



# SOCIO-ECONOMIC IMPACT OF SEVEN MILE BEACH RENOURISHMENT ON THE CAYMAN ISLANDS

Assessment by Marla Dukharan

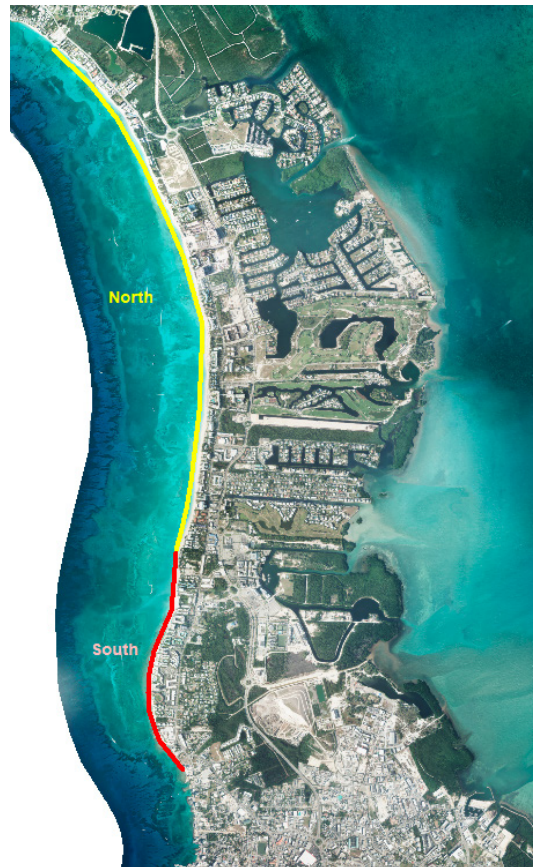
## Executive Summary

The Cayman Islands are low-lying. The Caribbean Catastrophe Risk Insurance Facility (CCRIF) found in 2010 that coastal flooding / storm surge accounted for about 45% of total damage potential for Cayman. Beach renourishment was found by CCRIF to have net economic benefits, with a cost/benefit ratio of around 0.3 and significant capacity for averting losses.

**We estimate that the total gross impact of Seven Mile Beach (SMB) on the Cayman Islands economy approaches USD1 billion annually.** Properties on SMB are valued at around USD6 billion - roughly USD4.9 billion on the North and USD1.2 billion on the South. The current estimate of the initial cost of beach renourishment is USD25.2 based on estimates from the Government's budget and USD6 million every five years based upon the Danish Hydraulic Institute (DHI) report and Dart's calculations. These costs are small relative to the overall property values on SMB and the potential for losses in the absence of renourishment.

Total revenue generated by Short Term Rentals (STRs) in South SMB surpassed that of North SMB prior to 2021, however with a proliferation of STRs in North there was a notable shift in the pattern. In 2023, North SMB generated 29% more revenue than South SMB, with an ADR 22% higher than South and 132 more properties than South SMB. The Average Treated effect derived from the Difference in Difference model is USD13,000. This means that post 2019, **STRs located in South SMB lost around USD13,000 yearly in rental income compared to North SMB due to the "treatment" which in this case is beach erosion.**

Map of Seven Mile Beach: North vs South



Against this analysis and backdrop, we highlight some of our major findings which support the conclusion that 1. The sooner we act to renourish SMB, the less costly and more effective the exercise is expected to be, and 2. The do-nothing scenario will see the southern end of SMB deteriorate in terms of socio-economic impact and value, and this deterioration is likely to spread steadily northwards over time.

1. The tourism sector accounts for anywhere between 12-20% of GDP in the Cayman Islands.
2. We estimate that tourism revenue directly accounts for around 6-10% of Government revenue.

3. The vast majority of travelers from the US (83% of total) are coming to the Cayman Islands for vacation in parties of 1 or 2 and they mainly stay at hotels.

4. The data speaks to the importance of SMB to the affluent US vacation traveler, which is by far the largest segment of the Cayman Islands' stopover tourism market.

5. SMB accounts for approximately 62% of total hotel bedrooms in the Cayman Islands and 48% of STRs.

6. We calculate that of Cayman's total room stock, 62% of hotel rooms are situated on SMB - 29% of these are situated in South SMB, and 71% in North SMB.

7. STRs on SMB account for around 48% of total STRs in the Cayman Islands. Of this, 40% of the rooms are situated in South SMB and 60% in North SMB.

8. North SMB has roughly 2.45 times the number of hotel rooms and 1.5 times the STR inventory of the South.

9. STR prices are higher in South SMB, but hotel rates are higher in North SMB, therefore North SMB dominates in the hotel revenue segment, while South SMB dominates in the STR revenue segment of the accommodation market.

10. In 2023, the average daily room rate (ADR) in South SMB ranged from USD135 to USD8,700, while the ADR for properties in North SMB ranged between USD200 and USD2,000. As a result, on average, STRs in SMB South generated more revenue relative to North SMB.

11. Dart's analysis of Revenue per Available Room (RevPAR) shows a divergent trend in recent years between properties in North SMB vs South SMB. While there is no conclusive evidence of causality between beach erosion (at South SMB in particular) and RevPAR, the divergence over time does demonstrate that South SMB is gaining value at a slower pace than North, over time.

12. Using both rooms and revenue, there is a 36% (South SMB) to 64% (North SMB) split of estimated Direct Economic Impact.

13. The value of properties at SMB are significantly higher than the rest of the Cayman Islands in 2024. We calculate that SMB is around 67% more attractive for those wanting to buy property on Grand Cayman.

14. Construction on SMB accounts for around 63.2% of total construction in the Cayman Islands. The total multiplier of the sector is 2.56, where for every \$1 spent on construction, there is an indirect effect of \$1.05 and an induced effect of \$0.51 through new demand.

15. Between 2013 and 2024, 10 large construction projects were initiated on SMB with 6 occurring in North SMB and 4 in South SMB. The total value of these projects was just over USD1.2 billion, over the past 10-11 years.

16. The values of building permits show a lower investment per square feet in the construction of Hotels and Condos in South vs North SMB. Taking into account all major Hotel & Condo building permits, the difference is nearly 25%. Excluding the outlier impact of the Westin Tower, investment per square foot is roughly 4% higher in North SMB.

17. The size of building permits approved in the last 11 years 2013-2024 is primarily concentrated in the North, with total construction valued at USD939 million for 2.08 million square feet. This is roughly three times the 719,000 square feet of projects that were approved for South SMB with a construction value of roughly USD284 million.

18. All else being equal, accommodation on North SMB could become substitutes for those on South SMB if beach access on South SMB was no longer available and demand collapsed. Indeed, occupancy rates are low enough in North SMB to support such a shift in demand away from South SMB.

19. Roughly 43% of restaurants on Grand Cayman are located on SMB. Of these, 25% are located on South SMB (i.e. South of +19.32311, -81.38, near Royal Palms). We calculate that the food industry on SMB directly generated around USD37.32 million in GDP in 2023. Approximately USD9.6 million is attributed to South SMB and USD27.7 million to North SMB.

20. Total revenue generated by properties on South SMB increased by USD1.2 million in 2023 vs 2019, whereas revenues on North SMB increased by USD10.1 million.

21. We calculate North SMB housing prices at 35% higher than South SMB in 2023.

22. We calculate that the Hotel & Restaurant sector on SMB employs around 2,311 persons, with around 718 employed in South SMB and 1,593 in the North.

23. Beach renourishment would amount to an initial cost of roughly USD20 per cruise tourist, or USD59 per stayover, and ongoing costs of around USD0.94 per cruise passenger per year, or USD2.80 per stay-over visitor per year.

From an economic standpoint, we concur with the conclusions of CCRIF, the [Department of Environment \(DoE\)](#) and the [Danish Hydraulic Institute \(DHI\)](#) study, that beach renourishment is necessary to maintain the economic impact of the tourism sector in the Cayman Islands and SMB more specifically. Relative to a loss (plus multiplier impact) of USD13,000 annually in rental income per STR at the southern end of SMB, the estimated value of properties along SMB at roughly USD6 billion currently, and our estimated USD1 billion annual economic impact of SMB, the cost of beach renourishment (as currently estimated) pales in comparison to the potential losses associated with a do-nothing scenario. We therefore recommend that beach renourishment be conducted at SMB with urgency.

## Introduction

The Cayman Islands are low-lying. The Caribbean Catastrophe Risk Insurance Facility (CCRIF) found in 2010 that coastal flooding / storm surge accounted for about 45% of total damage potential for Cayman. Beach renourishment was found by CCRIF to have net economic benefits, with a cost/benefit ratio of around 0.3 and significant capacity for averting losses.

The Cayman Islands economy is largely driven by the financial services sector, tourism, and the construction activity (and other multiplier impacts) created largely by these sectors.

According to the former Minister of Finance, [tourism accounted for 20% of Cayman's GDP](#). In 2019, pre-Covid, the tourism sector earned a record KYD514 million in exports based on over half-million stopover tourist arrivals. Economics and Statistics Office (ESO) data show that the **hotel & restaurant and wholesale & retail sectors had their best year in 2019, combining to account for 12% of GDP, which fell to below 9% in 2021**, and have not recovered to 2019 levels as yet.

Cayman consistently receives multiples more tourists per annum than the size of the population, at **over 7 stay-over tourists per resident prior to the pandemic**, with 21,460 available bed places at tourism accommodations in 2022/2023.

A simple search on TripAdvisor for "Cayman Islands" shows the most-recommended spots on Grand Cayman as being Star Fish Point, Rum Point, and Seven Mile Beach (SMB).

SMB is considered a natural asset and is the major tourism and conference hub in the Cayman Islands. But SMB also provides various support to the financial services ecosystem, recreational opportunities, and aesthetic value, which all have economic implications for the wider economy beyond tourism.

However, **SMB has a noticeable beach erosion problem**, particularly on the southern end, where properties such as the Marriott have essentially lost their beach. For purposes of this study, **we use 19.32311 latitude, near Royal Palms, as the breakpoint** to separate North versus South SMB.

The risks and implications of (South) SMB erosion are severe, as we outline in this paper, and protecting the shorelines of the Cayman Islands could be one of the most important capital investment priorities to ensure long-term well-being and continued prosperity of the people of the Cayman Islands.

## WHY THIS MATTERS NOW

Firstly, **the potential loss of sand exports from other islands** within the next five years or so is a significant risk. When neighbouring islands are also grappling with beach erosion, their ability to provide sand for exports will be severely compromised. A 2020 [Coastal Works Review](#) by the Dept. of Environment (DoE) stated that there is limited beach compatible sand for nourishment of SMB. This amplifies the need to take proactive measures now to ensure the longer-term existence of our own beaches.

Beach renourishment now can reinforce the circular sand economy on SMB, **otherwise there will be an irrecoverable loss of sand**.

But while renourishment itself is necessary, it may be insufficient in arresting beach erosion. In 2020 a Coastal

Works Review by DoE of a proposal to install groynes & spot nourish a section of SMB instead recommended beach nourishment as a feasible solution. The DoE review stated that “a Government-led renourishment exercise should be conducted along this coastline” offering specific recommendations, including “selected local strategic retreat”. The DHI report suggests that renourishment can provide a buffer of time while longer-term policy measures are pursued, stating: “The beach itself provides protection so long as there is sufficient volume of sand present between coastal infrastructure and the sea”.

Furthermore, the allure of SMB, which attracts thousands of visitors annually and contributes significantly to the local economy, is at stake. Without a thriving shoreline, the appeal of the Cayman Islands overall will diminish, leading to a decline in tourism and overall economic activity. It is crucial to act swiftly to preserve and restore SMB to maintain Cayman’s status as a world-class destination.

Additionally, **sea level rise poses a real threat to Cayman’s beaches and nearby buildings and infrastructure.** As these environmental challenges intensify, the risk and cost of further erosion becomes even more pronounced. By addressing beach restoration now, Cayman can mitigate the impact of sea level rise and safeguard SMB and surrounding commercially and residentially important zones for future generations.

Indeed, the recently-released-for-public-comment National Development Plan (NDP) states “As the Cayman Islands grow, there is increasing pressure on these natural features and so it is important that growth and development is balanced with protection of the natural environment. A careful balance must be struck between what is a valuable natural feature and desirable development. **Areas of particular concern include virgin forests, beaches and the mangrove wetlands which can also provide storm and hurricane protection.**”

But the ability of SMB to “provide storm and hurricane protection” for the surrounding road network and built and natural environment, is compromised in the absence of beach renourishment.

This kind of protection becomes increasingly important as insurers shy away from hurricane prone areas globally. Morningstar reports that “insurers have been increasingly exposed to larger and more frequent weather-related losses that are driven by climate change and affected by rising real estate values and higher concentrations of high-value properties in risk-prone areas... there is a growing scientific consensus that increasing ocean temperatures intensify the devastation of tropical storms... Atlantic hurricanes are now more than twice as likely to rapidly intensify from minor to major hurricanes. According to Swiss Re, tropical cyclones, storms and flooding have been the main drivers behind global catastrophe losses.”

Florida is already losing insurers, and it is perhaps only a matter of time before this also becomes a problem in the Caribbean, and in the Cayman Islands more specifically. “Florida stands out as a state with the highest coastal population growth between 1970 and 2020, at 217%. It is also the state where most hurricanes make landfall in the US. As such, with the ongoing increase in coastal population and infrastructure development along hurricane-prone Atlantic and Gulf coastal states, economic damages and insured losses caused by tropical storms during the Atlantic hurricane season are anticipated to continue rising. Recently, insurance companies have stopped offering coverage in states like Florida, California, and Louisiana, which are susceptible to natural disasters and high reconstruction costs. In July 2023, Farmers Insurance went so far as to inform the state of Florida of its decision to exit the state entirely...the insurers that still offer coverage in these high-risk regions, increased demand has led to higher rates. Many insurers now rely heavily on reinsurers to cover limits that exceed their risk tolerance. Some insurers are reducing coverage limits to minimize their exposure. S&P points out that 2023 was the eighth consecutive year of underwriting losses for Florida’s insurers. The Insurance Information Institute indicates that Florida’s Insurers “benefited from a relatively mild 2023 Atlantic hurricane season” but that “rising replacement costs – combined with expected higher reinsurance costs for the June 1 renewals – are going to continue to drive average premiums upward in 2024.” AM Best indicates “The average Florida homeowners policy premium doubled, increasing 102% in just the past three years, according to the Insurance Information Institute.”

The need for beach renourishment seems to have been acknowledged by the previous Government, since it had been allocated KYD20 million under New Capital Expenditure in the Government’s FY2022/23 budget, as seen in the chart on the following page:

**Ministry of Sustainability and Climate Resiliency Capital Spending Allocation FY22/23**

MAJOR NEW CAPITAL EXPENDITURE PROJECTS <i>In KYD</i>	2022 1 Jan to 31 Dec 2022 \$000’s	2023 1 Jan to 31 Dec 2023 \$000’s	2021 12-Month Forecast \$000’s
MINISTRY OF SUSTAINABILITY AND CLIMATE RESILIENCY	4,080	2,591	4,435
BEACH RENOURISHMENT	1,000	20,000	-
REGEN PROJECT	21,657	2,273	-
ALTERNATIVE TRANSPORTATION PROJECT NETWORK	250	250	-
<b>TOTAL</b>	<b>26,987</b>	<b>25,114</b>	<b>4,435</b>

Source: Budget Statements FY22/23

But under the FY2024/25 budget, this allocation appears to have been removed and indeed, **it appears there will be no new capital expenditure projects undertaken in FY2024/25!**

**Ministry of Sustainability and Climate Resiliency Capital Spending Allocation FY24/25**

MAJOR NEW CAPITAL EXPENDITURE PROJECTS <i>In KYD</i>	2024 1 Jan to 31 Dec 2024 \$000’s	2025 1 Jan to 31 Dec 2025 \$000’s	2023 12-Month Forecast \$000’s
NONE	-	-	-
<b>TOTAL</b>	<b>NIL</b>	<b>NIL</b>	<b>NIL</b>

Source: Budget Statements FY24/25

Given that the upcoming general election may further shift priorities, it is essential to (re)emphasize the urgency of beach erosion / renourishment to policymakers now, and again once a new Government is formed. The need for beach restoration is a pressing issue that requires immediate evaluation and action, regardless of political circumstances. **The NDP, currently out for wide public consultation ending July 30th**, presents a credible and powerful opportunity to raise awareness of the urgency of beach renourishment at SMB in particular, more so than at any other location.

Efforts must be made to take decisive beach renourishment steps now, so that Cayman can better preserve the longer-term resilience and vitality of SMB, and the wider economy.

**OBJECTIVE OF THIS SOCIO-ECONOMIC IMPACT STUDY**

The primary goal of this study is to quantify the economic value and qualify the social value of SMB, with a comprehensive evaluation of the long-term impacts under two scenarios: a “status-quo” or do-nothing scenario, and a “beach renourishment” scenario.

We independently and objectively assess the socio-economic importance of SMB, and by so doing, we provide credible recommendations that can be made to policymakers in particular, regarding the benefits of a potential beach renourishment initiative at SMB.

Through rigorous data collection and analysis, we assess the economic contributions of SMB to the local economy. This includes measuring its direct and indirect economic benefits such as tourism revenue, job creation, and revenues created for the Government. Additionally, we look at the social value of SMB, considering its importance to the local community. This involves evaluating the recreational, cultural, and aesthetic benefits that the beach provides, as well the preservation of coastal communities, protection of infrastructure, and enhancement of livelihoods, particularly considering the vulnerability of the Cayman Islands population to rising sea levels.

Furthermore, we compare the long-term impacts of ‘do-nothing’ versus implementing beach renourishment. This analysis will shed light on the potential consequences of inaction and the benefits that can be gained through proactive measures. By evaluating the different scenarios, we provide valuable insights to inform decision-making and convince policymakers to support the planned beach renourishment investment outlined in the Government’s approved capital spending budget.

# Economic Dynamics of Cayman's Tourism

The Cayman Islands has established itself as a premier tourism destination, earning the prestigious accolade of **Luxury Destination of the Year in 2023 at the Caribbean Travel Awards**. SMB has consistently underpinned Cayman's tourism success, frequently attracting international acclaim, and becoming the image of pristine beaches that travelers associate with the destination.

As tourism continued to recover from the pandemic, the Cayman Islands received **429,284 visitors in 2023. While lagging 2019 by 14.6%, this was the third best year on record for tourism.** In the first quarter of 2024, the Cayman Islands welcomed 137,094 stay-over tourists - only 6% behind the record 2019 level.

**The number of stay-over visitors pre-Covid in 2019 was 7 times the population, in 2023 it was 5 times the population and 9 times the number of Caymanians and Permanent Residents with the Rights to Work (PR-WRW).** Cruise visitors in 2023 amounted to 15 times the population and 20 times PR-WRW respectively, as shown in the following table. This demonstrates the outsized impact that tourism has on the people of the Cayman Islands.

		Tourism Arrivals		2023 Total
		Stay-Over	Cruise	
	2023 Total	429,284	1,270,981	
Ratio Variable per 1 Unit	Per Population	5.1	15.0	84,738
	Per Caymanian Population	11.0	32.5	39,068
	Per Caymanian + PR-WRW	9.2	27.2	46,758
	Per Household	12.0	35.5	35,793
	Per Hotel Worker	160.9	476.4	2,668
	Per Restaurant Worker	129.8	384.2	3,308

Source: Economics and Statistics Office, Author's calculations

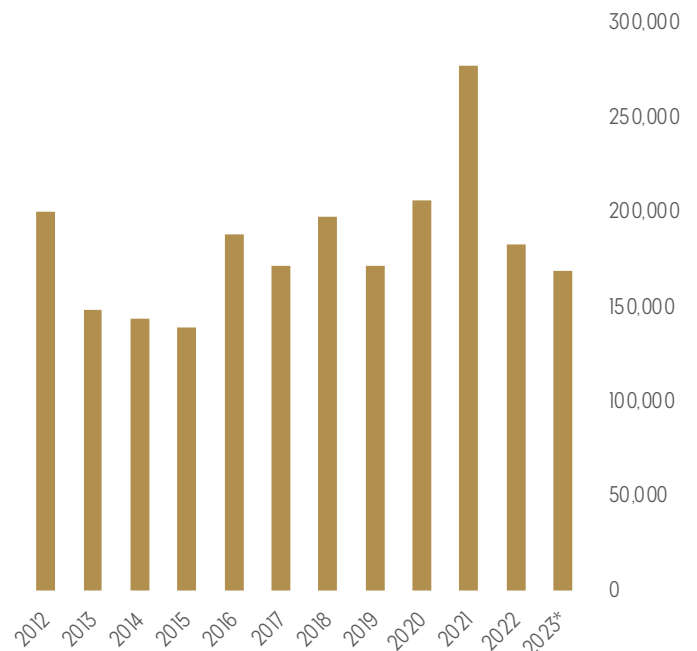
In 2023, **83% of stay-over travelers came from the US** and 7% from Canada. The Cayman Islands attracts higher-end US tourists **with a combined household income of USDI68,444** in Jan-Sept 2023, according to the US Outbound Travel Survey Monitor (SIAT).

The spending power and preferences of these relatively affluent tourists play a significant role in shaping the tourism product and landscape of the Cayman Islands, influencing the types of accommodations, attractions, experiences, food and beverage, and other services offered to meet their expectations.

By delving into the nuances of Cayman's tourist profile, we gain valuable insights into the economic contributions of the tourism sector.

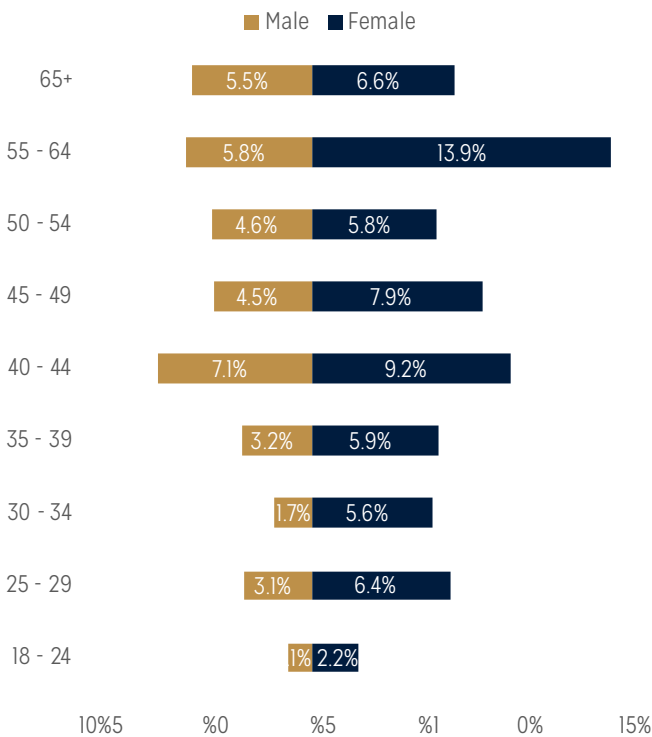
The Average Combined Household Income of the average US stay-over travelers to Cayman over the years, and the age and gender breakdown of the average stay-over traveler from the US in the first three quarters of 2023 was as follows:

## US Travelers to Cayman Islands: Average Combined Household Income In USD



Source: US Trade Administration, SIAT Outbound Survey Monitor, Author's calculations

## US Travelers to Cayman: Jan-Sept 2023



US Trade Administration, SIAT Outbound Survey Monitor, Author's calculations

## US Stay-over Traveler to Cayman Islands: Profile Jan-Sep 2023

Characteristic	Jan-Sep 2023
Ave Age Female	47.0
Ave Age Male	47.8
% Travel Alone	34.6%
% Travel Party of 2	39.6%
% Travel Party of 3 or more	25.7%
Main Purpose of Travel: Vacation/Holiday	78.2%
Main Purpose of Travel: Visit Friends/Relatives (VFR)	12.1%
Main Purpose of Travel: Business	4.8%
Main Purpose of Travel: Conference/Convention	1.9%
All Purposes of Trip*: Vacation/Holiday & VFR	92.1%
All Purposes of Trip*: Business/Professional	10.5%
Type of Accommodation & Nights Stayed: Hotel	74.5% / 6.18 nights

\* Denotes multiple response question

Source: US Trade Administration, SIAT Outbound Survey Monitor, Author's calculations

Other basic characteristics are highlighted in the following table. This data shows that **the vast majority of travelers from the US (83% of total) are coming to the Cayman Islands for vacation in parties of 1 or 2 and they mainly stay at hotels.** And as discussed later in the report, given SMB's dominance in the hotel and short-term rental (STR) accommodation segment, and fine dining, this data speaks to the importance of SMB to the affluent US vacation traveler, which is by far the largest segment of the Cayman Islands' stopover tourism market.

Characteristic	Jan-Sep 2023
Type of Accommodation & Nights Stayed: Private Home	23.1% / 8.05 nights
Type of Accommodation & Nights Stayed: Other	3.0% / 6.48 nights
Intended to Use a Rented Vehicle	23.1%
Intended to Use a Taxi / Limo	29.0%
Intended to Engage in Water Sports	61.4%
Intended to Experience Fine Dining	50.6%
Intended to Engage in Shopping	67.0%
Intended to Use a Guided Tour	31.6%
Ave. Household Income of Traveler	USD168,444
Ave. Trip Expenditure on Package / Traveler	USD2,467
Ave. Trip Expenditure Outside the US / Traveler	USD1,581
Ave. Trip Expenditure Airfare / Traveler	USD673

But as the next two points suggest, as a tourism destination, the Cayman Islands and more specifically **SMB, may be succumbing to competition in the post-Covid world.**

**Trip Advisor’s Travelers’ Choice Awards Top 25 Beaches in the World**

Year	2014	2017	2018	2019	2021	2023	2024
Ranking, Seven Mile Beach, Cayman Islands	3	12	5	8	6	14	15

Source: TripAdvisor

As the table above shows, although SMB consistently appears in Trip Advisor’s Top 25 beaches in the World, SMB’s ranking has suffered over the past 10 years since, but particularly in the last two.

And as the World Bank’s [Global Aviation Dashboard](#) shows, the number of flights and passengers to Grand Cayman has been slow to recover to record pre-pandemic levels.

January 2020: Scheduled commercial flights to/from Grand Cayman			July 2023 (latest available): Scheduled commercial flights to/from Grand Cayman		
Main Connections (weekly totals)			Main Connections (weekly totals)		
Airport	Flights	Seats	Airport	Flights	Seats
Miami	30	4,455	Miami	24	3,832
Charlotte	16	2,293	Kingston, JA	11	1,760
Atlanta	9	1,713	JFK - New York	10	1,602
JFK - New York	11	1,686	Charlotte	8	1,505
Fort Lauderdale	12	1,501	Houston	8	1,341

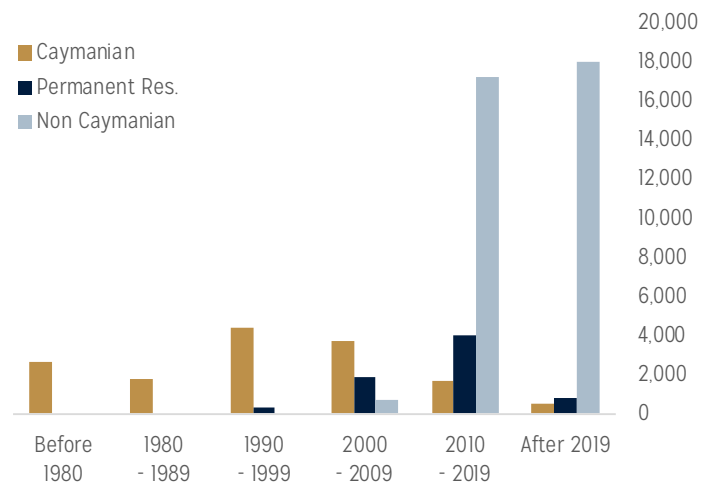
Source: Global Aviation Dashboard, The World Bank

The above data demonstrating the Cayman Islands’ slippage as a travel destination in the post-Covid era, validates the wider effects of beach erosion that we see in our analysis, as discussed throughout this report.

# Tourism Employment and Workforce Dynamics in Cayman

The expanding workforce in the Cayman Islands reflects the country’s sustained growth and development, underpinned by excellence and economic success across various sectors. A notable trend in the demographic composition of Cayman’s workforce is the increasing dominance of non-Caymanians, who have played a significant role in shaping the labour landscape.

**Population Estimates by Year of Arrival and Status**  
Number of Persons



Source: ESO, Author’s calculations

Approximately **47.6% of non-Caymanians currently residing in Cayman arrived between 2010 and 2019. Half of the non-Caymanians resident in Cayman have arrived since 2019**, which reflects a recent surge in the attractiveness of Cayman as a destination to live and work, perhaps based on the authorities’ exemplary management of the pandemic.

We calculate that the **Accommodations and Restaurant & Food Services sectors employ 1 in 10 workers** in the Cayman Islands, according to the ESO Fall 2023 Labour Force Survey, one in 16 Caymanian workers, 1 in 8 non-Caymanian workers, and 1 in 9 Permanent Residents with the Rights to Work (PR-WRW).



**Accommodations and Restaurant Sector Workforce: Fall 2023**

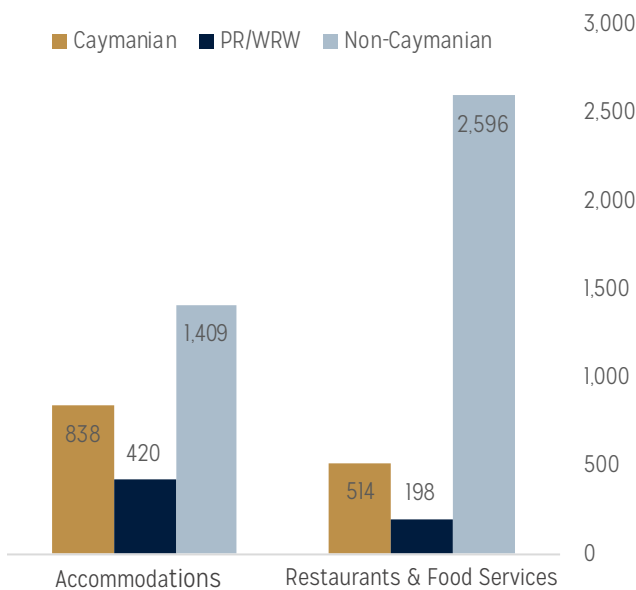
	Caymanian	PR/WRW	Non-Caymanian	Total	% Workforce in Sector
a. Accommodation	838	420	1,409	<b>2,667</b>	4.6%
b. Restaurants & Food Svc	514	198	2,596	<b>3,308</b>	5.7%
<b>c. Subtotal (a + b)</b>	<b>1,352</b>	<b>618</b>	<b>4,005</b>	<b>5,975</b>	10.2%
d. Total Workforce	21,563	5,217	31,724	<b>58,504</b>	
e. Status group % of workforce (c/d)	6.3%	11.8%	12.6%	10.2%	

Source: ESO, Author's calculations

We calculate that **Caymanians currently satisfy 6.3% of the demand for workers in Accommodations and Restaurant & Food Services sectors**, therefore.

**Employment in Tourism Sector**

Number of Persons Employed



Source: ESO, Author's calculations

The ancillary sectors to tourism - transport and storage, construction, and wholesale and retail - are integral to the overall quality, stability, and success of the Cayman Islands tourism product. Overall, **these three sectors combined account for 30% of jobs**, at roughly 1/3 of each classification - Caymanian, PR-WRW, and Non-Caymanian.

**Ancillary Sectors Workforce: Fall 2023**

	Caymanian	PR-WRW	Non-Caymanian	Total	% Workforce in Sector
a. Construction	2,324	717	5,885	<b>8,926</b>	15.3%
b. Wholesale and Retail...	2,381	841	3,486	<b>6,708</b>	11.5%
c. Transport & Storage	1,619	0	420	<b>2,039</b>	3.5%
<b>d. Subtotal (a+b+c)</b>	<b>6,324</b>	<b>1,558</b>	<b>9,791</b>	<b>17,673</b>	30.2%
e. Total Workforce	21,563	5,217	31,724	<b>58,504</b>	
f. Status group % of workforce (c/d)	29.3%	29.9%	30.9%	30.2%	

Source: ESO, Author's calculations

Between 2010 and 2019, the linear correlation between stay-over arrivals and the number of jobs in these three ancillary sectors was noteworthy. And while a linear correlation does not show causality, it signals that **these three ancillary sectors generate more employment as tourist arrivals grow**.

**Linear Correlation: Ancillary Sector Employment and Stay-over Arrivals**

	Construction	Wholesale and Retail	Transportation and Storage
2010-2019 linear correlation	0.80	0.86	0.66

Source: ESO, Department of Tourism, Author's calculations

It is noteworthy that the majority of small business establishments and entrepreneurs contributing to the tourism sector, do not belong to any of these three sectors above.

Workers engaging in activities such as property management, water sports, travel agencies, tour operators, entertainment and event planning, are likely found in the "Arts, entertainment & recreation", and "other services" sectors:

## Arts, Entertainment & Recreation, and Other Services

	Caymanian	PR-WRW	Non-Caymanian	Total	% Workforce in Sector
a. Arts, entertainment & recreation	590	0	495	1,085	1.9%
b. Other service activities	400	198	1,137	1,735	3.0%
c. Subtotal (a + b)	990	198	1,632	2,820	4.8%
<b>d. Total Workforce</b>	<b>21,563</b>	<b>5,217</b>	<b>31,724</b>	<b>58,504</b>	
e. Status group % of workforce (c/d)	4.6%	3.8%	5.1%	4.8%	

Source: ESO, Author's calculations

The linear correlation between the number of workers in these sectors and the number of stay-over arrivals, was weak in the 10 years prior to the pandemic. However, the relationship between stay-over arrivals and number of workers was strongest for non-Caymanian workers in the Arts, Entertainment & Recreation. This signals that **local businesses in these ancillary sectors tend to take on more non-Caymanians as tourism activity expands**, but tourism is not a good predictor of job creation for Caymanians in these sectors.

With a **fiscal budget of just over KYDI billion per annum, which on a per-capita basis resembles Singapore and Andorra**, the Government of the Cayman Islands is a significant economic actor and employer and underpins the relatively favourable ease of doing business in Cayman. The Government provides essential services to support and enhance the tourism sector through Statutory Authorities and Government Corporations (SAGCs) employment, as well as through the Ministry of Tourism. **Ten SAGCs that directly support the tourism sector collectively employed a total of 919 full-time equivalent (FTE) persons in 2022.**

To assess the importance of Government employment via these SCGCs to the tourism sector, we conduct a proxy calculation to analyse the various roles within these entities. While some SAGCs provide services that extend beyond tourism-related activity, such as the Port Authority, which would exist irrespective of the tourism sector, we calculate that **an estimated 80% of roles within these SAGCs are deemed to be directly linked to tourism-related activities.**

## Tourism-Related Statutory Authority and Government Corporations: 2022

Tourism-related SAGS	2022 FTEs	Tourism Proxy FTEs
Cayman Airways Limited	364	328
Cayman Islands Airport Authority	185	167
Cayman Islands National Museum	5	3
Cayman Turtle Farm (1983) Limited	98	98
Civil Aviation Authority	24	22
Maritime Authority of the Cayman Islands	39	20
National Gallery of the Cayman Islands	11	6
Port Authority of the Cayman Islands	162	81
Tourism Attractions Board	31	31
<b>Total</b>	<b>919</b>	<b>753</b>

Source: ESO, SAGCs Ownership Agreements 2022-2023, Author's calculations

A proxy calculation was also conducted to estimate the level of employment in the Ministry of Tourism and Transport that is directly related to tourism activity. Overall, **we estimated around 85% of employment at the Ministry of Tourism is attributable to the tourism sector.**

## Ministry of Tourism and Transport: Full Time Employees 2022

Department	Caymanians	Non-Caymanians	Total Staff	Tourism Proxy
District Administration	165	10	175	158
Core Ministry Administration	13	1	14	13
Public Transport Unit	12	0	12	6
National Weather Service	17	1	18	0
Department of Tourism	44	3	47	47
<b>Total</b>	<b>251</b>	<b>15</b>	<b>266</b>	<b>223</b>

Source: Ministry of Tourism and Transport Annual Report 2022, Author's calculation

# Small Business Ownership and the Entrepreneurial Ecosystem

The tourism sector is arguably more accessible in terms of entrepreneurial activity for Caymanians than is the financial services sector. Tourism in Cayman fosters a vibrant entrepreneurial ecosystem and efficient job creation, and (small) business ownership has become a dominant mechanism for creating generational wealth for Caymanians.

**Caymanian entrepreneurs and their families have offered various services to visitors for generations**, such as accommodation, transportation, car rentals, restaurants and bars, tours, etc. Given that SMB is the major tourist accommodation hub on Grand Cayman, it is also an important zone for Caymanian businesses looking to participate in and capitalize on activity in this sector.

The strong linkage between small businesses and the tourism sector is evident, upon reviewing Trade and Business License (TBL) data from April 2024. While the data is not classified by sector, an analysis of the TBL data enabled us to identify **1,778 firms that provide services directly to tourists**.

Firms in the retail sector, including minimarts, variety stores, and liquor stores were not included in the analysis below. While this is not an exhaustive inventory of tourism-related SMEs in the Cayman Islands, it reveals the variety and number of businesses that are impacted by if not heavily dependent on tourism.

## Selected Categories of Tourism-Related Small Businesses

Subsector	Firms
Car / Scooter Rental	204
Charter Boats	39
Entertainment / Event Planning	275
Restaurant / Café / Catering	585
Souvenirs / Retail	71
Taxi / Transport	180
Tour Operator	63
Tourism Support Services	160
Travel Agency	28
Water sports	173
<b>Grand Total</b>	<b>1,778</b>

Source: Trade and Business Licenses, Author's calculations

## LOCATION OF TOURISM-RELATED TRADE AND BUSINESS LICENSEES

Using the business addresses listed on the TBLs, we were able to find geolocations for 1,770 businesses, with the following distribution between North and South SMB. While the actual business address is outside of SMB for most of the TBLs issued, it is clear that services such as charters, water sports, taxis, and entertainment businesses all benefit from and capitalize on the level of activity at SMB and environs.

### Geolocation of companies providing services directly to Tourism

Geolocation	Number of TBL	% of Total
North SMB	118	7%
South SMB	28	2%
Other location	1,624	92%
Total	1,770	100%

Source: Trade and Business Licenses, Author's calculations



Source: Geolocations for Trade and Business Licenses Issued, April 2024

Official data on MSMEs in Cayman is scarce, limiting the ability to evaluate in further depth. According to the Ministry of Tourism and Transport's Assessment of a Public Transport Strategy, **there were 299 licensed taxis in the Cayman Islands as of February 2023, and 140 licensed car rental companies** providing services to tourists.

## Tourism Impact on Public Utilities

Tourists and locals share public spaces, natural surroundings and resources, public services and infrastructure such as roads, power, telecommunications, and public utilities such as water and electricity consumption, waste and sewage disposal, etc.

The level of tourism activity directly and indirectly affects the demand for and availability of these amenities. Growth in tourism-related investments such as room stock and airlift require commensurate expansion in infrastructure, utilities and other services in order to maintain the quality of life for locals and meet the expectations of travelers to Cayman.

As the tables below show, **strong correlations were found between the number of stay-over arrivals and commercial power and water consumption** from 2012 to 2022/2023. Meanwhile, stay-over arrivals have an inverse correlation with residential consumption of water in particular, and electricity. In the absence of these higher volumes of water and electricity consumed by tourists, it is possible that power generation and water desalination may become less efficient, driving up the unit cost of production, which could be passed on to the consumer.

### Consumption of Electricity 2012-2023

Linear Correlation Coefficient Between Variable and Power Consumption Large Commercial		Electricity Consumption (MWh)	
		Residential	
Variable	Households	0.15	<b>0.86</b>
	Population	0.07	<b>0.86</b>
	Stay-over Arrivals	<b>0.93</b>	-0.26

Source: ESO, CIDOT, Author's calculations

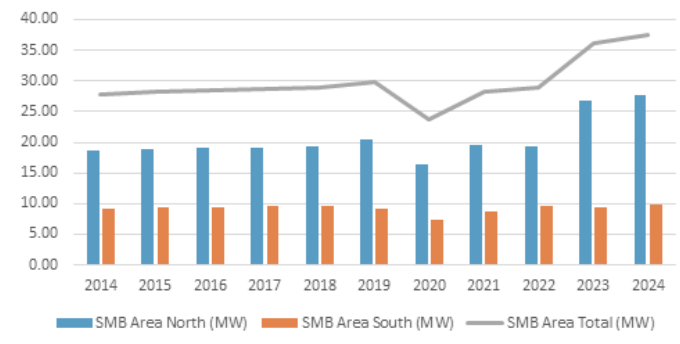
### Consumption of Water 2012-2022

Linear Correlation Coefficient Between Variable and Water Consumption Commercial/Industrial		Water Consumption millions of US Gallons		
		Commercial/Industrial	Residential	Multi-residential
Variable	Households	0.53	<b>0.80</b>	<b>0.80</b>
	Population	0.46	<b>0.91</b>	<b>0.80</b>
	Stay-over Arrivals	<b>0.91</b>	-0.71	-0.16

Source: ESO, CIDOT, Author's calculations

The historic load data obtained from CUC shows a trend of increasing electricity demand in the SMB area. The chart suggests growth in activity concentrated in North SMB. Compared to the North, the South seems to be consuming a declining proportion of the total electricity load. This could indicate slower development in South SMB vis-a-vis the North and signal a shift in allocation of resources and investment toward the North.

### Seven Mile Beach Historic Load 2014-2024



Source: Chart provided by CUC

## SOCIAL AND CULTURAL BENEFITS OF TOURISM

The tourism industry in the Cayman Islands holds the potential to serve as a catalyst for environmental and biodiversity conservation and sustainable development, by leveraging and raising awareness of Cayman's unique natural assets such as indigenous Blue Iguanas, the bioluminescent bay, abundant marine life including stingrays, starfish, and is an important area for turtle nesting, among others.

One significant way in which tourism can contribute to conservation efforts is by raising awareness and nurturing the growth of local businesses that responsibly capitalize on Cayman's distinctive cultural and environmental

attractions. Tourism can also help fund the preservation and restoration of our natural and built environments, by generating Government revenue which can be devoted to the National Trust for example, and cultural events.

In addition to conservation, tourism has the potential to enhance the quality of services available to the local community, offering recreational opportunities and amenities that may not be economically viable in the absence of visitor demand. This presence of tourism-driven services could elevate the overall standard of living for residents and could also foster a vibrant cultural scene by promoting diverse local events that celebrate and preserve the nation's rich heritage.

## QUALITY OF LIFE THROUGH COST OF LIVING

The cost of living in the Cayman Islands, like most islands in the Caribbean, is driven largely by the cost of imported fuel, food, and almost all items consumed by the population. In general, the smaller the population, the lower the ability of importers to buy in bulk and negotiate discounts.

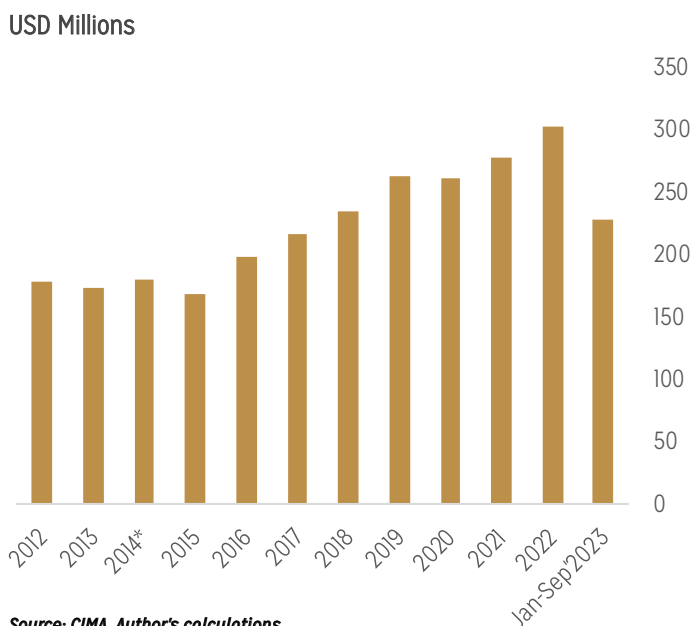
But there are obvious capacity constraints in the short-term, especially in a small island developing state, and the demand (fluctuations) from the tourism sector (and the labour required to service their needs) for electricity, water, food, accommodation, etc, creates upward pressure on prices domestically, and supply shortages from time to time. Recently, the main electricity utility announced the possibility of rolling blackouts at peak hours, for example. A higher population that is stable over time, which consumes a stable and predictable volume of utilities etc, is preferable to one where there are wide fluctuations (or declines). The tourism sector could play a role in driving greater capacity installations and efficiencies, but not if the demand is highly seasonal or declining over time. The beach erosion at SMB poses a risk to the possibility of securing a more stable and predictable level of demand for most things and could contribute to persistent or rising inefficiencies across markets.

## TOURISM LEAKAGE

According to a [UNWTO report](#) **tourism leakage in the Caribbean could be up to 80%**, due to factors such as foreign-owned operators, airlines, hotels, and imported food, fuel and other products. We do not have data to quantify tourism leakage in Cayman.

Additionally, leakage also occurs when workers in the tourism sector send a portion of their salaries back home as remittances. **Remittance outflows have been increasing in recent years, reaching USD302 million in 2022 with 59% sent to Jamaica, 17% to the Philippines and 7% to Honduras. In the first 3 quarters of 2023, remittance outflows increased 10% y/y to USD228 million with around 85% flowing to these three countries.**

### Remittance Outflows

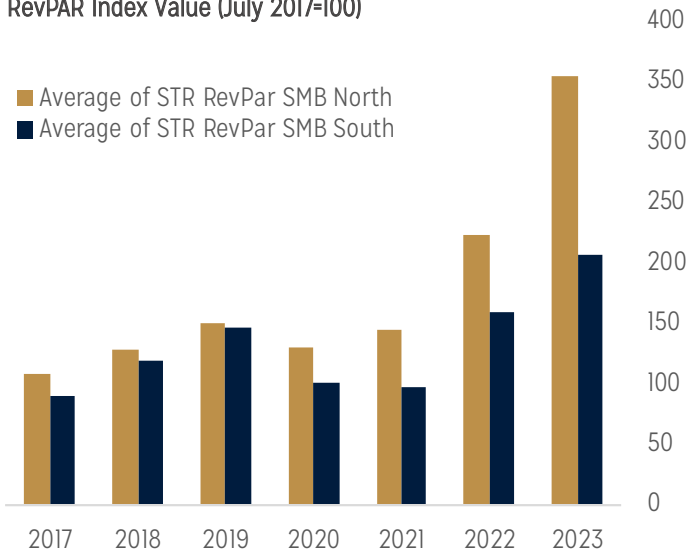


## HOW BEACH EROSION IMPACTS TOURISM

Beach erosion is already evident on the southern end of SMB, where properties such as the Marriott have essentially lost their beach. Other properties have built artificial beaches and lagoons in that vicinity, to create a comfortable space for their residents who otherwise would have to drive northwards to access SMB. To ensure the economic value of SMB is preserved over the long-term, especially at the southern end, beach restoration efforts must be undertaken with a degree of urgency.

Dart's analysis of Revenue per Available Room (RevPAR) shows a divergent trend in recent years between properties in North SMB vs South SMB. While there is no conclusive evidence of causality between beach erosion (at South SMB in particular) and RevPAR, the divergence over time does demonstrate that **South SMB is gaining value at a slower pace than North, since 2019.**

**Short-term Rentals Revenue per Available Room**  
RevPAR Index Value (July 2017=100)



Source: Dart, Author's calculations

A summary of the pre-pandemic RevPAR index level vis-a-vis 2023 performance is as follows:

**STR RevPAR Index Developed by Dart - North vs South: 2023 vs 2019**

Indicator	North SMB	South SMB
Index Value 2019	149	146
Index Value 2023	354	205
Var Index Value 2023/2019	+137%	+41%
Nights Booked 2019	29,782	47,704
Nights Booked 2023	45,713	42,145
Var Nights Booked 2023/2019	+53%	-12%
Total Revenue 2019 (USD millions)	22.2	23.7
Total Revenue 2023 (USD millions)	32.3	25.0
Var Total Revenue 2023/2019	+45.6%	+5.3%

Source: Index Developed by Dart, Author's calculations

Based on the model outlined above, we see that **total revenue generated by properties on South SMB increased by USD1.2 million in 2023 vs 2019, whereas revenues on North SMB increased by USD10.1 million.**

Empirical research has shown that there is an inverse relationship between the economic impact of beaches and the availability of alternative or substitute sites. But Grand Cayman does not have alternatives or substitute sites (blue spaces or otherwise) that could generate the level of social or economic value that its beaches do. Therefore, limited alternatives for recreation and accommodation outside of SMB could further accelerate the shift from South to North SMB.

The non-market value of bodies of water and coastal amenities has been well-documented for beach destinations around the world, and the literature has found that these values tend to be cumulative, building on one another. For instance, recreational values such as beach walking can then lead to other activities such as fishing, swimming or eating at a restaurant, which as stand-alone activities would have created less value. In this sense, **a decline in visitor traffic to South SMB could unleash a vicious cycle of destruction of economic value, affecting South SMB in particular, but throughout SMB and beyond.**

There are a number of economic sectors that stand to be impacted both directly and indirectly, such as commercial fishing, fee-based recreation, gear and equipment sales and rentals, and event planning. Non-market effects also transpire through lost economic benefit for those who use or value coastal ecosystems that are affected by the erosion (such as lost wellbeing from not being able to access beach areas).

Furthermore, properties in close proximity to the shoreline where coastal protection structures do not exist, could increase the likelihood of coastal damages. It is important to note that damage and the loss of aesthetic value can be contagious and trigger a downward spiral, whereby if properties lose value and become derelict, this reduces surrounding property values.

Additional data and deeper analysis would be required to determine real estate price effects and capitalization effects in the Cayman Islands based on factors such as beach accessibility, length of beach, width of beach, and coastal frontage.

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## The Importance of Seven Mile Beach to Tourism

The demand for travel to the Cayman Islands is largely tied to its beaches and associated ecosystems, and Grand Cayman has no meaningful alternative or substitute sites or attractions other than its beaches. Coastal amenities are a major factor in destination selection, and tourists have been found to choose destinations based on preferred beach characteristics.

We evaluate the economic impact that SMB specifically has on the Cayman Islands, as one of the nation's most productive and valuable natural assets. We also evaluate the social impacts SMB has in the community.

### ECONOMIC IMPACT OF SEVEN MILE BEACH

SMB is one of the Cayman Island's most valuable natural attractions and is likely the main attraction in Grand Cayman's tourism industry. The beach itself is highly ranked as a tourist destination in the region and globally. Grand Cayman's tourism activity is heavily concentrated in this part of the island, as it is a hub for hotels and resorts, short term rentals, restaurants, recreational facilities, and event venues.

SMB therefore generates a substantial proportion of tourism GDP and revenue, and also employs the majority of workers in this sector. Economic activity on SMB is also directly linked to other sectors of the economy including construction and real estate, and indirectly to international financial services, transportation, and utilities. There is also a connection between SMB and other sectors such as the onshore financial services sector via the provision of financing and insurance coverage, wholesale and retail, agriculture, and manufacturing through intermediate demand.

### DIRECT IMPACT OF SEVEN MILE BEACH ON THE CAYMAN ECONOMY

The relationship between tourism and SMB is characterized by a mutually beneficial dynamic, where the impacts of tourism on SMB, and the impacts of SMB on tourism are interconnected in driving economic activity and enhancing visitor experiences of the destination.

The majority of economic activity on SMB is in key sectors such as accommodation, restaurant and food services, recreation, new construction, and real estate, all of which contribute to the economy with their own multiplier effects, as intermediate demand drives indirect activity within the economy. The quantified effects are outlined in the table *Summary of Economic Impacts* at the end of this assessment.

### RESTAURANT AND FOOD SERVICE INDUSTRY

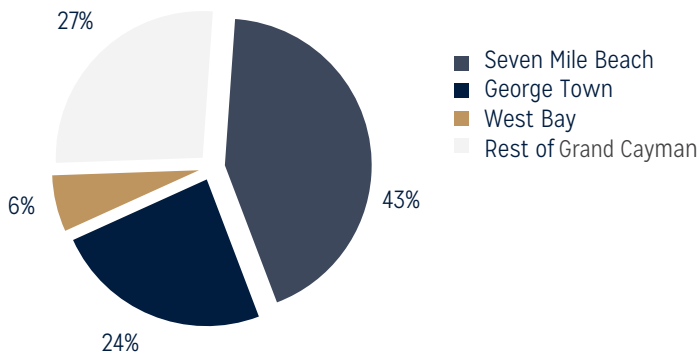
**Grand Cayman is home to over 200 restaurants**, with a mix of fast-food franchises, casual cafes, and upscale fine dining restaurants. Several large hotels on the island have multiple dining facilities on their premises.

Using mapping and geolocation tools, we calculate that **roughly 43% of restaurants on Grand Cayman with verifiable geolocations, are located on SMB. Of these, 25% are located on South SMB** (i.e. South of +19.32311, -81.38).



## Distribution of Restaurants

Percentage of Total in Grand Cayman



Source: Googlemaps, Author's calculations

**The restaurant and food service industry accounts for around 2% of Cayman's GDP, 9% of the labour force, and 8% of total work permits issued.** Intermediate consumption of the hotel and restaurant sector is around 47% of value added, therefore linkages to the rest of the economy are mainly through food and beverage manufacturing, agriculture and utility consumption.

## Percent of Intermediate Output per Sector Consumed by Hotels & Restaurants

% of Total Sector Demand	Demand Generated by Hotel & Restaurants
Agriculture & fishing	61%
Food & beverage manufacturing	75%
Electricity production	26%

Source: The Cayman Islands' 2015 Analytical Input-Output Tables, Author's calculations

We estimate that apart from the compensation received from their employers, around **USD20,000 (or 61% of total compensation) is received annually per worker in gratuities**, which further increases the induced effect of the industry.

We calculate that the food industry on SMB directly generated around USD37.32 million in GDP in 2023. **Approximately USD9.6 million is attributed to South SMB and USD27.7 million to North SMB.**

## Estimated Direct Economic Impact: Restaurant & Food Services

in USD millions	2023
North SMB	27.7
South SMB	9.6
Total SMB	37.3

Source: Author's calculations

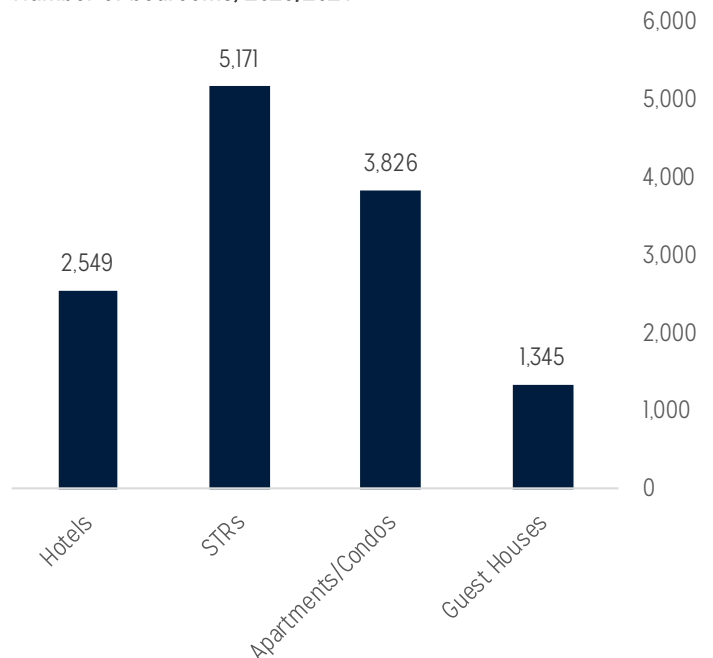
## HOTELS & ACCOMMODATION INDUSTRY

SMB hosts some of the largest hotels and most luxurious properties in the Cayman Islands. This concentration of upscale establishments has positioned SMB as a highly sought-after location for all kinds of events, conferences, and even reality TV shows. SMB has also attracted a significant proportion of the physical investment and real estate development in resorts and condos in recent years, making the area pivotal in the hotel and STR market.

Currently, **roughly 2/3 of the rooms in the Cayman Islands are apartments, condos or guest homes.**

## Cayman Accommodations by Category

Number of bedrooms, 2023/2024

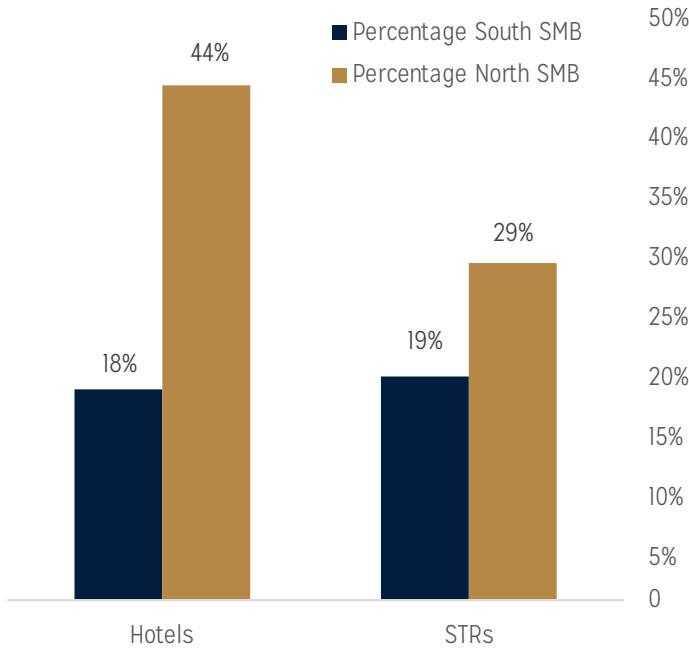


Source: CIDOT, Author's calculations



## Accommodations on SMB

Percentage of Total Rooms in Cayman Islands



Source: DART, CIDOT, Author's calculations

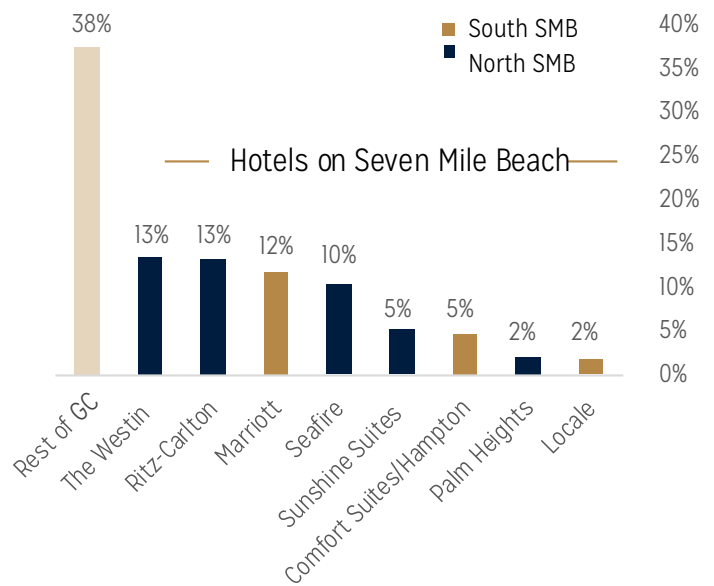
**SMB accounts for approximately 62% of total hotel bedrooms in the Cayman Islands and 48% of STR. North SMB has roughly 2.45 times the number of hotel rooms in the South. For STR, the North has roughly 1.5 times the inventory of the South.** The breakdown by type of accommodation and location as a percentage of total rooms available in the Cayman Islands is depicted in the chart above.

## HOTELS

Four out the five largest hotels in the Cayman Islands are located on SMB. These are the Ritz-Carlton hotel, the Westin Grand Cayman, the Grand Cayman Marriott and the Kimpton-Seafire resort. We calculate that **of the nation's total room stock, 62% of hotel rooms are situated on SMB - 29% of these are situated in South SMB, and the remaining 71% in North SMB.**

## Hotel Accommodations Distribution

Percentage of Total Hotel Rooms



Source: Dart, Author's calculations

## SHORT TERM RENTALS (STR)

**STRs on SMB account for around 48% of total STRs in the Cayman Islands. Of this, 40% of the rooms are situated in South SMB and 60% in North SMB.**

There is a wide variety of STRs available on SMB, ranging between 2-8 bedrooms, and with varying amenities. In 2023, the average daily room rate (ADR) in South SMB averaged USD640, while the ADR for properties in North SMB averaged USD782. The number of active properties in North SMB was 465 compared to 333 in South, as a result, on average, STRs in SMB North generated more revenue relative to South SMB for the years 2021, 2022 and 2023. Prior to 2021, total revenue in South SMB was higher than North, however with the number of properties increasing by only 16% for South versus 112% for North, between 2017 and 2023 a notable shift in the revenue generation pattern was noted.

## Short-Term Rental Average Daily Rate (USD) on SMB

Year	North	South
2017	619	451
2018	697	468
2019	811	502
2020	845	574
2021	872	618
2022	783	578
2023	782	640
7-year average	777	545

Source: Dart, Author's calculations

Hotel rates are also higher in North SMB, therefore as of 2023, North SMB dominates in the revenue segment of the accommodation market.

The direct consumption expenditure in the Hotel and Accommodation sector is estimated at **USD102 million in 2023**. STR prices are higher in South SMB, but Hotel rates are higher in North SMB, and they both cancel each other, so using both rooms and revenue, **there is a 36% (South SMB) to 64% (North SMB) split on estimated Direct Economic Impact**.

### Estimated Direct Economic Impact: Hotels & Accommodations

in USD millions	2023
North SMB	65.3
South SMB	36.7
Total SMB	102

Source: Author's calculations

### Construction Investment in North vs South SMB

Location	Building Permit	Type	Year	Value (USD millions)	USD/Sq ft	Location Ave USD/Sq ft
North	Lacovia	Condo	2024	\$216.0	\$414.74	\$472 (\$394 excl Westin)
	Westin Tower	Hotel	2023	\$183.6	\$858.41	
	Hotel Indigo Grand Cayman	Hotel	2021	\$96.0	\$297.04	
	Watermark	Condo	2020	\$213.0	\$484.36	
	Seafire Residences	Condo	2014	\$63.6	\$373.58	
	Kimpton Seafire	Hotel	2013	\$166.8	\$402.48	
South	Aqua	Condo	2021	\$22.8	\$370.01	\$377
	Seacrest	Condo	2020	\$21.6	\$362.23	
	Grand Hyatt	Hotel	2019	\$240.0	\$401.35	
	Berksoy House	SFH	2016	\$12.0	\$373.96	

Source: Dart, Author's calculations

## CONSTRUCTION

The construction sector is one of the most important sectors in the Cayman Islands economy and is driven largely by the financial services sector (office space and housing for expatriate workers) and tourism (hotels, condos, restaurants, etc), and is the sector with the highest multipliers in the economy.

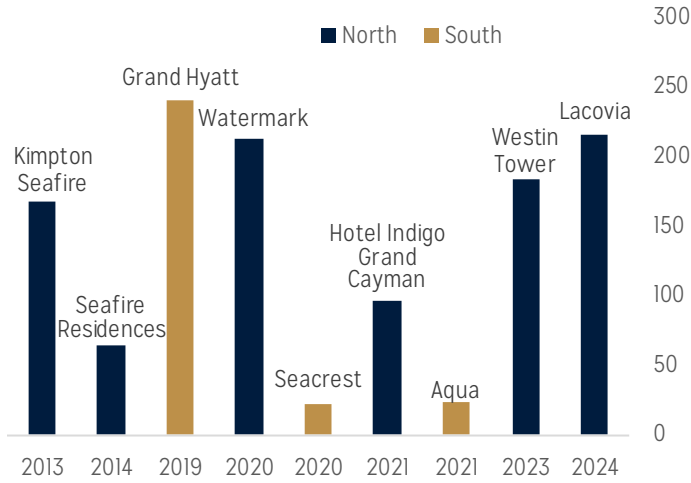
Construction is both directly and indirectly linked to economic activity at SMB. Through hotels and restaurants, routine maintenance and renovations account for the indirect effect of output from this sector. Apart from this, new construction projects such as new hotel and condominium development are a separate and direct source of economic activity which carries its own multiplier effects.

**We calculate that between 2013 and 2024, 10 large construction projects were initiated on SMB with 6 occurring in North SMB and 4 in South SMB.** These include Kimpton Seafire Hotel, Seafire Residences, Berksoy House, Seacrest Condo, Watermark Condo, Aqua Condo, Hotel Indigo, Westin tower and Lacovia Condos. **The total value of these projects was just over USD1.2 billion, over the past 10-11 years.**

**The values of building permits show a lower investment per sq. ft in the construction of Hotels and Condos in South vs North SMB.** Taking into account all major Hotel & Condo building permits, **the difference is nearly 25%.** Excluding the outlier impact of the Westin Tower, investment per square foot is roughly 4% higher in North SMB.

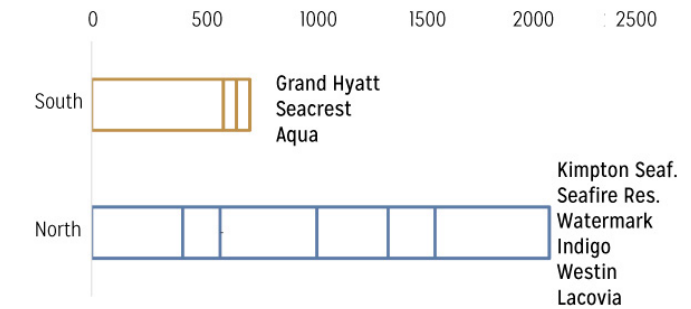
The size of building permits approved in the last 11 years 2013-2024 is primarily concentrated in the North, with total construction valued at USD939 million for 2.08 million square feet. This is roughly three times the 719,000 square feet of projects that were approved for South SMB with a construction value of roughly USD284 million.

**Value of Major Hotel/Condo Projects on SMB**  
USD million building permit value



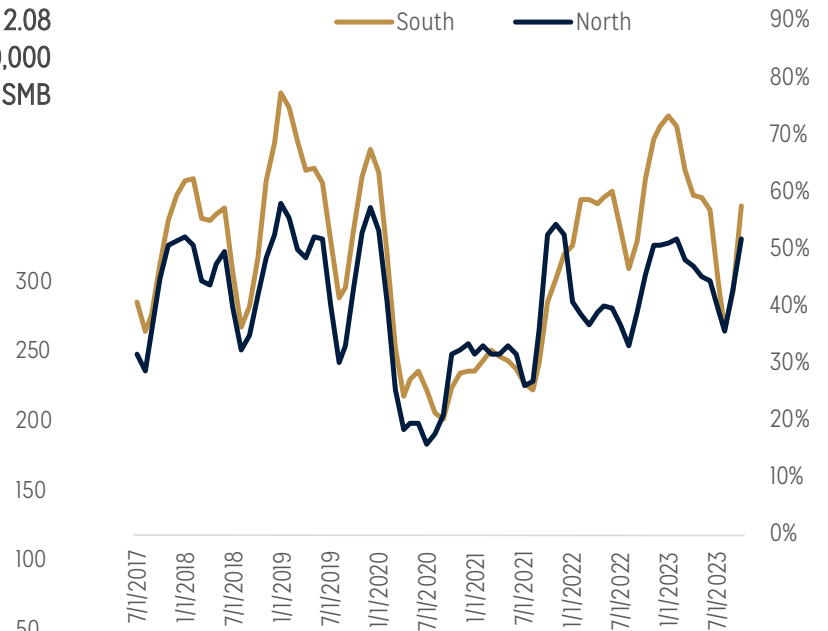
Source: DART, Author's calculations

**Size of Hotel/Condo Projects on SMB: 2013-2024**  
Thousand sq ft



Source: DART, Author's calculations

**STR Occupancy Rates SMB: 3 Month Rolling Average**  
Occupancy Rate (%)



Source: Index Developed by DART, Author's Calculations

All else being equal, **accommodation on North SMB could become substitutes for those on South SMB if beach access on South SMB was no longer available and demand collapsed.** Indeed, occupancy rates are low enough in North SMB to support such a shift in demand away from South SMB.

**Construction on SMB accounts for around 63.2% of total construction in the Cayman Islands.** The total multiplier of the sector is 2.56, where for every \$1 spent on construction, there is an indirect effect of \$1.05 and an induced effect of \$0.51 through new demand.

The table below estimates the **economic impacts of SMB on Construction, which was generated at an estimated split of 24% South and 76% North.** A shift in the trend of investments North vs South can alter this split over time.

## Economic Impacts of SMB on Construction

In USD million	2023
Construction	198.6
Indirect Construction	208.53
Construction WP	8.651
Induced Construction	101.3
Wages	158.1
Building Permit fees	0.2

Source: Author's calculations

## SEVEN MILE BEACH AND JOB CREATION

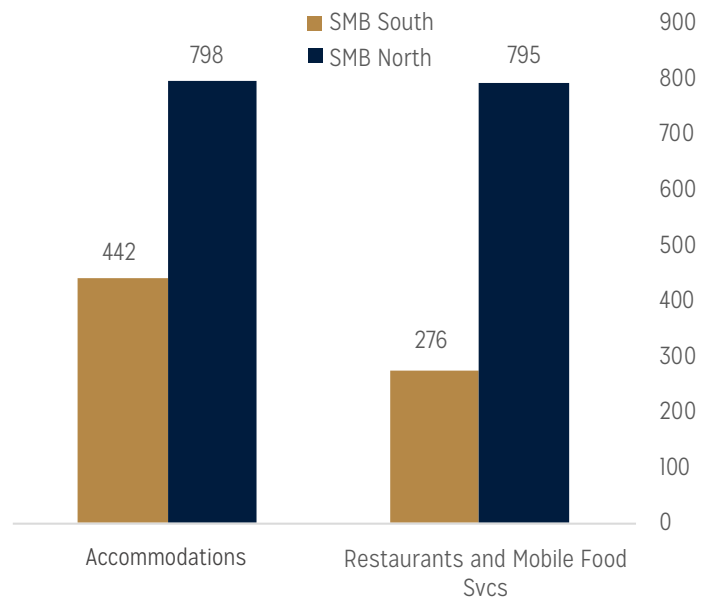
The tourism sector directly employs around 11% of the labour force in the Cayman Islands. We calculate that in 2022, 4% of the labour force was employed in tourism on SMB alone. Around USD76 million was spent on compensation to tourism employees and an additional USD45 million on gratuities in 2022. This brings the total earnings of employees in tourism on SMB to around USD122 million.

We calculate that the Hotel & Restaurant sector on SMB employs around 2,311 persons, with around 718 employed in South SMB and 1,593 in the North. The existing dominance of the North and a possible increase in its employment concentration has implications for workers who may have to commute further, potentially impacting their cost of living and overall traffic and congestion, vs a situation where there is a more even distribution/ decentralization of employment throughout SMB.

Importantly, 46% of the tourism industry workers in the Cayman Islands are women, and women spend more on their families and wider communities than men, so job-related risks for women carry broader and deeper social implications.

## Estimated Employment SMB

Number of persons employed



Source: ESO, Author's calculations

Employment multipliers enable us to understand how demand in a sector influences the level of employment. For instance, if demand decreases by KYD1 million for hotels, 12 jobs would be lost. Multipliers for the sectors most relevant to this analysis are as follows:

Multipliers	Hotel & Restaurant	Construction	Real Estate
Jobs per KYD1 million	12.0	16.0	4.0
Jobs per USD1 million	9.8	13.1	3.3

Source: Economic and Statistics Office, Author's calculations

## RESIDENTIAL REAL ESTATE

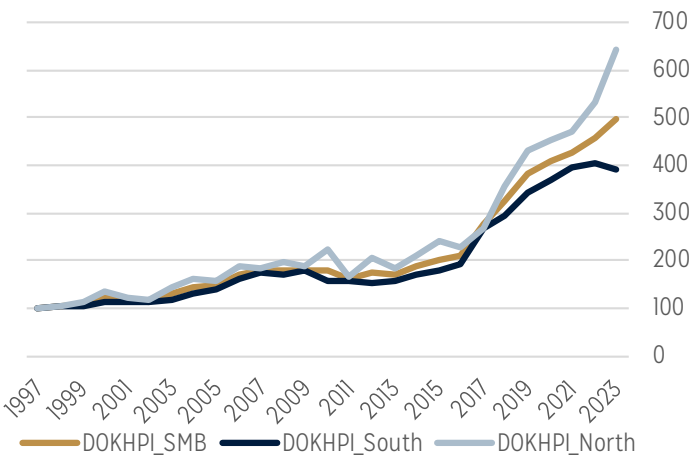
Prices of residential properties on SMB are demonstrated in our analysis to be significantly higher than other districts on Grand Cayman, with a lower bound of USD0.83 million and upper bound of USD27.8 million, using data on most recent listings.

Preliminary data also show that long term residential rental rates on SMB are higher, ranging between USD1,500 and USD40,000 per month, with an average of around USD4,800-5,800. The majority of rental properties available on SMB are residential.

In comparing North and South SMB, the Repeat Sale Price Index captures the change in the value of a property through analysing multiple sales on a single property over time. **A notable departure in the index value between the South and North began in 2018.** While the trend in price growth cannot demonstrate causality, **the decline in property sale prices in South SMB from 2018 to 2023 opens the door to further analysis** and interpretation. By rebasing the index in 2020 - which is appropriate since housing prices were not impacted by the pandemic - **we calculate North SMB housing prices at 35% higher than South SMB in 2023.**

### Repeat Sales Housing Price Index DOKHPI

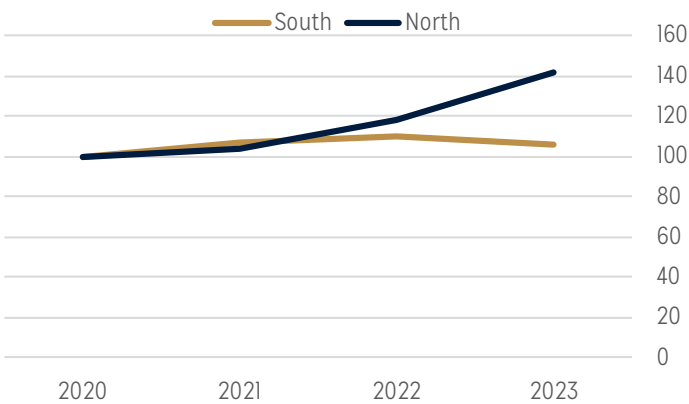
Index Value (1997 = 100)



Source: Dart, Author's calculations

### Repeat Sales Housing Price Index DOKHPI

Index Value (2020 = 100)



Source: Dart, Author's calculations

An analysis carried out by Dart on rental properties on SMB give us a general sense of rental prices as follows:

### Estimated Rental Price Range in SMB

	Mean Price (USD)	Median Price (USD)
2022	\$4,811-\$5,542	\$4,268-\$4,500
2023	\$5,241-\$5,761	\$4,268-\$5,030

Source: CIREBA, Ecay, and Author's calculations

We calculate that on average, apart from West Bay (which is on the extreme northern end of SMB), **SMB and Seven Mile Corridor have the highest (lower bound) residential condominium prices on Grand Cayman, and SMB itself has the highest residential condominium prices on Grand Cayman, as seen in the table below.**

### Price Range of Listed Residential Condominiums by District in 2024

Area	Lower price USD million	Upper price USD million
Bodden Town	0.54	2.65
George Town	0.73	10.00
Prospect	0.24	2.40
Rum Point	0.75	4.18
Savannah/Lower Valley	0.36	10.00
<b>Seven Mile Beach</b>	<b>0.83</b>	<b>27.80</b>
South Sound	0.45	4.00
Seven Mile Corridor	0.77	8.40
West Bay	1.30	7.95

Source: CIREBA and Author's calculations

We calculate that **in 2023, real estate activity on SMB had a total economic impact of USD80 million.**

### Economic Impacts of SMB on Real Estate

In USD million	2023
Real Estate Direct	41.8
Indirect Real Estate	28.9
Induced Real Estate	9.2

Source: Author's calculations

## HEDONIC PRICING MODEL

In estimating the economic value of an area or a particular environment, two main methods can be utilized: contingent valuation and revealed preference. Contingent valuation requires the surveying of stakeholders to determine their perspective on the value of a resource. Revealed preference uses existing data for variables such as property pricing to determine the value of one location relative to another. The hedonic pricing model is a method of revealed preference analysis. In this case the hedonic pricing model compares the price of properties on SMB to other districts in Grand Cayman. **The results show that the value of properties at SMB are significantly higher** than the rest of the Cayman Islands in 2024. We calculate that **SMB is around 67% more attractive for those wanting to buy property on Grand Cayman**. Deeper analysis can be performed using this methodology to estimate based on property types such as condo vs homes, ocean view vs non, etc.

### Hedonic Pricing Model

Variable	Coefficient	P-value	Significance	Interpretation
In (Sq. Ft )	1.19	0.000	Significant at 5%	A 1% increase in Square Footage increases the property value by 119%
SMB	0.68	0.001	Significant at 5%	If the property is situated on SMB the price is 67% higher than if not situated on SMB
Number of observations=358				
SMB= 1 if Condo is located on Seven Mile Beach and 0 otherwise				

Source: Author's calculations

## GOVERNMENT REVENUE

We estimate that **53% of hotel rooms and STRs in Grand Cayman are located on SMB**; consequently, the impact of SMB on Government revenue is also of substance to this analysis. The Government is a major economic actor that supports all sectors and directly employs around 14% of the labour force. The Government earns revenue through Tourism Accommodation Tax, Cruise Ship Departure Charge, Work Permit Fees, Stamp Duties on Real Estate Transactions, import Duties, and SAGC revenues and costs. We calculate that tourism directly contributes about 6-10% of Government's revenue. The indirect fiscal impacts of

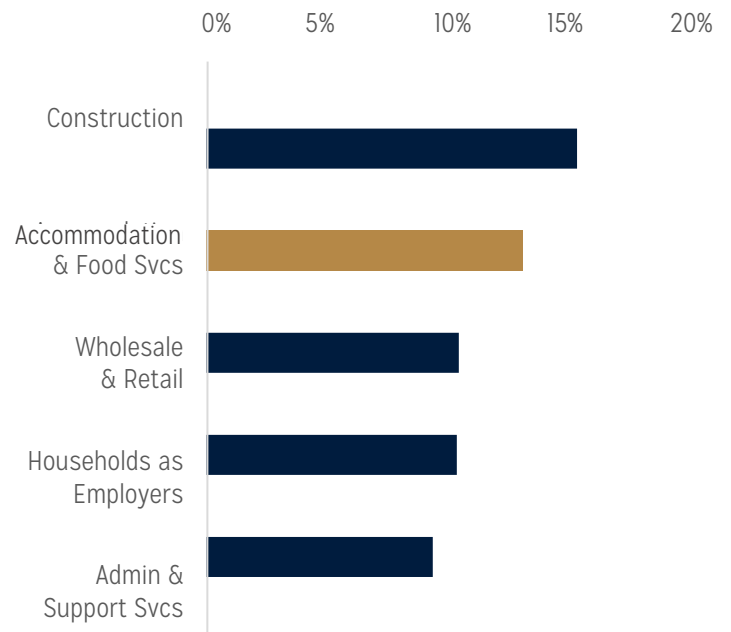
tourism are difficult to measure given the number of factors at play, however it is reasonable to assume that tourism's fiscal impact will deteriorate with continued erosion at SMB. Full data is not available for us to perform an in-depth analysis and to calculate the net revenue Government and SAGC's earn from tourism. The following estimates should account for the bulk of fiscal revenue attributable to SMB.

SMB activity provides revenue to the Government mainly through the tourism accommodation tax (TAT) and work permit fees. We calculate that **Government revenue from TAT attributable to SMB is estimated to be around USD 33 million per annum**.

The fee per work permit in the Hotel and Restaurant Sector is around USD1,600 and in the construction sector, around USD2,200. These two industries account for around 34% of total work permits issued.

### Work Permits by Industry, 2022

Percentage of total industry work permits



Source: ESO, Author's calculations

### Value of Work Permits Directly Attributable to SMB

Value of Work Permits	USD millions
Accommodation and Food Services	4.5
Construction	8.6

Source: Author's calculations

We calculate that SMB generated USD4.5 million in work permit fees in the Accommodation and Food Service sector, and USD8.6 million in construction work permit fees alone, out of a total work permit fee income of USD144 million in 2022.

Stamp Duties are 7.5% of the value of real estate property being purchased, except for first-time Caymanian homeowners who are exempt. **We estimate that SMB accounts for around 28% of all real estate acquisitions in the Cayman Islands. The stamp duty attributable to SMB amounts to around USD27.0 million in 2022 for real estate transactions, out of a total stamp duty income of USD110.6 million.**

**Value of Stamp Duties Attributable to SMB**

Year	Real estate transfer value in USD millions	Stamp duties in USD millions
2020	267.3	20.0
2021	373.0	28.0
2022	359.4	27.0
2023	347.6	26.1

Source: Author's calculations

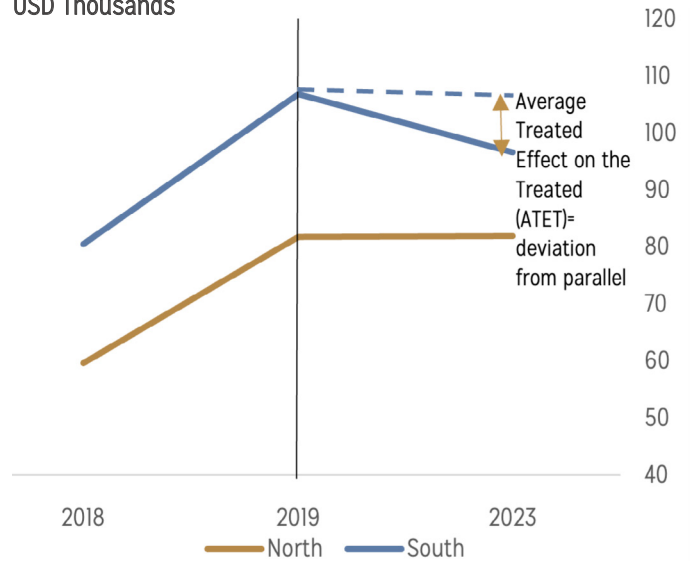
**DIFFERENCE IN DIFFERENCE MODEL**

From the available data, total revenue generated by STRs in South SMB surpassed that of North SMB prior to 2021, however with a proliferation of STRs in north there was a notable shift in the pattern. In 2023, North SMB generated 29% more revenue than South SMB, with an ADR 22% higher than South and 132 more properties than South SMB. However the main goal of this section is to determine the average impact on the revenue assumedly attributable to beach erosion. This model uses only data on STRs with available statistics for all years between 2018 and 2023 as it accounts for both cross-sectional and time dependent factors. Therefore "new" STRs were not included in the model resulting in a truncated dataset which is not fully reflective of the entire dataset on STRs. The trend in average STR revenue for North SMB and South SMB followed an almost parallel path between 2018 and 2019. By 2023, the parallel trend changed and the trend in South SMB began converging towards the North SMB's revenue\*. The Difference in Difference Model estimates the Average Treated Effect of the Treated (ATET). In the model North SMB is the control group and South SMB the "treated" group, where treatment in this case is set to measure the

outcomes of exposure to erosion. The model calculates the difference between the actual path (solid blue line) and the expected trend (broken line), where the expected trend is the same as that of the control group.

**The difference in difference model shows that there is already an effect of beach erosion on STR revenue on South SMB vs North. A do-nothing scenario means that beach erosion can begin spreading further to the North SMB and affecting attractiveness across SMB, South and North alike.**

**AVERAGE YEARLY STR REVENUE**  
USD Thousands



Source: Dart, AirDNA, Author's calculations

**METHODOLOGY AND INTERPRETATION**

The main requirement of this model is that there are two groups that can be observed over a short period of time, in this case two groups of short-term rental properties. Group 1 is located in North SMB and group 2 is located in South SMB and the analysis was done using AirDNA data on STRs with consecutive data for 2017-2023 grouped North and South.

The second requirement for the model is for there to be an observed variable that can be assessed to determine how both groups 'behave' in terms of that variable. In this case the variable that we observe is total annual revenue. Total annual revenue for each STR is the sum of monthly revenue for year t.

For the model, one group receives a 'treatment' after a given year which affects the behaviour of the observed variable (yearly rental income). In this case the 'treatment' is beach erosion. Therefore, South SMB is the "treated" group and North SMB is the control group. The treatment happens in 2020. Therefore before 2020 the movement of revenue is essentially parallel. Another important requirement of the model is called the "parallel trend assumption". This means that on average the observed variable (in this case revenue) of both groups should be parallel. To test whether this requirement holds we can look at the chart above.

Average annual revenue of the South and average annual revenue of the North is calculated. Average annual revenue of South is total revenue of all STRs in South for year t divided by the number of STR properties in South. Average annual revenue of North is total revenue of all SRTs in North for year t divided by the number of STR properties in North. In this case the years used are 2018, 2019 and 2023.

We observe that between 2018 and 2019 the average annual STR revenue of SMB North and South were (almost) parallel. Between 2019 and 2023 (all other years removed for clarity of movement) the movement was no longer parallel since average annual revenue in STR for South SMB began trending downwards and average annual revenue in North SMB began a slight incline. The lines therefore began to converge. Without the treatment, under the assumptions of the model, both lines would have continued to be parallel therefore the average yearly revenue in the South between 2019 and 2023 would have looked like the broken line. The distance between the solid and broken line is therefore the effect of the "treatment" i.e. the effect of erosion. In the model, called the average treatment effect of the treated (ATET) which the "Difference in Difference" model estimates.

This model is called *difference in difference* because average revenue in South minus average revenue in North is the average difference in revenue between both groups. The ATET is the difference in this average difference, hence the method is difference in difference.

\*Yearly Rental Income of 154 STRs over the years 2018, 2019, 2020 and 2023.

### Results: Difference in Difference Model Estimate of ATET

Variable	Coefficient	P-value	Significance	Interpretation
Time	-6,821.90	0.161	Not Significant at 5%	Average annual revenue post 2020 was lower than pre 2020 by USD6,800.
South_SMB	22,985.60	0.014	Significant at 5%	South SMB properties have an average annual revenue that is around USD23,000 higher than North.
Time*South_SMB	-12,825.19	0.018	Significant at 5%	Post 2019, the average annual revenue of STRs in South generated around USD12,800 less revenue due to factors which did not affect properties in North.
Number of observations=616				
Time= 1 if year is 2020 or after and 0 if year is before 2020. Data for 2018, 2019, 2020 and 2023 are used to ensure the model meets parallel trend assumption				
South_SMB= 1 if STR is located in South SMB				

Source: AirDNA. Author's calculations

On average, for 2018 and 2019 STRs in South SMB earned around USD23,000 more than in North SMB per annum compared to average 2020 and 2023. Of the properties with available data in 2018/2019, 2020 and 2023, STRs in South SMB saw a decline in annual rental income in 2023 vis-a-vis 2018/2019 of USD13,000 compared to STRs in North SMB. The model calculates the difference in rental incomes due to the "treatment", which in this case is beach erosion. It is important to mention that the limitations of this model do not allow us to conclude that beach erosion is an exclusive cause of the outcome. Further data and analysis would be required to conclusively determine exclusive causality.

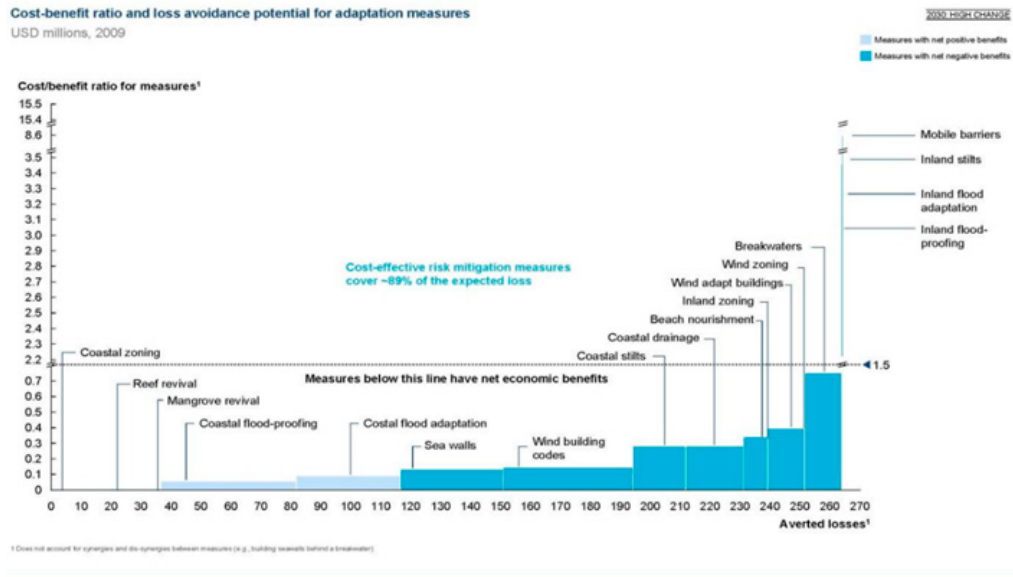
## GOVERNMENT EXPENDITURE

The linkage of the tourism sector at SMB and Government expenditure on the industry involves many intricate factors. **We estimate that up to around USD16 million per annum is expended by the CIG to upkeep the tourism product of SMB.** This involves maintenance of beach and facilities, administrative services and promotion, among others. Indirect spending within the industry especially in supporting SAGCs are difficult to ascertain.



# COST-BENEFIT AND URGENCY OF BEACH RENOURISHMENT

Grand Cayman is a low-lying island. CCRIF found in 2010 that coastal flooding / storm surge accounted for about 45% of total damage potential for Grand Cayman. Beach renourishment was found to have net economic benefits, with a cost/benefit ratio of around 0.3 and significant capacity for averting losses. "In the Cayman Islands, for example, coastal flooding/storm surge accounts for about 45% of total damage potential." (The Caribbean Catastrophe Risk Insurance Facility 2010)



Source: The Caribbean Catastrophe Risk Insurance Facility 2010

While the benefits are clear, it is important to bring the costs of beach renourishment into context. This allows us to evaluate how the enormous value SMB represents, compares to the necessary allocation to fund the beach renourishment project, based on the (unused) allocation made in the 2022/2023 Budget. The cost of beach renourishment is estimated at USD25.2 million initially and USD6 million every five years at this time -based upon CIG budget, subject to final design.

## Beach Renourishment Estimated Cost

Cost in millions	KYD	USD
Initial Renourishment Cost	21.0	25.2
Maintenance Every 5 Years	5.0	6.0

Source: 2022/2023 Budget Statement, Dart

The following tables show us that the initial cost is roughly USD20 per cruise tourist, or USD59 per stayover, whereas ongoing costs would amount to USD0.94 per cruise passenger per year, or USD2.80 per stay-over visitor per year.

## Initial Renourishment Cost Comparisons

Indicator	Units	KYD/indicator	USD/indicator
Population	84,738	248	297
Households	35,793	587	704
Stay-over Tourists	429,284	49	59
Cruise Pax	1,270,981	17	20

Source: Author's calculations

## 5 Year Annual Maintenance Cost Comparisons

Indicator	Units	KYD/indicator	USD/indicator
Population	84,738	12	14
Households	35,793	28	34
Stay-over Tourists	429,284	2.33	2.80
Cruise Pax	1,270,981	0.79	0.94

Source: Author's calculations

These figures are referential, and do not suggest that the Government will pursue a policy of directly passing these costs on to tourists – but it demonstrates what can be done if so desired. It is also important to put these costs into the context of the accommodation rates that the properties on SMB already command, which reflect the daily value that the market already attributes to the assets of SMB.

### TAT Revenue Versus Cost Of Renourishment

All figures in USD millions	TAT Revenue	Proposed Direct Government Spending on beach renourishment	Current Routine Direct Government Spending on Beach Maintenance	Gov't year-end position after renourishment	Gov't accumulative position
Initial Year	33	25.2	16	-8.2	-8.2
Year 1	33	1.2	16	15.8	7.6
Year 2	33	1.2	16	15.8	23.4
Year 3	33	1.2	16	15.8	39.2
Year 4	33	1.2	16	15.8	55.0
Year 5	33	1.2	16	15.8	70.8

Source: Author's calculations

**In six years, net Government TAT revenue would be USD70.8 million under a renourishment scenario compared to USD102 million without renourishment.** However, the beach renourishment would be expected to increase ADR, particularly in South SMB, and have positive impacts on the other veins of Government revenue enabling recovery of at least a portion of the investment and maintenance cost.

## Conclusion

The Cayman Islands are low-lying. The Caribbean Catastrophe Risk Insurance Facility (CCRIF) found in 2010 that coastal flooding / storm surge accounted for about 45% of total damage potential for Cayman. Beach renourishment was found by CCRIF to have net economic benefits, with a cost/benefit ratio of around 0.3 and significant capacity for averting losses.

We estimate that the total gross impact of SMB on the Cayman Islands economy approaches USD1 billion annually. Properties on SMB are valued at around USD6 billion. The current estimate of the initial cost of beach renourishment is USD25.2 based on estimates from the Government's budget and USD6 million every five years based upon the DHI report and Dart's calculations. These costs are small relative to the overall property values on SMB and the potential for losses in the absence of renourishment.

The economic viability of the Cayman Islands tourism product, particularly SMB, relies heavily on the preservation of the beach, which is facing heavy erosion. Coastal flooding

and storm surge account for nearly half of the potential damage, which is exacerbated by construction activities and the absence of natural sand nourishment cycles. With tourism contributing significantly to the local economy, timely intervention through beach renourishment is crucial. The cost-benefit analysis illustrates that the initial expenditure for beach renourishment is minimal when compared to the broader economic impact and property values on SMB.

The importance of addressing beach erosion cannot be overstressed as it directly influences tourism revenue and property values. The study indicates that the southern end of SMB, where erosion is more evident, has resulted in a loss of approximately USD13,000 per short-term rental income annually. This is likely to escalate if no measures are taken. Moreover, the continuous erosion will not only compromise the socio-economic value of South SMB but could gradually spread northward, affecting the broader SMB and wider tourism ecosystem.

Therefore, it is imperative for the Cayman Islands to undertake beach renourishment with urgency. Doing so will ensure the sustainable economic impact of SMB, reinforcing its appeal to affluent tourists and maintaining its crucial role in the country's economy. The costs associated with these efforts are justified by the substantial long-term benefits in preventing further erosion and economic losses, preserving the Cayman Islands as a premier tourist destination.

From an economic standpoint, we concur with the conclusions of CCRIF, the [Department of Environment \(DoE\)](#) and the [Danish Hydraulic Institute \(DHI\)](#) study, that beach renourishment is necessary to maintain the economic impact of the tourism sector in the Cayman Islands and SMB more specifically. Relative to a loss (plus multiplier impact) of USD13,000 annually in rental income per Short Term Rental (STR) at the southern end of SMB, the estimated value of properties along SMB at roughly USD6 billion currently, and our estimated USD1 billion annual economic impact of SMB, the cost of beach renourishment (as currently estimated) pales in comparison to the potential losses associated with a do-nothing scenario. We therefore recommend that beach renourishment be conducted at SMB with urgency.

## SUMMARY OF ECONOMIC IMPACTS OF SMB ON THE CAYMAN ISLANDS ECONOMY

The following table summarizes the effects calculated and discussed through this study.

<i>in USD millions</i>		Direct	Indirect	Induced
Consumer/ Tourism Spending	Hotel/Condo Rooms (without tax)	48.82		
	Taxes	33.00		
	Stamp Duties	26.96		
	Food Services	37.32		
Accommodation & Food	Indirect		55.99	
	Induced	-33.60	→	33.60
Real Estate	Real Estate	31.17		
	Indirect Real Estate		21.5	
	Induced Real Estate			6.86
Tourism Business Spending	Wages/ Compensation to Emp	76.34		
	Gratuities	45.40		
	Tourism Work Permits	4.49		
Construction	Direct	198.6		
	Indirect Construction		208.53	
	Construction Work Permits	8.651		
	Induced Construction	-101.3	→	101.3
	Wages	158.1		
	Import Duties		22.9	
	Building Permits	0.2		
Total		534.08	308.97	141.74

Source: Author's calculations

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