based on parameter values consistent with 2018 for the great ratios to GDP such the capital stock, government debt and deficit, net foreign assets, and current account balance, and national accounts aggregates as well as trade flows and services data.
5. The model has non-linearities in the financial accelerator, and potential for non-linearities in the conduct of monetary policy by either encountering the zero-interest-rate floor or using monetary accommodation (features not used here). Otherwise, the model is approximately linear for small enough shocks.

6. The real exchange rate is a "jumper," adjusting immediately in the first year to shocks, since it follows the standard forward-looking, risk-adjusted uncovered interest rate parity condition that equates the forward sum of national-US interest rate differentials with the one-year-forward difference in the nominal exchange rate. However, there is no financial friction in the equation required to bring the net foreign asset position to its steady state, as the net foreign asset position and its dynamics solve endogenously as part of the OLG framework.
7. There are no substantial financial market channels. GIMF only has a financial accelerator (albeit using the full general equilibrium form with non-linearities) and assumes complete domestic ownership of firms. All net foreign asset positions are denominated in US dollars, in all countries.

Then there are the assumptions underlying the behavior of monetary and fiscal policy in this paper's scenarios:

1. Monetary Policy: Monetary policy is passive, relying only on its inflation targeting rules (interest rate reaction functions). There is no additional monetary policy stimulus to offset the impact of the shocks to tourism, to allow for a full illustration of the potential impact of the tourism sector on the economy.

2. Fiscal Policy:

   a. Fiscal policy is configured so that the government follows through on its pre-COVID-19 spending plans for government consumption, infrastructure investment and household transfers, although automatic stabilizers are also active (and react to the large tourism-driven recession). Revenues will move with the state of the economy as well.

   b. Some of these features are changed when modelling the fiscal stimulus shocks in Box 1.

   c. The deficit will vary over time, growing during the recessionary phases, and shrinking during economic expansions from automatic stabilizers, variability in revenues, and unchanged spending plans.

   d. For model stability, after 20 years, the government pursues its pre-COVID-19 debt-and deficit-to-GDP targets. It achieves the deficit-to-GDP target in the short term by cutting transfers to households. Combined with ongoing economic growth, the debt-to-GDP ratio will then return to its target level in the longer term.

Technical Summary of the Scenarios Presented

This section explains the benchmark and alternative scenarios, along with the scenarios built for the boxes. The benchmark scenario and the box scenarios are comprehensively presented in the body of the paper, so their presentation here is limited to their technical implementation in GIMF. The presentation of alternative downside and upside scenarios starts with their technical specifications and a further decomposition into their constituent layers. There is additional analysis for the layers, focusing on different variations which comprise the benchmark and alternative scenarios.

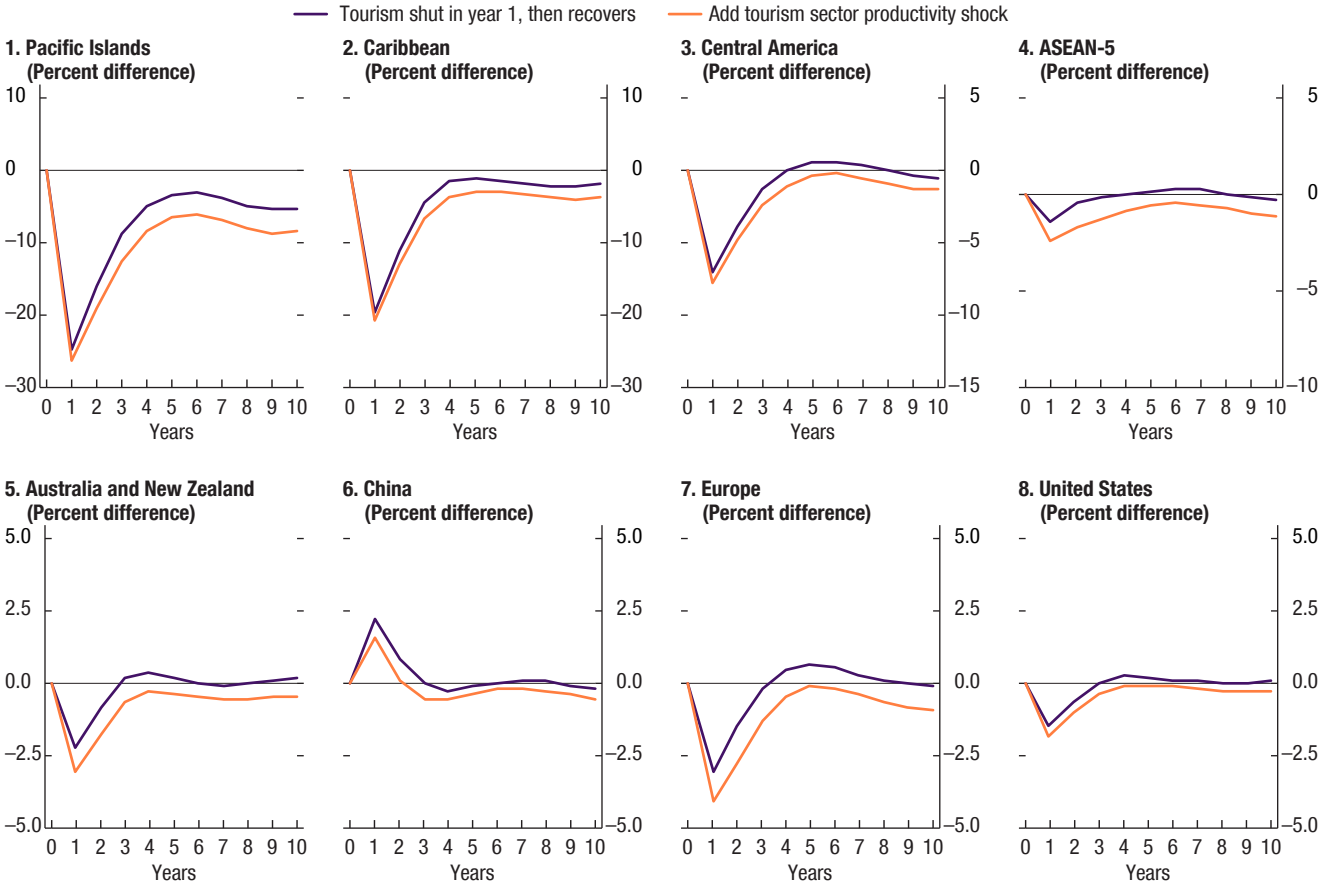
Benchmark Scenario

The benchmark scenario combines shocks to consumer preferences for all tourism and domestic versus foreign tourism and a permanent negative productivity shock in all regions' tourism sectors. The simulation starts in Year 1, using the existing steady state (representative of the pre-COVID-19 global economy) as its control case for both the Asia-Pacific and Western Hemisphere versions of GIMF. Tourism collapses and then recovers, subject to permanent economic scarring.

Annex Figure 3.1 illustrates the contribution of the productivity layer. Generally, for the tourism-dependent economies, it merely worsens the results. However, the presence of a negative productivity shock confined to the tourism sector in the more diversified economies, such as Canada and, not only worsen the outcomes, they lead to negative outcomes in the short term, offsetting the impacts from diverting consumer spending on tourism abroad to purchasing domestic goods and services instead.

Even in the case without the productivity shock, real GDP does not return to its original level, which reflects changes in measurement of real GDP, not actual permanent losses in income. Measuring real variables that are aggregates of real components rely on weighting those real components by their relative prices. Those relative prices shift over time when compared to the originally forecasted path (as component inflation rates are different than expected from the pre-COVID-19 forecasts). So even though all the real components for GDP (domestic and imported consumption, investment and government absorption, as well as exports) return to their original levels in the long term, their relative prices paths will be different (and are not bound to return to their previously forecasted values), so in the long term, real GDP's level will be different under the new forecasts presented in this paper relative to the pre-COVID-19 forecast of real GDP. The visible impact on the deviations of real GDP from the pre-COVID-19 forecast is greater

Annex Figure 3.1. Decomposition of the Benchmark Scenario
(Percent deviation from the pre-COVID-19 forecast)



Source: IMF staff calculations.
Note: ASEAN = Association of Southeast Asian Nations.

in those countries with larger tourism sectors, such as the Pacific Islands and Caribbean, as more of their economies would have been subjected to relative price shifts during the pandemic shock. The relevant model-based measure is real income, and it does return to its pre-COVID-19 forecasted level in the long term. This phenomenon does occur in all regions, but to a much lesser extent.

Because the large shift in relative prices in 2020 is present in both the upside and downside scenarios, the same phenomenon is present. It is most visible in the upside scenario, given that all the components of real GDP return to their pre-COVID-19 forecast values in the long term, even as real GDP itself does not. Compare Figures 16 and 17 in the body of the paper and see Annex Figures 3.2 and 3.3.

Technical Description

1. Tourism is reduced to close to zero in Year 1. This is achieved by:
   a. Reducing the bias toward other consumption over tourism (ALPHA_C) to almost zero within each region.
   b. Reducing the bias toward domestic tourism over foreign tourism (ALPHA_SH) to almost zero within each region.
2. Tourism reopens from Year 2 to Year 14, with a greater emphasis on domestic tourism. This is achieved by:
   a. Returning the bias toward other consumption over tourism (ALPHA_C) to its original values with a decay rate of 0.65.
   b. Returning the bias toward domestic tourism over foreign tourism (ALPHA_SH) to its original values with a decay rate of 0.65.
3. To represent the economic scarring, a permanent –10 percent shock is added starting in Year 1 to the level of sectoral productivity in the production function for tourism (AA_S) in each region.

Alternative Scenarios

This section presents the details for the alternative scenarios. The aggregated downside and upside scenarios are discussed first, followed by further exploration of the scenarios' component layers, highlighting the uncertainty inherent in all scenarios.

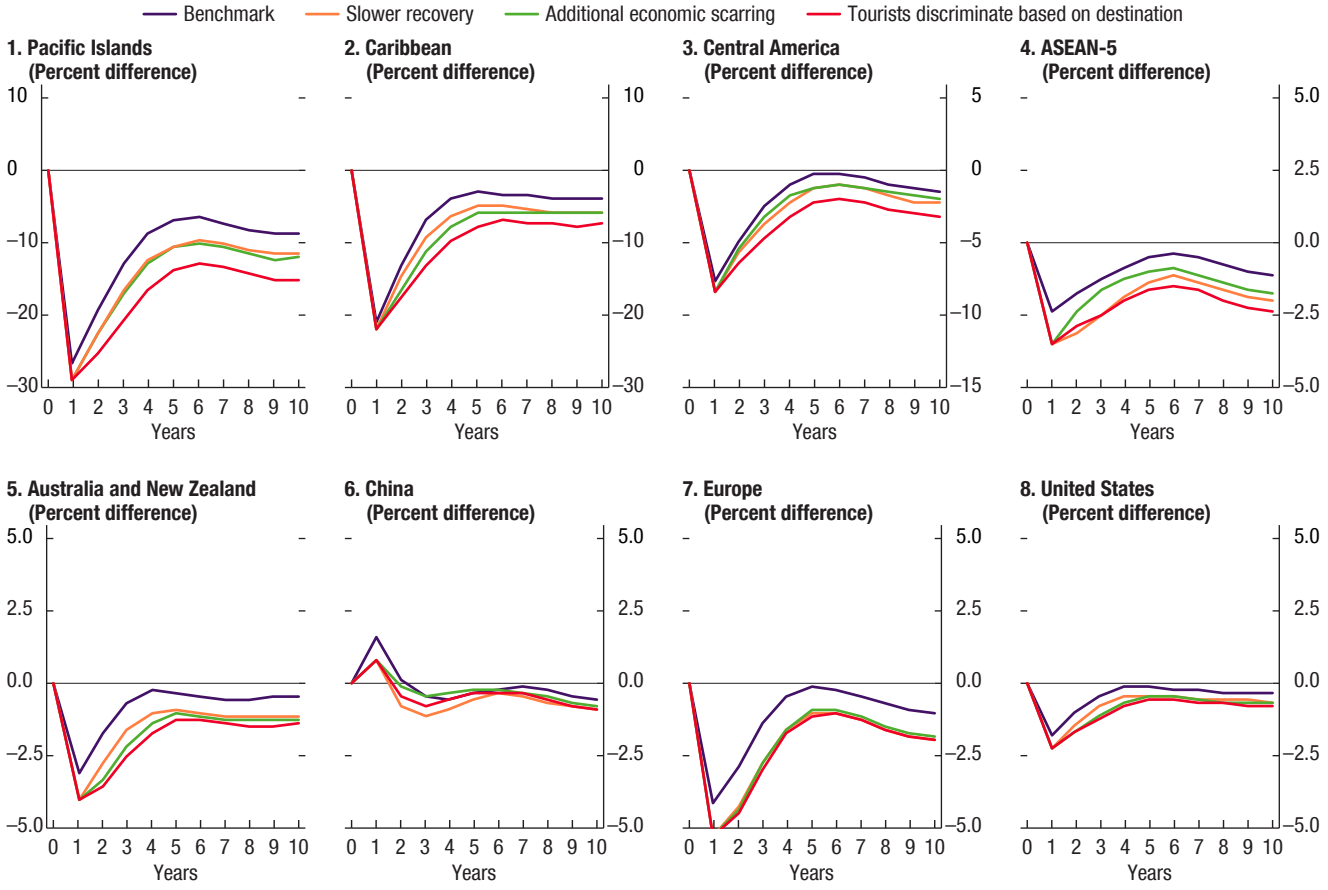
Downside Scenario

The downside scenario is built on top of the benchmark scenario. It assumes a more severe set of outcomes from the pandemic. The differing outcomes begin in Year 2 and are unanticipated as the shock hits in Year 1, when the benchmark scenario is the expected outcome. The downside scenario can be decomposed into its three constituent layers (Annex Figure 3.2).

Technical Description

1. More economic scarring in the tourism sector: As of the Year 2, the level of sectoral productivity in the production function for tourism (AA_S) in each region is at –20 percent (–10 percent in the benchmark scenario).
2. Slower recovery of tourist preferences for tourism, both domestic and foreign:
   a. Starting in Year 2, reduce the speed of recovery for the bias toward other consumption over tourism (ALPHA_C), using a decay rate of 0.80 instead of 0.65.

Annex Figure 3.2. Decomposition of the Downside Scenario
(Percent deviation from the pre-COVID-19 forecast)



Source: IMF staff calculations.
Note: ASEAN = Association of Southeast Asian Nations.

b. Starting in Year 2, reduce the speed of recovery for the bias toward domestic over foreign tourism (ALPHA_SH), using a decay rate of 0.80 instead of 0.65.

3. *Tourists differentiate among destinations based on quality of healthcare:* Starting in Year 2, NTBs are added to the tourism sector (NTB_S_[visiting region]_[visited region]). The shocks placed against the visiting regions as follows:

a. 5 percent for ANZ, CAN, EUR, USA

b. 7.5 percent for OAP

c. 10 percent for ASE, CHN, CRB, LAM, RC1, RC2

d. 15 percent for CAM, OWH, PIC

Upside Scenario

The upside scenario is also built on top of the benchmark scenario. The upside assumes a more favorable set of outcomes from the pandemic, even from Year 1. In Year 1, there is no assumption of a productivity shock in the tourism sector. Then from Year 2, the recovery is faster, both with the release of pent-up demand in Year 2, and then a faster speed of recovery overall. The differing outcomes begin in Year 2 and are unanticipated as the shock hits in Year 1, when the benchmark scenario is the expected outcome. The upside scenario can be decomposed into two constituent layers (Annex Figure 3.3).

Technical Description

1. No economic scarring in the tourism sector: There is no longer any change in level of sectoral productivity in the production function for tourism (–10 percent in the benchmark scenario). Real income will return to its original value, while real GDP will still deviate in some regions in the long term because of relative prices shifts.[2]

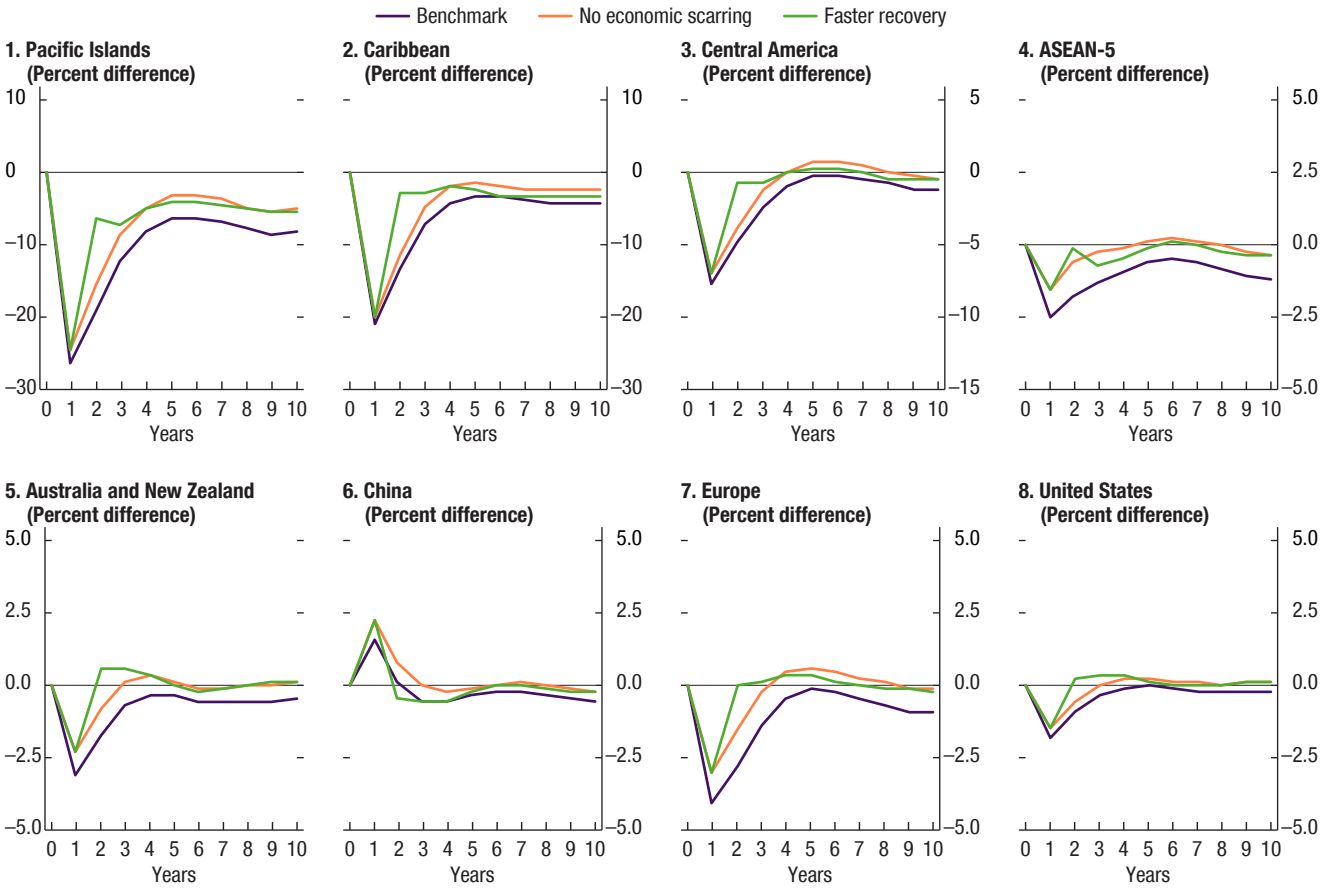
2. Faster recovery of tourist preferences for tourism, both domestic and foreign:
   a. Starting in Year 2, have a higher speed of recovery for the bias toward other consumption over tourism (ALPHA_C), using a decay rate of 0.20 instead of 0.65, and then let the recovery pause in Year 3 by using a decay rate of 1.00.
   b. Starting in Year 2, have a higher speed of recovery for the bias toward domestic over foreign tourism (ALPHA_SH), using a decay rate of 0.20 instead of 0.65, and then let the recovery pause in Year 3 by using a decay rate of 1.00.
   c. Starting in Year 4, have a higher speed of recovery for the bias toward other consumption over tourism (ALPHA_C), using a decay rate of 0.40 instead of 0.65.
   d. Starting in Year 4, have a higher speed of recovery for the bias toward domestic over foreign tourism (ALPHA_SH), using a decay rate of 0.40 instead of 0.65.

Differing Extents of Economic Scarring

Here four options for economic scarring are presented. Two options for scarring have been discussed for the benchmark (–10 percent) and alternative (–20 percent) scenarios. However, given that part the developments

[2]This technical phenomenon is explained in the preceding subsection on the benchmark scenario.

Annex Figure 3.3. Decomposition of the Upside Scenario
(Percent deviation from the pre-COVID-19 forecast)



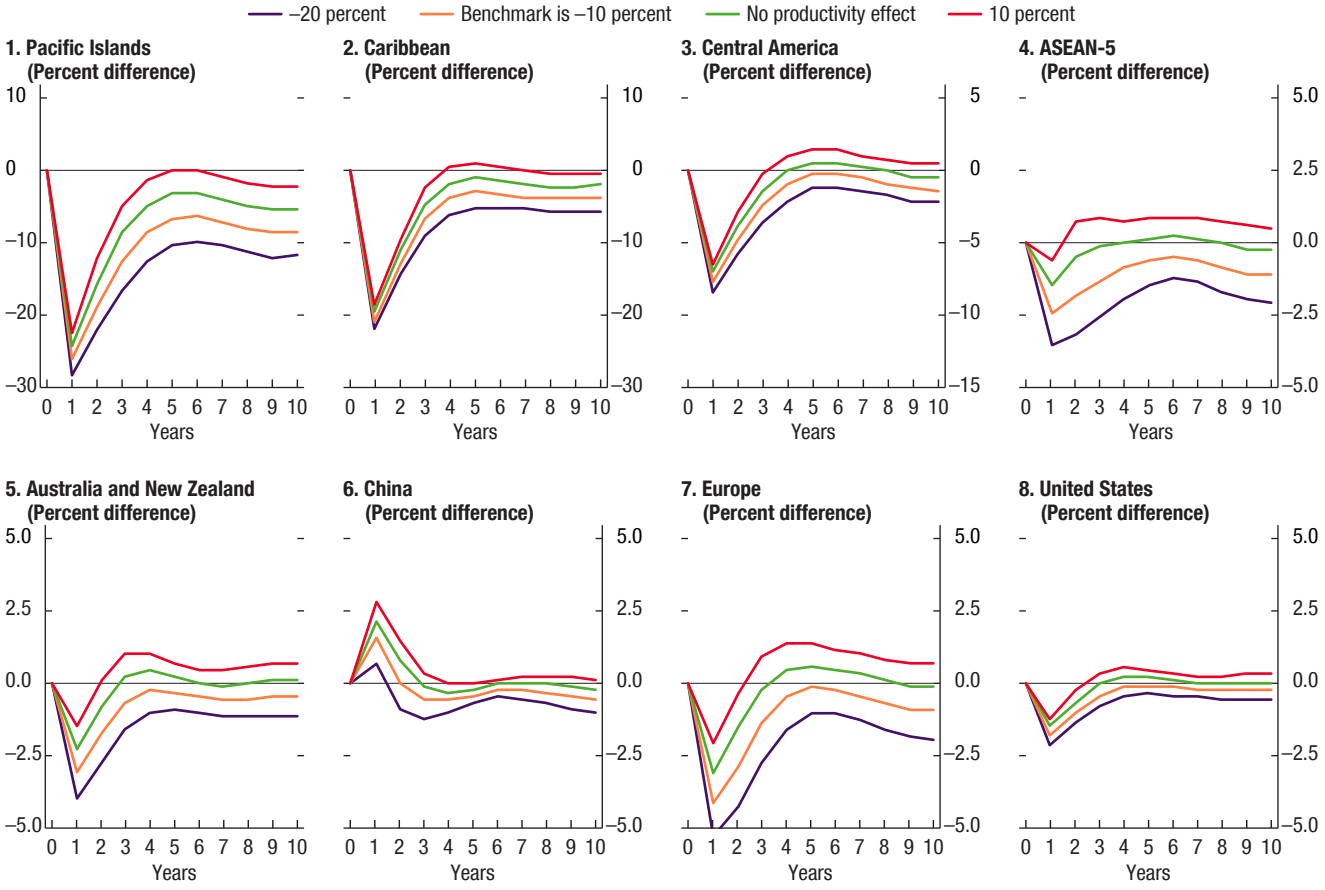
Source: IMF staff calculations.
Note: ASEAN = Association of Southeast Asian Nations.

in response to the pandemic will involve new technologies and potentially greater safety for healthcare, productivity could have a net zero effect, or even be positive (for example, +10 percent in the tourism sector). Therefore, a range of real GDP outcomes is possible (Annex Figure 3.4). The range of outcomes is the most widely dispersed for heavily tourism-dependent regions, such as the Pacific Islands and the Caribbean (up to more than 13 percentage points after 10 years), but much less for others (for example, only about 1 percentage point for China).

Technical Description

Economic scarring is represented by shocks to productivity in the tourism sector, which is the third component of the benchmark scenario. Four sim-

Annex Figure 3.4. Impact of Differing Degrees of Scarring in the Tourism Sector on Real GDP
(Percent deviation from the pre-COVID-19 forecast)



Source: IMF staff calculations.
Note: ASEAN = Association of Southeast Asian Nations.

ulations that begin in Year 1, using the steady state as their control cases for both the Asia-Pacific and Western Hemisphere versions of GIMF.

1. Use shocks 1) and 2) of the benchmark scenario for each region.

2. Add a permanent +10/0/–10 (benchmark scenario)/–20 (alternative scenario) percent shock starting in Year 1 to the level of sectoral productivity in the production function for tourism (AA_S) in each region.

Differing Speeds of Recovery

The recovery of the economy from the pandemic could be drawn out or compressed depending on tourist preferences. This outcome can depend

on the availability of a reliable vaccine. Here, two simulations starting in Year 2 are considered, using the existing benchmark scenario as their control cases for both the Asia-Pacific and Western Hemisphere versions of GIMF (Annex Figure 3.5). Assume the rebound is such that after five years, preferences for tourism are back at either 67 percent or 99 percent of their pre-COVID-19 levels, as opposed to the benchmark scenario level of 88 percent.

The recovery could be staggered among economies. Vaccinating the entire world will take time. Therefore, it could lead to staggered recoveries between regions—dependent on whether people are still afraid to travel to particular regions, or particular regions are reluctant to reopen their borders if incoming tourists are not vaccinated or the virus is still rampant.

Technical Description

The rate of recovery is governed by the speed of decay for the shock to tourist preferences. There are two simulations that begin in Year 1, using the benchmark scenario as their control cases for both the Asia-Pacific and Western Hemisphere versions of GIMF.

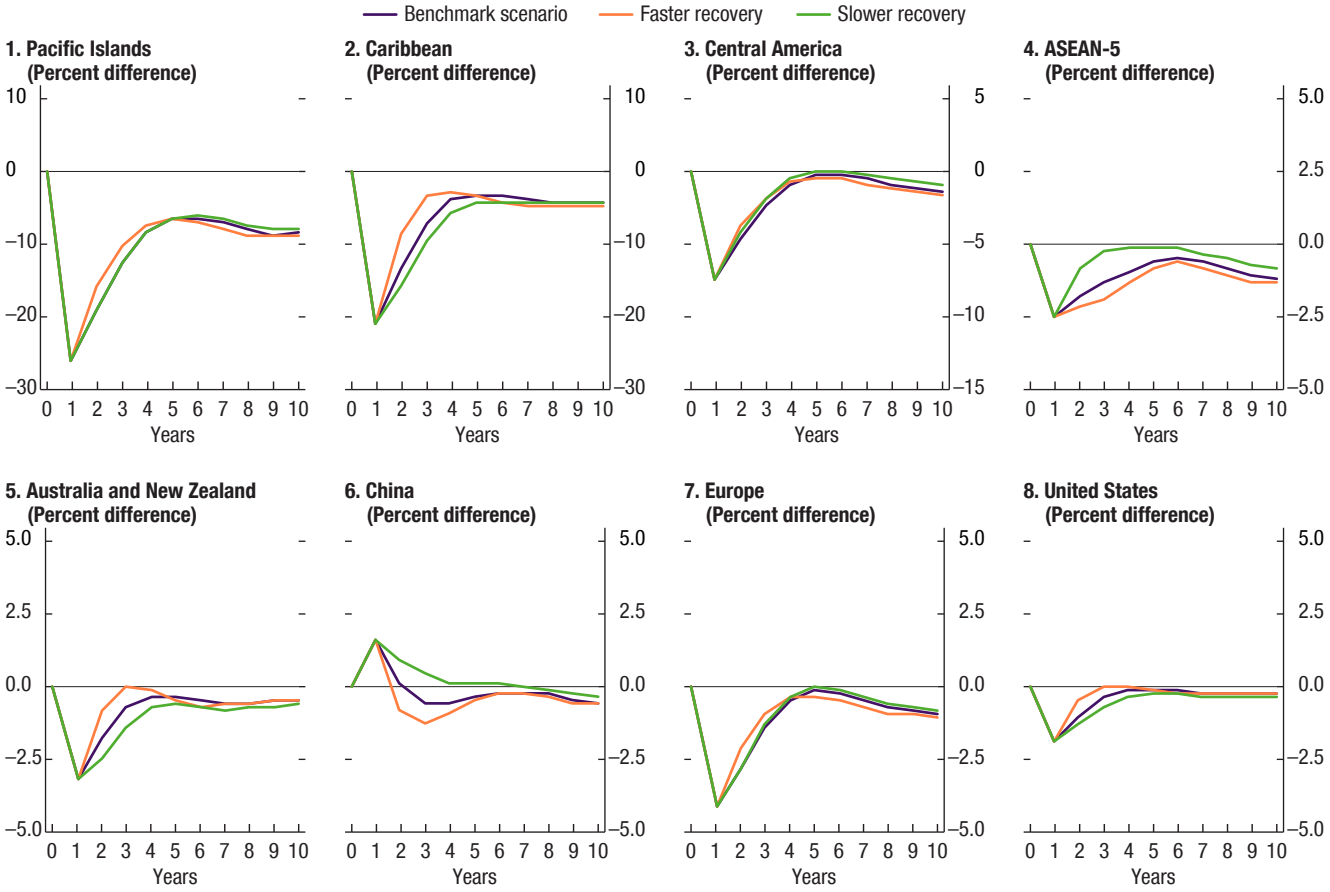
1. Starting in the Year 2, reduce (increase) the speed of recovery for the bias toward other consumption over tourism (ALPHA_C), using a decay rate of 0.80 (0.40) instead of 0.65.

2. Starting in the Year 2, reduce (increase) the speed of recovery for the bias toward domestic over foreign tourism (ALPHA_SH), using a decay rate of 0.80 (0.40) instead of 0.65.

Tourists Differentiating by Destination

Tourists preferences could permanently change because of lingering concerns related to COVID-19 or future pandemics. Under this scenario, tourists are assumed to differentiate among destinations based on the quality of healthcare available, specifically whether this is of higher, medium, or lower quality (Annex Figure 3.6, orange lines). Since many Pacific Island states tend to also have lower-quality healthcare, they are found to be most severely impacted, with negligible implications for advanced economies. Differentiating by region could potentially be further linked to the availability of a reliable vaccine. In that case, many regions with weaker healthcare system may see not only reduced levels of tourism, but slower recoveries in the return of tourists, with more delays the worse the state of a region's healthcare system (Annex Figure 3.6, green lines).

Annex Figure 3.5. Impact of Differing Speed of Recovery in the Tourism Sector on Real GDP
(Percent deviation from the pre-COVID-19 forecast)



Source: IMF staff calculations.
Note: ASEAN = Association of Southeast Asian Nations.

Technical Description

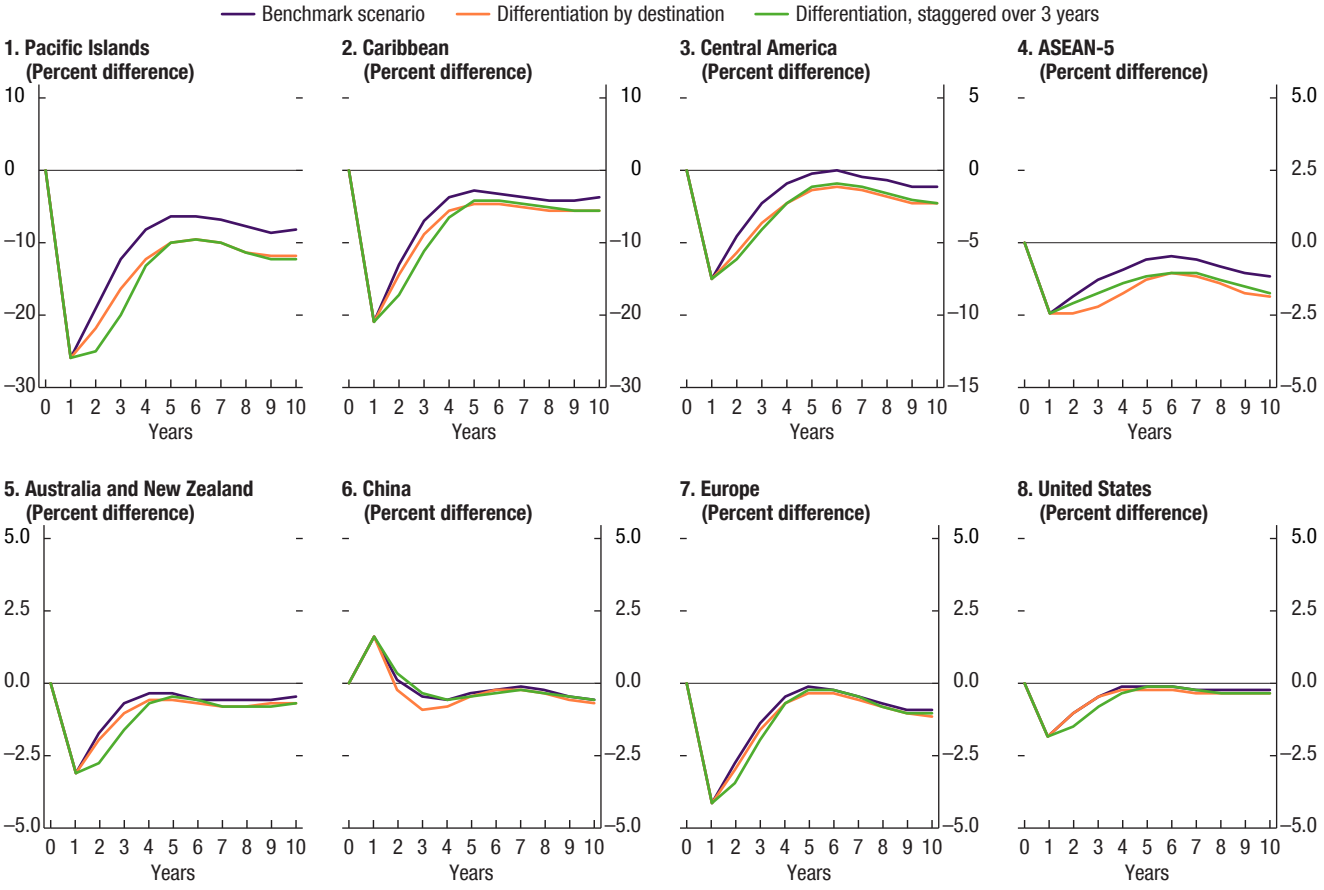
How tourists behave differently toward different regions is represented by different levels of NTBs on tourism. The simulations begin in Year 2, using the existing benchmark scenario as their control cases for both the Asia-Pacific and Western Hemisphere versions of GIMF.

1. Starting in Year 2, NTBs are added to the tourism sector (NTB_S_[visiting region]_[visited region]). The shocks placed against the visiting regions as follows:

   a. 5 percent for ANZ, CAN, EUR, USA

   b. 7.5 percent for OAP

Annex Figure 3.6. Tourists Differentiate by Destination—Impact on Real GDP, Globally
(Percent deviation from the pre-COVID-19 forecast)



Source: IMF staff calculations.
Note: ASEAN = Association of Southeast Asian Nations.

c. 10 percent for ASE, CHN, CRB, LAM, RC1, RC2

d. 15 percent for CAM, OWH, PIC

2. Same as the first scenario, but those regions facing 10 percent NTBs have a slower rate of return for tourists in Year2 (a root of 0.8 instead of 0.65), while those facing 15 percent NTBs have slower rates of return in Year 2 (a root of 0.9 instead of 0.65) and Year 3 (a root of 0.80 instead of 0.65).

Policy Scenario 1 (Box 1): Short-Term Fiscal Stimulus

Fiscal stimulus is formulated to have either a lower or a high multiplier in aggregate for the ASEAN-5. Each stimulus package is for three years,

at 3 percent of GDP for the first two years, and then halved in the third year. Afterward, fiscal instruments return to their former settings, with the exception of government investment, which may be needed to sustain a new higher infrastructure capital stock.

Technical Description

Two simulations begin in Year 1, using the benchmark scenario as its control case, with shocks in the ASEAN-5 (ASE) region for only the Asia-Pacific version of GIMF.

1. Shocks for the lower multiplier fiscal package:

   a. In Years 1 and 2, introduce a +1.0 percent of GDP shock on government consumption (GOVCONS) through E_GOVCONS (scaled by GDP and GOVCONS from the benchmark scenario). Cut the shock in half to +0.5 percent of GDP for Year 3.

   b. In Years 1 and 2, introduce a +1.5 percent of GDP shock general lumpsum transfers (TRANSFERS). Cut the shock in half to +0.75 percent of GDP for Year 3. Since transfers are endogenous in the fiscal identity, transfers will move by the shock to the government surplus (see below) less the shocks to government consumption (see above) and the labor income tax for saving households (see below).

   c. In Years 1 and 2, introduce a –0.5 percent of GDP shock on labor income taxes for saving households (TAU_L_OLG) through TAU-LOLGBAR (scaled by GDP and the labor income tax base for savings households, TAXBASE_L_OLG, from the benchmark scenario). Cut the shock in half to –0.25 percent of GDP for Year 3.

   d. As a result of all three shocks above, in Year 1 and Year 2 increase the deficit target to GDP ratio (GOVSURSTAR) through E_GOVSURSTAR by 3 (which is 3 percent of GDP). Cut the shock in half to 1.5 percent of GDP in Year 3.

2. Shocks for the higher multiplier fiscal package:

   a. In Years 1 and 2, introduce a +1.5 percent of GDP shock on government infrastructure investment (GOVINV) through E_GOVINV (scaled by GDP and GOVINV from the benchmark scenario). Cut the shock in half to +0.75 percent of GDP for Year 3.

   b. In Years 1 and 2, introduce a +1.0 percent of GDP shock targeted lumpsum transfers (TRANSFERS_TARG_RAT) and set TRANSFERSHARE=1 so that the transfers are directed only to liquidity-constrained households. Cut the shock in half to +0.5 percent of GDP for Year 3.

c. In Years 1 and 2, introduce a –0.5 percent of GDP shock on consumption value-added tax (TAU_C) through TAUCOLGBAR (scaled by GDP and the consumption tax base for all households, TAXBASE_C, from the benchmark scenario), which will automatically flow through to TAUCLIQSTAR. Cut the shock in half to –0.25 percent of GDP for Year 3.

d. As a result of all three shocks above, in Year 1 and Year 2 increase the deficit target to GDP ratio (GOVSURSTAR) through E_GOVSURSTAR by 3 (which is 3 percent of GDP). Cut the shock in half to 1.5 percent of GDP in Year 3.

Policy Scenario 2 (Box 2): Tourism Bubble

To consider a tourism bubble, a two-year variant of the benchmark scenario is first constructed. The example of the Pacific Islands and Australia and New Zealand are considered in this case, although there are other candidates that would yield similar results.

Technical Description

There are two simulations. The first simulation creates a variant of the benchmark scenario, where the Year 1 shocks to tourism extend into Year 2, before they begin to run off using the decay roots found in the benchmark scenario. The second simulation creates a travel bubble between the Australia and New Zealand (ANZ) and Pacific Islands (PIC) regions.

The first simulation begins in Year 2 to create a more severe scenario than the benchmark scenario, by using the benchmark scenario as its control case.

1. Tourism is kept at close to zero in Year 2 in all regions. This is achieved by:

   a. Keeping the bias toward other consumption over tourism (ALPHA_C) is maintained at the same value as in Year 1.

   b. Keeping the bias toward domestic tourism over foreign tourism (ALPHA_SH) is maintained at the same value as in Year 1.

2. Tourism reopens from Year 3 to Year 14 in all regions, with a greater emphasis on domestic tourism. This is achieved by:

   a. Returning the bias toward other consumption over tourism (ALPHA_C) to its original values with a decay rate of 0.65.

   b. Returning the bias toward domestic tourism over foreign tourism (ALPHA_SH) to its original values with a decay rate of 0.65.

The second simulation begins in Year 2, using the first scenario as its control case, but with shocks in ANZ and PIC to create a tourism bubble for only those two regions.

1. In Year 2, remove the shock from ALPHA_C in ANZ and PIC to allow for full resumption of tourism as a share of consumption.

2. In Year 2, returning the bias toward domestic tourism over foreign tourism (ALPHA_SH) to its original values with a decay rate of 0.80 in ANZ and 0.65 in PIC.

3. For Year 2 only, add a shock to non-tariff barriers (NTBs) on imports of tourism services by ANZ from other regions (NTB_S_ANZ_[visited region]) of 200 percent.

4. For Year 2 only, add a shock to NTBs on imports of tourism services by PIC from other regions (NTB_S_PIC_[visited region]) of 200 percent.

Annex 4. Assessing Export Development Potential in Tourism-Dependent Economies

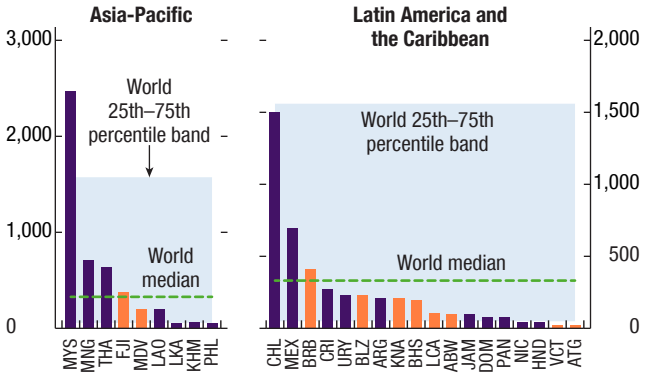
Non-Tourism Exports in Tourism-Dependent Economies

Several tourism-dependent countries have substantially developed other export sectors. This approach has in turn helped them mitigate the current shock to tourism.

- A few countries in this group can rely on an abundance of natural resources, with the resulting foreign exchange and revenue flows. Chile and Mexico, for example, with their fuel/mineral commodity exports per capita rank among the world's top quartile (Annex Figure 4.1, panel 1). Some commodity exporters may also have room to further develop natural resource exploitation to reduce the impact of a potential long-term tourism decline, subject to country-specific circumstances.
- Some countries have also an important level of development of non-commodity goods exports per capita. For example, Thailand, Panama, Chile, and Mexico rank among the world's upper quartile on this indicator (Annex Figure 4.1, panel 2). This is also the case in a number of small states (below 1 million population, highlighted in red), which have significant levels of manufacturing exports. For example, Bahamas, Barbados, Saint Kitts and Nevis, and Saint Lucia have export medicaments, medical goods and equipment, ships and vessels, and electronics. Natural resource-based exports (for example, in fisheries and agriculture) are also a significant export diversification option, including for small states.
- Several countries have developed other service exports, although they often do not represent a reliable source of receipts. Many countries with population below 1 million are in the world's upper half in terms of non-tourism services per capita and many of them, especially in the Central America and the Caribbean, are in the top quartile (Annex Figure 4.1, panel 3).

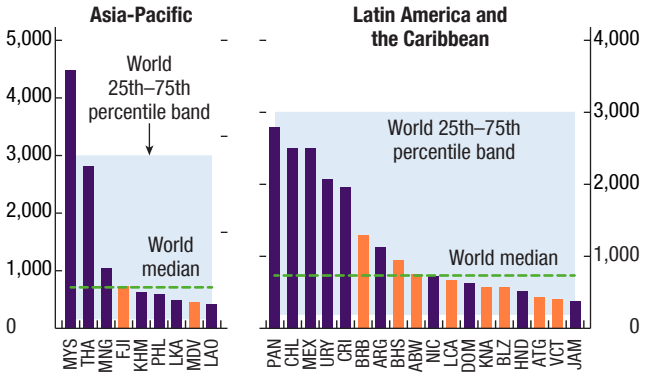
Annex Figure 4.1. Non-Tourism Exports in Tourism-Dependent Economies
(US dollars per capita, average over 2015–17)

1. Fuel and Mineral Exports per Capita (US dollars)



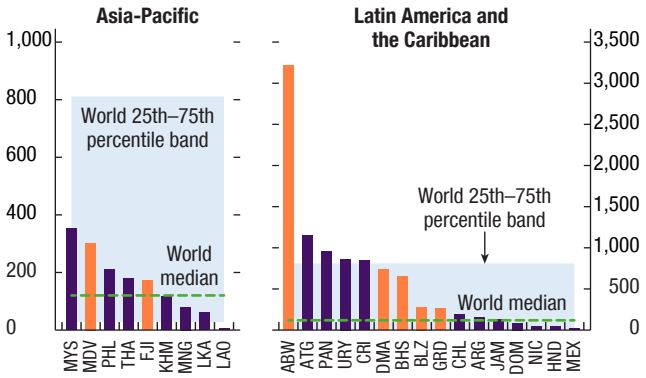
Sources: UN Comtrade database; and IMF staff calculations.
Note: Includes only raw hydrocarbon and mineral exports. Orange bars denote countries with population below 1 million. Country list uses International Organization for Standardization (ISO) country codes.

2. Non-Commodity Goods Exports per Capita (US dollars)



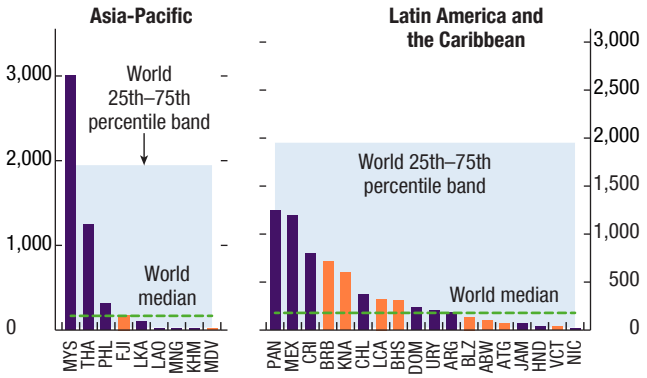
Sources: UN Comtrade database; and IMF staff calculations.
Note: Excluding raw hydrocarbon/mineral exports. Orange bars denote countries with a tourism population below 1 million. Country list uses International Organization for Standardization (ISO) country codes.

3. Non-Tourism Service Exports per Capita (US dollars)



Sources: UN EBOPS database; and IMF staff calculations.
Note: Orange bars denote countries with population below 1 million. Country list uses International Organization for Standardization (ISO) country codes.

4. Complex Exports per Capita (US dollars)



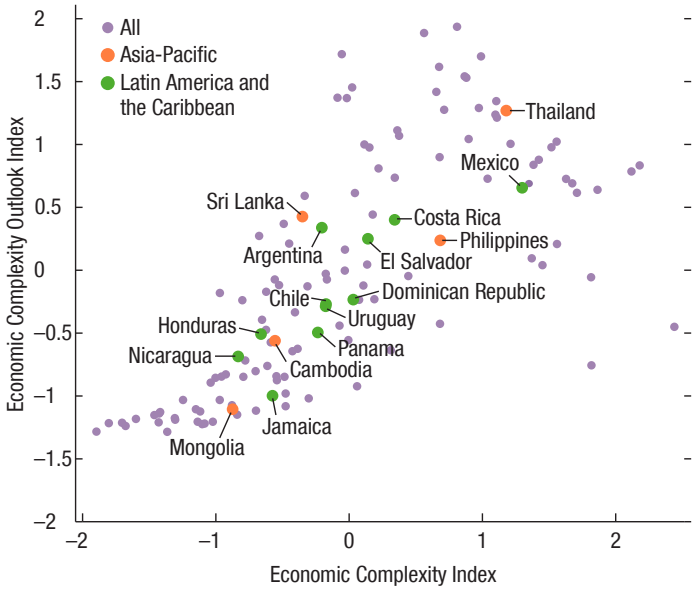
Sources: UN Comtrade database; Hausmann and others (2014); and IMF staff estimates and calculations.
Note: Orange bars denote countries with population below 1 million. Country list uses International Organization for Standardization (ISO) country codes.

However, these exports tend to be concentrated on financial services that benefit from very low taxation and/or passport sales. Both sectors are subject to an uncertain outlook in light of ongoing changes in international regulations to avoid tax evasion and of the highly volatile demand for second citizenship programs. Medical and education tourism services provide a likely more stable diversification option.

Export Development Potential

The levels of export diversification and complexity are positively associated with the level of income per capita. This is the case at least until countries reach the level of income that exists in advance economies (Hausmann and others 2014, IMF 2014). IMF (2014) notes that the higher level of diversification can be achieved through developing new products or trade linkages with new trading partners as well as through quality upgrade of existing products.

Annex Figure 4.2. Economic Complexity Outlook Index, 2018



Sources: Harvard Kennedy School of Government, *The Atlas of Economic Complexity*; and World Travel and Tourism Council.
Note: The Economic Complexity Index (ECI) is a measure of the diversity and complexity of a country's export basket. The Economic Complexity Outlook Index is a measure of how many complex products are near a country's current set of productive capabilities. Chile's low ECI is due to exogenous high natural resource abundance; however, it has a high level of complex exports per capita.

Several tourism-dependent countries have relatively low level of export complexity that affects their options for new products development (Annex Figure 4.2). Development of new products requires the expansion of the productive knowledge and capacities. Hausmann and others (2014) argue that countries move from products that they already made to new products that require similar know-how, as this demands a smaller amount of additional production knowledge. Therefore, existing production capabilities determine the ease of developing new products for the country. Hausmann and others (2014) approximate the variety of capabilities available for the country by the diversity of its export basket. In particular, the Economic Complexity Index (ECI) measures how diversified and complex country's export basket is. ECI combines diversity, that measures how many different types of products a country is able to make, and ubiquity, that measures the number of countries that are able to make a product. Hausmann and others (2014) show that there exists the positive association between economic complexity and income per capita. Annex Figure 4.2 shows that several tourism-dependent countries do not have very complex export baskets.

Given existing capabilities, some countries have limited options to move to more complex products.

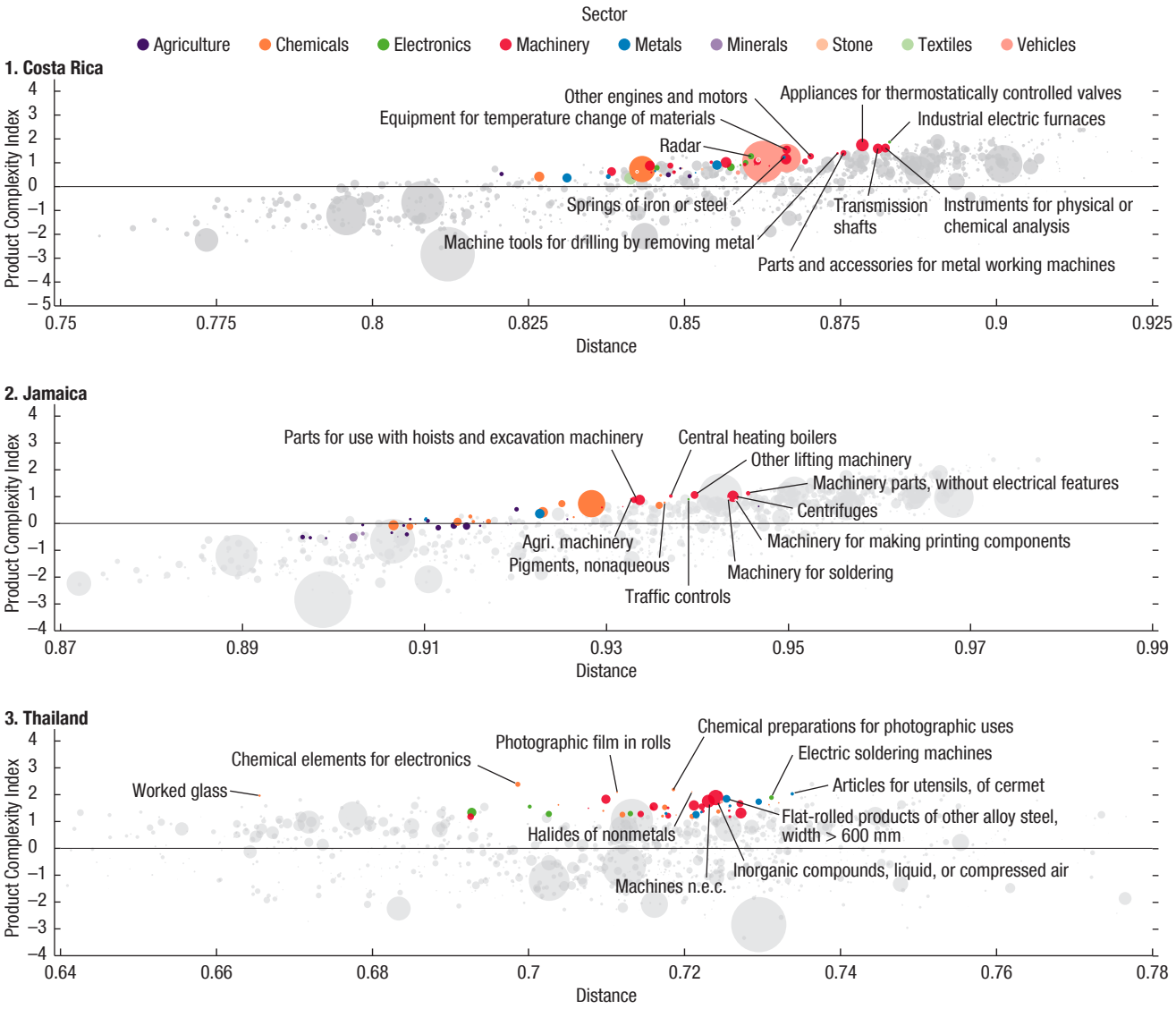
- The economic complexity outlook (COI) measures how many complex products are near a country's current production capabilities based on its existing export basket and the complexity of the underlying products. COI helps identify a country's potential for diversification. Cambodia, Dominican Republic, Honduras, Jamaica, Mongolia, Nicaragua, Panama, and have few nearby opportunities, so they would need stronger policies to move to strategical areas with future diversification potential (Annex Figure 4.2). In contrast, Thailand is an example of a country where existing production capacity and knowhow provide many options to diversify into related products.
- COI reflects a country's position in the product space, which provides a more granular view on diversification options for a country. The product space represents relatedness, or *distance*, between different goods, based on the similarities of know-how required for their production. The country's position in the product space reflects availability of more complex products with the smallest distance to existing know-how.[1] For example, as illustrated in Annex Figure 4.3, for both Costa Rica and Thailand, their position in the product space suggests significant opportunities to diversify into related products, notably industrial machinery, and electrical machinery and equipment, given their existing production of complex products. Jamaica is also connected to a few production opportunities, with industrial machinery products and plastics having the highest potential. Agricultural products have smaller product complexity and opportunity gains for Jamaica, but smaller distance to existing know-how.

Another diversification option for the countries is quality upgrade of the existing products. The quality of the goods produced by a country is also linked to its level of economic development (IMF 2014, Henn and others 2020). As the cost of moving to new sectors could be high, production of higher quality varieties of existing products might be a more feasible option for the diversification. At the same time, countries that have capacity to produce goods which are already close to the world quality frontier might have scope to further expand production and market shares in these sectors.

Many tourism-dependent economies have significant scope for the quality upgrade (Annex Figure 4.4). The quality index as developed in Henn, Papageorgiou, and Spatafora (2013) is calculated as the unit value of exported

[1]Complexity Outlook Index (COI) is based on the distance between the products that a country is currently making and those that it is not, weighted by the complexity of the products it is not making.

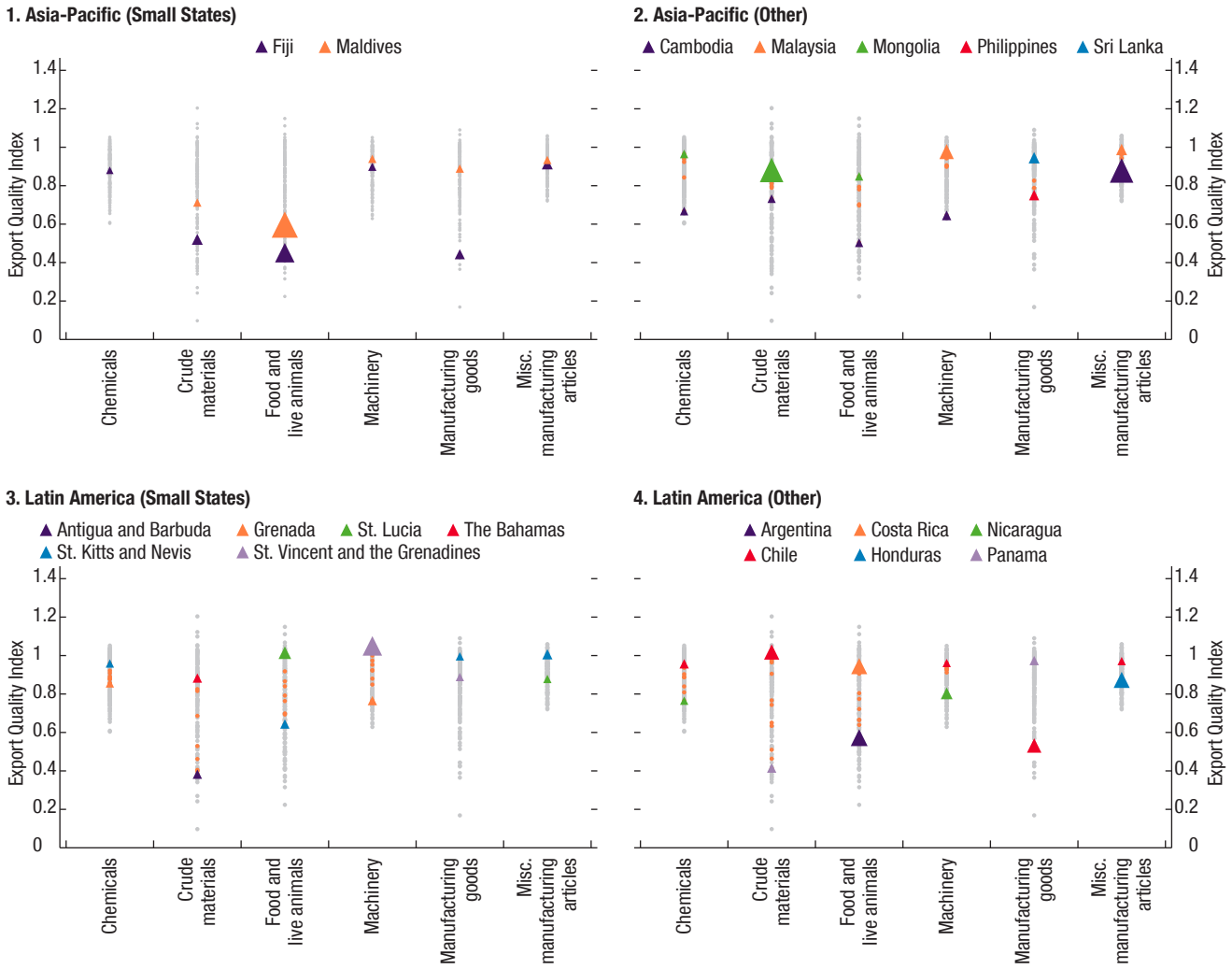
Annex Figure 4.3. Product Space Analysis



Source: Harvard Kennedy School of Government, *The Atlas of Economic Complexity*.
Note: The figure depicts the top 50 products with high potential for new diversification. Product complexity index ranks the diversity and sophistication of the productive know-how required to produce a product. Distance captures the extent of a location's existing capabilities to make the product as measured by how closely related a product is to its current exports. The size of the bubbles reflects the size of the global market for each good.

goods adjusted for differences in production costs and for the selection bias stemming from relative distance. The quality ladders represent the extent of existing heterogeneity in quality across different varieties of a product, that can be aggregated on the sectoral level. The country's position on the sectoral quality ladders reflects its potential for quality upgrading within the existing production basket.

Annex Figure 4.4. Quality Ladders



Sources: Henn, Papageorgiou, and Spatafora (2013); and the IMF staff calculations.
Note: Orange dots show tourism-dependent countries; triangles indicate countries with the lowest and highest positions on the quality ladders for each sector. The size of the squares and triangles reflects the share of each sector in total export of goods. Export quality index is calculated as the unit value of exported goods adjusted for differences in production costs and for the selection bias stemming from relative distance. Small states covered by the data set in the Asia-Pacific region include only Fiji and Maldives.

- Among Asia and Pacific countries, Cambodia is an example of country with the biggest potential for quality upgrade. The quality of clothing and footwear, a subcategory of miscellaneous manufactured articles which contributes about 80 percent of Cambodia's exports of goods, is slightly below the middle of the quality ladder, while the quality of machinery products, the second biggest export in Cambodia, is very low.

- Among Latin American and Caribbean countries, Argentina, Chile, and Honduras also show potential to upgrade quality across important export sectors, such as clothing, food, and manufacturing goods. Micro-states, such as St. Vincent and the Grenadines, and Saint Kitts and Nevis, produce machinery and manufactured goods that are at the world frontier of quality, including ships and boats and measuring instruments.

Policy and Institutional Choices

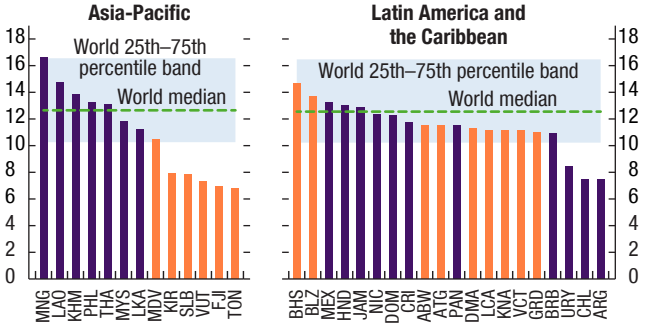
Countries' ability to further diversify their export baskets, aside from their starting position, tends to be determined by several geographical, economic, and institutional factors. Specifically, the economic literature tends to identify three main groups of determinants of a country's ability to diversify and develop complex exports: (1) distance/proximity to other economies (Cadestin, Gourdon, and Kowalski 2016; Weldemicael 2012; Raei, Ignatenko, and Mircheva 2019; and Salinas forthcoming-a); (2) productivity-related variables (Hausmann and others 2007; Weldemicael 2012; Ding and Hadzi-Vakov 2017; Giri, Quayyum, and Yin 2019; Salinas, forthcoming-b); and (3) unit labor costs (Salinas forthcoming-a).

Many tourism-dependent countries can leverage their *proximity to other markets*, such as China or the United States, to integrate into global value chains (Annex Figure 4.5, panel 1). Specifically, a country's proximity can be gauged by an index, based on a sum of the size of partner economies weighted by the inverse of their distance.

- For Latin America and the Caribbean, the index suggests that only Argentina, Chile, and Uruguay are relatively remote, but these countries are also less dependent on tourism. Caribbean countries, as well as Mexico, which are the most tourism-dependent countries in the region, have an index above the world's median, given their close distance to the United States and hence have greater scope to integrate into value chains.
- In Asia and the Pacific, countries have an index of proximity to markets below the world's median. These results are mainly driven by the highly tourism-dependent, small, and remote Pacific islands. This group of countries, therefore, would need stronger productivity-related policies to offset their distance disadvantage, possibly with a focus on services sectors, which are less dependent on distance to other markets. They could also effectively shorten distance to other economies by enhancing connectedness at all levels, reducing trade policy barriers, enhancing trade facilitation, strengthening transport infrastructure, investing in top-notch communication technology (particularly on internet connectivity), and fostering technological diffusion.

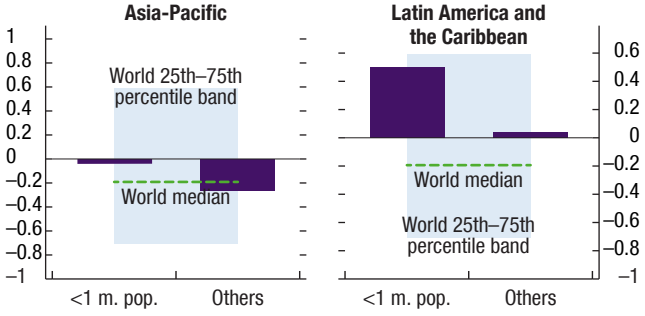
Annex Figure 4.5. Export Diversification Policies for Selected Regions (Average 2015–17)

1. Proximity to Markets (Index; millions)



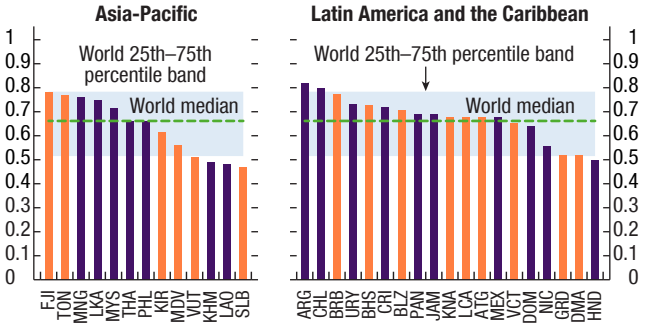
Sources: UN Comtrade; and IMF staff calculations.
Note: Index for each country is the sum of GDP of other countries weighted by distance to the country. Orange bars denote countries with a population below 1 million. Country list uses International Organization for Standardization (ISO) country codes.

2. Governance (Index –2 to 2, highest)



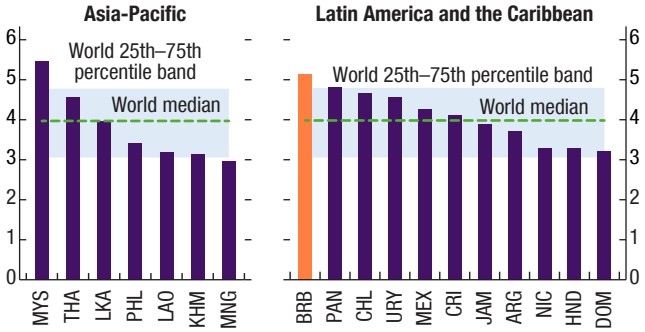
Source: World Bank, Worldwide Governance Indicators.

3. Educational Attainment (Index 0 to 1, highest)



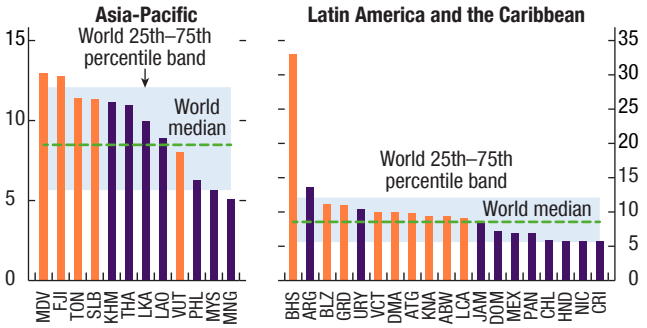
Sources: *UN Human Development Report*, various editions.
Note: Orange bars denote countries with a population below 1 million. Country list uses International Organization for Standardization (ISO) country codes.

4. Infrastructure (Index 0 to 7, highest)



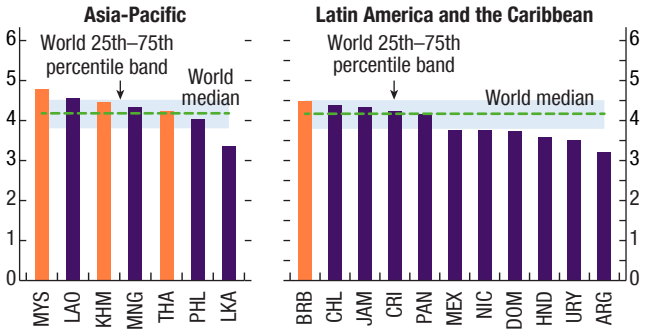
Sources: World Economic Forum, *Global Competitiveness Report*, various editions.
Note: Orange bar denote countries with a population below 1 million. Country list uses International Organization for Standardization (ISO) country codes.

5. Average Import Tariffs (Percent)



Source: World Bank, World Integrated Trade Solution database.
Note: Orange bars denote countries with a population below 1 million. Country list uses International Organization for Standardization (ISO) country codes.

6. Labor Market Efficiency (Index) (Index 0 to 7, highest)



Sources: World Economic Forum, *Global Competitiveness Report*, various editions.
Note: Index calculation factors in labor market rigidities and labor productivity promotion. Orange bars denote countries with a population below 1 million. Country list uses International Organization for Standardization (ISO) country codes.

Several *productivity-related variables* also appear to be robustly associated with exports diversification and complexity in empirical studies.[2,3]

- *Governance* is relatively sound among most tourism-dependent countries, although their position just above the global median, based on the World Bank Worldwide Governance Indicator, suggests scope for further enhancements (Annex Figure 4.5, panel 2). Also, many Caribbean and Central American countries have high crime indicators, which would limit export development including of tourism itself. Government effectiveness and combat of corruption are key aspects of governance that are significantly associated with export diversification (Salinas forthcoming-a).
- *Educational quality* is one of the most significant and robust determinants of export diversification and complexity according to the empirical literature. Most tourism-dependent countries in both regions have significant scope to improve educational quality. Based on the United Nations Human Development Index of education, many countries, especially in Asia-Pacific, have educational attainment below the world median (Annex Figure 4.5, panel 3). And in a scenario of declining tourism, governments may need to support labor reallocation to new export sectors through retraining.
- Availability of data on *infrastructure* is limited for several tourism-dependent countries, especially small states. However, for the countries covered by the Global Competitiveness Index of the World Economic Forum, the infrastructure performance pillar indicates relatively weak infrastructure quality (in the world's lowest quartile) in some tourism-dependent countries (Annex Figure 4.5, panel 4). Besides strengthening general infrastructure, countries may need to support any promising exports by developing sector specific infrastructure. Developing natural disaster resilient infrastructure protects both tourism and non-tourism activities and is of outmost importance to several TDCs that are frequently devastated by these events. Since many tourism-dependent countries are facing substantial fiscal constraints private sector participation for infrastructure development could be important.
- Many tourism-dependent countries have also relatively *high imports tariffs*, averaging about and above 10 percent. Only Central American

[2]This assessment is partly based on several third-party indicators. The analysis of governance is based on the Worldwide Governance Indicators, which is a perceptions-based measure constructed by researchers affiliated with the Brookings Institution and the World Bank. The education sub-index of the Human Development Index is based on estimates of expected years of schooling and mean years of schooling. Cross-country comparisons based on the Global Competitiveness Report should acknowledge some degree of uncertainty around point estimates.

[3]Export marketing and additional policies associated with the overall investment climate are also expected to strengthen exports.

countries as well as Chile have average tariffs among the world's lowest quartile (Annex Figure 4.5, panel 5). Due to the importance of imports access for competitiveness many TDCs provide tax exemptions to imports for the tourism sector. Export diversification thus requires reducing this bias against non-tourism sectors and lowering trade barriers across the board. Taxation in general should avoid penalizing non-tourism sectors. Trade openness, including of intraregional trade, is especially critical for small and microstates as access to imports could help offset their lack of economies of scale.

A cross-country comparison of labor market efficiency indicators suggests room for improvements in labor market frameworks to enhance export competitiveness (Annex Figure 4.5, panel 6). This is particularly the case of several Latin American countries that rank well below the world's median of the Global Competitiveness Report labor market efficiency index, in large part due to significant labor market rigidities This indicator is not available for small Caribbean countries, but it is worth noting that many of them have strong unionization and high collective bargaining coverage. Labor market rigidities can increase effective unit labor costs as well as limit the sector reallocation needed for export diversification. Without their flexibilization, policies to enhance human capital can result in outward migration as the better trained workers do not find adequate productive/competitive occupations in the labor market. Furthermore, public sector labor policies should target efficiency, linking wages and employment to productivity.

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