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THE BAHAMAS

SELECTED ISSUES

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THE BAHAMAS

SELECTED ISSUES

December 17, 2024

Approved By
Western Hemisphere Department

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CONTENTS

DETERMINANTS OF SOVEREIGN SPREADS IN THE BAHAMAS[1]

To analyze Bahamian sovereign spreads, a fundamentals-based model is estimated using data on emerging market economies. The main findings are: first, while both domestic and global covariates are important determinants of spreads, a sizeable effect comes from the interaction of global risk aversion and a country's risk rating. Second, inclusion in the EMBIG index (Emerging Market Bond Index Global) is a significant driver for emerging markets. The spreads in The Bahamas would have compressed by 56 basis points compared to other countries with similar fundamentals if the archipelago were included in this index.

A. Introduction

1. Spreads on Bahamian sovereign bonds issued on international capital markets increased sharply following the onset of the COVID-19 pandemic, rising by as much as 1,200 basis points—more than five times their pre-pandemic levels. The country faced multiple challenges during this period, including a substantial rise in debt, driven by both pandemic-related expenditures and the impact of a major hurricane that occurred just prior to the pandemic. Moreover, the Bahamian economy, heavily reliant on tourism, was severely impacted by the global downturn in travel. Although spreads have recently moderated, they remain elevated relative to their historical levels. Wider spreads imply higher government borrowing costs, and consequently that a larger share of fiscal resources has to be devoted to servicing public debt.

B. Sample and Stylized Facts

2. The analysis is based on an unbalanced panel of 73 countries classified as emerging and developing economies by the IMF, at monthly frequency ranging from January 2005 to April 2024. The dependent variable is the hard-currency sovereign bond spread. The explanatory variables are grouped into domestic variables, which are country specific and therefore vary across countries, and global variables (Csonto and Ivaschenko, 2013). The covariates included in the sample follow the existing literature on the determinants of sovereign spreads.[2] The domestic variables included relate to a country's macroeconomic performance, its fiscal position, the external sector, and institutional quality. The global variables are meant to account for the global business cycle, global financial conditions, as well as market volatility and risk perception. Variables are available at varying frequencies, depending on the country. If a data series is not already at monthly frequency,

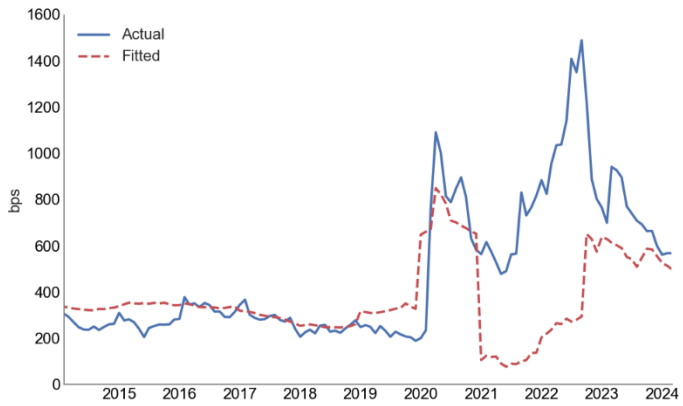
[1] Prepared by Josef Platzer (RES, formerly WHD).

[2] See for example Bellas et al. (2010), Belhocine and Dell'Erba (2013), Csonto and Ivaschenko (2013), Presbitero et al. (2015).

it is converted using the value from the respective quarter or year. Table 1 in the annex contains details on the data sources, variable units, variable transformation, and additional information.[3]

3. Sovereign spreads of The Bahamas were close to the sample median before the COVID-19 pandemic but increased to well above the 75th percentile during the pandemic. The Bahamas was hit particularly hard by the pandemic, with one of the largest declines in output (Figure 1). However, the country's economy has also recovered rapidly since then. Public debt has increased steadily since 2005. While this was in line with the sample median until 2019, the Bahamas experienced a particularly large upward jump in its debt-to-GDP ratio in 2020 and is now among the top 25 percent of countries in the sample. However, the Bahamian level of external debt is below the sample median. The sovereign credit rating of The Bahamas consistently deteriorated over the sample period. In particular, the Bahamas' credit rating was lowered twice since 2020, and is currently standing at a single-B rating.[4] In terms of external sector variables, the current account balance tends to be very negative in the Bahamas, but the country had a relatively high level of currency reserves throughout the pandemic. Finally, the governance index, a measure of institutional quality, is relatively high in The Bahamas, close to the 75th percentile of the sample, even though it has been declining over the sample period.[5]

Figure 1. Bahamian Sovereign Spreads: Actual vs Model-Fitted
(Basis points)



Sources: Bloomberg LLC and IMF staff calculations.

[3] Dickey-Fuller and Perron-P tests were used to test for stationarity of the included variables. Variables governance index, government debt, external debt, dollar index, and global growth are detrended using a linear trend before being included in the panel regressions.

[4] The sovereign ratings variable in the sample is constructed as the median of the available sovereign ratings by Moody's, Standard and Poor's (S&P), and Fitch, and takes on one of seven values: AAA/AA (combined), A, BBB, BB, B, CCC, CCX. "CCX" denotes countries in default, rated lower than "CCC."

[5] Table 2 in the annex shows summary statistics for the dependent variable, domestic and global covariates, as well as the two dummy variables of EMBIG inclusion and IMF program engagement. Figures 5 and 7 in the annex show time series plots of the sovereign spread and the domestic covariates for The Bahamas, as well as median, 10th, 25th, 75th, and 90th percentiles of the full sample. Figure 6 shows time series plots for the global covariates.

C. Empirical Model

4. To investigate formally the relationship between sovereign spreads and domestic and global covariates a panel regression model is estimated. The baseline regression specification is:

$$spread_{it} = \alpha + X_{it}\beta + Z_t\gamma + D_{it}\delta + \sum_k \omega_k rating_{it}^k \times VIX_t + \epsilon_{it} \qquad (1)$$

where $spread_{it}$ is the sovereign spread of country i in month t, X_{it} is a vector with domestic covariates, and β the corresponding coefficients, Z_t is a vector of global covariates, and γ the corresponding coefficients, and D_{it} denote dummy variables and δ the corresponding coefficients. The baseline specification includes dummies for individual sovereign credit rating grades, denoted $rating_{it}^k$, interacted with the Chicago Board Options Exchange's Volatility index (VIX), with ω_k the corresponding coefficients.[6] Finally, α is the intercept, and ϵ_{it} is the error term. The domestic covariates (X_{it}) included in the baseline specification are GDP growth, inflation, government debt, current account balance, reserves, and governance index. The global covariates (Z_t) in the baseline specification are global growth and the Merrill Lynch Option Volatility Estimate index (MOVE). The dummy variables included are whether a country is included in the EMBIG index, a dummy for an active IMF lending program, and a dummy for commodity exporters. Interacting rating grade with the VIX allows for a non-linear relationship between sovereign default risk (as measured by sovereign credit ratings) and the international risk environment (as measured by the VIX index). Equation (1) is estimated on the sample ranging from January 2005 to April 2024, excluding observations with spreads above 3000 basis points, or more than four times the standard deviation above the median observation.

D. Results

5. The model is able to fit well the dynamics of Bahamian sovereign spreads over recent years. The model-implied spread is very close to the actual spread up until 2020, the onset of the COVID-19 pandemic. In 2020, both the actual and model-implied spreads surged by over 400 basis points. However, starting in 2021, a noticeable gap between the actual and fitted spreads emerges. This divergence in 2021 can partly be attributed to catch-up growth from the pandemic, which in the model translates to a substantial decline in spreads. While economic recovery can be expected to be positive news for investors, the model may overestimate this effect. The residual remained substantial in 2023, though it had decreased from its peak in late 2022. Throughout 2023 and 2024, the residual continues to narrow, reaching 70 basis points by the end of the sample period.

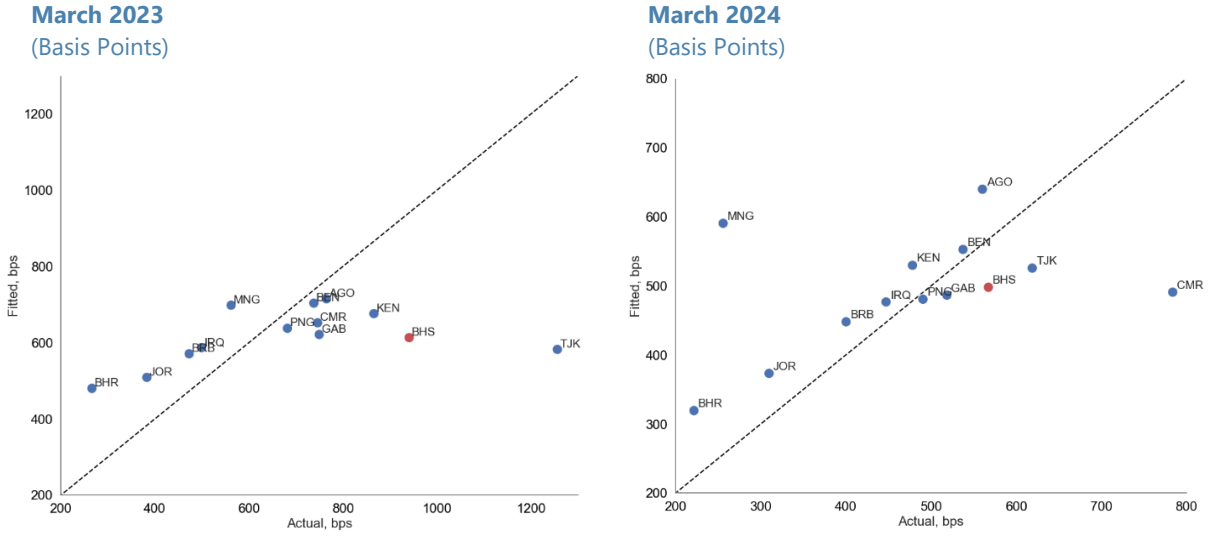
6. Changes in The Bahamas' sovereign rating correspond closely with significant movements in Bahamian sovereign spreads. The country's median rating dropped from "BBB" to "BB" in early 2020, and again from "BB" to "B" in late 2022. At both times, the fitted spread exhibits discrete jumps, consistent with relatively large estimated coefficients for sovereign rating grades

[6] The notation implies that, for example, it holds that $rating_{it}^A = 1$ if and only if country i in period t has a single-A sovereign credit rating, and $rating_{it}^A = 0$ otherwise. It holds that $k \in \{A, BBB, BB, B, CCC, CCX\}$, where grades "AAA" and "AA" are excluded to avoid collinearity.

below investment grade (i.e., lower than "BBB"). These jumps in the fitted spread coincide closely with increases in the observed sovereign spread, though it is notable that spread increases can precede official rating downgrades by several months.

7. Bahamian sovereign spreads have declined since late 2022 and, by 2024, are aligned both with peer economies and the model-implied spread. Scatterplots of actual and model-implied spread for single-B rated countries across two time horizons (March of 2023 and 2024) show that the residual is generally small, with most countries lining up along the 45-degree line (Figure 2). This suggests that the decline in The Bahamas' residual from March 2023 to March 2024 may not be due to an overall improvement in the model's fit but rather to specific developments in The Bahamas not captured by the model. While most of the covariates included in the analysis are slow-moving, sovereign spreads can change instantly as investors respond to news. One possible interpretation of variation in the residual is that it reflects the release of country-specific news, particularly related to key factors influencing sovereign spreads.

Figure 2. Sovereign Spreads of Single-B Rated Countries: Actual vs Model-Fitted



Sources: Bloomberg, JP Morgan, and IMF staff calculations.

8. While both domestic and global covariates are important determinants of spreads, a sizeable effect comes from the interaction of global risk aversion and a country's risk rating.

- Most variables are significant at least at the 10 percent level and all the coefficients have the expected sign (Table 3, column 1)—for example, an increase in the domestic GDP growth rate is associated with around 13 basis points decline in sovereign spread. A higher inflation rate and higher government debt are associated with higher spreads, while a higher current account balance, a higher governance index, a higher level of reserves, and being a commodity exporter are associated with lower spreads.

- Among the global covariates, a one percentage point higher global growth rate is associated with a 28 basis points lower sovereign spread. The MOVE index is positively related to sovereign spreads, as expected, since a higher MOVE index is considered to signal increased risk and uncertainty.

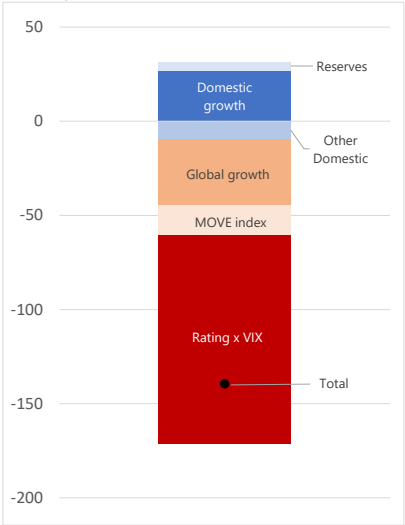
- Global risk aversion has an asymmetric effect, with lower rated countries experiencing disproportionately higher widening of spreads if global risk sentiment deteriorates. A country with an "A" or "BBB" rating only faces a marginally or insignificantly higher spread than a "AAA" or "AA" rated country. At the median level of the VIX in the sample, which is an index of 17, a country with an "A" rating faces an about 19 basis points higher spread than with a better rating grade ("AAA"/"AA"). This number rises to about 66 basis points for a "BB" rated country, and to 269 basis points for a "B" rated country like The Bahamas. The lowest rating grade in the sample, "CCX", denoting default, is associated with a 663 basis points higher spread compared to the "AAA"/"AA" rating group, at the median level of the VIX index.

- Inclusion in bond indices like the EMBIG could lower sovereign spreads, for example through increasing the available investor base. The spreads in The Bahamas would have compressed by 56 basis points compared to other countries with similar fundamentals if the archipelago were included in JP Morgan's EMBIG index (Emerging Market Bond Index Global).

9. Most of the recent model-explained decline in Bahamian spreads is due to reduced market volatility and an improved global risk sentiment (Figure 3). A decomposition of the change in the fitted spread of The Bahamas between January 2023 and March 2024 shows that the interaction term between the sovereign rating and the VIX index contributed a reduction of over 100 basis points of the total 140 basis points decline. Since the sovereign rating of The Bahamas remained unchanged over this period, the decline is fully attributable to the decline in the VIX index. Similarly, the decline in the MOVE index accounts for about another 20 basis points of the decline. An increase in the global growth outlook lowered the fitted spread by around another 40 basis points. In contrast, a moderation in Bahamian GDP growth and a slight decline in reserves imply an increase in the fitted spread by about 30 basis points.

Figure 3. Decomposition of Change in Model-Implied Spread, January 2023 to March 2024

(Basis points)



Source: IMF staff calculations.

10. Bahamian external sovereign spreads could decline by 65 to 240 basis points by 2029, if there is a rating upgrade from sustained and credible fiscal efforts (Figure 4). Two illustrative scenarios are constructed with assumptions for domestic (staff baseline projections) and global variables (staff baseline projections and historical averages).

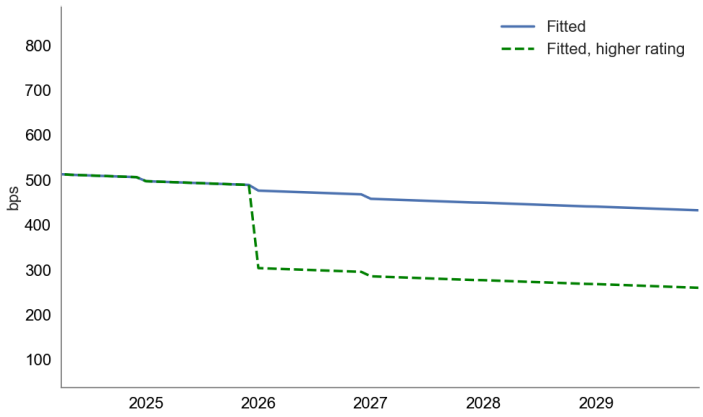
- *Unchanged sovereign rating.* Under the assumption of an unchanged sovereign rating, the fitted value declines to about 430 basis points by the end of 2029, or a reduction of 65 basis points

compared to March 2024. A large part of the projected reduction (45 basis points) is driven by the assumed decline in the MOVE index to historical averages.

- *Higher rating.* Under the scenario with rating upgrade by one notch, the fitted value declines by an additional 175 basis points, implying a spread of about 260 basis points by 2029, a level close to the pre-pandemic period. Since rating upgrades are often linked to improvements in a country's macroeconomic fundamentals and its fiscal situation, this suggests that an appropriate domestic policy mix can lead to substantial drop in spreads and funding costs.

Figure 4. Projected Spread

(Basis points)



Source: IMF staff calculations.

11. The reported findings are generally robust to different model specifications. For robustness checks, the baseline model of equation (1) is extended to the following:

$$spread_{it} = \alpha + e_i + \tau_t + X_{it}\beta + Z_t\gamma + D_{it}\delta + \sum_k \omega_k rating_{it}^k \, x \, VIX_t + \epsilon_{it} \qquad (2)$$

Relative to the baseline model, country fixed effects e_i and time fixed effects τ_t are included, and eight additional specifications are estimated (Table 3). Coefficients are generally stable, even in specifications where country or time fixed effects are added. The dummy for inclusion in the EMBI is notably more negative in specifications with country fixed effects (5, 7, 9), and once sovereign credit ratings are excluded as covariates (8, 9). This could be due to limited variation of EMBIG inclusion within countries. The dummy for an active IMF program loses significance for some specifications that include country fixed effects (5, 9), and changes sign in a specification excluding sovereign ratings (8). The latter could reflect that, on average, countries with an active IMF program have lower sovereign ratings, and lower sovereign ratings are found to be associated with higher sovereign spreads. For specifications excluding sovereign ratings from the model (8, 9), it stands out that the coefficient on public debt is generally larger, by as much as a factor of ten. However, at the same time, model fit as measured by the adjusted R-squared metric declines.

E. Annex

Table 1. The Bahamas: Variable Description and Sources

Variable name	Description	Unit	Source	Comment
Spread	Sovereign bond spread	Basis points	Bloomberg Finance L.P., JPMorgan, IMF Spread Monitor	The reference rate is based on US Treasuries, or the default of the index provider (Bloomberg, JPMorgan)
GDP Growth	Real GDP growth	Percent, yoy	IMF, Consensus Economics	
Inflation	CPI inflation rate	Percent, yoy	IMF, Consensus Economics	
CA Balance	Current account balance (share of GDP)	Percent	IMF, National sources	
Governance	Governance index		World Bank Worldwide Governance Indicators	Simple average of World Bank regulatory quality and government effectiveness
Debt	Public debt (share of GDP)	Percent	IMF	
Ext. Debt	External public debt (share of GDP)	Percent	Haver, BIS, IMF	
Reserves	Currency reserves (share of GDP)	Percent	Haver, IMF	
Rating: AAA/AA, A, BBB, BB, B, CCC, CCX	Sovereign credit rating		Bloomberg Finance L.P., S&P, Fitch, Moody's	Median of S&P, Fitch, and Moody's. Grades AAA and AA are combined. CCX denotes rating grades below CCC.
Comex	Dummy for commodity exporter		IMF	
EMBIG	Dummy for inclusion in JP Morgan EMBIG index		Bloomberg Finance L. P.	
IMF	Dummy for active IMF lending program		IMF MONA	Includes SBA, SCF, EFF, ECF, and respective predecessor programs. Both completed and cancelled programs.
Dollar	Dollar index (DXY)		Bloomberg Finance L. P.	
Global Growth	Global GDP growth	Percent, yoy	IMF, Consensus Economics	Forward looking weighted average using current year and 1-year forward (e.g., later in the year will place higher weight on next year). Uses consensus surveys for US and China (60/40).
VIX	Chicago Board Options Exchange's Volatility index		Bloomberg Finance L. P.	
MOVE	Merrill Lynch Option Volatility Estimate index		Bloomberg Finance L. P.	

Source: IMF staff compilation.

Table 2. The Bahamas: Summary Statistics

Variable	Observations	Mean	Standard Deviation	Minimum	Median	Maximum
			Domestic Covariates			
Spread	12639	476.6	660.2	-3.9	305.4	12481.9
GDP Growth	12639	3.6	3.0	-23.5	3.7	21.6
Inflation	12639	6.1	8.3	-2.5	4.3	201.9
Debt	12611	52.8	26.3	0.0	50.0	158.1
CA Balance	12639	-1.6	7.5	-46.2	-2.0	37.8
Ext. Debt	12619	54.4	38.8	0.0	42.9	243.1
Reserves	12639	17.6	9.9	0.0	15.5	81.8
Governance	12639	47.3	18.6	4.2	48.1	88.4
			Global Covariates			
Dollar	232	89.1	9.3	72.4	89.8	110.8
Global growth	232	4.4	1.0	1.4	4.5	6.5
VIX	232	19.4	7.6	10.1	17.0	51.9
MOVE	232	84.3	30.5	42.7	75.2	209.9

Variable	Observations	Obs. with d=1	Countries with at least one d=1	Countries with at least one d=0	Total nr of countries
			EMBIG inclusion and IMF program dummies		
EMBIG	12639	11721	68	15	73
IMF	12639	2641	40	73	73

Source: IMF staff calculations.

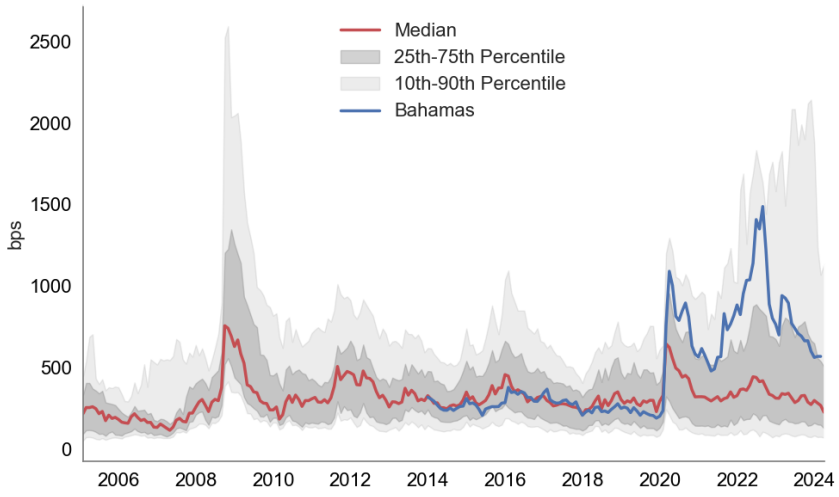
Table 3. The Bahamas: Regression Estimates

Variable	Baseline	Rating & VIX Separate	Domestic only	w/o EMBIG & IMF	with country FE	with time FE	w/ country & time FE	Baseline w/o rating	w/ c & t FE, w/o rating
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
GDP Growth	-13.23***	-14.25***	-17.12***	-13.58***	-8.71**	-13.05***	-11.29***	-18.13***	-13.67**
	(1.22)	*(1.26)*	*(1.72)*	*(1.22)*	*(3.99)*	*(3.58)*	*(3.85)*	*(1.51)*	*(5.99)*
Inflation	7.03***	6.28***	6.90***	6.78***	6.18***	6.88***	3.55***	10.57***	8.86***
	(0.47)	*(0.55)*	*(0.65)*	*(0.46)*	*(1.42)*	*(1.39)*	*(1.33)*	*(0.67)*	*(2.23)*
CA Balance	-2.70***	-2.93***	-2.82***	-2.53***	-1.32	-2.42**	-1.64	-2.43***	1.94
	(0.44)	*(0.42)*	*(0.44)*	*(0.42)*	*(1.81)*	*(1.22)*	*(1.97)*	*(0.44)*	*(1.49)*
Governance	-2.94***	-2.50***	-2.31***	-2.92***	-0.70	-3.28***	-0.59	-8.25***	-4.20
	(0.19)	*(0.23)*	*(0.26)*	*(0.22)*	*(4.07)*	*(0.87)*	*(4.25)*	*(0.19)*	*(4.63)*
Debt	0.35*	0.10	0.13	0.35**	4.76***	0.52	5.93***	2.69***	5.87***
	(0.18)	*(0.17)*	*(0.19)*	*(0.17)*	*(1.31)*	*(0.70)*	*(1.40)*	*(0.19)*	*(1.70)*
Ext. Debt		-0.01	-0.06	0.10	0.43	0.14	0.21		0.02
		(0.09)	*(0.09)*	*(0.09)*	*(1.38)*	*(0.34)*	*(1.28)*		*(1.89)*
Reserves	-4.12***	-4.14***	-3.91***	-4.08***	-3.19*	-4.53***	-3.41*	-6.37***	-3.60*
	(0.32)	*(0.27)*	*(0.30)*	*(0.30)*	*(1.86)*	*(1.36)*	*(1.87)*	*(0.31)*	*(1.92)*
Comex	-62.33***	-71.72***	-66.71***	-56.80***		-64.95**		-63.05***	
	(8.80)	*(8.38)*	*(8.48)*	*(8.99)*		*(25.51)*		*(7.55)*	
IMF	-32.76***	-37.75***	-29.73***		-47.30	-29.57	-40.69	57.60***	-16.56
	(7.91)	*(7.56)*	*(8.53)*		*(33.14)*	*(25.83)*	*(30.72)*	*(7.15)*	*(32.04)*
EMBIG	-55.80***	-54.13***	-36.07***		-98.44**	-47.66	-141.80***	-142.45***	-125.07***
	(5.70)	*(6.47)*	*(7.14)*		*(43.30)*	*(42.17)*	*(40.50)*	*(7.36)*	*(33.12)*
Global Growth	-27.97***	-23.60***		-29.29***	-34.91***			-12.91**	
	(5.62)	*(5.32)*		*(5.89)*	*(7.96)*			*(5.47)*	
Dollar		0.71		-0.38	-1.15				
		(0.64)		*(0.68)*	*(1.74)*				
VIX		9.71***						9.19***	
		(0.63)						*(0.61)*	
MOVE	1.04***	0.78***		1.04***	1.40***			1.16***	
	(0.18)	*(0.17)*		*(0.18)*	*(0.34)*			*(0.20)*	
A x VIX	0.98**			0.80*	-0.68	-1.03			
	(0.43)			*(0.44)*	*(1.48)*	*(1.88)*			
BBB x VIX	0.36			0.16	1.56	-2.12			
	(0.55)			*(0.54)*	*(1.57)*	*(1.68)*			
BB x VIX	3.94***			3.62***	4.35***	1.46			
	(0.55)			*(0.56)*	*(1.37)*	*(1.88)*			
B x VIX	15.89***			15.42***	13.03***	12.90***			
	(0.82)			*(0.83)*	*(1.96)*	*(2.56)*			
CCC x VIX	35.93***			35.65***	30.70***	32.69***			
	(1.85)			*(1.84)*	*(6.99)*	*(6.59)*			
CCX x VIX	38.94***			38.37***	37.91***	36.30***			
	(2.47)			*(2.45)*	*(9.97)*	*(9.70)*			
A		-40.50***	-2.78				-67.45*		
		(8.64)	*(8.14)*				*(39.80)*		
BBB		-43.69***	-23.93***				-105.66		
		(7.48)	*(7.87)*				*(70.04)*		
BB		30.28***	56.04***				-56.15		
		(8.66)	*(9.40)*				*(77.49)*		
B		268.48***	289.95***				84.89		
		(11.83)	*(14.04)*				*(90.57)*		
CCC		705.14***	724.16***				476.45***		
		(34.00)	*(39.09)*				*(142.17)*		
CCX		841.19***	866.27***				762.54***		
		(48.86)	*(49.03)*				*(177.21)*		
Country FE	N	N	N	N	Y	N	Y	N	Y
Year FE	N	N	N	N	N	Y	Y	N	Y
Observations	11,916	11,916	11,916	11,916	11,916	11,916	11,916	11,916	11,916
Adjusted R2	0.60	0.61	0.55	0.60	0.38	0.58	0.30	0.45	0.12

Note: *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels; standard errors (se) are robust standard errors to correct for potential heteroskedasticity

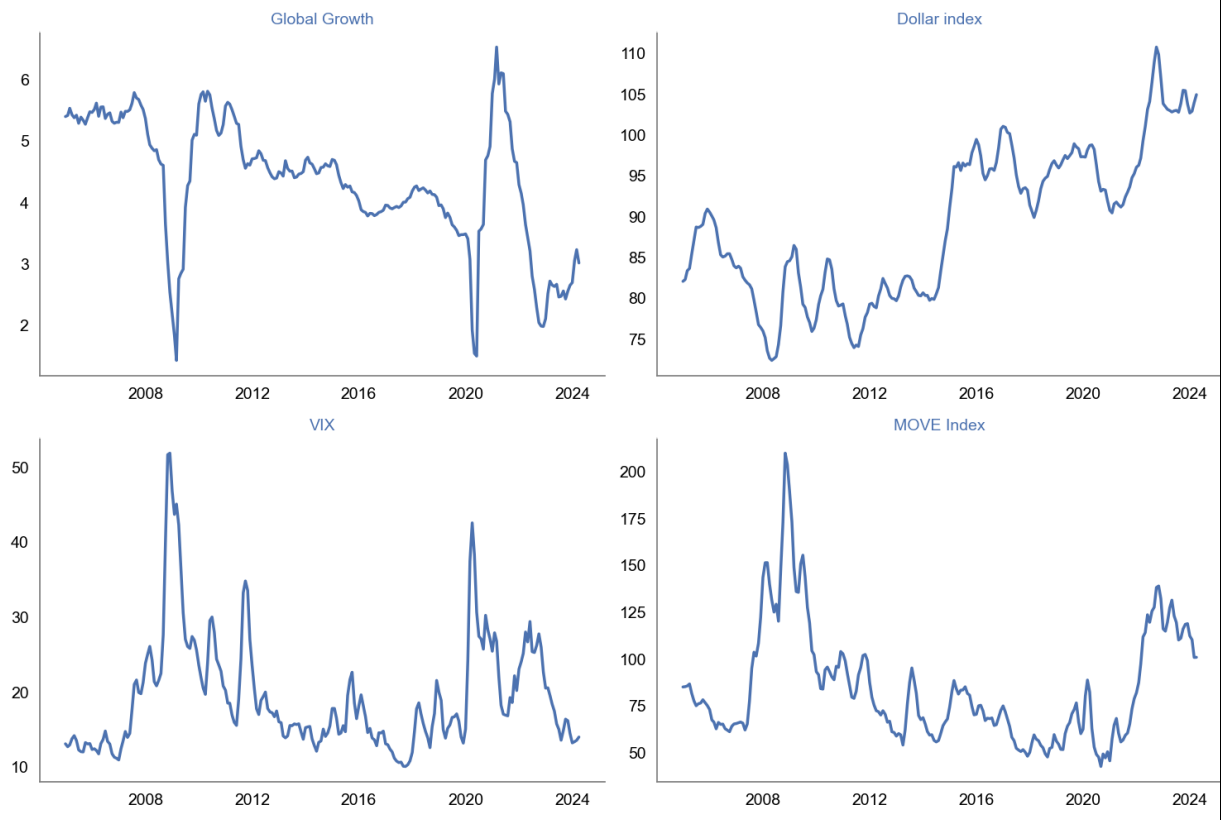
Source: IMF staff calculations.

Figure 5. Sovereign Spreads: The Bahamas and Sample Percentiles



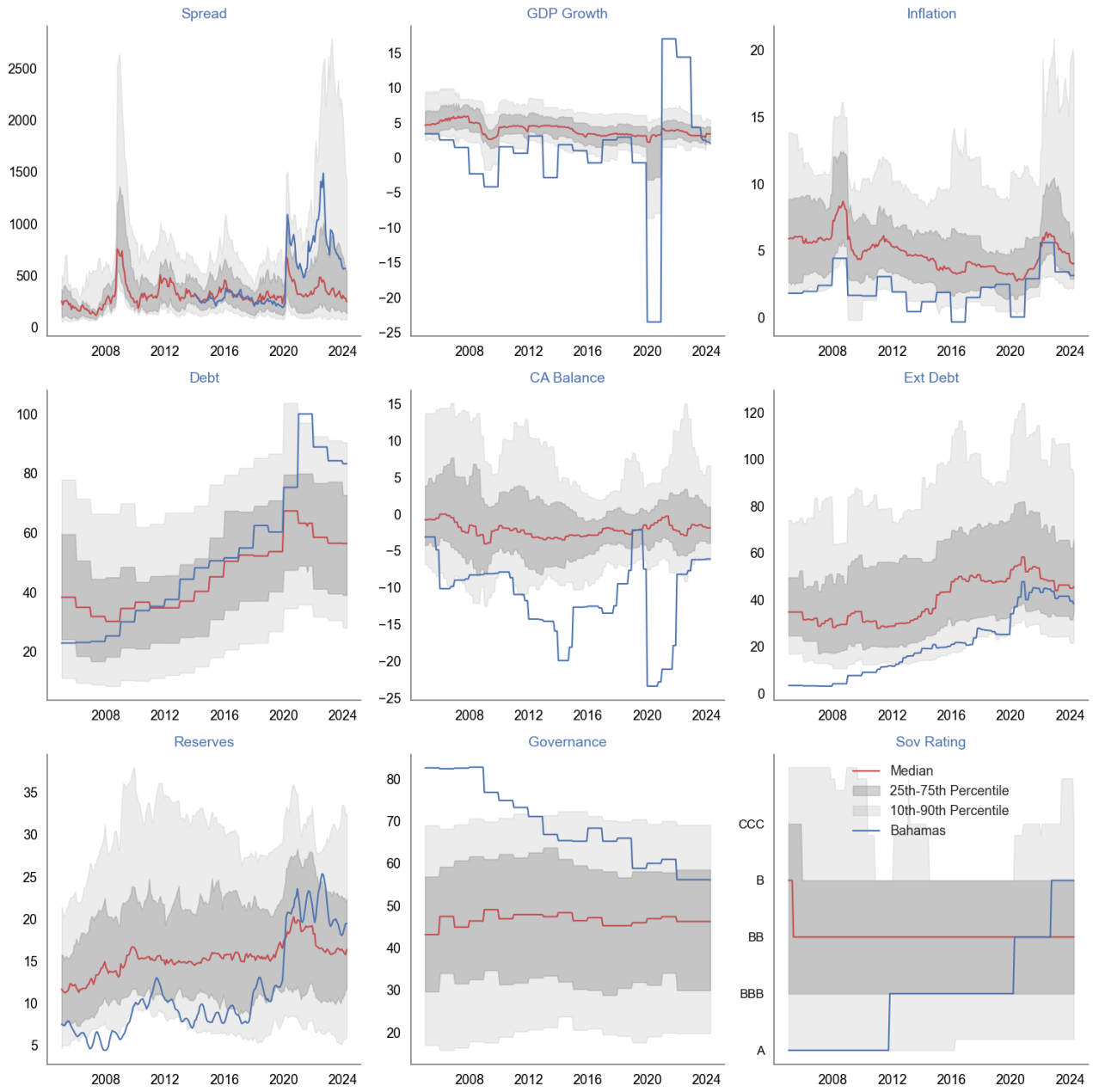
Sources: Bloomberg Finance L.P., JPMorgan, and IMF staff calculations.

Figure 6. Global Covariates



Sources: Bloomberg Finance L.P., Consensus Economics, and IMF staff calculations.

Figure 7. Domestic Covariates



Sources: Bloomberg Finance L.P., JPMorgan, Consensus Economics, World Bank, Haver, BIS, S&P, Fitch, Moody's, National authorities, and IMF staff calculations.

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ASSESSING CLIMATE CHANGE RISKS—POTENTIAL OUTPUT LOSSES AND GAINS FROM STRENGTHENING RESILIENCE[1]

The Bahamas is highly vulnerable to the effects of climate change, including gradual sea level rise, biodiversity loss, and intensifying hurricanes. Together, these challenges threaten to undermine the country's potential output over the long term by inflicting damages to physical assets and eroding natural capital, which is vital to its tourism-driven economy. Importantly, these risks are unevenly distributed with smaller islands being more exposed and sensitive than the larger, more developed ones. Addressing these disparities as well as closing economy-wide adaptation needs through investments in structural resilience can unlock large potential output gains.

A. Exposure to Sea Level Rise and Hurricanes

1. The Bahamas face significant climate change risks due to high exposure to hurricane damage, rising sea levels, and heavy reliance on tourism (IMF, 2022). The Bahamas, an archipelago of over 700 islands, is highly vulnerable to climate change, with 80 percent of its land area less than 1.5 meters above sea level. It is particularly exposed to tropical cyclones. The country has been hit by six major hurricanes and several tropical storms in the last decade, including a category 5 hurricane Dorian in 2019. The country's dependence on tourism, which contributes about 50 percent to GDP, makes it especially susceptible to the worsening effects of climate change, including more frequent hurricanes and rising sea levels.

2. Climate change will likely intensify tropical cyclones, leading to higher damages in the future. In 2019, Hurricane Dorian caused $3.4 billion in damage to physical assets, amounting to 25 percent of The Bahamas' GDP. Over the past decade, natural disasters have averaged 3.2 percent of GDP in annual damages. Climate-related disasters—such as floods, droughts, and hurricanes—are becoming more frequent and severe due to rising global temperatures and sea levels (IPCC, 2021). Acevedo (2016) projects that hurricane-related damages in The Bahamas will increase by 31 percent under 3°C warming and by 42 percent under 4.3°C. Moreover, natural protective barriers, like mangroves and coral reefs, are at risk due to sea level rise and warming water temperatures. As these ecosystems degrade, they lose their ability to buffer against increasingly intense hurricanes, potentially leading to amplified hurricane damages (Silver et al, 2019).

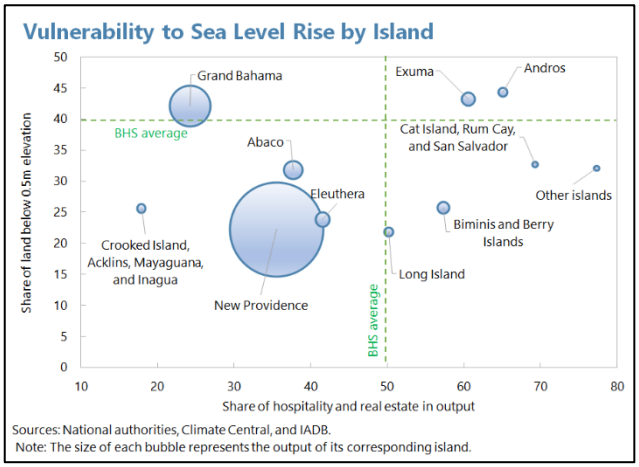
3. Climate change may severely reduce the land area of the country and undermine productivity of agriculture and fisheries. Sea levels are projected to rise by nearly 0.5 meters by the end of the century, even with strong international efforts to keep global temperatures in line with the Paris Agreement goal. Given The Bahamas' naturally low elevation, this would place about 41 percent of the land and 22 percent of the population below sea level, likely putting private assets

[1] Prepared by Zamid Aligishiev (WHD).

and public infrastructure at risk. Rising sea levels and intensified storm surges could further strain already scarce freshwater resources, posing significant challenges to agricultural productivity. Meanwhile, rising sea surface temperatures and water acidification could diminish available marine fish stocks, impacting oceanic biodiversity and food security.

4. The Bahamas, with nearly half of the Caribbean's sandy beaches and vital coral reefs and mangroves, faces significant risk. Without adaptation measures, a 0.5 m sea level rise could cause the complete loss of up to half of sandy beaches located near hotel infrastructure (Spencer et al., 2022). In addition, the inundation of mangroves and the bleaching and degradation of coral reefs would lead to a loss of biodiversity, further reducing the country's attractiveness to tourists over time. This combination of factors could lead to a gradual decline in tourist inflows if adaptation strategies are not implemented.

5. The impact of sea level rise across The Bahamas is expected to be substantial, however the degree of vulnerability will differ across islands. Islands where hospitality and real estate form a larger part of the economy are anticipated to suffer greater land loss, making them not only more exposed to rising sea levels but also more economically sensitive. While these islands (Exuma, Andros, Cat Island, and other smaller family islands) contribute only 5.1 percent of national income and 7 percent of the population, they may experience disproportionately higher income losses. These islands are also likely to have a lower capacity to adapt to climate change compared to more developed islands like New Providence and Grand Bahama.



6. Building structural resilience is a critical priority for Caribbean and Central American economies, which are particularly vulnerable to the effects of climate change. With the anticipated intensification of natural disasters and rising sea levels, adaptation policies typically involve a combination of investing in the protection of physical assets—both public and private—and relocation of exposed populations and assets to safer areas through planned retreat. According to IMF (2024), safeguarding government infrastructure from the impacts of hurricanes can bolster macroeconomic stability and improve long-term economic performance in the Caribbean and Central America.

7. For countries relying on tourism, the policy framework should also provide comprehensive strategy on protection of natural capital from the impacts of climate change. This requires a deeper understanding of how climate change will affect key elements of natural capital essential for tourism—such as coral reefs and sandy beaches—as well as how climate risks are geographically aligned with areas where tourism infrastructure is concentrated. Assessments need to evaluate the costs and benefits of protection and accommodation strategies, such as

constructing breakwaters, artificial reefs, or beach nourishment, and how these measures would affect vulnerable populations and productivity across different areas/islands of the country.

B. Quantifying Climate Risks in The Bahamas

8. Staff estimates output losses due to sea level rise and the intensification of natural disasters using a dual-pronged approach. Economic losses from intensification of hurricanes and permanent land inundation are calculated separately. They are later combined to produce total potential output losses. Importantly, this analysis does not shed light on the cost-effectiveness of different adaptation strategies (e.g., hard protection, nature-based solutions, planned retreat). However, it does translate a given risk reduction achieved through general adaptation efforts into avoided output losses.

9. Output losses from land inundation (slow onset event) are assessed using a two-sector output accounting framework that explicitly incorporates natural capital. This approach estimates public and private capital losses based on the proportion of the population exposed to sea level rise over time, while natural capital losses are approximated using projections of sandy beach erosion in Spencer et al. (2022).[2,3] These losses are then incorporated into sector-specific production functions to calculate the long-term reduction in real output levels. Nontraded output is produced using private capital, public capital, and labor inputs, which are substitutes. Traded sector is assumed to additionally rely on natural capital, which is complementary to other factors of production:

$$Nontraded: \quad Y_{NT,t} = (K^G_{t-1})^{\alpha_G}(N_{NT})^{1-\alpha_K}K^{\alpha_K}_{NT,t}$$

$$Traded: \quad Y_{T,t} = \left[\gamma(K^N_{t-1})^{\theta} + (1-\gamma)\left((K^G_{t-1})^{\alpha_G}(N_T)^{1-\alpha_K}K^{\alpha_K}_{T,t}\right)^{\theta}\right]^{\frac{1}{\theta}}$$

where $Y_{i,t}$, N_i, and $K_{i,t-1}$ are output, labor input, and physical capital for sector $i \in T, NT$; K^G_{t-1} is the stock of public capital; and K^N_{t-1} is the stock of natural capital. The input shares are governed by α_K, α_G, and γ. Importantly, θ is negative, meaning that natural capital is complementary to other factors of production in the nontraded sector. This setup assumes that firms operating in the traded sector will have difficulty substituting decayed natural capital with more labor or physical capital. Additionally, it accommodates a natural pace of adaptation and resilience of governmental assets. However, the capacity for natural adaptation and the degree of resilience differ between

[2] To remain conservative and align with the arguments presented by Davidson-Arnott and O'Brien-Delpesh (2023), the analysis assumes half of the projected sandy beach losses from Spencer et al. (2022). Furthermore, exposed physical assets are proportionate to exposed population. The analysis assumes that 50 percent of exposed assets are destroyed due to sea level rise in less developed islands and 20 percent in more developed ones. A similar assumption is made for the government infrastructure.

[3] In this approach, natural capital deterioration in the traded good sector takes place solely due to sandy beach erosion. A similar transmission channel could be at work for agrifood sector, where fish is a key export. However, insufficient data prevents calibration of this channel. The effects of introduced species on natural capital is also disregarded for similar reasons.

larger and smaller islands. Public adaptation initiatives effectively address these disparities, resulting in an improved projection of total output.

10. A Markov-switching dynamic general equilibrium model, developed by Fernandez-Corugedo, Gonzalez, and Guerson (2023), is used to evaluate the impact of recurring tropical hurricanes. This model assumes the economy switches between two states: one affected by disaster shocks and another without such shocks. A hurricane destroys a share of the country's capital stock (both public and private), which undermines economy-wide output while the capital stock is being rebuilt, through:

$$Y_t = [K_{t-1}^N]^{\omega}\left[z_t(K_{t-1}^G)^{\alpha_G}(N_t)^{1-\alpha_K}K_t^{\alpha_K}\right]^{1-\omega}$$

where Y_t is total output, K_{t-1}^N is the stock of natural capital (including land), z_t is productivity, K_{t-1}^G is the stock of public capital, N_t is the labor input, and K_{t-1} is the stock of private physical capital. The elasticity of output to various production inputs are captured by the respective parameters (ω, α_G, α_K). A key feature is the distinction between two types of public capital—standard, which is vulnerable to disasters, and resilient, which remains intact during disasters. Public adaptation efforts result in a larger share of resilient capital.

11. Both frameworks are calibrated using recent data, capturing salient features of The Bahamas' economy. Table 1 outlines the key parameter values employed in this analysis. Additionally, hurricanes inflict damages amounting to 7.3 percent of GDP per event, reflecting the average losses from past major disasters. These damages are assumed to increase in line with projections in Acevedo (2016). The probability of hurricane occurrence matches historical patterns but is assumed to remain constant with climate change. Additionally, resilient investments are estimated to cost the government 25 percent more than standard investments.

12. The illustrative analysis quantifies output losses under three adaptation scenarios.

- *Scenario 1: No adaptation.* Neither the public nor private sector takes preemptive measures to adapt to climate change. Capital losses are substantial due to permanent inundation and the repeated impact of hurricanes.

- *Scenario 2: Protection of physical assets.* The public sector invests in safeguarding people, private assets, and government infrastructure from permanent submersion through a mix of hard protection measures, nature-based solutions, and planned retreat. Additionally, the government ensures that its infrastructure is resilient to natural disasters.

- *Scenario 3: Protection of physical assets and natural capital.* In addition to the measures listed in the second scenario, the government invests in preserving natural capital through measures like

breakwater construction, coral reef and mangrove protection, and beach nourishment programs.[4]

C. Potential Output Losses from Climate Change and Benefits from Adaptation

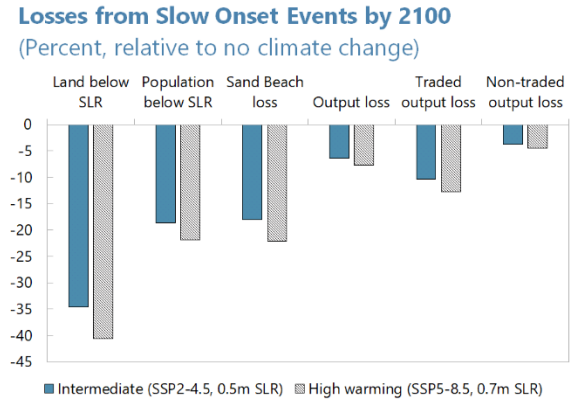
13. Over the long-term, sea level rise and natural hazards expose The Bahamas to severe losses in potential output in the *no adaptation scenario (Scenario 1)*. The effects of sequences of disaster shocks accumulate over time, weighing permanently on macroeconomic outcomes. Staff estimates indicate that the prevailing natural disaster profile reduces current potential output level by about 8 percent, relative to a counterfactual without tropical storms. These losses are projected to rise under severe global warming scenarios (Acevedo, 2016). By 2100, combined with losses from permanent inundation, the additional potential output losses could be between 8.3 percent of GDP under intermediate GHG emission scenario (SSP2-4.5) and 11.1 percent of GDP under a severe global warming scenario (SSP5-8.5). A breakdown of these losses suggests that the export-oriented traded sector is particularly vulnerable due to its heavy reliance on natural capital, like sandy beaches, coral reefs, as well as arable land and fish stocks.

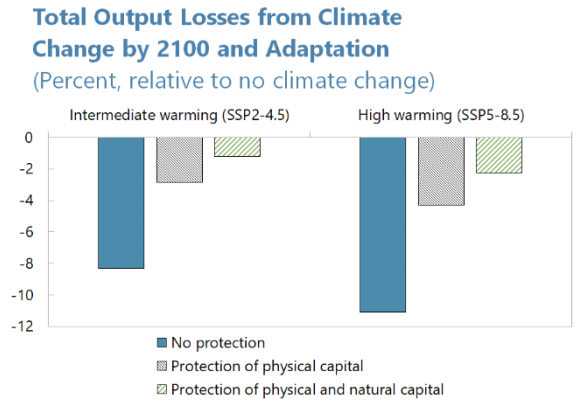
14. Investing in protecting physical assets (*Scenario 2*) partially offsets the impact of climate change on growth, but traded output losses remain sizeable. Structural resilience typically involves making public infrastructure, like roads, bridges, airport runways, and schools, climate-proof, effectively representing a shift from standard to resilient capital. These efforts also encompass building protective infrastructure, like seawalls, artificial reefs, and flood barriers, or strategically relocating vulnerable assets to safer zones. Public investment in adaptation yields a long-term increase in the level of GDP of around 5.5-6.8 percent once physical assets are secured. However, sea level rise undermines growth in the traded sector since the natural capital remains vulnerable. While the tourism sector benefits from preserving a larger average stock of physical capital, the growth dividends are limited due to the complementarities between physical and natural capital, meaning the output gains from protection are smaller if natural capital is not explicitly included in adaptation strategies.

15. Implementing adaptation measures aimed specifically to reduce exposure of natural capital (*Scenario 3*) could reduce long-run traded output losses and ease pressures on future export and fiscal revenues. Beach nourishment, such as dune restoration, along with resilient infrastructure like artificial reefs and breakwaters, can limit coastal erosion in key tourist areas by directly offsetting sediment loss and promoting natural sediment accumulation. These measures would help The Bahamas to avoid costs associated with relocating tourism-related physical assets and reduce potential output losses further, from 2.8-4.3 under *Scenario 2* to 1.2-2.3 percent of GDP

[4] To demonstrate the benefits of enhancing structural resilience, the analysis assumes that protective measures ensure 80 percent of the exposed private physical assets are safeguarded against permanent inundation. Additionally, a similar share of government infrastructure is made resilient to both permanent inundation and the effects of hurricanes. The protection of natural capital similarly assumes that 80 percent is preserved from the impact of climate change.

under *Scenario 3*, and supporting fiscal and export revenues. A comprehensive resilience building strategy could also help stabilize output during climate shocks, potentially reducing uncertainty in fiscal and foreign exchange income streams.





Source: IMF staff calculations.

Table 1. The Bahamas: Calibrated Parameters and Initial Values

Definition	Value	Definition	Value
Potential GDP growth rate	1.5	Share of traded goods in total output	40
Private investment to GDP	23	Share of domestic demand for traded output	10
Private consumption to GDP	59	Share of imported capital goods in total investment	50
Public investment to GDP	2	Share of imported goods in domestic consumption	27
Public consumption to GDP	20	Annualized (implicit) interest rate on domestic debt	4
Net exports to GDP	-4	Share of hotel rooms in New Providence and Grand Bahama	70
Share of natural capital resistant to climate change on New Providence and Grand Bahama	70	Depreciation rate of private capital	5
Share of natural capital resistant to climate change on other islands	50	Depreciation rate of non-resilient public capital	7.5
Share of exposed physical assets resilient to climate change on New Providence and Grand Bahama	70	Depreciation rate of resilient public capital	3

Sources: National authorities and IMF staff calculations.

Table 1. The Bahamas: Calibrated Parameters and Initial Values (concluded)

Definition	Value	Definition	Value
Share of exposed physical assets resilient to climate change on other islands	60	Public investment efficiency	50
Share of exposed public capital resilient to SLR on New Providence and Grand Bahama	75	Traded sector: Labor share in production	42.7
Share of public capital resilient to SLR on other islands.	30	Traded sector: Capital share in production	18.3
Share of physical capital located in New Providence and Grand Bahama	69.4	Traded sector: Elasticity of output to public capital	0.15
Traded sector: Natural capital share in the production function	39	Non-traded sector: Elasticity of output to public capital	0.15
Non-traded sector: Labor share in production	60	Non-traded sector: Capital share in production	40

Sources: National authorities and IMF staff calculations.

THE IMPLICATIONS OF THE ELECTRICITY SECTOR REFORM IN THE BAHAMAS[1]

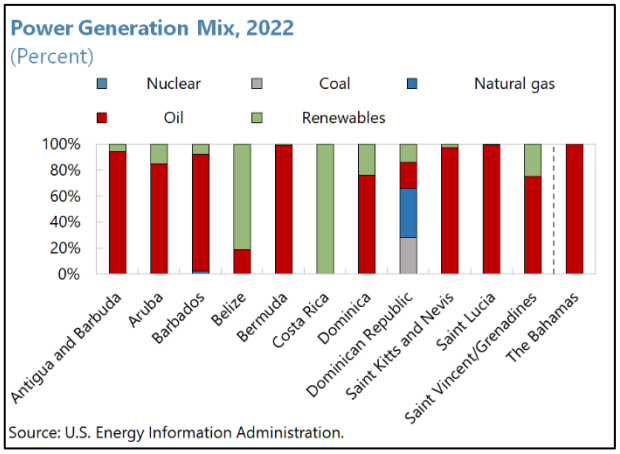
Low efficiency and reliability in the energy sector, paired with high costs, dampens competitiveness and holdups growth in The Bahamas. This chapter takes stock of the country's electricity sector and examines the potential macroeconomic impact of the government's proposed electricity sector reform that seeks to increase renewable energy and modernize transmission and distribution infrastructure. Over the medium-term, the reform has the potential to narrow the current account deficit, reduce vulnerability to commodity price shocks, boost growth, and significantly reduce CO2 emissions. However, such power projects should have a clear delineation of risk sharing between the private and public sector.

A. The Three Challenges in the Energy Sector

Challenge #1. Low Energy Security

1. Low energy security can be clustered around the pillars: (i) sustainability, (ii) elevated costs, and (iii) aging infrastructure.

2. Sustainability. The Bahamas is highly dependent on imported fossil fuels with only about 2 percent participation of Renewable Energy (RE) in the electricity mix, significantly smaller than Latin America and Caribbean (LAC) nations. For example, in 2022, the average shares of RE installed capacity in Jamaica, Barbados, Dominican Republic, and LAC were: 16 percent, 21 percent, 29 percent, and 57 percent respectively.[2] Despite the limited penetration of RE, the country has good potential for Solar Photovoltaic (PV) generation with an average solar irradiation of 5.3-kilowatt hours per square meter per day (kWh/m^2/day).[3] The energy sustainability is further exacerbated due to the dependency on imported fuel in the power and transport sectors (e.g., the use of Electric Vehicles (EV) started only recently in The Bahamas), the extensive use of rented generation using fossil fuels, and the limited use of its endogenous natural resources.



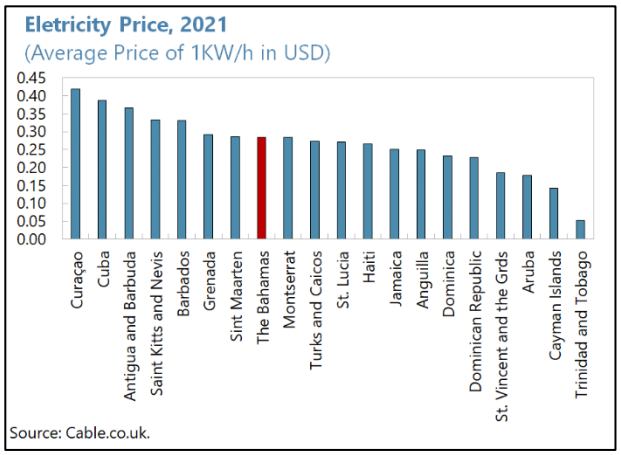
3. Elevated electricity costs. Due to inefficiencies in the transmission and distribution systems and dependence on imported diesel

[1] Prepared By Jose Luis Saboin Garcia (IDB), Beatriz Garcia-Nunes, and Shane Lowe (IMF).

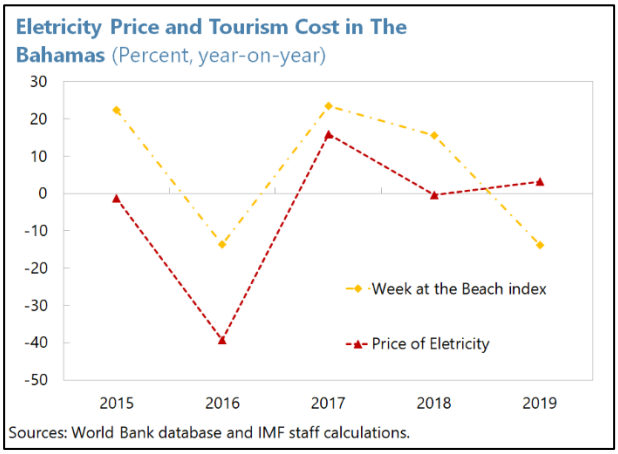
[2] OLADE, Energy panorama of Latin America and the Caribbean 2023.

[3] Solar radiation is categorized in 4 classes: irradiance higher than 4 kWh/m^2/day is very high radiation.

(twice the cost of natural gas), electricity prices in The Bahamas, at US$0.28 kWh, are above the Caribbean average of US$0.24 kWh.[4] As The Bahamas has around 30 inhabited islands and no submarine cable system for electricity transmission, the generation infrastructure has to be replicated in each island, making cost-recovery challenging for smaller islands.



- *Electricity reliability and cost is perceived by the private sector as one of the major impediments to growth.* Due to frequent power outages, off-grid self-generation is commonly used by high-income households and large resorts. More than 80 percent of firms in The Bahamas experienced power-outages in 2019/20, compared to 67 percent of firms in the Caribbean.[5] These outages happened, on average, 3 times per month in The Bahamas and created a loss of annual sales of 2.5 percent (vis-à-vis 1.7 percent in the Caribbean).



- *High electricity costs erode domestic disposable income and dampen competitiveness.* Oil price increases directly impact headline inflation through higher electricity costs (fuel surcharge) and higher transportation costs. Low energy efficiency and low penetration of renewable technologies make the country more vulnerable to international shocks and less competitive vis-à-vis other tourism destinations.[6]

4. Aging infrastructure. The country's Transmission and Distribution (T&D) system (e.g., transmission lines, substations, and transformers) has not kept pace with the increasing demand and required maintenance needs. Some transformers and substations are more than 50 years old. Therefore, it stands in need of investments to: (i) enable higher participation of RE in the electricity grid; (ii) introduce resilience to protect and mitigate against extreme weather events, considering the

[4] Ericson, Sean, and Dan Olis. 2019. A Comparison of Fuel Choice for Backup Generators. Golden, CO: National Renewable Energy Laboratory.

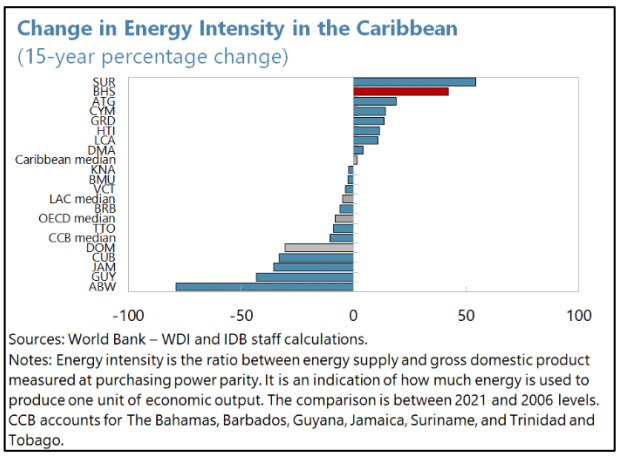
[5] IFPG Platform (competecaribbean.org)

[6] The "Week at The Beach index" is used to measure competitiveness of the tourism sector. The index measures the average cost of a 7-day-stay at a beach destination, excluding travel costs. The index is a simple average of quoted hotel rates from Tripadvisor, and over 80 million crowdsourced data points on meals and beverages from Numbeo. The index ranges from 2014 to 2023. Numbeo is a crowd-sourced cost of living database.

country's vulnerability to hurricanes and sea level rise; and (iii) improve the reliability of the grid.[7] The challenge of aging infrastructure has become more visible as the Government of The Bahamas (GOBH) has launched a Request for Proposals (RFP) to attract private sector investors to install RE generation, and these installations will require large investments in T&D systems. Moreover, there is the need to modernize the customer interface with the deployment of digital solutions, smart meters, and automated customer interface communication protocols. Digitalization can improve productivity, accessibility, and sustainability of energy systems by reducing operations and maintenance costs, enabling Demand Side Management (DSM), improving power plant efficiency, reducing unplanned outages, and extending lifetime of assets.[8]

Challenge # 2. High Energy Intensity

5. In contrast to that of the regional peers, the energy intensity in The Bahamas has increased over time.[9] The country had an energy intensity of 2.87 Mega Joule (MJ) per 2017 USD Purchasing Power Parity (PPP) GDP in 2021.[10] This amount has increased by 42 percent over the last 15 years. In contrast, countries in LAC and in the Organization for Economic Co-Operation and Development (OECD) regions have *decreased* their energy intensity by 8.2 percent and 5.0 percent over the same period, respectively. The Bahamas lacks a specific Energy Efficiency (EE) policy, and there is a large untapped potential for EE gains in the country, as EE can provide the same or better service using less energy. EE encompasses: (i) cost-effectiveness, as it can contribute to meet affordability; (ii) supply security, as it would reduce energy imports; and (iii) an enabler of climate goals, as it would reduce emissions.



Sources: World Bank – WDI and IDB staff calculations.
Notes: Energy intensity is the ratio between energy supply and gross domestic product measured at purchasing power parity. It is an indication of how much energy is used to produce one unit of economic output. The comparison is between 2021 and 2006 levels. CCB accounts for The Bahamas, Barbados, Guyana, Jamaica, Suriname, and Trinidad and Tobago.

Challenge # 3. Limited Institutional Capacity

6. The third challenge is the limited institutional capacity in the sector. Before the creation of the Ministry of Energy and Transport (MET) in 2024, the energy sector was largely managed by

[7] The subject of resilience and Climate Change (CC) adaptation require special attention as The Bahamas is vulnerable to the impacts of CC and sea level rise. The country is considered one of the most vulnerable countries in LAC to natural hazards. Due to its archipelagic nature, its landmass is considered as coastal zone, with approximately 80 percent within 5ft. of mean sea level. The Bahamas is experiencing an increase in the frequency and intensity of tropical cyclones and hurricanes and recorded four high intensity events between 2015 and 2019. The Bahamas has experienced a steady increase in its average annual temperate over several decades, and projections show that average daily maximum temperature is likely to increase by 2.0°C by 2050. (Bahamas Second National Communication to the United National Framework Convention on Climate Change – UNFCCC).

[8] International Energy Agency (IEA) 2017. Digitalization and Energy. Digitalization and Energy – Analysis - IEA.

[9] Energy Intensity: indicates a high price or cost of converting energy into GDP.

[10] World Bank Development Indicators.

the Ministry of Public Works. The Utilities Regulation & Competition Authority (URCA) is the independent regulator and competition authority. URCA's powers and functions were set out in the Electricity Act 2015, which includes the faculty to issue licenses and regulations.[11] A feature of this previous institutional set up was limited integrated energy planning and coordination to streamline energy infrastructure investments and prioritize RE and resilience. It is expected that with the recent creation of the MET, the new ministry and associated agencies will consolidate the activities of the energy sector over time (previously fragmented across different entities). The MET, however, will need to rapidly build institutional capacity and strengthen its governance structure to manage and modernize the energy sector. As the GOBH advances the partnership with the private sector for the deployment of RE, there is the need to build internal knowledge to negotiate and manage Power Purchasing Agreements (PPAs).

B. The 2024 Electricity Reform Plan

7. The GOBH has started a large transformation in the energy sector to improve energy security (sustainability, affordability, and resilience). In 2022, the country submitted its updated Nationally Determined Contributions (NDCs) reaffirming its aim towards: (i) 30 percent reduction of GHG emissions compared to its Business-as-Usual scenario by 2030, (ii) 35 and 15 percent of vehicle purchases in electric and hybrid respectively, and (iii) at least 30 percent of renewables in the electricity mix by 2030.

8. In 2024, the GOBH announced a comprehensive electricity sector reform, aiming to repair the T&D, partially replace heavy-oil energy production with natural gas (LNG), and expand renewable energy production. The Bahamas Power and Light Company Ltd (BPL), a state-owned enterprise that currently provides electricity to all islands of The Bahamas except for Grand Bahama (Box 1), will enter into Power Purchase Agreements (PPA) with independent power producers and solar providers in New Providence and the Family Islands.[12] The MET anticipates that these reforms will reduce the energy production cost to 22.5 cents per kWh, potentially saving up to $170 million annually, and will not require direct financing from the central government. The reforms, expected to be completed by December 2025, include four components:

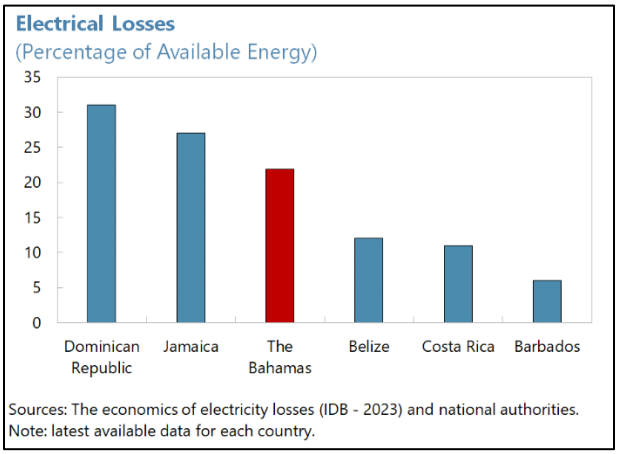
- *30 percent renewable energy target by 2030 and 120 MW of solar energy*. This will be achieved through building of 50MW utility-scale power plants in the Family Islands and expansion of existing solar projects (target of 70MW of solar energy generation with 25MW used to charge existing batteries) in New Providence. All the independent power producers selected/to be selected are required to have at least 50 percent Bahamian ownership.

[11] The Electricity Act 2024 also includes provisions for UCRA to issue licenses and regulations.

[12] A Power Purchase Agreement (PPA) in the energy sector is defined by the U.S. Department of Energy as an arrangement in which a third-party developer installs, owns, and operates an energy system on a customer's property. The customer then purchases the system's electric output for a predetermined period. This arrangement is commonly used for renewable energy generation.

- *Integrating LNG into the energy production.* BPL, through a PPA with a local company, will convert diesel electricity generation systems to LNG and build a combined cycle LNG plant in New Providence.

- *Modernization of T&D in New Providence.* BPL currently faces significant technical losses (12.3 percent of the electricity produced) and commercial losses (9.6 percent of electricity generated is unbilled). To modernize the T&D infrastructure, BPL entered a joint venture partnership with an American company to raise the estimated $130 million needed for the upgrades and create a Special Purpose Vehicle (SPV) named Bahamas Grid Company Ltd. BPL will own 40 percent of the SPV shares and will be responsible for billing and revenue collection from electricity bills. The SPV will allocate .0025 cents per Bahamian dollar of its revenue to pay down legacy debt and another .0025 cents to a hurricane fund for use in the event of natural disasters in New Providence.



- *Rate adjustments to benefit low-income households.* A progressive rate adjustment was implemented in July 2024. The fuel charge tariff was reduced by 2.5 cents for the first 800 kWh of electricity consumed and increased by 1.5 cents for usage above 800 kWh. According to the MET, this adjustment should benefit 58 percent of residential consumers and 56 percent of regular commercial consumers. Additionally, no base rate will be charged for the first 200 kWh used by residential consumers. However, the commercial base tariff will rise from 8.7 to 10 cents per kWh for the first 900,000 units and from 6.2 to 9 cents per kWh for usage above 900,000 kWh.

Box 1. Bahamas Power and Light (BPL)

Background. The MET has the overall responsibility of the energy sector in The Bahamas and oversees the government owned public utility BPL, which is a vertically integrated utility company.[1] BPL operates 29 plants with a total generating capacity of 532 Megawatts (MW) and serves 115,000 customers. BPL was established by the Electricity Act of 2015 and has operational autonomy with its own Board of Directors. The electricity sector is regulated by the Utilities Regulation & Competition Authority (URCA).

[1] BPL is from a legislative perspective a fully owned subsidiary of Bahamas Electricity Corporation (BEC), whose sole shareholder is the Government of the Bahamas.

Box 1. Bahamas Power and Light (BPL) (Concluded)

The last audit report by URCA states that BPL lacks a cost-effective generation and system plan, despite having opportunities to lower its generation costs.[2] Fuel constitutes over half of BPL's operating expenses. In New Providence, the dispatch process does not fully adhere to a merit order due to challenges with handling heavy fuel oil and obligations with independent power producers. Additionally, BPL needs an estimated USD 500 million to refurbish and replace its aging generation, transmission, and distribution infrastructure. About 10 percent of substations require replacement, and another 10 percent need upgrades or repairs. Benchmarking reliability indicators shows that BPL customers experience more frequent interruptions compared to other utilities, though these interruptions are shorter in duration. According to the URCA audit, reliability has improved since 2021 but still falls short.

BPL has been operating at a loss since 2022 and has a large stock of debt. Its net profit margin was -20 percent and -24 percent in FY2022 and FY2023, respectively. Since FY2017, BPL's net profit margin has averaged -2 percent. The URCA audit highlighted that BPL's debt service coverage ratio has been negative for the last 2 years, reaching as low as -8.8 in 2022 and -2.5 in 2023, driven in part by a large stock of debt.

BPL does not have forward-looking and automated financial planning and management processes. BPL has a 100-day strategy plan (as of November 2023), but it does not include details and specificity. This makes it difficult to project capital expenses accurately, develop a strategy to optimize asset utilization, and makes risk management and planning reactive rather than preventative.

BPL's operation in the Family Islands is small, outdated, and relatively inefficient. According to the Utilities Regulation & Competition Authority, the average age of generation units in the Family Islands is 23 years, more than double the average age of units in New Providence (10 years).[3] Continuous generation has been difficult in these areas due to skill and capital shortages and the overburdened staff. Exploring generation options on some Family Islands could help cut costs. Hybrid systems combining solar, battery storage, and diesel could potentially power entire islands more economically than using oil.

Although effective metering and billing and processes are in place, BPL can improve in ensuring timely payment from customers. Compared to benchmarked utilities, BPL's customers take longer to pay. BPL's average collection period is 135 days, an increase of 45 percent since 2017. Moreover, collection from government customers is much lower compared to other customer categories. BPL does not enforce disconnection and arrears control process on government customers, which has led to receivables from government customers of about USD 89 million.

[2] URCA Audit of the Performance and Organizational Maturity of Bahamas Power and Light (Efficiency Audit). 30 July 2024.

[3] Utilities Regulation & Competition Authority 2023 Annual Report and 2024 Annual Plan (URCA 2023 Annual Report and 2024 Annual Plan - URCA Bahamas).

C. The Macroeconomic and CO2 Emission Effects of the Reform

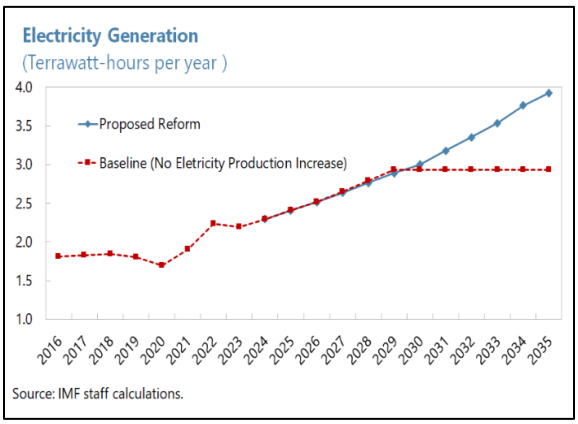
9. The macroeconomic impact of the energy transition aspect of the reform is estimated using IMF's Renewable Energy Balance of Payments (RE-BOP) tool.[13] The RE-BOP determines the marginal impact of a shift in energy production toward renewable energy on the Balance of Payments and electricity sector CO2 emissions. The RE-BOP uses a detailed power sector accounting framework (Box 2). The model uses staff's baseline and reform electricity generation scenarios, assumptions on the size of investment and sources of financing required in each scenario, and

[13] Ungerer, C., Sridar, T., and Versailles, B. (2024, forthcoming) "Towards assessing the impact of the renewable energy transition on the balance of payments", IMF Working Paper.

calibrated parameters as inputs. The outputs from the RE-BOP, namely investment, imports, and interest payments, are then used to determine the first-round effects on real GDP growth, keeping other variables the same as the baseline.

10. The analysis considers three scenarios for future energy transition. These scenarios assume that electricity production capacity does not fall below its current capacity and requires sufficient investment to offset annual depreciation. All investments in electricity production are financed equally by foreign and domestic capital.

- *Under the baseline scenario*, investment in electricity production is limited to maintaining the current stock of diesel generation assets. Electricity production grows in line with projected electricity demand, which in turn depends on baseline real GDP growth and the expected average temperature up to 2028.[14] Production does not increase after reaching the existing infrastructure's capacity and stabilizes at 2.9 tWh/year from 2029. Renewable energy generation remains unchanged at 2 percent of total electricity in the medium-term.



- *The reform scenario* assumes that the authorities transition to a target electricity generation mix of 30 percent solar energy, 50percent LNG, and the remaining 20 percent produced with diesel by 2030, with initial investments beginning in the latter half of 2024. Investment in electricity production is sufficient to replace both depreciating assets and to accommodate increased electricity demand. Consequently, electricity production grows in line with baseline electricity production and the average temperature, reaching 3.8 tWh/year by 2034.

- *In an oil-based reform scenario*, the estimated increase of electricity demand beyond the current capacity is met solely by investing in new diesel infrastructure. The electricity production mirrows the production under the "reform scenario", growing with baseline electricity production and the average temperature.

[14] Average temperature projections are in line with SSP3 for The Bahamas (Bahamas, The - Mean Projections Expert | Climate Change Knowledge Portal (worldbank.org)). The average temperature is included when estimating electricity demand due to the intensive use of air-conditioning in the country.

Box 2. The BOP Impact of the Renewable Energy Transition in Electricity Generation[1]

Driven by climate policies and technological advances, solar and wind electricity generation are reshaping national power systems and, as such, are dynamic pillars of the global energy transition. The IMF has developed an excel-based tool to help quantify some of the macro-economic effects of this transition, in particular balance of payments (BOP) effects. The tool maps current, capital, and financial account flows based on a country's renewable energy investment strategy. The results can then also be used to support discussion regarding other macro-economic aggregates.

The tool's assessment starts from (quantitative) power sector targets for solar and wind technology deployment, which are often published in a government's climate mitigation or power sector strategies. Once the projected composition of national electricity generation under a target scenario is established, energy conversion factors under each scenario are then used to estimate: (i) the annual investment cost in new electricity generation capacity through renewables, (ii) the annual cost related to the remaining share of fossil fuels in electricity generation, and (iii) the total annual cost of electricity generation. These projections can then be mapped into the BOP as follows:

- *Trade balance:* Under the target scenario, faster growth of investment in solar and wind electricity generation capacity results in higher near-term imports of goods and services and lower medium- to long-term net fossil fuel imports.
- *Capital/financial account and primary income balance:* Some of the investment in electricity generation capacity under the target (or baseline) scenario will most likely be financed externally (e.g., debt, equity, or grants), which will be recorded as foreign inflows in the capital/financing account. (The only instance where this would not be the case would be if: (i) all equipment for the installation of renewable energy (solar, wind) is produced domestically (i.e., nothing is imported), and (ii) all of this is financed through the domestic financial markets). Eventually, this foreign financing will require a combination of dividend, interest, and debt amortization payments (unless debt is refinanced) which are recorded as outflows in the financial account.

The net BOP effects will vary by country and could impact other macro-economic aggregates. For instance, the import content of renewables' investments may be larger in countries with less capacity to domestically produce and service the relevant equipment; and the financial account impact will depend on the share of foreign-financed investment, where it would also be important to account for any associated increased government borrowing (domestic or external). Meanwhile, investments in solar and wind electricity generation could partly replace on-going (or planned) new investments in fossil-fuel-based technologies. However, in some cases, this could result in a premature stranding of fossil fuel assets, affecting the financial sector.

The tool helps to determine the BOP impact of the transition towards a higher share of renewables generation. It does not, however, assess the technological and temporal feasibility or the implied capacity needs of the renewable energy target in a given country. For this, a more detailed analysis of the power sector would be needed and other tools (e.g., the WB/IMF Climate Policy Assessment Tool or CPAT) need to be used to assess whether existing sectoral policy packages are adequate to achieve the targeted electricity generation mix.

Policy recommendations will ultimately depend on placing the BOP impact suggested from this tool in the context of other developments across the economy as determined within a country's macroeconomic framework.

[1] Prepared by Christoph Ungerer, Tarun Sridhar, and Bruno Versailles (all IMF).

Table 1. The Bahamas: Assumptions on Major Parameters for RE-BOP Model

		Baseline	Proposed Reform	Oil-based Reform
Current Electricity Mix	Solar	2%	2%	2%
	LNG	-	-	-
	Petroleum (liquids and coke)	98%	98%	98%
Eletricity Mix by 2035	Solar	2%	30%	2%
	LNG	-	50%	-
	Petroleum (liquids and coke)	98%	20%	98%
Total Electricity Generation by 2035 (tWh/year)		2.9	3.9	3.9
Amounts of fossil fuel used to generate a kilowatthour (kWh)	LNG (Mcf/mWh)	7.3	7.3	7.3
	Petroleum (liquids and coke) (BOE/mWh)	1.9	1.9	1.9
Depreciation: Installed Capacity	Solar	4%	4%	4%
	LNG	3%	3%	3%
	Petroleum (liquids and coke)	4%	4%	4%
Capital cost per gross new installed capacity (2024, mUSD/MW)	Solar	3.5	3.5	3.5
	LNG	1.8	1.8	1.8
	Petroleum (liquids and coke)	3.7	3.7	3.7
GHG emissions from electricity generation (Mln metric tons of CO2)	LNG	0.1	0.1	0.1
	Petroleum (liquids and coke)	0.4	0.4	0.4
Investment Import Share		80%	80%	80%
Financing Source	Domestic	50%	50%	50%
	External	50%	50%	50%

Sources: National authorities, IDB, and IMF staff estimates.

11. The authorities' proposed reform is likely to strengthen The Bahamas' external position and boost real GDP growth over the medium-term.

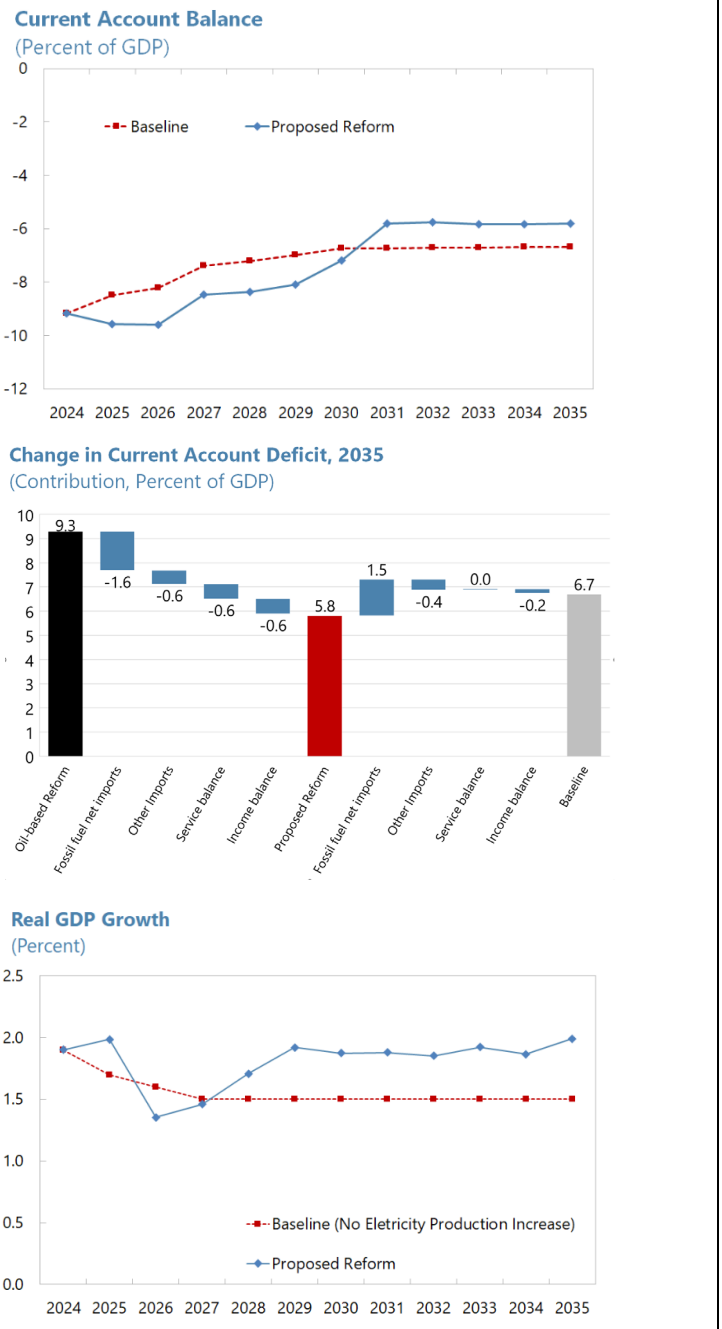
- *Under the baseline, the current account deficit narrows over the medium-term, but remains around 7 percent of GDP.* Imports continue to rise in line with stronger domestic demand, but this effect is partially offset by falling international fuel prices over the medium-term. Nevertheless, fuel imports are projected to average around 5.5 percent of GDP.[15] Real GDP growth remains unchanged at 1.5 percent over the medium-term, with the assumption that, with

[15] Fuel imports include propane, motor gasoline, aviation gasoline, kerosene, bunker "C", oil, LNG, and lubricants.

the current infrastructure, electricity capacity will reach its potential by 2028 and stagnate at around 2.9 terrawatt-hours per year.

- *Under the reform scenario, the current account deficit widens in the near-term from new investment in solar energy and LNG electricity generators but narrows substantially in the medium-term due to less imports of oil.* New investments required to increase the capacity and shift the mix of electricty generation increase imports of both equipment and services in the near-term, and combined with higher interest payments on foreign financing, widen the current account deficit relative to the baseline. However, from 2026 onward, the current account deficit narrows, as the shares of renewable energy and LNG production increase and the volume of oil imports falls. With a eletricity generation mix of 50 percent of LNG, fuel imports are expected to fall to 4 percent of GDP. Consequently, the current account deficit narrows relative to the baseline by 2031, and remains smaller thereafter. The surge in new investments in the electricty sector (net of imported inputs and other imports of goods and services) boosts real GDP growth

Text Figure 1. Projected Macroeconomic Impact



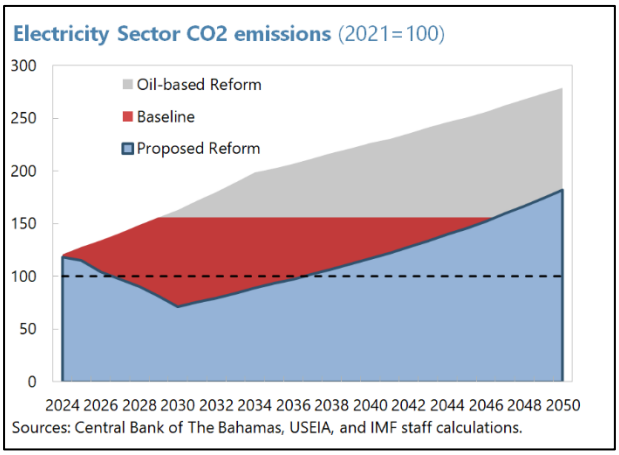
Sources: IMF staff calculations, Ministry of Energy and Transport, and IDB.

over the medium-term – by 2035, real GDP growth rises by 0.5 percentage points relative to the baseline.[16,17]

- *Under the oil-based reform scenario, the current account deficit jumps to more than 9 percent by 2035.* This reflects the increase of oil and investment imports.

12. The macroeconomic assessment considers only the first-round effects of the electricity sector reform. A larger positive impact on economic growth could arise from improvements in total factor productivity (TFP), lower domestic costs, and an increase in foreign investment beyond what is needed to complete the reform and maintain the new and existing infrastructure. On the other hand, the impact could be lower if there is weaker-than-expected execution and potential crowding-out of private sector investment due to investments in the electricity sector.

13. The proposed transition to solar energy and LNG can help The Bahamas to achieve its climate mitigation goals. Under the proposed reform, CO2 emissions from the electricity sector are expected to fall to 45 percent of those projected under the baseline by 2030. In cumulative terms, from 2024 to 2050, CO2 emissions from the electricity sector under the proposed reform scenario and the oil-based reform scenario reach 47.4 and 91.5 metric tons, respectively.



D. Fiscal Risks

14. Private sector investment can be a critical element in advancing energy sector reform, particularly in highly indebted countries. The cost of investing and maintaining infrastructure in the power sector may be difficult for governments with high debt and limited fiscal space, creating an opportunity for private sector participation. In the case of The Bahamas, high public sector debt, large gross financing needs, and elevated borrowing costs have lessened fiscal space and kept capital expenditure and capital transfers below 2½ percent of GDP over the past three years. Partnering with the private sector can also help the authorities to increase capital expenditure to their target of 3½ percent of GDP by 2025/26, while allowing space for investment in other priority areas.[18] The efficiency and execution of infrastructure projects can also benefit from the private sector's experience and expertise.

[16] Staff estimates the impact of new investments (net of imported inputs) on real GDP by deflating nominal GDP under the reform scenario by the deflator assumed under the baseline.

[17] The results are robust to a scenario where the increased real GDP growth boosts electricity production.

[18] The Bahamas 2024 Fiscal Strategy Report.

15. Access to affordable financing by private sector investors is a prerequisite for a successful Public Private Partnership. In small states, this may require a credible private partner with a strong reputation and governance structure and the financial capacity to make an equity injection into the project to reduce borrowing costs. In this regard, ensuring that the selection of private partners follows a transparent and competitive bidding process is important. This should include the publication of agreed contracts and beneficial ownership information of all private entities involved in the project.

16. Maximizing the gains from electricity reform through public private partnerships (PPPs) requires robust institutional frameworks that support private sector participation but minimizes fiscal risks. Reaping the benefits of private sector investment requires a predictable business and regulatory environment. A low-risk, regulatory environment with a clearly defined vision and rules supports competitive bidding and private sector participation. Ensuring that the risks are shared equitably between the private and public partners is critical to incentivizing the private sector to minimize cost overruns and fiscal risks. Moreover, the respective roles and responsibilities of the private sector and government should be clearly defined, in order to minimize disagreements and project execution risks.

17. An appropriate pricing mechanism is necessary to incentivize private sector participation and to ensure that the reform's gains are passed onto consumers. Transparently negotiated tariffs should be sufficiently high to cover operational costs and the debt service from new borrowing as well as to offer an appropriate financial return to encourage private investment. However, negotiating power purchase agreements which yield very little reductions in energy prices will likely not produce the positive impetus to productivity and competitiveness that is required to boost growth and reduce prices.[19]

18. Notwithstanding the potential benefits of private investment in the power sector, PPPs are not without risks, particularly to public finances. Explicit government investments or implicit government guarantees may increase the public sector's actual or contingent liabilities, due to cost overruns or should project execution fail. Moreover, because financial commitments associated with PPPs are often not publicly disclosed or incorporated into many governments' fiscal accounts, these risks can often materialize suddenly, creating sometimes large and unexpected financing needs.

[19] McIntyre and others, 2018.

Box 3. Public-Private Partnerships in The Bahamas

The IDB, in conjunction with The Economist Intelligence Unit (EIU), has developed The Infrascope, a benchmarking tool to evaluate the environment for Public-Private-Partnership development in its 26 member countries.[1]

The 2023/24 edition of the report identified three critical barriers for PPP development in The Bahamas:

- **Project preparation.** The report emphasizes the importance of carrying pre-feasibility and feasibility studies. There is a need to establish project preparation facilities and provide project preparation support.
- **Structure and sources of financing and access to capital.** The availability for financial instruments for PPPs is starting to develop in the country. In particular, the authorities will benefit from more knowledge dissemination of how these structures work (e.g. project bonds, sustainable financing, institutional investors).
- **Performance evaluation and impact.** Difficulties to evaluate the performance and the results of projects and their consequent impact on the objective populations.

These and other barriers can be surpassed by:

- **Creating a need-based PPP long-term pipeline.** Planning is essential for PPP development, including first identifying the sectors where PPPs are more idoneous and then prioritizing within the identified sectors. This requires substantial dialogues both intra- and inter- public sector as well as with private investors.
- **Creating and strengthening a PPP institutional framework.** Defining the rules of the game is essential for private sector involvement. In the case of The Bahamas, there is no PPP dedicated agency and no PPP registry. The recent PPA agreement could be a first step to initiate the creation of a national agency.
- **Leveraging other examples for private sector financing and partnering with international financial institutions.** Recent private sector investments, financed through equity investments by local Bahamians, can serve as an example of accessing long-term domestic financing for PPPs. Moreover, leveraging the relationships with IFIs on key projects can support both ex-ante and ex-post impact assessments and facilitate knowledge transfer in performance evaluation.

[1] The Infrascope Index is a tool used to benchmark how well countries can implement sustainable and efficient PPPs in critical infrastructure areas like energy, water and sanitation, solid waste management, transport and social infrastructure. Its goal is to assist policymakers in identifying obstacles to private-sector involvement in infrastructure, which, if addressed, could enhance the effectiveness of PPPs and advance broader development goals.

19. While fiscal risks cannot be completely eliminated, governments can put in place measures to minimize their occurrence and costs. Irwin and others (2018) highlight several approaches to limiting the buildup of risks. These include:

- *A leading role for the Ministry of Finance as reviewer of the PPP proposal at various stages of a "gateway process"*. This includes reviewing the project's proposal before it has gathered political momentum and granting approvals where necessary.
- *Clearly defining the risk-sharing agreement*. The risks to be borne by each party in the PPP should be clearly defined. As much as is practical, the public sector should take on only risks over which it has control or exerts some influence and has the capacity to manage that risk (e.g., Jamaica), with

partial guarantees possible in cases where all partners choose to share risks.[20] This is made easier with the introduction of PPP laws or standardized contracts.

- *Ensuring accountability for participating entities*. Executing agencies should be accountable for their roles and the management of risks in the project cycle. However, this requires that they be provided with sufficient autonomy to manage those risks.

- *Clearly define who has the authority to make payments* to permit the government to make timely and legal payments to contractors.

- *Imposing limits on the scale and scope of the PPP program*. This can include annual limits on the size of PPP payments, constraints on the size of new commitments or guarantees made during the year, or ceilings on the size of outstanding PPP commitments. Alternatively, in the past, some governments (e.g., New Zealand) have opted to treat PPPs as budgetary expenditure (subject to the applicable accounting rules), with the commensurate impacts on public sector debt. The latter approach has the effect of improving the transparency of PPPs and improves the government's capacity to manage the costs and risks of the projects.

20. The authorities have attempted to mitigate the risks of the PPP for the announced reforms in a number of ways. The fiscal risks associated with the electricity sector reform appear to be limited, with the Ministry of Finance playing a central role in the negotiations of the proposed reform and with the government not granting any guarantees to private sector participants. The authorities have also announced that some of the PPAs between the government and the private sector are expected to include key performance indicators for the private participant, which allows for penalties to be imposed should the relevant parties fall short of meeting their agreed performance commitments.[21]

E. Conclusion

21. Improving the reliability and cost of electricity generation and configurating towards renewable energy sources could boost long-term growth, narrow external imbalances, and reduce CO2 emissions. The proposed electricity sector reform seeks to shift the mix of electricity generation to 30 percent solar energy and around 50 percent LNG by 2030, modernize the transmission and distribution of electricity, and reduce the cost of electricity for low-income households. Using the IMF's RE-BOP tool, staff estimates that successful implementation could lift real GDP growth by 0.5 percentage points by 2035. Moreover, after the initial investments to modernize the grid are completed, the transition to renewable energy and LNG would reduce the demand for imported fossil fuels, narrow the current account deficit, and reduce The Bahamas' CO2 emissions from the electricity sector over the long-term.

[20] https://dbankjm.com/services/ppp-and-privatisation-division/public-private-partnerships-ppp/regulatory-frame-work/

[21]

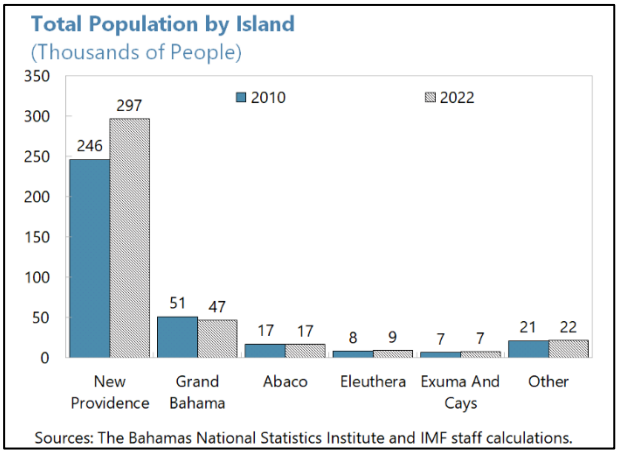
22. Effectively managing fiscal risks is important to maximize the returns to the proposed electricity sector reform and minimize the impact of PPPs on public finances. While private sector investment in the electricity sector is welcome—including where fiscal space is limited—PPPs, particularly those including central government guarantees, are not without risks to public finances. Ensuring a leading role for the Ministry of Finance at each stage of the project, clearly defining the roles and the equitable sharing of risks between private and public entities and enforcing limits on the size of the guarantees granted to the private sector are key to minimizing these risks. To this end, the transparent and competitive selection of experienced private sector counterparts with strong financial buffers and the capacity to attract private capital would help to minimize costs and reduce the risk of unnecessary public sector intervention.

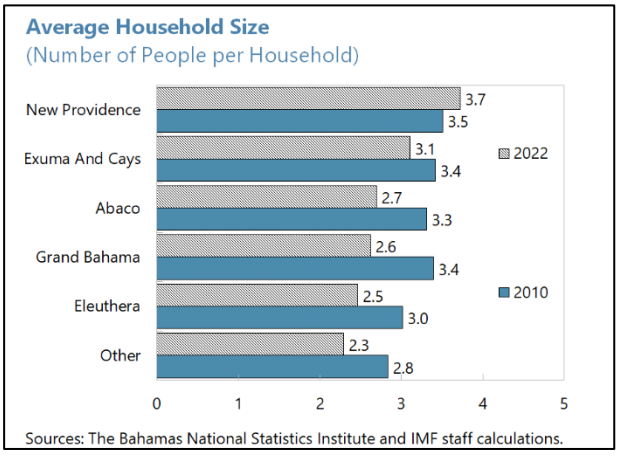
HOUSING AFFORDABILITY IN THE BAHAMAS[1]

Though the population in The Bahamas has expanded swiftly since 2010, the stock and affordability of new housing has not kept pace due to limited wage growth and financing constraints. This chapter takes stock of recent trends in the residential housing market in The Bahamas and discusses the potential drivers of reduced housing affordability. The authorities have taken various initiatives (guaranteed loan programs, construction of public rental units) to alleviate housing shortages. However, there is room for additional public spending in housing. Easing access to credit for residents would also support increased homeownership.

A. Background

1. The Bahamas' population has increased sharply since 2010, particularly in New Providence, where population density was already high.[2] Across the archipelago, the population expanded by 13 percent between 2010 and 2022, with growth particularly strong in New Providence (20 percent), Acklins (20 percent), Berry Islands (24 percent) and Bimini (19 percent). The rise in New Providence's population since 2010 reflects not only the effects of the natural increase and the net positive migration to The Bahamas but also migration of some Bahamians from Abaco and Grand Bahama after Hurricane Dorian in 2019. Despite the rise in total population, the average household size remained relatively unchanged since the last census. However, the average household in New Providence increased from 3.5 to 3.7 persons between 2010 and 2022, with the increases most prominent in the coastal districts of Fort Charlotte and Freetown and the already-densely populated neighborhoods of Englerston and Bain & Grants Town.



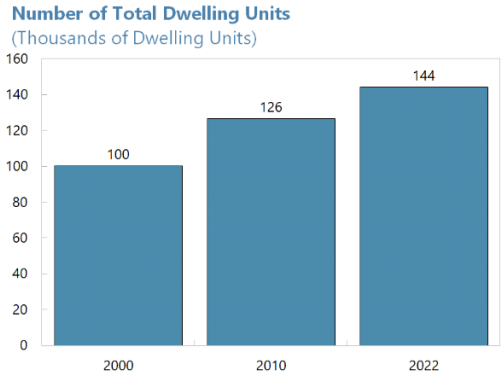


[1] Prepared by Beatriz Garcia-Nunes, Maria Alexandra Castellanos, Shane Lowe, and Vu Thanh Chau (all WHD).

[2] 2022 Census of Population and Housing.

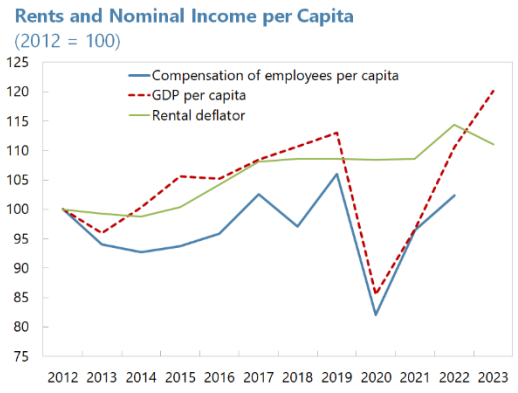
B. Challenges

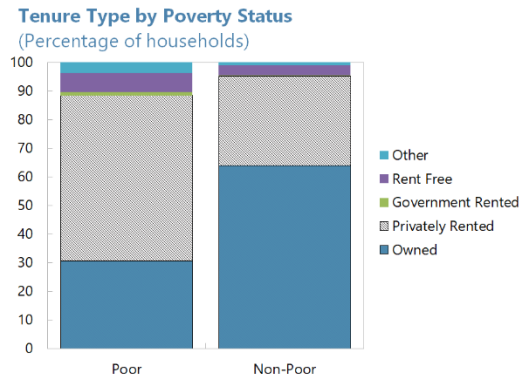
2. The supply of new housing has trended downward since the global financial crisis. An assessment in 2000 on housing needs estimated that, to meet future housing demands, the housing stock would have to rise by 2,378 units annually between 2000 and 2011.[3] The actual stock of dwelling units increased in line with these recommendations during the proposed timeframe. However, since then, the number of residential construction completions contracted sharply, reaching 607 completions in 2023, from a peak of 1,705 in 2006.



Sources: The Bahamas National Statistics Institute, Central Bank of The Bahamas, and IMF staff calculations.

3. Limited growth in wages may have impacted housing affordability over the past decade. Between 2012 and 2022, the implied price of Real Estate, Owner Occupied and Actual Rents activities increased by 14 percent, compared to just 2 percent for employee compensation per capita. The effect is likely to have been the greatest among the most vulnerable, with 58 percent of the poor living in privately-rented housing that is subject to changes in annual rental rates, compared to 34 percent across the country.[4]



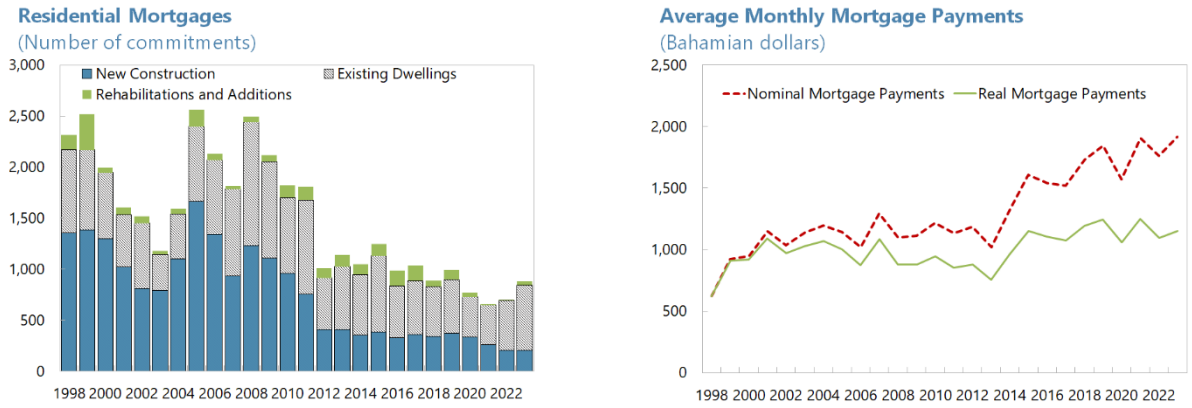


Sources: The Bahamas National Statistical Institute, 2013 Household Expenditure Survey, and IMF staff calculations.

[3] The State of Social Housing in Six Caribbean Countries.

[4] The Bahamas 2013 Household Expenditure Survey.

4. Financing constraints may also be an obstacle to home ownership. The number of new residential mortgage commitments for single dwellings and duplex and row dwellings have trended downward since 2008. Moreover, while employee compensation per capita has remained almost unchanged compared to 2012, average monthly payments on residential mortgages have increased more rapidly, despite the secular decline in average interest rates for residential mortgages over the same period. Mortgage applications recorded the lowest approval rate of all credit categories in H1 2024, standing at 54.3 percent.[5] Most application denials were due largely to low credit scores, constraints on banks' lending outside of internal policy, underemployment, the applicant's prior history of delinquency on prior loans, higher debt service ratios, insufficient working history in the current job, the bank's inability to verfiy the applicant's income and inadequate funds for a down payment.

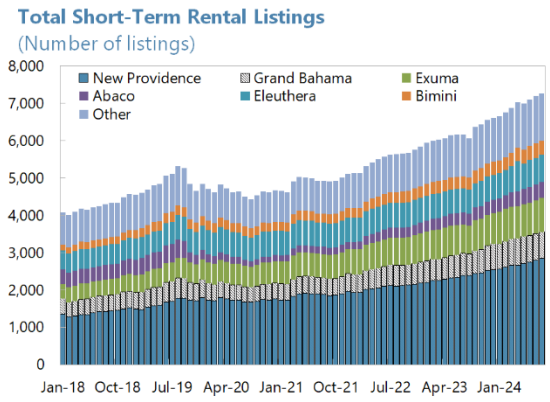


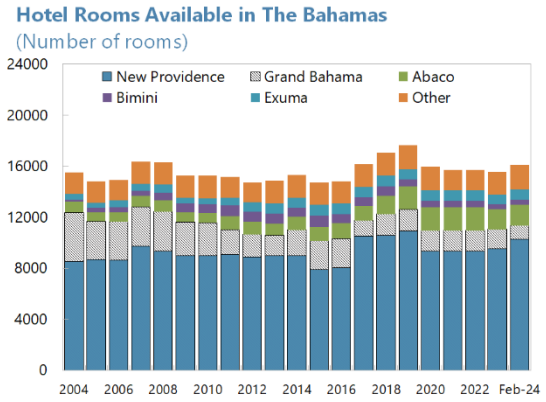
Sources: Central Bank of The Bahamas, and IMF staff calculations.

5. The Bahamas has witnessed impressive growth in the short-term rental market since 2018, despite slowing growth in the stock of residential housing. As of August 2024, there were 7,265 listings of short-term rentals across The Bahamas—up from 4,076 at January 2018—spread across the archipelago.[6] Moreover, growth has been the strongest for properties classified as apartments, condos, or lofts, with the number of listings more than doubling over the same period. This growth has been particularly strong in The Bahamas' most populated islands, with impressive growth in the Exumas in particular. However, the stock of short-term rental properties accounted for less than 5 of the total stock of dwelling units in The Bahamas at the end of 2022.

[5] Central Bank of The Bahamas Quarterly Bank Lending Conditions Survey June 2024. https://www.centralbankbahamas.com/publications/surveys-and-other-research-publications/quarterly-bank-lending-conditions-survey-december-2023

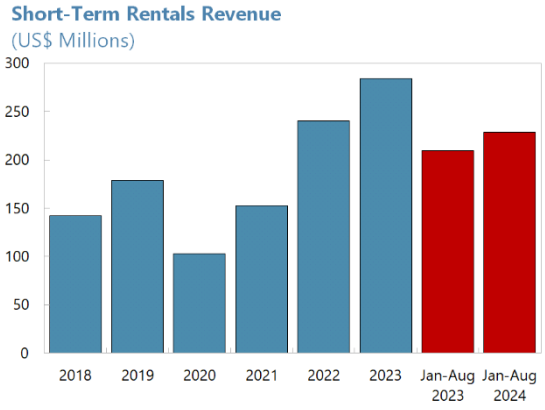
[6] AirDNA.

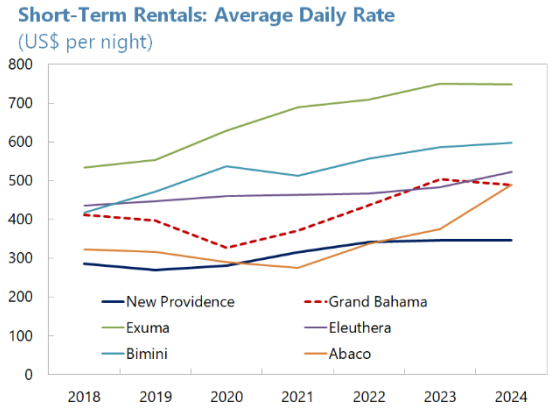




Sources: AirDNA, The Bahamas Ministry of Tourism, and IMF staff calculations.

6. High rental rates and strong revenue growth have incentivized investment in the short-term rental market. The sharp increase in the supply of short-term tourism accommodation helped to offset the 9 percent decline in hotel room capacity between 2018 and 2023, supporting the sharp rebound in stay-over arrivals post-Hurricane Dorian and the pandemic. At the same time, homeowners have benefited from additional rental income, with the average daily rate on short-term rentals rising faster between 2018 and 2023 (30 percent) than the implied price of Real Estate, Owner Occupied and Actual Rents activities (2 percent) over the same period. Average short-term daily rates vary widely across islands, with particularly high prices in the Exumas.



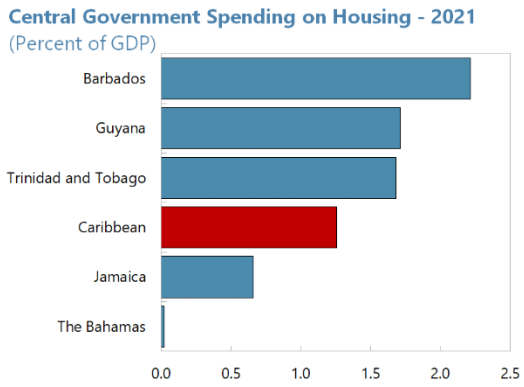


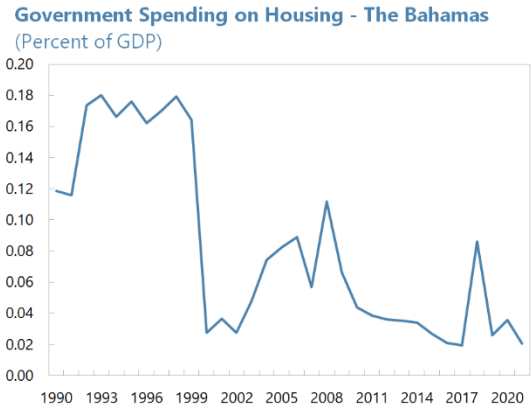
Sources: AirDNA and IMF staff calculations.

C. Policy Options

7. The authorities have sought to increase the supply of residential housing and improve housing affordability, but there is room for additional support. The Department of Housing has primary responsibility for providing affordable housing to low- and middle-income families through its Guaranteed Loan Programme with financial institutions. The state-owned Bahamas Mortgage Corporation (BMC) has traditionally been the primary user of this facility for homes costing up to

$250,000 but high delinquency rates have constrained the BMC's lending capacity.[7] The government has also removed the duty on building materials to support rebuilding in the Family Islands after natural disasters and has constructed public rental units and senior citizen units for Bahamians across the country. However, the government's spending on housing falls short of that of its regional neighbors. In 2021, central government spending on housing and community amenities declined to a low of just 0.02 percent of GDP, compared to 1.3 percent for an average of Caribbean peers, and down from 0.11 percent of GDP in 2008.





Sources: ECLAC and IMF staff calculations.

8. Alleviating supply constraints and increasing public spending on affordable public housing may help to improve housing affordability in The Bahamas. Incentivizing private investment combined with additional public investment in affordable housing would help to address rising demand in New Providence due to increasing population density. It would also alleviate housing shortages in Grand Bahama and the Family Islands exacerbated by previous natural disasters. However, care should be taken to ensure that additional initiatives meant to encourage growth in short-term rentals do not inadvertently crowd out investments in residential housing. Finally, easing access to credit for residents would also support increased homeownership.

[7] As of September 2024, 11 percent of outstanding residential mortgages for existing structures were held by the BMC.