Unlocking Tourism Potential for Sustainable and Inclusive Growth in Dominica

Yibin Mu, Sinem Kilic Celik, and Archit Singhal

2023
AUG

IMF Selected Issues Paper
Western Hemisphere Department

Unlocking Tourism Potential for Sustainable and Inclusive Growth in Dominica
Prepared by Yibin Mu, Sinem Kilic Celik, and Archit Singhal*[*]

Authorized for distribution by Joana Pereira
August 2023

ABSTRACT: Tourism is an important driver of Dominica's economy. The damage of the pandemic on Dominica's tourism sector was severer than in most regional peers, and the recovery has also been much slower, mostly due to the timing of lockdown restrictions. This paper reviews the tourism sector landscape in Dominica, assesses its recent performance relative to peers, and analyzes the main determinants and constraints for tourism development. Our econometric analysis shows that flight connectivity and demand variables play the most significant role in explaining tourism developments, while natural disasters can have negative lasting significant impacts. This calls for improving infrastructure and enhancing resilience.

Unlocking Tourism Potential for Sustainable and Inclusive Growth in Dominica

THE TOURISM SECTOR LANDSCAPE IN DOMINICA

1.   Tourism is an important driver of economic activity in Dominica. The direct contribution of tourism to output in Dominica was 12.2 percent of GDP in 2019, among the highest in the ECCU. Tourism is also an important source of jobs, accounting for about 10.5 percent of total employment when measured directly, mainly through hospitality sectors (e.g., hotel and restaurants).[1] Considering contributions through connected sectors, the weight of the sector is estimated to be considerably larger, at about a third of economic output (WTTC 2022, 2023). Tourism exports have historically much larger than export of goods, except during the pandemic (Figure 1).

Figure 1. Dominica: Contribution of Tourism Sector to Dominica's Economy

GDP Composition By Sector
(In Percent of GDP)

Legend: Secondary Sector, Tourism 1/, Primary Sector, Wholesale & retail trade, Other private services, Public Services

Sources: Dominica's authorities.
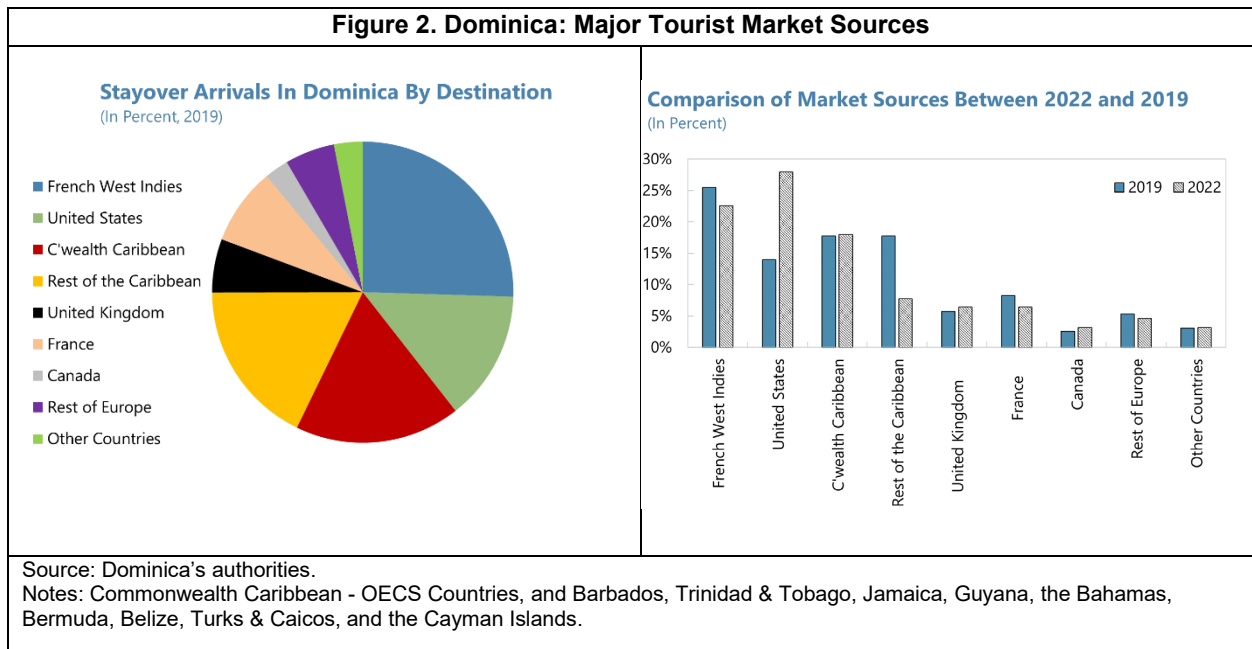1/ Tourism only includes direct contribution to the GDP.

Contribution of Tourism to GDP, 2019
(In Percent of GDP)

Source: World Travel and Tourism Council.

Formal Private Employment By Sector
(In Percent)

Legend: Primary, Secondary, Tourism, Wholesale & retail trade, Other private services

Source: Dominica's social security.

Export of Major Goods and Services
(In Billion US$)

Legend: Tourism Export, Goods Export

Sources: Dominica's authorities and IMF staff calculations.
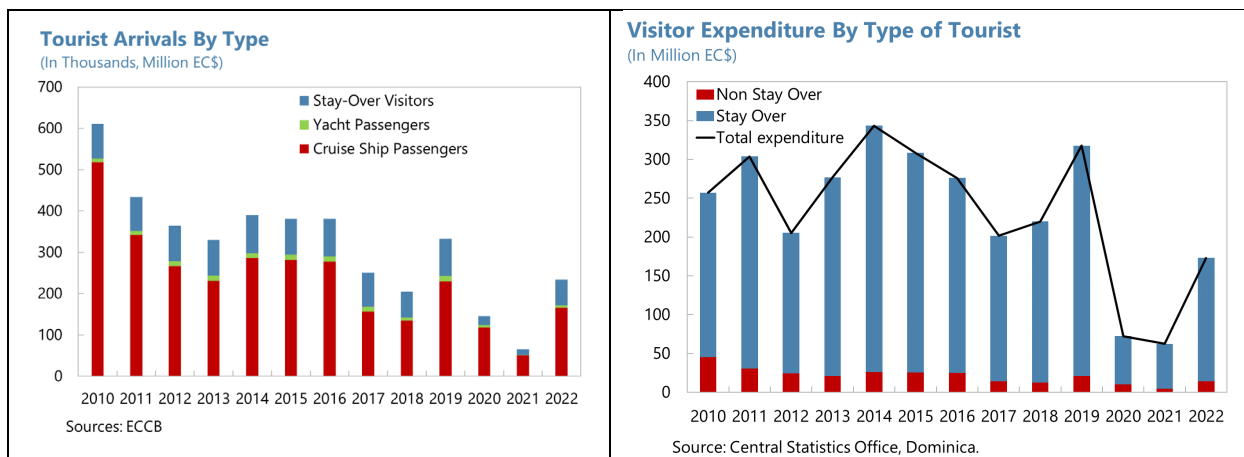
---

[1] World Travel & Tourism Council estimates.

2.   **Among stay-over visitors, most tourists originate from the Caribbean region (61.2 percent in 2019), followed by the US (14.0%), France (7.7%), the U.K. (5.7%), and Canada (2.9%)** (Figure 2, left chart).[2] Structural problems such as poor flight connectivity – worsened since the pandemic – and a small airport capacity, as well as legacies from hurricane Maria (which impacted hotel supply until recently), have hindered growth, especially for arrivals from outside the Caribbean and the US. Furthermore, the share of the Caribbean market in total visitor arrivals has decreased in favor of the US since 2019 (Figure 2, right chart), as a result of a more target marketing and expanded flight connections to the US in particular, at the same time that intra-regional connectivity worsened.[3] Still, the share of tourist arrivals from the Caribbean is almost half, with 48 percent of total arrivals.
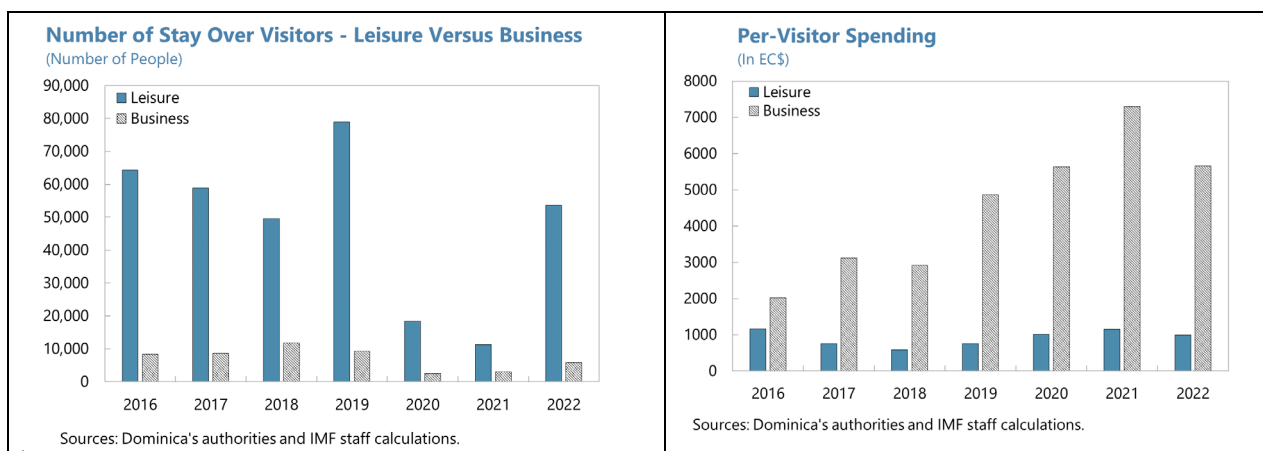

Figure 2. Dominica: Major Tourist Market Sources

Source: Dominica's authorities.
Notes: Commonwealth Caribbean - OECS Countries, and Barbados, Trinidad & Tobago, Jamaica, Guyana, the Bahamas, Bermuda, Belize, Turks & Caicos, and the Cayman Islands.

3.   **Stayover arrivals constitute a small share of total tourist arrivals but contribute with a disproportionally bigger fraction of total tourism expenditures.** In 2019, cruise ship arrivals accounted for 72 percent of total arrivals. They, however, contributed to only around 6.3 percent of total tourism expenditure, due to the lower average per-visitor spending of cruise ship passengers (cruise ship passengers spent EC$87 in 2019 vs. EC$3323 for stayover visitors) and their shorter length of stay (the majority stayed for less than one day).

---

[2]The Caribbean region includes the French West Indies (25.5%), Commonwealth Caribbean (17.8%), and the rest of Caribbean (17.8%).

[3]American Airlines initiated direct flights from Miami to Dominica in 2021 (first full year of operation was 2022). On the other hand, intra-regional transportation was hindered by the insolvency of regional airline LIAT in 2020, leading to less routes being covered and increased costs of travel.

Tourist Arrivals By Type
(In Thousands, Million EC$)

Sources: ECCB

Visitor Expenditure By Type of Tourist
(In Million EC$)

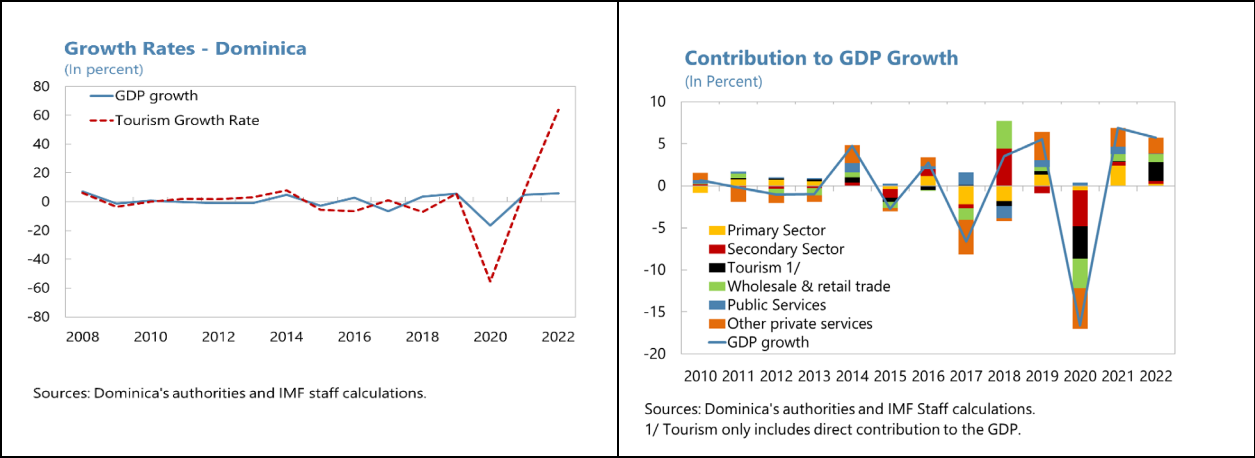Source: Central Statistics Office, Dominica.

4.   While visitors go to Dominica mainly for leisure, per-person-spending by business visitors is much bigger than that by leisure visitors. Taking 2019 as an example, leisure visitors were eight times more numerous than business visitors, while the per-person spending of business visitors was six times higher than the per person spending of leisure visitors.

Number of Stay Over Visitors - Leisure Versus Business
(Number of People)

Sources: Dominica's authorities and IMF staff calculations.

Per-Visitor Spending
(In EC$)

Sources: Dominica's authorities and IMF staff calculations.

ASSESSING THE POST-PANDEMIC TOURISM RECOVERY

5.   The COVID-19 pandemic had a significant impact on Dominica's tourism sector, in turn a key driver of both the economic contraction in 2020 and the recovery in 2022. Output and employment in the tourism sector contracted by 54 and 24 percent, respectively, in 2020, directly driving a drop of 3.9 percentage points in real GDP, with significant spillover effects into retail and other services. Tourist arrivals gradually recovered during 2021 and 2022, especially in late-2022 with the relaxation of quarantine requirements and resuming of national festivities.

3

Growth Rates - Dominica
(In percent)

Contribution to GDP Growth
(In Percent)

Sources: Dominica's authorities and IMF staff calculations.

Sources: Dominica's authorities and IMF Staff calculations.
1/ Tourism only includes direct contribution to the GDP.

6. **During the pandemic, Dominica's tourism sector underperformed relative to most peers.** The drop in tourist arrivals in Dominica was larger than most of regional peers, and the recovery has been slower. After the collapse in 2020, tourism arrivals to Dominica fell further in 2021, starting to recover only in December 2021 albeit at a slower pace than most peers. As of December 2022, for example, the tourist arrivals in Dominica were the second lowest among ECCU countries with around 70 percent of the level in December 2019, while the average of ECCU and Grenada, for example (closest comparator), reached 80 percent.

Total Stay Over Tourist Arrivals in the Caribbean
(Index, 2019=100)

Source: Caribbean Tourism Organisation.

Stay Over Arrivals Recovery, 2022
(In Percent of 2019 Tourists)

Sources: Caribbean Tourism Organisation and IMF staff calculations.
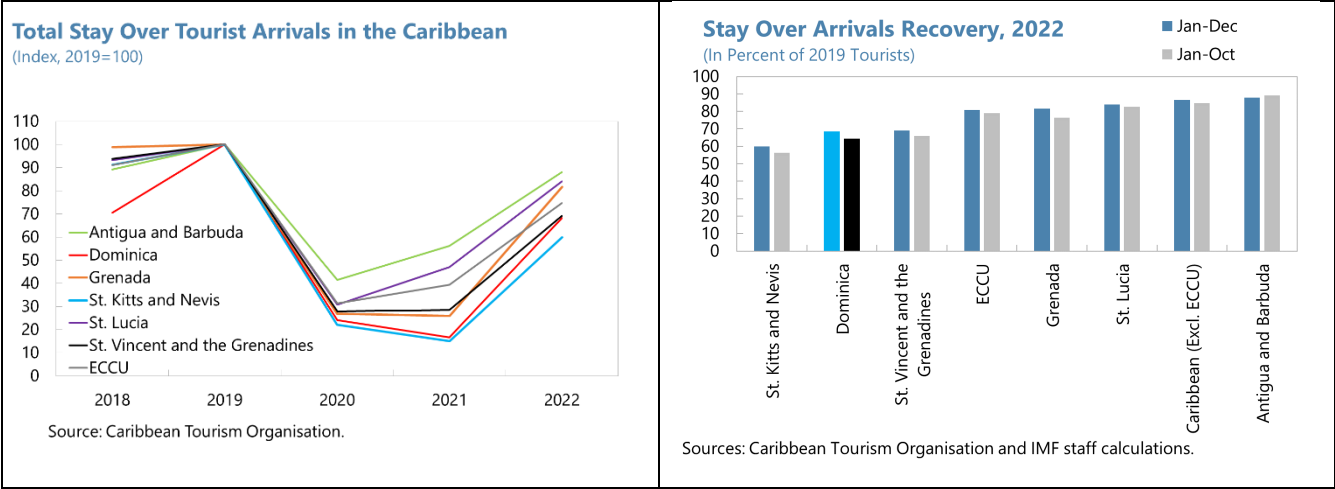
7. **Three factors are analyzed to explore potential drivers of Dominica's slower recovery in tourism.**

- **Flight connectivity.** The pandemic brought significant disruption in the number of flights coming in and out of Dominica, particularly from/to other countries in the region. However, the change in the number of flights to Dominica since late 2019 was comparable to the ECCU average. Thus, although flight connectivity may affect the number of tourist arrivals in general, it is unlikely to have been a major factor underlying the slow recovery after the pandemic (Figure 3, first row).

- **Cost of stay.** Since the outbreak of Covid-19, the overall cost of vacationing in Dominica has trended up, while in St. Vincent and Grenadines, Grenada, and the average of the ECCU have been stable or even

4

declined slightly. In addition to its trend, the cost of staying in Dominica is much higher than the average of the ECCU and could thus be a determinant factor behind Dominica's relative underperformance (Figure 3, second row).

- **Global demand and lockdown restrictions.** Demand for tourism (measured by weighted average of tourists' income) is strongly associated with changes in both stayover and cruise arrivals (Figure 3, third row), but has impacted the ECCU region homogeneously given similar demand source markets. On the other hand, lockdown restrictions were tightened somewhat later in Dominica than in most other ECCU countries, potentially explaining the delayed recovery. We use the Oxford COVID-19 Government Response stringency index as a proxy for the extent of the pandemic-related restrictions. Before October 2021 (Phase 1), Dominica's stringency index was much lower than the Caribbean average; however, it became higher than the Caribbean average after November 2021 (Phase 2). During Phase 1, foreigners refrained from traveling due to health concerns, thus causing a stall in demand for tourism in Dominica, even if the country's own stringency index was low. During Phase 2, global demand for tourism picked up with subsiding concerns over COVID-19. However, due to a surge in the local number of COVID-19 cases, Dominica had to implement stricter quarantine measures, hindering the recovery in tourism (Figure 3 last row).

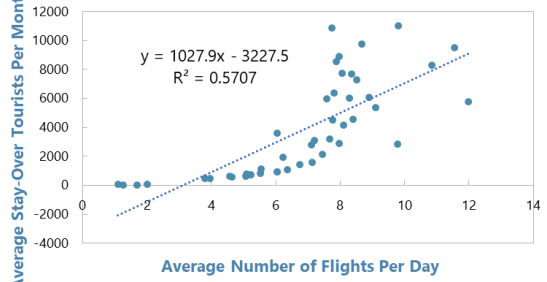## Figure 3. Dominica: Tourist Arrival Determinants and Recovery

Flights
(Oct 2019 =100)

Legend: Grenada; St. Vincent and the Grenadines; Dominica; ECCU avg. (Excl. Dominica)
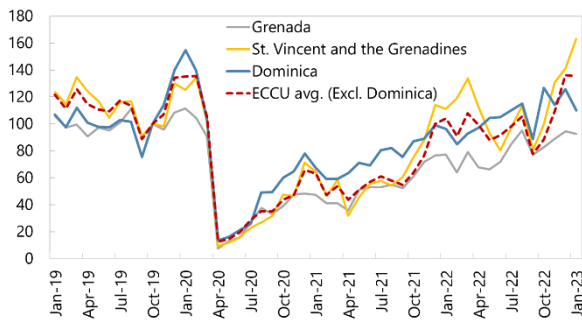
Sources: Flight radar and IMF staff calculations.

Number of Flights Versus Stay-Over Tourists
(2019M1-2022M10)

Average Stay-Over Tourists Per Month

$y = 1027.9x - 3227.5$
$R^2 = 0.5707$

Average Number of Flights Per Day

Week At The Beach Index
(Oct 2019 =100)

Legend: ECCU avg. (Excl. Dominica and St. Kitts); Dominica; St. Vincent and the Grenadines; Grenada
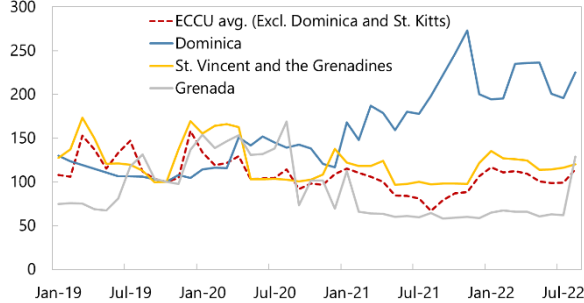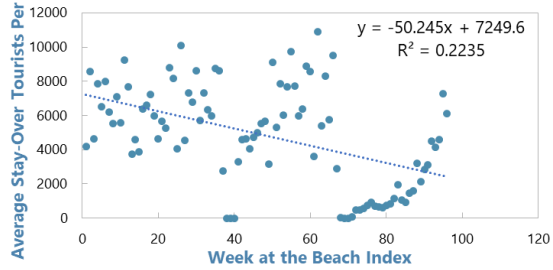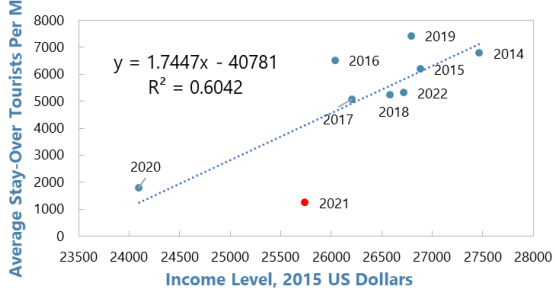
Sources: Dominica's authorities and IMF staff calculations.

Cost of Destination Versus Stay-Over Tourists
(2014M9-2022M8)

Average Stay-Over Tourists Per Month

$y = -50.245x + 7249.6$
$R^2 = 0.2235$

Week at the Beach Index

Tourists' Income Level Versus Stay-Over Tourists

Average Stay-Over Tourists Per Month

$y = 1.7447x - 40781$
$R^2 = 0.6042$

Data labels: 2019, 2016, 2014, 2015, 2022, 2017, 2018, 2020, 2021

Income Level, 2015 US Dollars

Tourists' Income Level Versus Cruise Arrivals

Average Cruise Arrivals Per Month

$y = 4.1043x - 92320$
$R^2 = 0.3125$

Data labels: 2016, 2015, 2014, 2019, 2017, 2022, 2018, 2020, 2021

Income Level, 2015 US Dollars

6

Total Tourist Arrivals and Covid Stringency Index

COVID Restrictions Stringency and Confirmed Cases
(Index, In Thousand)

Sources: ECCB and Oxford University.

Sources: Oxford University and IMF staff calculations.
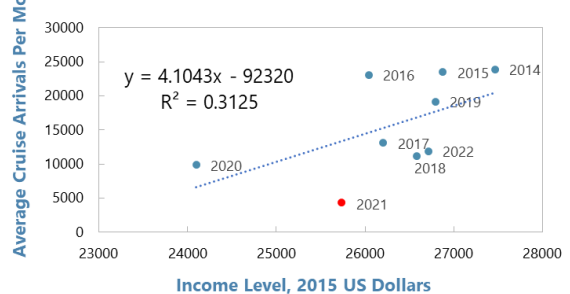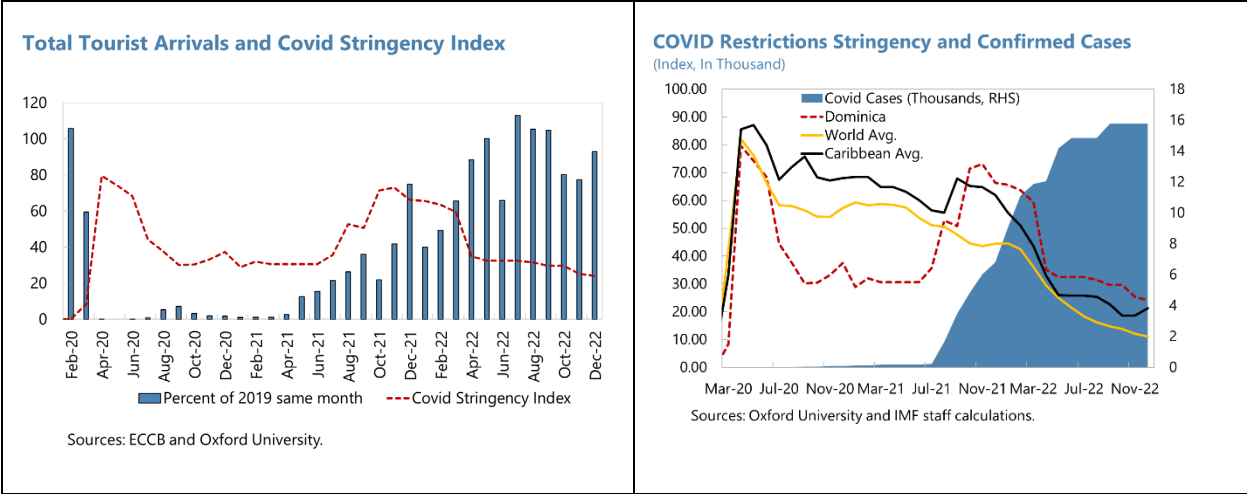
KEY CHALLENGES – DETERMINANTS OF TOURISM FLOWS

8. **The pandemic makes it more urgent to resolve challenges that preceded the pandemic.** Dominica faces fierce competition from peers in the region. Longstanding hurdles include low flight connectivity, a small stock of hotel rooms, heavy reliance on cruise ship arrivals, and high energy costs. The relatively high reliance on cruise arrival can be particularly challenging in the aftermath of the pandemic and will require stepped up efforts to attract stayover arrivals. High energy costs deter private investment and render the sector less competitive compared to other countries in the region.

Growth in Global Air Connectivity, 2011-2019
(In Percent)

Source: US Bureau of Transportation Statistics.
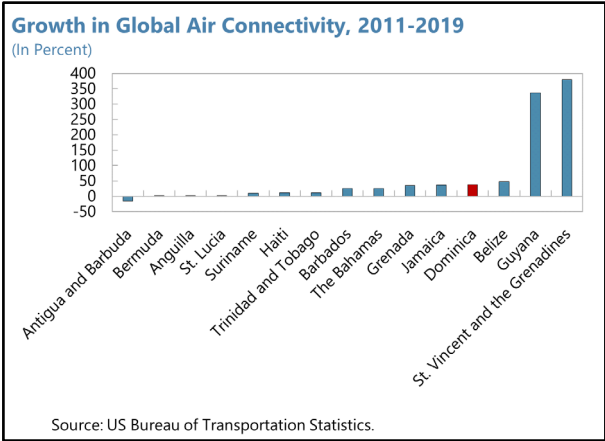
9. **To assess the key determinants of tourism developments, we estimate the following fixed-effects model:**

$$y_{i,t} = \alpha_i + \beta_1 x_{i,t} + \beta_2 z_{,t} + \varepsilon_{i,t},$$

where, $y_{i,t}$ is stay-over tourist arrivals, α_i is the country level fixed effect, $x_{i,t}$ is a set of country-time specific determinants (flight capacity, supply of hotel rooms, cost of staying), and z_t is a set of time varying cross-country determinants (such as global GDP growth and time effects to account for the pandemic). Estimations are based on a sample of 17 Caribbean countries over 13 years, from 2010–2022 (Table 1). Four different specifications are considered. Structural factors such as flight and hotel room capacity are included in all the models. We conclude that flight capacity has a significant and positive impact on tourism flows, according to most specifications. In general, a 1 percent increase in flight capacity leads to a close to or more than 0.3

percent increase in stayover tourist arrivals.[4] We also test the significance of demand proxy variables such as the US GDP growth (Model 1 & 2), Weighted Tourist Income (Model 3), and World GDP growth (Model 4). All the demand variables are significant at 1 percent level. Model 1 suggests that 1 percentage point increase in US GDP growth leads to a 10% increase in tourist arrivals. Weighted tourist income measures the total GDP of source markets weighted by their share of arrivals in Dominica. Model 3 suggests that 1 percent increase in weighted tourist income leads to a 4.1 percent increase in arrivals. As expected, COVID-19 had a significant negative impact on tourism arrivals. However, we do not find evidence that the cost of stay – measured by the Weak at the Beach Index[5] – is a determining driver of tourist arrivals. This suggests price inelasticity of tourism demand within the Caribbean, at least in the short-run.[6]

Table 1. Dominica: Stay Over Tourists in the Caribbean and Its Determinants				
	(1)	(2)	(3)	(4)
	Model 1	Model 2	Model 3	Model 4
	b/p	b/p	b/p	b/p
Flight Capacity	0.317***	0.536***	0.373***	0.359***
	(0.00)	(0.00)	(0.00)	(0.00)
Hotel rooms	0.071	-0.045	0.068	0.544***
	(0.53)	(0.91)	(0.54)	(0.00)
US GDP growth	0.064***	0.054**		
	(0.00)	(0.02)		
Covid	-0.526***	-0.487***	-0.575***	-0.549***
	(0.00)	(0.00)	(0.00)	(0.00)
Week at the Beach Index		0.367		0.198
		(0.12)		(0.24)
Weighted Tourist Income			4.061***	
			(0.00)	
World GDP growth				0.087***
				(0.00)
Constant	8.019***	3.647	-35.996***	1.913
	(0.00)	(0.39)	(0.00)	(0.18)
Observations	193	89	180	89
R-sqr within	0.425	0.481	0.476	0.525
R-sqr overall	0.680	0.810	0.616	0.904

Data Source: WEO, Caribbean Tourism Organization, U.S. Department of Transportation, and IMF staff calculations. All models are run with country level fixed effects. All variables are transformed to logarithmic values except GDP growth. p-values are in parenthesis, * p<0.10, ** p<0.05, *** p<0.01.

---

[4] Flight capacity is proxied by the number of seats in flights arriving to Dominica, which could be prone to endogeneity problems. For this, we conducted Hausman test and could not reject the null hypothesis (no endogeneity). In addition, we re-run all regressions with one-period lag on flight capacity instead of contemporaneous one and the coefficient is significant and similar in magnitude.

[5] The Week-at-the Beach Index is built by the IMF using TripAdvisor information to track the price of Caribbean destinations versus other destinations globally.

[6] Martin and Abraham Jr (2017) pose that low price substitution within ECCU countries in particular may derive from habit persistence from key source markets for each country.

Impact of Natural Disasters

10.   Tourism in ECCU countries, including Dominica, has been impacted significantly by natural disasters, especially storms and hurricanes, which have hit these countries frequently. In Dominica, tropical storm Erika in 2015 and hurricane Maria in 2017 destroyed the country and led to significant economic damage (over 300 percent output loss), besides a devastating death toll. Based on EM-DAT database, there were at least sixty-six episodes that hit ECCU countries since 1979. Seventeen of these events led to a total damage exceeding 5 percent of GDP (Table 2).[7]

11.   To assess the impact of natural disasters, we used a local projection model. We estimate the cumulative evolution of tourism arrivals following a natural disaster following Jorda (2005) and Teulings and Zubanov (2014). In impulse responses, the model estimates the effect of short-term shocks (the natural disaster) over a time horizon h while controlling for other determinants:

$$y_{i,t+h} - y_{i,t-1} = \alpha_h + \beta_h \, ND_{i,t} + \gamma_h dy_{i,t-1} + \sum_{s=1}^{h-1} ND_{i,s} + \delta_{hi} + \varepsilon_{i,t}$$

where $y_{i,t}$ is tourism arrivals. The model controls for country-fixed effects to capture time-invariant cross-country differences. The variable $ND_{i,t}$ is a dummy variable for the disaster event, the main variable of interest. Lagged tourism arrival growth controls for the history of the tourism arrivals.

Table 2. Dominica: List of Extreme Storms/Hurricanes in the ECCU Region Since 1979

Country	Time
Antigua and Barbuda	1989m9
Antigua and Barbuda	1995m9
Antigua and Barbuda	1998m9
Antigua and Barbuda	2017m9
Dominica	1979m8
Dominica	1989m9
Dominica	1995m9
Dominica	2015m8
Dominica	2017m9
Grenada	2004m9
St. Kitts and Nevis	1989m9
St. Kitts and Nevis	1995m9
St. Kitts and Nevis	1998m9
St. Kitts and Nevis	1999m11
St. Lucia	1980m7
St. Vincent and the Grenadines	1980m7
St. Vincent and the Grenadines	2013m12

12.   We find that the number of tourist arrivals declined by more than 20 percent on average 2 months after the natural disaster and the negative impact persisted at least 5 months of the episode on average. For extreme disasters like Hurricane Maria hitting Dominica in 2017, which was defined as leading to

---

[7] For the two recent natural disasters in Dominica, the damage was significantly larger: 89 percent of GDP for tropical storm Erika in 2015 and 279 percent of GDP for hurricane Maria in 2017.

a total damage of at least 5 percent of GDP, the impact is dramatically larger and more persistent. Number of tourist arrivals almost cut in half after 2 months of the event and the negative impact pursued even 8 months after the episode. These results suggest a scaring effect of natural disasters on tourism, which may not be reversed over an extended period.
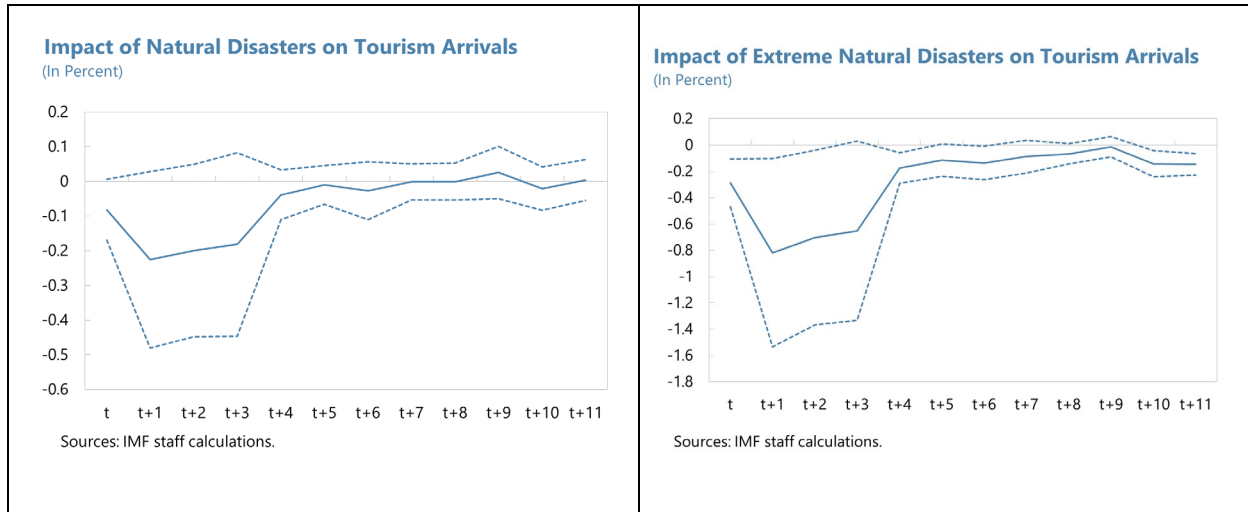
CONCLUDING REMARKS

13.   Tourism plays a vital role in Dominica's economy. It contributes significantly to growth, employment, and exports. Among stay-over visitors, most tourists originate from other Caribbean countries, followed by the US, France, the U.K., and Canada. Stayover arrivals contribute to a disproportionally bigger fraction of total tourism expenditures despite constituting a small number of tourist arrivals. While visitors go to Dominica mainly for leisure, per-person-spending by business visitors is much bigger than that by leisure visitors.

14.   The COVID-19 pandemic had a significant impact on Dominica's tourism sector, and the recovery has been slower compared to peers. The tourism sector was a key driver of both the economic contraction in 2020 and the recovery in 2022. While the drop in tourist arrivals in Dominica was similar to regional peers, the recovery has been much slower. The underperformance appeared mainly explained by the costs of stay and timing of lockdown restrictions.

15.   Our econometric analysis shows that flight connectivity and demand variables are key drivers of tourism performance, while natural disasters have negative and potentially lasting impacts on the sector. Results are relevant not only for Dominica but to all Caribbean countries. Initiatives to expand airlift capacity, including by strengthening intra-regional collaboration, and investing in digital and (resilient) physical infrastructure are therefore critical to promote growth and sustainability in the tourism sector. Furthermore, countries can enhance competitiveness and reduce vulnerabilities by investing in the expansion of skilled labor supply for the sector and diversifying product offers.

Table 3. Dominica: Data Sources	
Variable	**Source**
Stay Over Tourist Arrivals	Caribbean Tourism Organization
Hotel Rooms	Caribbean Tourism Organization
Flight Capacity	US Bureau of Transportation
US GDP growth	World Economic Outlook
World GDP growth	World Economic Outlook
Weighted Tourist Income	World Economic Outlook, Caribbean Tourism Organization, Haver Analytics, ECCB, Tourism Analytics, and IMF staff calculations.
Week at the Beach	IMF staff calculations
Natural disasters	The International Disaster database (EMDAT)

References

Jordà, Ò. 2005a. "Estimation and Inference of Impulse Responses by Local Projections." American Economic Review 95 (1): 161–82.

Martin, K., and P. Abraham Jr. 2017. "What is Driving Tourism Flows to the ECCU? Insights from a Gravity Model." ECCB Working Paper. No: 01/21.

Teulings, C. N., and N. Zubanov. 2014. "Is Economic Recovery a Myth? Robust Estimation of Impulse Responses." *Journal of Applied Econometrics* 29 (3): 497–514.

WTTC 2022, Dominica 2022 Annual Research: Key Highlights, World Travel and Tourism Council.

WTTC 2023, Travel & Tourism in the Caribbean Prospect for Growth, World Travel & Tourism Council.