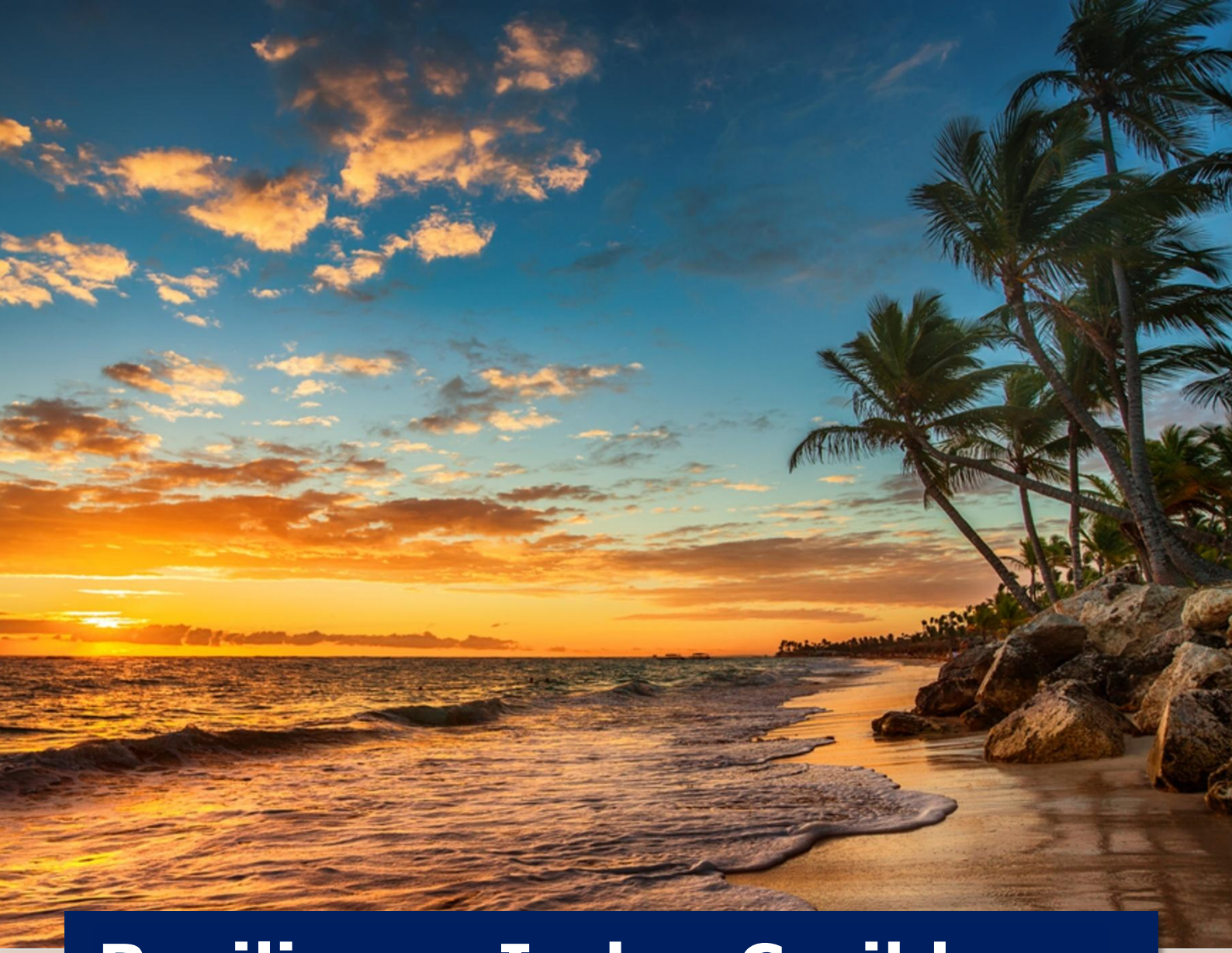


# Resilience Index Caribbean

## Measuring and comparing economic resilience across Caribbean countries

Methodological and analytical report

21-4-2026

Hannah van Bilsen, Valerie Vossen, and Kaat Westerhoud

Economisch Bureau Amsterdam
onderzoek - advies - interim-management

# Resilience Index Caribbean

*Measuring and comparing economic resilience across Caribbean countries*

Authors: Hannah van Bilsen, Valerie Vossen, and Kaat Westerhoud

Amsterdam, Economic Bureau Amsterdam, April 2026

Herengracht 514, 1017 CC Amsterdam



Economic Bureau Amsterdam takes an integrated approach: thorough economic analyses, targeted solutions, and effective implementation. Economic Bureau Amsterdam supports organizations in making and implementing decisions through research, consultancy, and interim assignments.

Economic Bureau Amsterdam strives to be a responsible company that contributes to society. We do this by sponsoring social and community initiatives, offsetting $CO_2$ emissions, and sharing knowledge and information. See our data tools Caribbean Analytics and Statistics and Zoninzicht.

# Summary

Economic resilience has become increasingly important in a world marked by external shocks, geopolitical uncertainty, and climate change. For small and open economies, such as those in the Caribbean, the ability to absorb shocks and recover from crises is especially relevant. RICa is developed to measure and compare this resilience across Caribbean countries in a structured and region-specific way.

The index captures economic resilience as a multidimensional concept. Rather than focusing only on traditional economic indicators such as GDP, it combines 26 variables across seven categories: economic, fiscal, demographic, financial, geographic, institutional, and sustainability. In this way, RICa reflects not only economic performance, but also includes broader factors contributing to resilience, such as fiscal space, demographic balance, institutional quality, exposure to climate risks, and sustainability performance.

A Caribbean-specific index is relevant and useful because the drivers and interpretation of resilience differ across regions. Characteristics that strengthen resilience in the Caribbean, such as a relatively larger primary sector or lower dependence on tourism and imports, may play a different role elsewhere in the world. At the same time, the design of the index is shaped by practical constraints, particularly the limited availability of consistent and up-to-date data for several Caribbean countries.

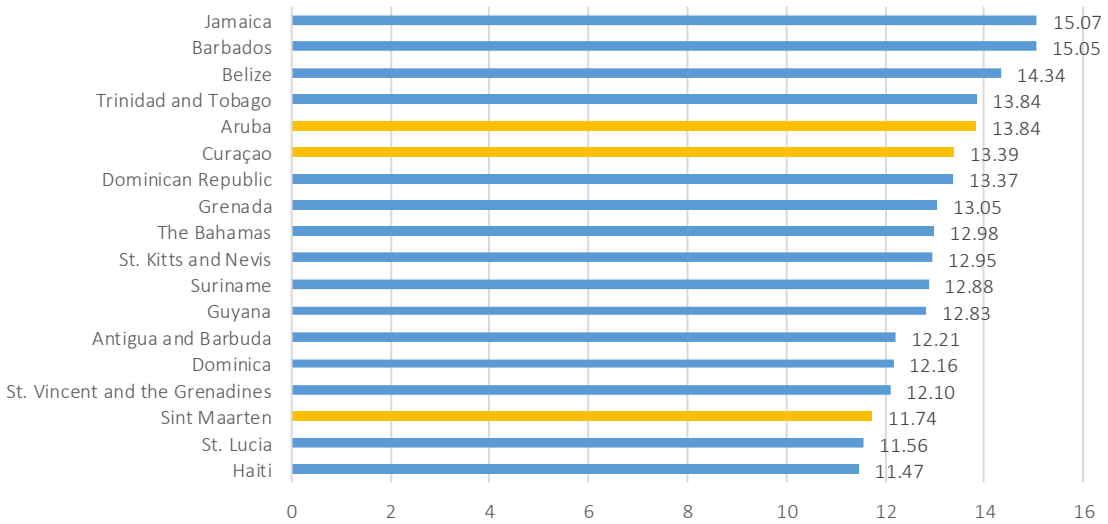
The index covers 18 Caribbean countries and is intended as a relative measure within this regional group. Its results should therefore not be interpreted as absolute or globally comparable measures of resilience. By combining an overall score with category-level results, RICa aims to provide both a clear summary indicator and more detailed insight into the strengths and vulnerabilities of individual countries.

*Jamaica ranks highest, followed closely by Barbados, while Sint Lucia, Haiti, and Sint Maarten rank lowest*

The index reveals differences in economic resilience across Caribbean countries. Jamaica scores highest in the index. Barbados closely follows, while Sint Maarten, Haiti, and St. Lucia rank lowest. The country's insights below provide further detail on the drivers of these outcomes.

Aruba and Curaçao rank relatively high, at fifth and sixth. Both countries perform relatively well on institutional, fiscal, and geographic indicators, but face vulnerabilities in the demographic and sustainability dimensions. Compared to both Aruba and Curaçao, Sint Maarten ranks significantly lower. Although Sint Maarten performs somewhat better than Curaçao on economic indicators, its overall resilience is reduced by weaker demographic, geographic, and sustainability outcomes.

Figure 1: Jamaica, Barbados, and Belize score highest, while St. Lucia, Haiti and Sint Maarten score lowest.




Source: Economic Bureau Amsterdam (2026).

# Table of Contents

# 1. Introduction

Resilience Index Caribbean (RICa) is a composite indicator designed to measure and compare resilience across Caribbean countries, contributing to a public debate shifting more and more to resilience.

*Economic resilience has become increasingly important in a world characterized by external shocks, geopolitical uncertainty, and climate change*

Globally, the focus of economic policy is shifting beyond traditional metrics such as GDP growth and trade openness towards broader themes including self-sufficiency, food security, and climate adaptation. The COVID-19 pandemic and recent global disruptions have demonstrated how quickly, and heavily external shocks can affect economic stability, underscoring the need for more resilient economies. For small and open economies, the ability to absorb shocks and recover from crises is particularly critical. This is especially true for Caribbean countries, which are often highly exposed to external developments through trade openness, reliance on tourism, and vulnerability to climate change.

*Resilience Index Caribbean is a composite indicator designed to measure and compare economic resilience across Caribbean countries*

RICa provides a structured overview of the factors that strengthen or weaken resilience. Rather than focusing solely on economic performance, the index captures multiple dimensions, including fiscal space, demographic structure, financial stability, institutional quality, geographic vulnerability, and sustainability. To ensure comparability, variables are expressed relative to country size. This approach limits the influence of country size on the results, although larger economies may still benefit from scale advantages that support economic resilience.

*The index covers 18 Caribbean countries*

The index covers 18 Caribbean countries: Antigua & Barbuda, Aruba, The Bahamas, Barbados, Belize, Curaçao, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Sint Maarten, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Suriname, and Trinidad and Tobago. Cuba and Puerto Rico are excluded due to insufficient data.

*The remainder of the report describes the selection of variables, the results, and discusses the findings*

The report is structured as follows. Section 2 discusses the selection of the variables and the composition of the index. Section 3 presents the results and key insights. Section 4 discusses the findings and concludes. The references are listed in Section 5. Appendix A provides a detailed explanation of the methodology, including the standardization of variables and correlation analyses underlying the variable selection and interpretation. The tool can be found on the website of Economic Bureau Amsterdam.[1]

[1] https://economisch-bureau.nl/rica/

# 2. Variables

RICa combines variables across seven categories to capture different dimensions of economic resilience. The variables reflect structural characteristics of the economy, public finances, institutional strength, demographic composition, migration dynamics, and financial conditions. In addition, geographic factors are included to account for countries' exposure and resilience to climate change and extreme weather events. This chapter first discusses the selection and relevance of the variables, followed by a description of the data sources.

## Variables and weights

RICa combines variables across the following categories: economic, fiscal, demographic, financial, geographic, institutional and sustainability. While the economic category is the main driver of variation, due to its relatively large weight, other categories play an important complementary role.

*RICa combines 26 equally weighted variables across seven categories to capture different dimensions of economic resilience*

Each variable is assigned an equal weight. Consequently, categories with more variables carry a larger overall weight in the index. This is the case for the economic category, which therefore contributes the most to the overall score.

- Economic category contributes the most: The economic category has the highest relative weight (38.5 percent), as it includes 10 out of 26 variables. The remaining categories range between 7.7 and 11.5 percent.
- Direction of impact: The direction of each variable, describing whether it positively or negatively affects resilience, is determined with the Caribbean context in mind and is discussed for each variable below.
- Correlation analysis: For the selection of the variables, the correlations between all variables are analyzed. High correlations are carefully assessed but are not automatically considered problematic. When two variables are strongly correlated because they reflect a common underlying factor, such as small economic scale, but still capture distinct dimensions of resilience, both variables may be retained.
- Standardized variables: All variables are standardized using the average value and standard deviation of the variable among the Caribbean countries, so that the average value is 0.5. More detail on the standardization is given in Appendix A, describing the technological methodology behind the composition of the index.
- Relative to size: All variables are expressed relative to the size of the country. For instance, GDP is measured per capita and unemployment is measured as a percentage of population. Similarly, several variables are expressed as a percentage of the GDP, such as imports, the primary sector, government debt, etcetera. This ensures that the impact of the (economic) size of a country on category scores and final score of a country remains limited. However, larger economies may still benefit from scale benefits, which supports economic performance and resilience. The correlation analysis in Appendix A presents an investigation of the correlation between population size and other variables of the index.

Table 1. The index includes 26 variables, all with a weight of one, distributed over seven categories.

| Variable | Weight | Relative weight (percent) |
|---|---|---|
| Economic | 10 | 38.5 |
| GDP per capita | 1 | 4 |
| Inflation (average of the past three years, %) | 1 | 4 |
| Unemployment (% of the population) | 1 | 4 |
| Imports (% of GDP) | 1 | 4 |
| Total inbound tourism expenditure as a share of nominal GDP | 1 | 4 |
| Primary sector (% of GDP) | 1 | 4 |
| HHI trading concentration | 1 | 4 |
| Import coverage | 1 | 4 |
| Gini coefficient | 1 | 4 |
| Output gap (%) | 1 | 4 |
| Fiscal/government | 2 | 7.7 |
| Government debt (% of GDP) | 1 | 4 |
| Average primary balance (% of GDP) | 1 | 4 |
| Demographic | 3 | 11.5 |

| Variable | Weight | Relative weight (percent) |
|---|---|---|
| Age dependency ratio | 1 | 4 |
| Labor force participation (% of the population) | 1 | 4 |
| Net migration (as a share of the population) | 1 | 4 |
| Financial | 3 | 11.5 |
| Capital Adequacy Ratio | 1 | 4 |
| Effective government interest rate | 1 | 4 |
| Risk Assessment Matrix (RAM): External risks | 1 | 4 |
| Geographic | 3 | 11.5 |
| Risk Assessment Matrix (RAM): Climate risks | 1 | 4 |
| Coastal exposure (% of the population) | 1 | 4 |
| Hurricane belt | 1 | 4 |
| Institutional | 2 | 7.7 |
| Rule of law | 1 | 4 |
| Risk Assessment Matrix (RAM): Internal/institutional risks | 1 | 4 |
| Sustainability | 3 | 11.5 |
| Output renewable energy (% of total energy output) | 1 | 4 |
| Co2 emissions per capita (t) | 1 | 4 |
| Natural resources rents (% of GDP) | 1 | 4 |
| **Total** | **26** | **100** |

Source: Economic Bureau Amsterdam (2026).

*The economic category is shaped by indicators such as income levels, price stability, unemployment, import dependence, tourism reliance, and the size of the primary sector*

Resilience in the economic category is shaped by income levels, price stability, external dependence, and inequality. In addition, the selected variables reflect structural characteristics of the economy, such as the degree of dependence on imports and tourism, as well as the role of domestic production through the primary sector.

The 10 variables in the economic category are designed to proxy a country's capacity to absorb external shocks and maintain stability during periods of uncertainty and crisis, including geopolitical disruptions, pandemics, or climate-related shocks. The selection and interpretation of these variables are grounded in the Caribbean context and may differ in other regions. The COVID-19 pandemic, for example, highlighted how strong reliance on tourism increased vulnerability, while a relatively large primary sector can support resilience through greater self-sufficiency, particularly in the context of climate-related risks.

- GDP per capita: A higher GDP per capita is associated with a more resilient economy, as it offers more resources to respond to internal and external shocks.
- Price stability: Most central banks view an inflation rate of two percent as a healthy target. Therefore, countries that strongly deviate from this target are considered less resilient, as volatile price levels reduce a country's economic stability. The index uses the average inflation over the last three years.
- Unemployment: A low unemployment rate is associated with a more resilient economy. High unemployment indicates underutilized labor and possible social vulnerability. In addition, it reduces household income, lowers government tax revenues and increases government expenditure.
- Import dependence: Lower import dependence is associated with a more resilient economy. Caribbean countries that rely heavily on imports are more exposed to global supply disruptions.
- Tourism reliance: Lower dependence on tourism is associated with greater resilience. While tourism is an important source of income for many Caribbean countries, excessive reliance makes economies vulnerable to disruptions that lie outside domestic control and influence travel behavior, such as global pandemics, hurricanes, and geopolitical shocks.
- Primary sector: In the Caribbean context, a relatively large primary sector strengthens resilience by improving food security, reducing import dependence and improving climate adaptation. Food security is particularly important in the light of increasing climate-related risks.
- Trading partner concentration: Lower concentration of trading partners, measured by the Herfindahl-Hirschman Index, increases resilience, as it reduces dependence on a limited number of countries for trade. A high concentration increases vulnerability to shocks affecting key partners.
- Import coverage: Higher import coverage increases resilience, as it reflects larger foreign exchange reserves that improve the country's ability to stabilize its currency and finance essential imports during crises.
- Income inequality: Lower income inequality, reflected in a lower Gini coefficient, increases resilience. High inequality is associated with lower social cohesion, larger vulnerable groups, and a higher risk of social tensions. Together with GDP per capita, it can also serve as a proxy for poverty in the absence of direct data.

- Output gap: A smaller output gap increases resilience, as it indicates that the economy is operating close to its potential. Large deviations, either positive or negative, signal imbalances. Underperformance (output below potential) reduces income and employment, lowering resilience. Overperformance (output above potential) may lead to inflation and unsustainable growth, undermining long-term stability and resilience. An economy that is already operating above potential has limited scope to further increase production in response to external shocks.

*Healthy public finances and a positive primary balance contribute to the ability to respond to shocks*

The two fiscal/government variables capture the role of government policy and public finances in supporting economic stability and responding to shocks.

- Government debt: Lower government debt relative to GDP increases resilience, as it preserves fiscal space for emergency spending and reduces vulnerability to rising borrowing costs. High government debt also implies high interest payments and less space for productive spending.
- Primary balance: A government surplus (positive primary balance) indicates fiscal discipline and the ability to pay off debt or build reserves that may be needed in times of crisis. In addition, it provides government with resources to manage shocks and invest in recovery.

*Population composition and labor force participation affect a country's resilience*

The demographic variables capture population composition and migration dynamics, as well as labor supply participation, all of which influence labor supply, fiscal pressure, and demographic balance.

- Age dependency: The age dependency ratio measures the share of dependent individuals (elderly and youth) relative to the working-age population. A lower dependency ratio is associated with higher resilience. Population aging, an important trend in the Caribbean, increases the dependency ratio. A high dependency ratio raises the economic burden on the productive population, limits labor supply, and puts pressure on healthcare and social services, increasing government costs.
- Labor force participation: Higher labor force participation supports resilience by increasing income generation, government revenues, and overall social stability.
- Net migration: Higher (positive) net migration increases resilience, as it indicates that more people are entering than leaving the country. Net migration is defined as immigration minus emigration. In the Caribbean context, negative net migration is often linked to brain drain, leading to a loss of skilled labor, reduced economic capacity, and demographic imbalances.

*Capital adequacy, effective government interest rates, and exposure to external risks affect a country's ability to absorb shocks*

The financial variables assess the financial position of the country and exposure to external economic risks.

- Capital adequacy ratio: A higher capital adequacy ratio increases resilience, as it reflects a more stable banking sector. The capital adequacy ratio measures a bank's capital relative to its risk-weighted assets. A higher ratio therefore indicates that banks are better equipped to absorb financial shocks and support economic activity through lending, in times of economic insecurity.
- Effective government interest rate: Lower effective government interest rates increase resilience, as they reduce borrowing costs and support investment and consumption. Higher interest rates raise the cost of borrowing, increase debt burdens, and may constrain economic activity, thereby reducing the capacity to respond to shocks.
- External risk assessment: Lower external risks increase resilience, as they reflect reduced exposure to global uncertainties. This variable captures risks related to geopolitical tensions, trade developments, commodity price fluctuations, international policies, and global growth. It is based on IMF's Risk Assessment Matrix (RAM) from Article IV consultations, which assesses country-specific risks in terms of likelihood and impact. The methodology is further explained in Appendix A.

*Geographic characteristics impact resilience through exposure to natural hazards and climate change, while the potential for climate adaptation has a positive impact*

The geographic variables capture a country's exposure to natural hazards and climate-related risks.

- Coastal exposure: Lower coastal exposure increases resilience, as it reduces vulnerability to natural hazards and climate-risks, such as flooding and sea level rise. This variable measures the share of the population living in low-lying coastal areas (at or below 5 meters elevation).

- Hurricane belt: Location outside the hurricane belt increases resilience. Countries within the hurricane belt are more prone to severe natural disasters, bringing high risks to economic stability, infrastructure, and overall wellbeing.
- Climate risk assessment: Lower climate risks increase resilience, as they reflect reduced vulnerability to natural disasters and climate-related damage. This variable is based on the IMF's RAM and captures country-specific risks in terms of likelihood and impact. It also accounts for potential opportunities related to energy transition and climate adaptation.

*Strong institutions support countries in dealing with external shocks*

The institutional variables reflect governance quality and the capacity to effectively manage and respond to crises.

- Rule of law: A stronger rule of law increases resilience, as it reflects higher governance quality and institutional capacity to effectively manage shocks and maintain stability.
- Internal risk assessment: Lower internal risks increase resilience, as they indicate fewer vulnerabilities related to financial markets, public finances, regional conflicts, and social unrest. This variable is based on the IMF's RAM, which quantifies country-specific risks in terms of likelihood and impact.

*Generating green energy contributes to a country's resilience, while large emissions signal overreliances on fossil fuels and contribute to climate change*

Sustainability variables capture environmental and energy factors and influence long-term resilience.

- Renewable energy: A higher share of renewable energy increases resilience, as it reduces dependence on (imported) fossil fuels and makes countries less vulnerable to global price shocks and disruptions in the supply chain. It also supports long-term energy security.
- Carbon emissions: Lower $CO_2$ emissions increase resilience, as they reflect lower reliance on fossil fuels and more sustainable development patterns. High emissions also indicate environmental vulnerabilities.
- Natural resource rents: High natural resource rents can increase resilience, as they provide governments with financial resources to absorb shocks and offer a relatively stable source of income. However, overreliance on these revenues may create long-term vulnerabilities as the global economy transitions towards renewable energy. In the current context, natural resource rents are assumed to positively contribute to resilience.

## Data sources

*Most data are extracted from the World Bank, the International Monetary Fund and national statistics offices*

The data is primarily obtained from international institutions, such as World Bank and IMF, and complemented with national and country-specific sources where needed.[2]

- World Bank: The World Bank provides comprehensive data for most countries, including GDP per capita, inflation, unemployment, import, import coverage, primary sector, government expenditure, age dependency, labor force participation, net migration, coastal exposure, the rule of law, output of renewable energy, and natural resource rents.
- IMF (Article IV): IMF Article IV consultation reports are used to extract data on the output gap, the average primary government balance over the past five years, the Capital Adequacy Ratio, effective government interest rates and import coverage. These reports are also used to construct the external, internal and climate risk indicators based on the IMF's Risk Assessment Matrix (RAM). In addition, data on the government debt is obtained from the IMF.
- National statistics offices: National statistics offices provide additional or more up-to-date data on variables such as the Gini coefficient, labor force participation, inflation, government expenditure, government debt and unemployment.
- Other international sources: Additional data sources include UN Tourism for inbound tourism expenditures, the World Integrated Trade Solutions for the HHI of trading partner concentration, and the United Nations Population Division for data on the share of migrants in the population. $CO_2$ emissions per capita are derived from the Global Carbon Budget for all countries.
- Country-specific data sources: For specific countries, additional sources are used to fill data gaps. For example, unemployment data for Antigua & Barbuda data are obtained from Global Data, import data

[2] IMF DataMapper, UN Tourism, World Integrated Trade Solutions, United Nations Population Division, Global Data, CEIC data, Our World in Data, Statbase, Government of Barbados, and Ministry of Finance of the Bahamas. See References for links to the data sources.

for Barbados from CEIC, and primary sector data for Sint Maarten from Statbase. Effective government interest rates for Barbados and The Bahamas are sourced from their respective government institutions.

*Missing data points are addressed either by imputing values based on comparable countries, or by excluding the variable for the specific country*

Missing data points are addressed by using the value of a comparable country or by excluding the variable. In practice, this only concerns the HHI concentration, the Gini coefficient and the rule of law for a limited number of countries.

- HHI concentration: Data on trading partner concentration are unavailable for Haiti and Sint Maarten; therefore, this variable is excluded from the economic category for these countries.
- Gini coefficient: The Gini coefficient is not available for Sint Maarten and St. Kitts & Nevis and is therefore excluded.
- Rule of law: For Sint Maarten and Curaçao, the rule of law indicator is assumed to be equal to that of Aruba as the three countries – together with Bonaire, Sint Eustatius and Saba – have a joint Court of Justice.

# 3. Results

The results reflect a comparison across Caribbean countries and should therefore be interpreted as relative rather than absolute measures of resilience. This chapter first presents the overall ranking, followed by country-specific insights. A broader analysis is applied to Aruba, Curaçao, and Sint Maarten.

## Overall ranking

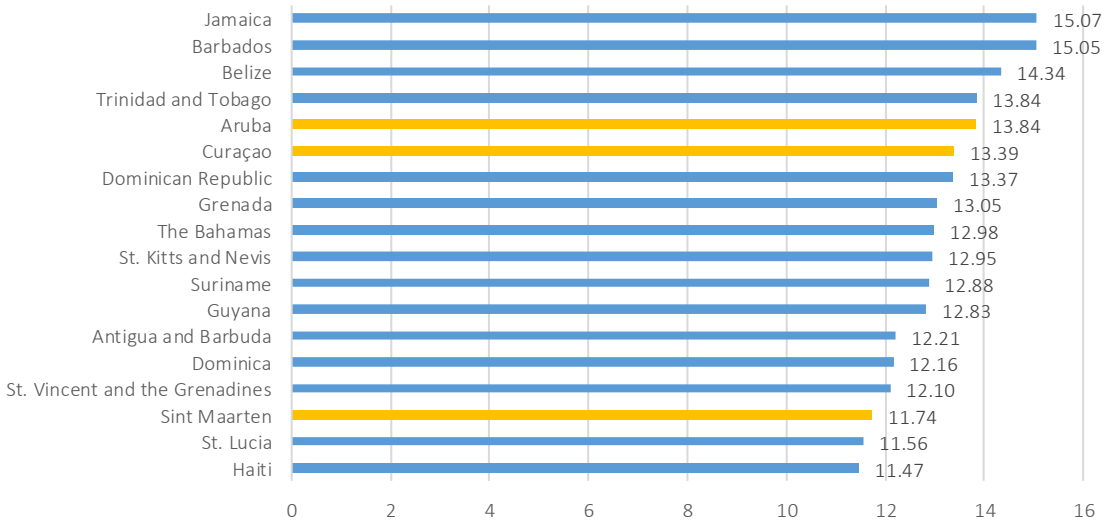
The scores reflect underlying differences across countries in exposure to external shocks and policy capacity to recover from shocks.

*Jamaica ranks highest and Haiti ranks lowest, Aruba and Curaçao score high and Sint Maarten is more vulnerable*

The index reveals differences in resilience across Caribbean countries.

- Jamaica ranks highest, Haiti Maarten lowest: Jamaica scores highest in the index, while Barbados closely follows. Sint Maarten, Haiti, and St. Lucia rank lowest.
- Fifth and sixth ranking for Aruba and Curaçao: Aruba and Curaçao rank relatively high, in fifth and sixth place. Both countries perform relatively well on institutional, fiscal, and geographic indicators, but face vulnerabilities in demographic and sustainability dimensions. This is due to below-average labor force participation, and above-average $CO_2$ emissions combined with no natural resource rents. Curaçao performs weaker than Aruba on economic indicators, driven by lower GDP per capita, higher inflation, greater import dependence, and higher inequality. While Aruba is also highly dependent on tourism, its overall economic performance remains stronger than that of Curaçao.
- Difference in financial scores: Curaçao ranks higher than Aruba in the financial category, mainly due to significantly lower government borrowing costs, reflecting more favorable financing conditions linked to the Netherlands. In addition, Aruba faces a somewhat higher external risk profile, particularly regarding exposure to commodity price volatility and financial market shocks.
- Sint Maarten more vulnerable than Aruba and Curaçao: Compared to both Aruba and Curaçao, Sint Maarten ranks significantly lower. It performs worse than Aruba on economic indicators, but somewhat better than Curaçao. Similar to Aruba and Curaçao, Sint Maarten scores low in the demographic category due to a relatively low labor force participation and high net emigration. Less favorable geographic conditions, such as its location in the hurricane belt, and a low sustainability score, further contribute to its lower ranking. Sint Maarten has the lowest renewable energy share and highest $CO_2$ emissions in the set of countries.

**Figure 2:** Jamaica, Barbados, and Belize score highest, while Sint Maarten, St. Lucia and Haiti score lowest.




**Source:** Economic Bureau Amsterdam (2026).

## Country scores and ranking

The individual country's rankings reveal the factors driving differences in economic resilience across Caribbean countries.

*Jamaica ranks as the most resilient among the included Caribbean countries, with strong economic, fiscal, and demographic performance*

Jamaica ranks highest in the index with a score of 15.07. The country performs particularly well in the fiscal, demographic and economic categories, while financial and geographic indicators remain relatively weak.

- Strong economic, fiscal, and demographic performance: Jamaica ranks second in the economic category, as it scores above average on most indicators. These include a low output gap (close to zero), low unemployment, relatively low import dependence (43.3 percent of GDP), strong import coverage, low income inequality, and a large primary sector relative to other countries (8 percent of GDP). GDP per capita, however, is relatively low. Furthermore, Jamaica ranks first in the fiscal category and second in the demographic category. Fiscal strength is mainly driven by a sustained positive primary balance. Demographic indicators are favorable, with low age dependency (37 percent), high labor force participation rate (70 percent), and limited net migration (suggesting limited brain drain).
- Average institutional and sustainability performance: Institutional quality and sustainability indicators are around average. The rule of law is somewhat below average, while the low RAM internal indicates limited internal risks. Sustainability performance reflects relatively low $CO_2$ emissions but is constrained by limited renewable energy output and low natural resource rents.
- Weak financial and geographic performance: Jamaica performs relatively weak in the financial category, with a high effective government interest rate and a relatively low capital adequacy ratio. However, the country scores above average on external risk exposure (RAM external). In the geographic category, resilience is reduced by exposure to natural disasters, as Jamaica is located within the hurricane belt.

*Haiti ranks as the least resilient among the included Caribbean countries, driven by vulnerabilities in the institutional, geographic and demographic weaknesses*

Haiti ranks the lowest in the overall index with a score of 11.47, mainly due to weak performance in institutional, geographic, economic and demographic indicators.

- Weak institutional, geographic and demographic performance: Haiti ranks last in institutional and geographic categories. Institutional vulnerabilities are due to a low rule of law and many identified institutional risks. In addition, substantial climate risks are identified, and the country is in the hurricane belt, which lowers the geographic score. The country ranks fifteenth in the demographic category due to age dependency and low labor force participation.
- Average economic and financial performance: On the economic indicators, Haiti scores a little below average driven by low income, high unemployment, extremely high inflation over the last few years, and a large output gap. In the financial category, Haiti scores average, due to a favorable effective government interest rate and capital adequacy ratio, but high external risks.
- Strong fiscal and sustainability performance: Haiti scores above average on the fiscal and sustainability indicators, supported by low government debt, a positive primary government balance of the last year, and low emissions and the output of renewable energy.

*Varying country scores are caused by strengths and weaknesses in different dimensions*

The results show that differences in overall resilience are driven by varying performance across categories. Most countries perform well or around average in some categories, while facing weaknesses in others. The combination of these strengths and vulnerabilities determines the final score for each Caribbean country.

- Barbados ranks second: Barbados ranks second overall, driven by strong economic and geographic performance. The country performs above average on all economic indicators, except for the primary sector. Import and tourism dependence is relatively low compared to other Caribbean countries.
- Belize ranks third: Belize ranks third, supported by strong sustainability and financial performance, and a solid fifth economic ranking. Belize has the highest share of renewable energy, resulting in low $CO_2$ emissions per capita. Furthermore, Belize benefits from a relatively large primary sector, low income inequality and diversified trade. Financial resilience is supported by limited external risks.
- Trinidad & Tobago ranks fourth: Trinidad & Tobago ranks fourth overall, driven by strong economic and financial performance. The country has low unemployment, a small output gap and limited

dependence on imports and income from tourism. However, sustainability performance is weak due to high $CO_2$ emissions and limited renewable energy use.

- Aruba ranks fifth: Aruba ranks fifth overall, supported by strong performance in institutional, fiscal, and geographic indicators. High governance quality (strong rule of law) and low internal risks contribute to a strong institutional score, while favorable geographic conditions, such as its location outside the hurricane belt and limited coastal exposure, reduce vulnerability to natural hazards. Fiscal performance is solid, driven by a sustained positive primary balance. Performance in the economic category is above average, supported by high GDP per capita, low unemployment, stable inflation, strong import coverage, and diversified trade patterns. However, high dependence on tourism and imports, as well as a very small primary sector, act as a constraint. The relatively large output gap suggests the economy is operating above potential, which may limit flexibility in responding to shocks. Aruba's main vulnerabilities lie in the financial, demographic and sustainability dimensions. Despite a strong capital adequacy ratio, high effective government interest rates and identified external risks reduce financial resilience. Sustainability performance is also weak, with above average $CO_2$ emissions per capita, and limited natural resource rents. Demographic performance is weak due high net migration, age dependency and low labor force participation.
- Curaçao ranks sixth: Curaçao ranks sixth overall, supported by strong institutions and geography, but constrained by weaker economic fundamentals and sustainability performance. Institutional resilience is driven by relatively strong rule of law. Geographic conditions are favorable, being situated outside the hurricane belt and limited coastal vulnerability, which reduces exposure to natural hazards. Economic performance is below average, reflecting weaknesses such as high import dependence, below average import coverage, high income inequality, and a very small primary sector. While inflation is stable, unemployment is relatively low, and trade is diversified, these strengths are insufficient to offset broader economic vulnerabilities. Demographic and sustainability indicators further weaken resilience. Low labor force participation and high net emigration point to demographic imbalances. Sustainability performance is low, with high $CO_2$ emissions per capita and low natural resource rents. Financial and fiscal indicators are broadly in line with the regional average. While capital adequacy and the government interest rate are relatively favorable, identified external risks remain a concern.
- The Dominican Republic ranks seventh: The Dominican Republic ranks seventh, as it performs strongly in the economic category, but weakly in the financial category. Low import and tourism dependence, low income inequality and a small output gap bring high performance in the economic category, while the high effective government interest rate brings vulnerability in the financial category.
- Grenada ranks eighth: Grenada ranks eighth despite weak economic performance, driven by high import and tourism dependence, unemployment, and low GDP per capita. Strong fiscal performance, including positive primary balances, supports overall resilience.
- The Bahamas ranks ninth: The Bahamas performs well in the demographic and institutional category but weakly in economic, fiscal, geographic and sustainability categories. For example, the country has high labor market participation and low age dependency. Economically, it is less resilient due to high concentration of trading partners (mostly the US) and a small primary sector. High government debt, and a low share of renewable energy, contribute to low fiscal and sustainability scores.
- St. Kitts and Nevis ranks tenth: St. Kitts and Nevis performs around average overall, due to average performance in most categories. Demographic indicators are strong, including low age dependency and high labor participation. Geographic indicators are weak, due to risks related to climate change and natural disasters.
- Suriname ranks eleventh: Suriname ranks eleventh, due to average performance on the economic, fiscal and geographic indicators. Suriname ranks first in the financial category due to high capital adequacy ratio and relatively low exposure to external risks. However, the performance in the institutional category is weak due to a low rule of law and a high internal risk score. Performance with regards to sustainability is high as a result of substantial renewable energy and natural resource rents.
- Guyana ranks twelfth: Guyana scores below average across most categories, except for strong financial and sustainability performance. Financial resilience is driven by few external risks and a low effective government interest rate. In addition, the country has large natural resource rents (oil).
- Antigua and Barbuda ranks thirteenth: The country performs on average of a little below average across all categories and ranks second to last in the economic category. Resilience in the economic category is weakened by high unemployment, dependence on tourism, a small primary sector, low import coverage and high inequality.
- Dominica ranks fourteenth: Dominica performs below average on most categories, with a relatively strong geographic and sustainability indicators (for instance, low $CO_2$ emissions). Institutional,

financial and fiscal performance is weaker. The country scores second to last on the fiscal indicators due to high government debt and negative primary balances over the last few years.

- St. Vincent & the Grenadines ranks fifteenth: The country scores below average in all categories, except for the demographic and sustainability categories. Fiscal performance is weak due to high government debt and negative primary balances, while favorable demographic characteristics provide some support, driven by low net migration, and high labor force participation.
- Sint Maarten ranks sixteenth: Sint Maarten scores relatively low due to weak performance in the economic, demographic, geographic and sustainability dimensions. Weak economic performance is due to high dependence on imports and tourism, as well as a very small primary sector. Sint Maarten ranks lowest in the demographic category because of net migration and low labor force participation. The sustainability performance is also weak with limited renewable energy output, high $CO_2$ emissions per capita and no natural resource rents. Geographic resilience is slightly below average, reflecting exposure to hurricane risks combined with average coastal exposure and climate risk indicators. Fiscal performance is relatively strong due to low government debt but negative average primary balances over the last years. Sint Maarten performs better in institutional and financial categories. The country benefits from a favorable capital adequacy ratio and low effective government interest rate, although external risks remain slightly above average. On institutional indicators the country ranks third.
- St. Lucia ranks seventeenth: St. Lucia ranks second to last in the overall index. St. Lucia ranks lowest in the economic category and second to last in the financial category. While demographic performance is strong, the scores in all other categories are below average. For example, resilience is strengthened by low age dependency and high labor force participation, and weakened by low GDP per capita, tourism dependence, a small primary sector, low import coverage and high income inequality.

# 4. Discussion

This chapter provides additional context for interpreting the results. It explores how the different indicators relate to each other, outlines key limitations in the composition and data, and relates the index to economic performance during the COVID-19 period.

*A correlation analysis was used to ensure that information is not included multiple times via different indicators*
The correlation analysis investigates relationships between all variables and categories. This analysis is performed by using Pearson, Spearman rank and item-rest correlation tests. This is explained in more detail in Appendix A.

- Small islands do not necessarily perform worse: The index is designed to measure resilience independently of country size. Therefore, variables are expressed relative to size and population size itself is not included in RICa. However, it may still be reasonable to expect that large countries are generally more resilient due to scale economies. The correlation analysis shows little relationship between population size and the final index score. This indicates that resilience, as captured by RICa, is determined more by other characteristics of a country than by size.
- Economic resilience goes beyond high GDP: Economic resilience is shaped by a broad set of factors and cannot be explained by income levels alone. Countries with similar GDP per capita can differ significantly in resilience due to differences in economic structure, diversification, and exposure to shocks. The item-rest correlation analysis confirms this by showing little relationship between GDP and the other components.
- Most correlations are low: The correlation analysis examines whether any variables capture overlapping information, using an absolute threshold of 0.8 to identify high correlations. This threshold is set relatively high because the dataset is small, meaning correlations are more likely to arise by chance rather than reflecting true redundancy between variables. In the performed correlation tests, three pairs of variables exceeded the threshold: natural resource and coastal exposure (-0.8), natural resource and tourism (0.84), and agriculture share and $CO_2$ emissions (0.83). However, the strength of these relationships varies depending on the method used, suggesting that some associations may be influenced by outliers or reflect non-linear patterns rather than strong, consistent relationships. Despite these correlations, each pair of variables represents conceptually distinct phenomena. Therefore, none of the variables were excluded, and all were retained for further analysis. Other seemingly related variables, such as the primary sector share and import dependence, or tourism dependence and GDP per capita, also show limited correlation, supporting the inclusion of all variables.

*There are several limitations related to the composition and methodology of this index*
Composite indicators have both advantages and disadvantages. On the one hand, a single aggregated score is appealing because it conveys a lot of (complex) information in an accessible way, making it easier to communicate with a broad audience. It also helps place country performance and development at the center of policy discussions. On the other hand, combining multiple dimensions into one index can lead to a loss of information. Other limitations stem from the Caribbean-specific context of this index, particularly in terms of data availability and comparability across regions.

- Loss of information: Combining multiple variables into a single index inherently inevitably reduces detail. For example, a country may perform well in one dimension but poorly in others, resulting in a low overall score that masks its specific strengths.[3] To minimize this limitation, the tool also provides scores per category, and this report presents country-specific analyses in the Results chapter, highlighting key strengths and weaknesses of each country.
- Ambiguity in category classification: The assignment of variables to specific categories is not always clear-cut, as some indicators are conceptually relevant to multiple dimensions. This affects the interpretation of category scores. For example, the "External risks" variable is grouped under the financial category, but it could also be considered part of the economic category.
- Data availability constraints in the Caribbean region: The index is constrained by the availability and quality of data, especially for small islands like Sint-Maarten and Curaçao. As a result, certain relevant dimensions could not be included. For example, the European Resilience Index of ZOE Institute

[3] Joint Research Centre-European Commission (2008).

includes education and skills, which the Caribbean data does not allow for.[4] In addition, some data points are based on older observations. Future indices would benefit from more consistent data collection in these countries.

- Limited comparability with other regions: RICa measures resilience relative to other Caribbean countries. Specifically, the standardization process relies on the average and standard deviation within this regional sample. Therefore, the scores are not comparable to countries in other regions, such as Europe or North America. In addition, the interpretation and direction of certain variables are context specific. For instance, a relatively large primary sector is considered beneficial in the Caribbean context, as it can improve food security and in this region agriculture shares are generally low. This assumption may not be reasonable in many other regions.

*The recovery of GDP after COVID-19 is weakly positively correlated with the resilience index*

As a sensitivity check, RICa scores are related to a ratio capturing the economic contraction and subsequent recovery during the COVID-19 crisis. Since the index reflects a multidimensional concept of resilience, extending beyond a short-term shock such as COVID-19, a strong relationship is not necessarily expected. However, the ability to quickly recover from shocks like a worldwide pandemic is reflected in multiple dimensions of resilience, such as strong institutions, demographic balance, and financial health. Therefore, a result in the opposite direction would raise concerns about the validity of the index.

- Recovery ratio: Resilience is not only reflected in the size of the initial shock, but also in the ability of an economy to recover. To capture this, the recovery ratio is constructed by dividing the percentage change in real GDP between 2020 and 2023 by the absolute decline in real GDP in 2020.
- Weak positive correlation: The results show a weak positive correlation (0.32) between the COVID-19 recovery and the RICa score, indicating that countries with higher resilience scores tend to exhibit somewhat stronger recovery relative to the size of the initial shock. This is as expected. The rank correlation between the RICa score and the recovery ratio is negative (-0.34), which also aligns with the expectations, as a higher ranking (lower numerical rank) corresponds to stronger recovery.
- Indicative nature of results: This analysis should be interpreted with caution. Guyana is excluded as an outlier due to its oil-driven growth, which is unrelated to the adverse pandemic impact. In addition, countries such as Haiti and Suriname experienced high inflation, which may distort real GDP-based recovery measures. The relatively small sample size and the presence of multiple overlapping shocks during this period further limit the strength of the conclusions.
- Correlation shock and economic category scores: The size of the initial GDP contraction in 2020 is positive but weakly correlated with the economic category score (0.30). A comparable relationship is observed in the rank correlation, which is also weak but positive (0.33). This is in line with expectations, as the economic category captures structural characteristics, such as tourism dependence, that influenced the severity of the immediate impact of the pandemic.

[4] ZOE Institute for Future-Fit Economies (2023).

# 5. References


CEIC Data (n.d.). Barbados Imports. Retrieved from https://www.ceicdata.com/en/barbados/imports.

Global Data (n.d.). The Unemployment rate of Antigua and Barbuda (2021 – 2029, %). Retrieved from https://www.globaldata.com/data-insights/macroeconomic/the-unemployment-rate-of-antigua-and-barbuda-220119/.

Government of Barbados (n.d.). Fiscal Risk Statement 2025. Retrieved from https://www.barbadosparliament.com/uploads/sittings/attachments/cd7b889737b59eff11faeee162214e85.pdf.

IMF (n.d.). IMF Article IV Staff Reports. Derived from https://www.imf.org/en/publications/sprolls/article-iv-staff-reports.

IMF DataMapper (n.d.). General government gross debt, percent of GDP. Retrieved from https://www.imf.org/external/datamapper/GGXWDG_NGDP@WEO/OEMDC/ADVEC/WEOWORLD.

Joint Research Centre-European Commission (2008). Handbook on constructing composite indicators: methodology and user guide. OECD publishing.

Ministry of Finance of The Bahamas (n.d.). Public debt statistical bulletin Q4 – FY2024/25. Retrieved from https://www.bahamasbudget.gov.bs/media/filer_public/05/01/05018445-89ab-4aef-ac22-c80ace0cda88/mof-pdsb-q4-aug-25-final.pdf.

Our World in Data (n.d.). CO2 emissions per capita. https://ourworldindata.org/grapher/co-emissions-per-capita?country=~CUW

United Nations Population Division (n.d.). International Migrant Stock. Retrieved from https://www.un.org/development/desa/pd/content/international-migrant-stock

United Nations Specialized Agency (n.d.). Tourism Statistics. Retrieved from https://www.untourism.int/tourism-statistics/tourism-data-inbound-tourism.

Statbase (n.d.). Share of agriculture, forestry, and fishing in GDP. Retrieved from https://statbase.org/data/sxm-agriculture-and-fishing-value-added-share/.

United Nations Economic and Social Commission for Western Asia (ESCWA) & Nile University. Measuring economic resilience. Retrieved from https://www.unescwa.org/sites/default/files/pubs/pdf/measuring-economic-resilience-english_1.pdf.

World Integrated Trade Solutions (n.d.). HH Concentration index By Country. https://wits.worldbank.org/CountryProfile/en/country/by-country/startyear/ltst/endyear/ltst/indicator/HH-MKT-CNCNTRTN-NDX.

World Bank (n.d.). Indicators. http://data.worldbank.org/indicator.

ZOE Institute for Future-fit Economies (2023). The Economic Resilience Index. Retrieved from https://zoe-institut.de/wp-content/uploads/2023/09/Economic_Resilience_Index_Final-1.pdf

# Appendix A. Methodology and correlation analysis

This appendix describes the construction of the index, followed by the methodology for the IMF Risk Assessment Matrix (RAM) variables, and concludes with the correlation analysis.

*The index consists of a weighted sum of the standardized values of all variables.*
The construction of the index consists of a few steps: data collection, standardization, weighting, and the aggregation of variables into category scores and the overall index.

- Standardization for comparability and aggregation: All variables are standardized using the average value and standard deviation across Caribbean countries. This ensures comparability across variables and allows them to be combined into a single index. The standardization is designed such that the average value of each variable is equal to 0.5. A higher value (above 0.5) signifies a more resilient country, while a lower value (below 0.5) indicates that a country is less resistant to external and internal shocks. The formula for the standardization is given below (Formula 1). The sign (+ or -) depends on whether the variable has a positive or negative relationship with resilience.

$$s_{i,j} = 0{,}5 \pm 0{,}25 \cdot \frac{x_{i,j} - \mu_j}{\sigma_j} \qquad (1)$$

Where $x_{i,j}$ is the unstandardized value of variable $j$ for country $i$ in the most recently available year, $\mu_j$ is the average of variable $j$ over all Caribbean countries, and $\sigma_j$ is the standard deviation of variable $j$ over all Caribbean countries.

- Additional adjustments: For some variables, additional adjustments are applied. The output gap (as a percentage of GDP) is expressed in absolute terms, as both large positive and negative deviations can weaken resilience. For inflation, the absolute deviation from a 2 percent target is used, reflecting the widely accepted benchmark for price stability.
- Index as weighted average: The overall index is calculated as a weighted average of the standardized variables, as defined below (Formula 2). Category scores are constructed by aggregating variables within each category using the same weighting approach. Because the weights are normalized, the sum of the weights within a category equals the number of variables in that category.

$$ERICa_i = \frac{\sum_{s_{i,j \neq \phi}} w_j s_{i,j}}{\sum_{s_{i,j \neq \phi}} w_j} \qquad (2)$$

Where $i$ is the country, $j$ the variable, $w_j$ is the weight of the variable, and $s_{i,j}$ is the standardized value of variable $j$ for country $i$, as defined in Formula 1.

*The IMF Article IV Risk Assessment Matrix is used to quantify internal, external and climate-related risks for Caribbean countries, based on both likelihood and impact of these risks*
The Risk Assessment Matrix presented in the IMF Article IV consultation (RAM) provides a qualitative assessment of risks, ranking both likelihood and impact as low, medium, or high. These qualitative assessments are translated into quantitative scores, which requires a few steps.

- Categorization of risks: Each identified risk is classified as internal, external or climate-related, based on IMF's description. For instance, Aruba is faced with 'Escalating trade measures and prolonged uncertainty', which is categorized as an external risk, and Suriname faces 'Extreme climate events', which is categorized as a climate risk. This categorization is applied across all countries using the most recent Article IV reports.
- Quantification of risks: These risks are quantified by assigning numerical values to the qualitative rankings. A ranking of high, medium or low is associated with a score of 3, 2, and 1, respectively.

The likelihood and impact scores are then multiplied to obtain a composite risk score. For instance, escalating trade measures and prolonged uncertainty' that Aruba is confronted with ranks high in likelihood and impact, which gives a score of nine (3x3) for this specific risk.

- Opportunities as positive risks: Besides downside risks, the IMF also identifies upward risks or potential for some countries. For instance, Curaçao is noted to benefit from the potential of a 'large offshore windfarm project'. These are treated as reductions in overall risk and therefore included with a negative sign in the total risk score.
- Composition of variables: Finally, total risk scores for each category (external, internal, climate) are calculated by summing the individual risk scores within each category. This results in three indicators per country, referred to in this report as RAM internal, external and climate.

### Correlations of variables

*Correlation analyses of variables are performed to select the final set of variables and to examine whether any individual variable is strongly associated with the overall index score.*

- Pearson and Spearman rank correlations are calculated between all variables to assess potential multicollinearity. Pearson tests measure linear relationships between variables. Spearman rank tests are more robust in small samples and capture monotonic (not necessarily linear) relationships.
  For both correlation measures, a threshold of |0.8| is applied. Correlations exceeding this threshold are examined for potential redundancy, and variables may be considered for exclusion. This relatively high threshold is chosen due to the small sample size, as in small datasets, high correlations are more likely to occur by chance and may not reflect a true underlying relationship.
  When the Spearman correlation is notably higher (>|0.3|) than the Pearson correlation, this suggests a non-linear but monotonic relationship. Conversely, when the Pearson correlation is higher, this may indicate that the relationship is influenced by outliers inflating the linear association.
- Results of the Pearson and Spearman rank analyses: In the Pearson correlation matrix, one pair of variables (natural resource and coastal exposure) reaches the threshold, with a correlation of -0.80. However, the corresponding Spearman correlation is only -0.26, suggesting that the high Pearson correlation may be driven by outliers. Therefore, this relationship is not considered sufficient grounds for excluding any variables.
  In the Spearman correlation matrix, two pairs exceed the threshold: natural resource and tourism (0.84), and agriculture share and $CO_2$ emissions (0.83). The corresponding Pearson correlations (0.45 and 0.57, respectively) are considerably lower, indicating the absence of a strong linear relationship but suggesting a possible monotonic association.
  Although these results indicate some degree of association between the variables, the variables in each pair represent conceptually distinct phenomena. Therefore, all variables are retained for further analysis.
- Item-rest correlations are calculated for a selection of variables: GDP per capita, tourism expenditure, , population size, , $CO_2$ emissions, and the three Risk Assessment Matrix dimensions (internal, external, and sustainability). This method examines how strongly each variable correlates with the sum of all remaining index variables and indicates whether a variable moves in line with the broader index or captures something more distinct. Spearman rank correlations are calculated alongside as a robustness check.
  None of the correlations exceed |0.37|. Given the small sample size, these values should be interpreted with caution. No strong conclusions can be drawn from these values. However, the absence of any dominant variable is itself a meaningful finding. The fact that no single variable strongly correlates with the overall index score, supports the broad, multi-dimensional design of RICa and confirms that resilience, as measured here, cannot be attributed to any one factor.

### Correlations of categories

*Correlation analyses between categories are performed to assess whether categories overlap and to examine whether any individual category strongly drives the overall index score.*

- Pearson and Spearman rank correlations are calculated to assess the degree of overlap between the categories. For both, a threshold of |0.8| is applied, consistent with the variable-level analysis. No correlations approach this threshold, indicating that the categories capture distinct dimensions of resilience and that no two categories are measuring the same underlying concept.

- Item-rest correlations are calculated to assess how strongly a category correlates with the sum of all remaining categories. A high item-rest correlation indicates that the category moves in line with the rest of the index. A low correlation suggests it captures something more distinct, while a negative correlation would indicate that the category conflicts with the overall index. No strong (>|0.8) correlations are found. Spearman rank correlations are calculated alongside as a robustness check, with no meaningful differences found between the two methods.