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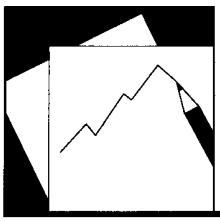

IMF Working Paper

Revisiting Tourism Flows to the Caribbean: What is Driving Arrivals?

Nicole Laframboise, Nkunde Mwase, Joonkyu Park, and Yingke Zhou

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Western Hemisphere Department

Revisiting Tourism Flows to the Caribbean: What is Driving Arrivals?

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Abstract

The Caribbean share of the global tourism market has been declining. This study examines what is driving tourism flows. It estimates the determinants of tourism and explores variations based on sample differences, and also constructs a static nominal price comparison index. The paper finds that: (i) tourism arrivals and expenditure are sensitive to both price and income factors in source markets; (ii) price and income elasticities of tourism have declined since 2008; (iii) price elasticity is statistically insignificant for "high-end" destinations; and (iv) the nominal cost of an average one week beach holiday in the Caribbean is higher than in other beach destinations around the world. These results point to the need for structural reforms to raise product quality, cost reduction or containment in "low-end" destinations, including possibly via exchange rates, and an adjustment in aggregate consumption to adapt to the implications of a lower contribution to GDP from tourism.

JEL Classification Numbers: C33, L83, N16, O54
Keywords: price elasticity, income elasticity, Carribean, tourism arrivals and expenditure

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I. INTRODUCTION

The Caribbean region is highly dependent on tourism. In many countries, the importance of tourism increased steadily as the system of agricultural trade preferences was dismantled. Tourism gradually became the dominant sector, and now accounts for a large share of GDP, ranging from 8 to 40 percent of GDP for most of the 16 countries studied in this paper.[2] Tourism is of course the main driver of economic growth and employment, and is a key source of government revenues.

In recent years, however, the rate of growth in tourist arrivals has stalled, and the region's share of the global market has been shrinking. Moreover, many Caribbean countries are facing significant macroeconomic imbalances as growth has slowed and public finances have deteriorated. Thus there is strong interest in understanding what drives tourism flows.

This study aims to find out what attracts tourists to the Caribbean and whether this has changed since the global financial crisis, and how the nominal cost of a visit to a Caribbean island compares with a beach holiday in other parts of the world. A better understanding of what is driving tourism flows at this time should help to inform strategies for reinvigorating the sector and ultimately strengthening its contribution to growth. The scope of this study is on tourism flows and it does not consider the impact of tourism on the broader economy, nor does it aim to quantify non-price factors driving tourism choices.

The paper contributes to the literature in three ways: (i) it revisits the determinants of tourism and explores new factors like the impact of competitors from periphery Europe; (ii) it investigates the extent to which the global financial crisis and recession may have altered tourism demand; and (iii) it introduces the concept of a "week at the beach" index to compare the nominal cost of similar tourism products across different beach destinations around the world. It expands on work by Mwase (2013) which explored the impact of high-end and low-end destinations on tourism flows by examining the price and income elasticities for different products. We are not aware of any other study that differentiates between types of destinations.

Using data covering the period 2000–2013 for 16 Caribbean countries, the paper finds that both price and income factors are found to have a significant impact on tourism arrivals and expenditure, although price elasticity is found to be statistically insignificant for high-end destinations. The number of airlines also has a statistically positive impact on arrivals and expenditure.

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[2] The paper focuses on tourism-based economies in the Caribbean with receipts as a share of GDP above 8%: Anguilla (37%), Antigua & Barbuda (26%), The Bahamas (27%), Barbados (24%), Belize (19%), Dominica (20%), Dominican Republic (8%), Grenada(14%), Jamaica (15%), St. Kitts & Nevis (13%), St. Lucia (25%), St. Vincent & the Grenadines (13%). We exclude the following non tourism-based economies in some of the empirical work: Guyana (4%), Haiti (3%), Suriname (1%), and Trinidad & Tobago (2%). See section V and Appendices I and III.

A simple static comparison of 10 Caribbean countries with 18 other beach holiday destinations in the world (including Cancun and Puerto Rico) in 2014 finds that the nominal cost of an "average" beach holiday in the Caribbean is higher than in other parts of the world. The result suggests that non-price factors would need to be superior to ensure that the marginal cost of a holiday in the Caribbean does not exceed the marginal benefit. The index is based on three components: (i) the average room rate of three star hotels from one common source, (ii) the taxi fare between the hotel and airport, (iii) three meals per day, (iv) two liters of water, one beer and one cup of coffee.

The paper starts with a short literature review (Section II). Section III provides stylized facts about trends in tourism after the global financial crisis. Section IV–VI presents the empirical work as well as the static relative price index. The former is based on a dynamic panel regression that attempts to identify the key determinants of, and trends in, tourism arrivals and expenditure over a 14 year period, including by type of destination. Second, we experiment with a simple relative price index that contrasts nominal, "on the ground" prices of a holiday at the beach anywhere around the world. This index copies the Big Mac Index (Economist) idea, but does not go as far as inferring underlying real exchange rate valuations. Rather, its aim is to provide a snapshot in time only of comparator prices as one part of efforts to gather information on the factors driving tourism consumption behavior.

II. LITERATURE REVIEW

There is an abundance of research on tourism in the Caribbean. This review focuses on studies that explore the determinants of tourism flows and competitiveness. Starting with the empirical work on global tourism, Culiuc (2014) found that OECD countries exhibit higher elasticity with respect to economic variables (GDP, real exchange rates, bilateral trade), in part due to a larger share of business travel. However, he found that tourism to small islands is less sensitive to changes in real exchange rates, but more sensitive to the introduction/ removal of direct flights.

Wolfe and Romeu (2011) measured the impact of changing economic conditions in OECD countries on tourist arrivals to Latin America and the Caribbean. Their estimates suggest that tourism demand is price sensitive, and that a variety of factors affecting the cost of tourism services can drive market share outcomes. Their estimate shows that a 1.0 percent decline in the cost of tourism services is found to increase tourist arrivals by 1.2–1.6 percent. Crouch (1994) investigated a number of empirical studies and found an average price elasticity of demand for international tourism of -0.6 to -0.8, while the magnitude is different depending on a number of methodological factors.

Caribbean-specific literature provides quite mixed results about the importance of price and income factors in attracting tourists. Archibald and others (2008) argued that long-term trends in arrivals can be influenced by changes in capacity and the price of tourism in the destination relative to the source country and other destinations, as well as fluctuations in exchange rates and airfares. The results indicate that a 1.0 percent rise in destination prices relative to the source market reduces arrivals by about 0.1 percent. Tsounta (2008) showed that tourism arrivals are significantly affected by economic developments in source countries

as well as price considerations and external shocks, while supply factors, such as developments in foreign direct investment and the number of airlines servicing a destination, are also significant determinants of tourism demand. According to her estimates, income elasticity (per capita GDP of source countries) is 1.5 and price elasticity (source market-based real effective exchange rate) is -1.3.

On the other hand, Mwase (2013) found that tourism flows to the Caribbean are income elastic, with the exception of flows from Spain and the U.S., but are not very sensitive to price changes. Bolaky (2011) argued that a real exchange rate depreciation could increase tourism competitiveness, but only in relation to stay-over arrivals of Canadian tourists. When increases in transport costs are linked to hikes in oil prices, there is a drop in stay-over arrivals, especially from Canada and the U.K.. Greenidge and Jackman (2010) found that the structure and nature of tourism demand for Barbados had evolved and that income elasticities for arrivals from the U.K., U.S., Canada, and CARICOM had become smaller over time.

III. Tourism Performance in Recent Years

Tourism in the Caribbean displayed solid growth during the 2000s, fueled by steady growth in key advanced economies and strong inflows of foreign direct investment (FDI). Since mid-2008, the global downturn led to a collapse in external demand which significantly affected tourism performance. While there have been some signs of gradual recovery in recent years, the pace of growth has been weaker than in other regions.

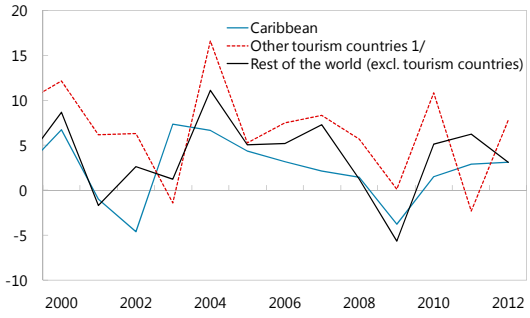
The Caribbean share in the global tourism market has continued to decline, falling to about 2 percent in 2013 (Figure 1) compared to about 2.5 percent in 2000. However, within the Caribbean there are some notable exceptions, namely Belize, the Dominican Republic, and Jamaica, where performance has been resilient. As a result, there has been a shift in market share within the Caribbean (Figure 2).

Historically, economic cycles in advanced economies were transmitted rapidly to the Caribbean through the tourism sector, and this relationship persists today in countries dependent on arrivals from the U.S. (the Bahamas, Belize, St. Kitts & Nevis) and the U.K. (Barbados, Antigua and Barbuda).[3] However, the Great Recession left a more profound impact. With output contracting sharply in the U.S., Canada and the U.K., unemployment at elevated levels for many years, and U.S. household net wealth depressed, tourism arrivals fell sharply after the crisis and have remained weak since (Figure 3).

[3] For The Bahamas, Belize, and St. Kitts & Nevis, the U.S. is the most important source market, representing more than 60 percent of total tourist arrivals. For Barbados and Antigua and Barbuda, U.K is the most important source market, accounting for more than 35 percent of total tourist arrivals.

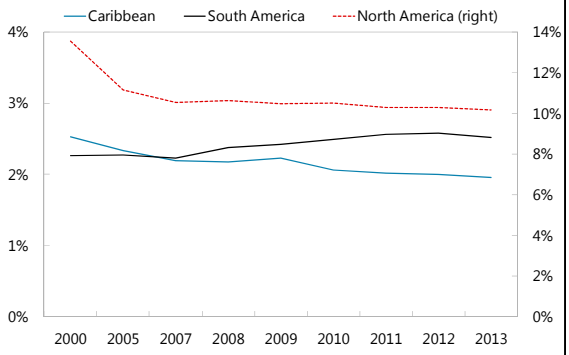
Figure 1. Tourism Growth in the Caribbean
(in percent, unless otherwise indicated)

Tourism Arrivals
(year-over- year percent change)

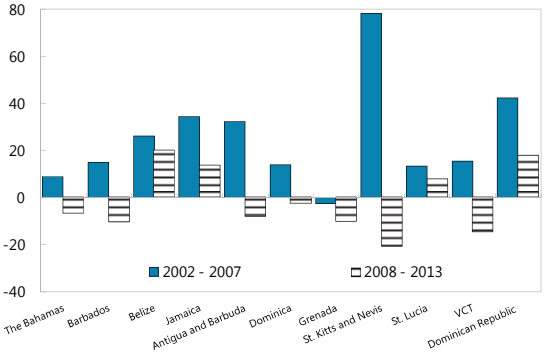


1/ Other tourism countries are defined as tourism receipts greater than 5 percent of GDP (avg. 2006-13).

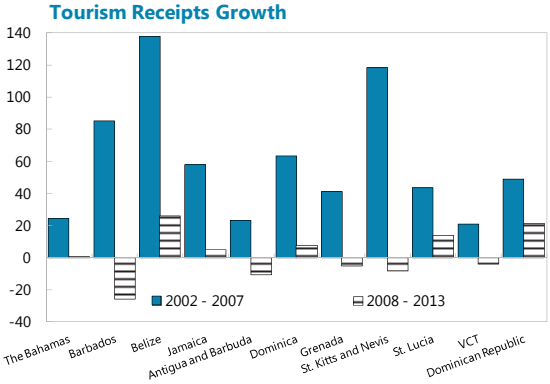
Market Share in Global Tourism Arrivals



Tourist Arrival Growth

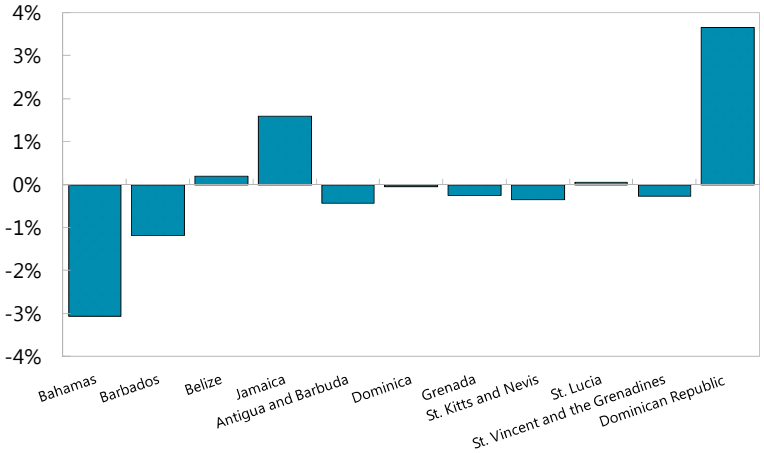


Tourism Receipts Growth



Sources: IMF, Balance of Payments Statistics; World Tourism Organization, Yearbook of Tourism Statistics, and IMF staff calculation.

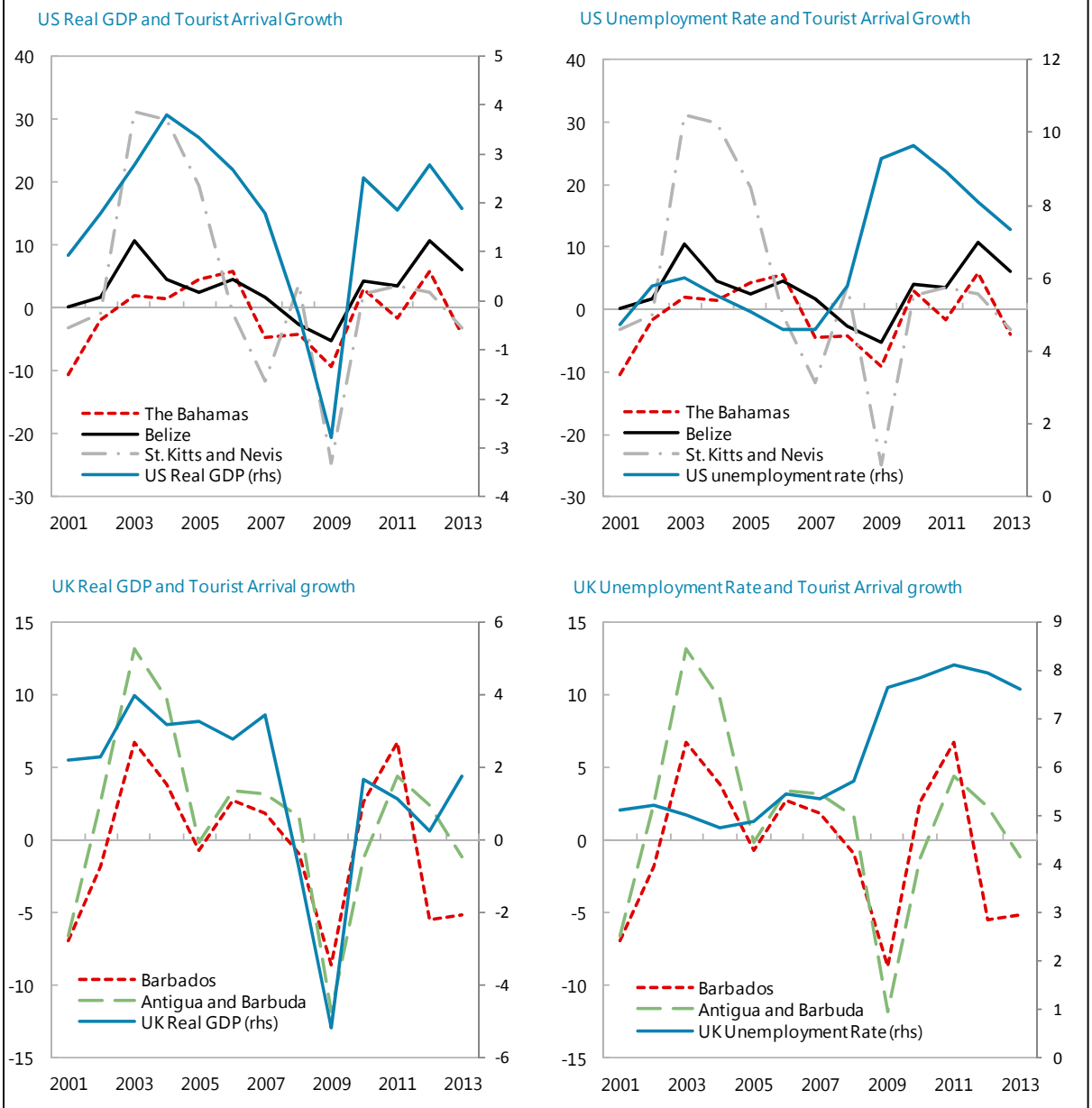
Figure 2. Tourism Market Share Change from 2007 to 2013
(in percent)



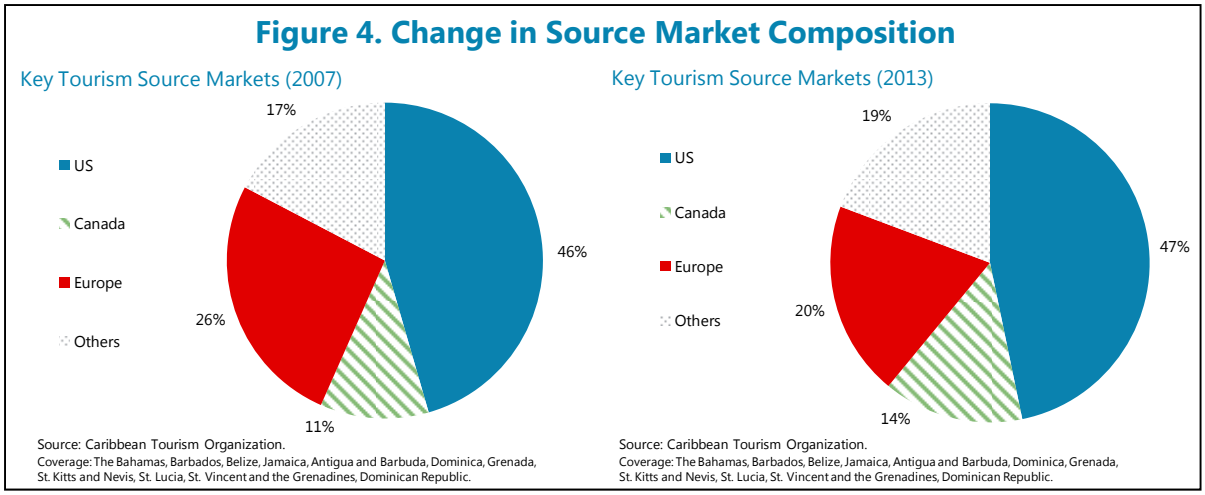
Source: Caribbean Tourism Organization.

Demand side: weaker economic growth and employment in advanced economies after the global financial crisis affected tourism performance.

Figure 3. Tourism Growth in Selected Countries and Economic Performance in Key Source Markets
(in percent)

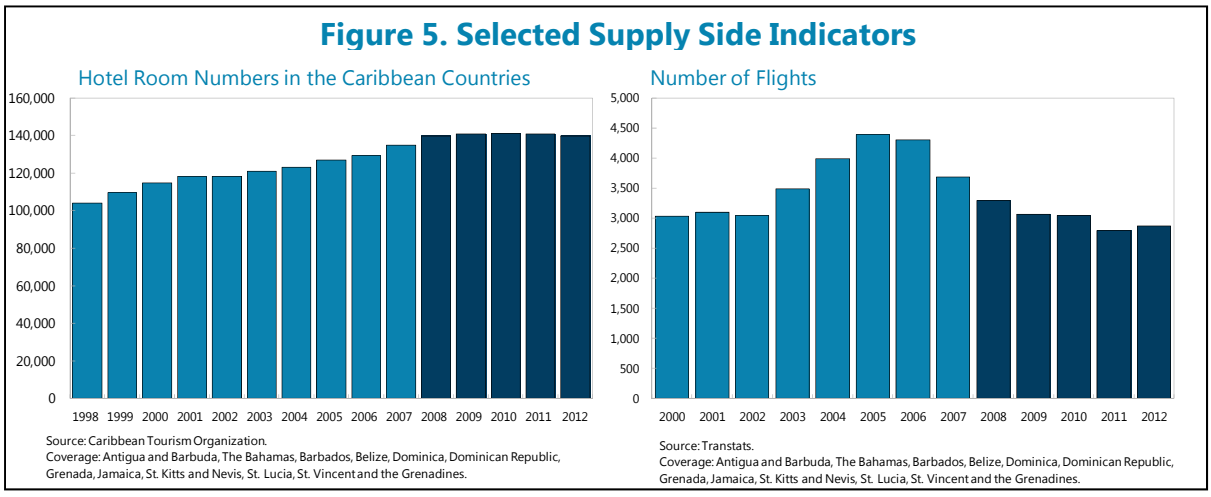


Source: Caribbean Tourism Organization; World Economic Outlook; and Fund staff calculations.



Supply side: Lower investment and a drop in airlift after 2006 has affected room capacity and contributed to lower tourism growth rates.

While tourism supply expanded in the early and mid 2000s, weaker demand for tourism after the global financial crisis pushed capacity rates down in many Caribbean markets and lowered incentives to invest in new tourism development. In a few countries (the Bahamas, Barbados), room capacity has declined in recent years and overall, the number of flights to the Caribbean region dropped steadily (Figure 5). Airline companies are reluctant to reinstate or embark on new connections without guarantees that seats will be filled. This is a critical issue to small island economies which are almost fully dependent on air transport access, and flight changes can have a large, disruptive impact on small tourism markets.

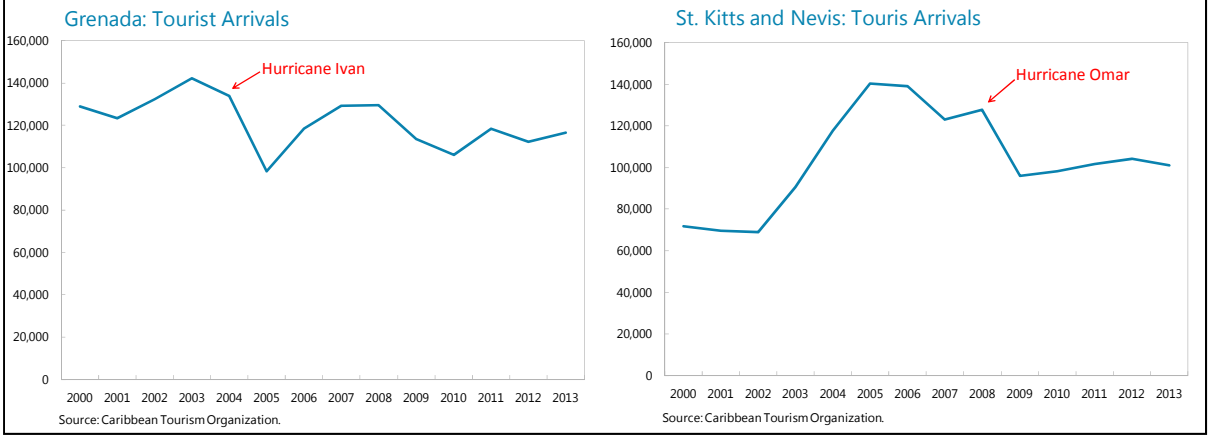


Natural disasters: Hurricanes have caused major damage to hotel facilities and disrupted tourist arrivals.

The Caribbean is prone to natural disasters, namely hurricanes, and tourism infrastructure is usually concentrated in the areas most exposed. Hurricane Ivan that hit Grenada in 2004 damaged most hotels; Hurricane Omar in 2008 essentially wiped out tourism in Nevis by

damaging the main hotel on the island (Figure 6), and Hurricane Sandy in 2012 caused disruptions to hotel operations in The Bahamas that negatively affected stopover tourists. In the Eastern Caribbean Currency Union, the debt-to-GDP ratio rises by almost 5 percentage points on average the year a storm strikes (Acevedo, 2014).

Figure 6. Natural Disasters and Tourist Arrivals



Clearly tourism in the Caribbean is vulnerable to shocks, and also to events in key source markets. Stronger growth, higher consumer confidence, and declining unemployment levels in North America and the U.K. should contribute to reinvigorating growth in the sector. However, some of the trends presented above point to a possible secular shift in tourism demand and activity in the region. This study will look at the factors underlying recent tourism trends to shed light on structural features of the sector that might inform macro and micro policy decisions.

IV. Determinants of Tourism Arrivals and Expenditure

A. Data

To examine the determinants of tourism arrivals and expenditure, annual data for the period 2000–2013 for the 16 countries in the sample are used. Of particular note, some of the series used as independent variables to estimate price and income coefficients are based on tourism-weights. So for example, the weights for the real-effective exchange rate series are based on tourism source market shares. Please see Appendix I, Table I.1, and Table I.2 for further details.

B. Estimation Strategy

Using a dynamic panel regression, explanatory variables related to price factors, income factors, supply factors, and other factors are applied. We further check whether these determinants vary over time, i.e., post- versus pre- financial crisis, and across countries, i.e., high-end versus low-end destinations. Specifically, the following equation is estimated:

$$\ln(Y_{ct}) = \alpha_c + \beta_2 \ln(P_{ct}) + \beta_2 \ln(UE_{ct}) + X_{ct} + \varepsilon_{ct} \quad (1)$$

with year t = 2000, 2001…2013 and country c = 1, 2…16;

- Y_{ct} is the number of tourism arrivals or expenditure in country c and year t;
- P_{ct} is the tourism-weighted real exchange rate for country c in year t, with weight being the tourist arrivals shares from United States, United Kingdom, and Canada in 2010;
- UE_{ct} is the tourism-weighted source country unemployment rate for country c and year t,4
- X_{ct} is a vector of time-varying explanatory variables ((i) supply factors: number of airlines reaching destinations and number of hotel rooms; (ii) other factors: homicide rate in destination countries, hurricane dummy, and September 11, 2001 terrorist attacks dummy);
- α_c is country fixed effect;
- ε_{ct} is an error term.

Information on the derivation and definition of the data is provided in Appendix I (Table I.2)

To remove the country fixed effect and reduce the degree of serial autocorrelation, first differences estimation is used as the baseline specification;

$$\Delta \ln (Y_{ct}) = \beta_1 \Delta \ln (P)_{ct} + \beta_2 \Delta \ln (UE_{ct}) + \Delta X_{ct} + \Delta \varepsilon_{ct} \quad (2)$$

Where Δ is the first-differenced operator, e.g., $\Delta y_{ct} = y_{ct} - y_{ct-1}$.

In addition, several robustness checks are conducted:

- As some of variables used in the regression may be endogenous, notably the number of airlines and hotel rooms, we also run an Arrelano Bond regression to tackle the endogeneity issue (Appendix II, Table II. 1- II. 2, column 1).

- To capture the new competition effect from southern European destinations with beaches, the average unit labor cost in Portugal, Italy, Greece, and Spain is included (Appendix II, Tables II.1-II.2, column 2).[5]

[4] Both the unemployment rate and real incomes were assessed and the results were consistent, but the results using unemployment were more robust. Unemployment is a powerful indicator of the economic environment. In addition, there is little research assessing the impact of unemployment in source countries on tourism flows.

[5] Unit labor costs are the most effective indicator in the context of the European monetary and currency union.

- To capture the competition effect from cruise passengers, we control for the number of cruise passengers (Appendix II, Tables II.1-II.2, column 3).

- For alternative price factors in the destinations, the following two proxies are used:
  - the Rogoff measure of exchange rate misalignment (Tables II.1-II.2, column 4)
  - the "UN *per diem*" rate (Tables II.1-II.2, column 5)

- For alternative income factors, the following three proxies are applied[6]:
  - tourism-weighted source country real GDP per capita (Tables II.1-II.2, column 6)
  - US household net wealth (Tables II.1-II.2, column 7)
  - tourism-weighted unemployment gap with HP- filter (Tables II.1-II.2, column 8)

- To focus on tourism-based economies, countries where the tourism sector as a share of GDP was below 5 percent in 2010 (Guyana, Haiti, Suriname, and Trinidad and Tobago) are excluded (Tables II.1-II.2, column 9).

Heterogeneous effects over time and across countries are also checked, specifically:

Post-financial crisis versus pre-financial crisis. To check whether price and income elasticities have changed since the global financial crisis, the sample is split into two periods, post-financial crisis (after 2008) versus pre-financial crisis (pre-2008).

High-end versus lower-cost destinations. To check whether countries with different characteristics have different price and income elasticities, the sample is divided into high (i.e. luxury) and lower-cost destinations. Two possible criteria are used to classify the high versus lower-cost countries, namely: (i) the number of 4–5 star hotels as a share of total[7], and (ii) GDP per capita[8]. Both criteria could be said to reflect the host countries' ability to provide the infrastructure and services needed to support high-end travelers.

C. Empirical Results

Overall, both price and income factors are found to have a significant impact on tourism arrivals and expenditure.

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[6] As the country fixed effects in our model captures all time-invariant country specific characteristics, including distance, we did not use distance-weighted real GDP per capita or the unemployment rate.

[7] Based on a ratio of 4-5 star hotels to the total in 2014 with a threshold of 30 percent, higher end destinations are Anguilla, The Bahamas, Barbados, and St. Kitts and Nevis; the remainder of the sample in Table A.1 is lower-cost destinations.

[8] Higher end destinations here have a per capita GDP value above US$15,000 and include Anguilla, Barbados, The Bahamas, and Trinidad & Tobago; the remainder in Table A.1 is lower income destinations.

- **Price factor.** A 1.0 percent appreciation of the tourism-weighted real exchange rate is associated with 0.16 percent decrease in arrivals, and a 0.1 percent decrease in tourism expenditure in the baseline specification during 2000-2013 (Table 1). These results are broadly consistent with the literature, e.g., Culiuc (2014) and Mwase (2013). However, price elasticity becomes marginally insignificant after the global financial crisis (Table 2). Interestingly, price elasticity is found to be statistically insignificant for high-end destinations (Table 3). This suggests, not surprisingly, that these destinations attract tourists who are less sensitive to the price factor. Intuitively, travelers to higher-end destinations might be less sensitive to price (real effective exchange rate) changes since consumer preferences (typical of higher income tourists) suggest a greater willingness to pay a higher marginal cost to maximize utility, for a given tourism product.

- **Income factor.** A 1.0 percent increase in the tourism-weighted unemployment rate implies a 2.1 percent decrease in arrivals, and a 3.7 percent decrease in expenditure in the baseline specification during 2000-2013 (Table 1). The income elasticity becomes smaller after the global financial crisis (Table 2). The finding shows that arrivals in the Caribbean are very sensitive to economic conditions in source countries.

- **Supply factors.** The number of airlines has a statistically positive impact on arrivals and expenditure. The number of hotel rooms is found to have no significant impact on tourism arrivals to, or expenditure in the Caribbean, either for the higher end or lower cost destinations (Table 1). To address concerns of reverse causality, the number of hotel rooms and airlines lagged by one year are also tested; the results are similar.

- **Other factors.** Both hurricane and the September 11 terrorist attack have negative and significant impacts on arrivals and expenditure. However, tourism arrivals and expenditure are not sensitive to homicide rates (Table 1).

- **Caveats.** There could be some country-specific time-varying omitted variables, for example, the service quality of destinations, and the competition effect from other regions in the Caribbean. It is difficult to capture all the determinants of tourism arrivals and expenditure due to lack of data.

Table 1. Determinants of tourism arrivals and expenditure

	(1) Panel OLS	(2) Panel OLS
Dependent variable	ΔLn(Tourism arrivals)	ΔLn(Tourism expenditure)
ΔLn (Tourism weighted real exchange rate)	-0.158***	-0.101***
	(0.00982)	(0.0320)
ΔTourism weighted unemployment rate	-2.081***	-3.707***
	(0.429)	(0.487)
ΔHurricane	-0.0138**	-0.0226**
	(0.00597)	(0.00821)
ΔSept.11 terrorist attacks	-0.0229***	-0.0360***
	(0.00625)	(0.0109)
ΔHomicide rate	-0.00110	-0.00155
	(0.00101)	(0.00120)
ΔLn(Number of airlines)	0.0846***	0.0960**
	(0.0175)	(0.0340)
ΔLn(Number of hotel rooms)	-0.0104	0.0365
	(0.0659)	(0.0700)
Country fixed effects	Yes	Yes
Number of country group	16	16
Observations	141	139
R-squared	0.345	0.230

Note: For brevity, the unit root tests are not reported. The augmented Dickey-Fuller tests show that the first difference of dependent and independent variables are stationary.

Table 2. Post-financial crisis versus pre-financial crisis

	(1) Panel OLS Post-crisis	(2) Panel OLS Pre-crisis	(3) Panel OLS Post-crisis	(4) Panel OLS Pre-crisis
Dependent variable	ΔLn(Tourist arrivals)		ΔLn(Tourism expenditure)	
ΔLn(Tourism weighted real exchange rate)	-0.120	-0.192***	-0.109	-0.122***
	(0.0853)	(0.00728)	(0.0975)	(0.0293)
ΔTourism weighted unemployment rate	-1.216**	-9.077***	-3.146***	-10.54***
	(0.414)	(1.331)	(0.479)	(1.891)
ΔHurricane	-0.00711	-0.0134	-0.0171	-0.0214**
	(0.0102)	(0.00902)	(0.0102)	(0.00832)
ΔSept.11 terrorist attacks		-0.0288***		-0.0483***
		(0.00729)		(0.0129)
ΔHomicide rate	-5.06e-05	-0.00171	0.00124	-0.00314**
	(0.000948)	(0.00121)	(0.00133)	(0.00126)
ΔLn(Number of airlines)	0.102**	0.0260	0.0983**	0.0815
	(0.0409)	(0.0160)	(0.0383)	(0.0493)
ΔLn(Number of hotel rooms)	0.0591	-0.0643	-0.0539	0.0577
	(0.115)	(0.0617)	(0.160)	(0.0818)
Country fixed effects	Yes	Yes	Yes	Yes
Number of country group	16	16	16	16
Observations	64	77	61	78
R-squared	0.311	0.557	0.226	0.315

Table 3: High-end versus lower-cost destinations

	(1) Panel OLS	(2) Panel OLS	(3) Panel OLS	(4) Panel OLS
	High-end	Lower-cost	High-end	Lower-cost
Dependent variable	ΔLn(Tourist arrivals)		ΔLn(Tourism expenditure)	
ΔLn(Tourism weighted real exchange rate)	0.0865	-0.153***	0.0904	-0.106**
	(0.0695)	(0.0139)	(0.280)	(0.0416)
ΔTourism weighted unemployment rate	-3.888***	-1.590***	-3.818*	-3.676***
	(0.271)	(0.254)	(1.324)	(0.722)
ΔHurricane	-0.00993	-0.0103	-0.0106	-0.0198
	(0.00678)	(0.0118)	(0.00711)	(0.0189)
ΔSept.11 terrorist attacks	-0.0375*	-0.0207***	-0.0335	-0.0337**
	(0.0158)	(0.00578)	(0.0347)	(0.0114)
ΔHomicide rate	0.000176	-0.00198	0.00172	-0.00214
	(0.00137)	(0.00144)	(0.00323)	(0.00189)
ΔLn(Number of airlines)	0.0247	0.0879***	0.0721	0.105**
	(0.0521)	(0.0207)	(0.0808)	(0.0448)
ΔLn(Number of hotel rooms)	-0.234**	0.0938	-0.00511	0.000637
	(0.0689)	(0.0634)	(0.0475)	(0.161)
Country fixed effects	Yes	Yes	Yes	Yes
Number of country group	4	12	4	12
Observations	44	97	42	97
R-squared	0.543	0.405	0.301	0.229

V. 'WEEK AT THE BEACH' INDEX

A. Data

To construct an index based on the core costs of spending one week at the beach, three broad cost categories are compiled based on 2014 data from a common source across all countries. The categories comprise costs for hotel, food, and transportation. For example, hotel rates are based on the average room rate for three star hotels as determined by Travelocity. Please see Appendix III and Table III.1 for source information.

B. Concept and Approach

The real effective exchange rate is commonly used as a measure of change in aggregate external competitiveness. Creating an index based on an identical basket of goods and/or services is another way to assess relative costs. The Big Mac Index is such an index. Invented by the Economist magazine as a "lighthearted" approach to estimate whether currencies are at their "correct" level, it is based on the theory of purchasing-power parity (PPP), i.e., that exchange rates should ―in the long run―move towards the rate that would equalize the

prices of an identical basket of goods and services. In the Big Mac case, the product is a hamburger of a globally similar quality, derived with the same inputs.

Borrowing this concept, we developed a simple cost comparison indicator we call a 'Week at the Beach' index based on a simple basket of expenditures typically encountered during a beach holiday (Appendix III). The prices and data are drawn from a common source so as to minimize quality variation. Expenditures are composed of: (1) the average room rate in a three star hotel (as rated by one tour operator), (2) average taxi fare between the airport and hotel; (3) two inexpensive meals and one mid-price meal; (4) and beverages (a two liter bottle of water, one imported beer, and one coffee per day).

For comparison purposes, we considered two other sources to construct a similar cost index: the "United Nations *per diem*" which is based on the daily subsistence allowance offered to UN employees that covers lodging, meals, gratuities and other incidentals; and a "Hotel + U.S. Department of State *per diem*" index. The latter covers the similar items excluding hotel, so we added the average room rate for a three star hotel as per above (Travelocity). All three indices produced similar results. In addition, the correlation between the 'Week at the Beach' Index and the UN and State Department *per diem* indices is 0.72 and 0.92 respectively (Appendix IV, Figures 1-3).

C. Findings

According to this "Week at the Beach" index, the average nominal costs of a holiday in the Caribbean are higher than in other regions, though a few countries have relatively lower prices (Figure 7). There are no significant differences between advanced country territories (i.e., US, UK, and Dutch) and the rest of the Caribbean. Consumers' general perception of "relative cost" is important in developing tourism products, particularly given modern methods of online booking and the wide range of available destinations. Relatively higher costs in the Caribbean region suggest that the level of product and service quality is critical when competing with low cost destinations in other regions.

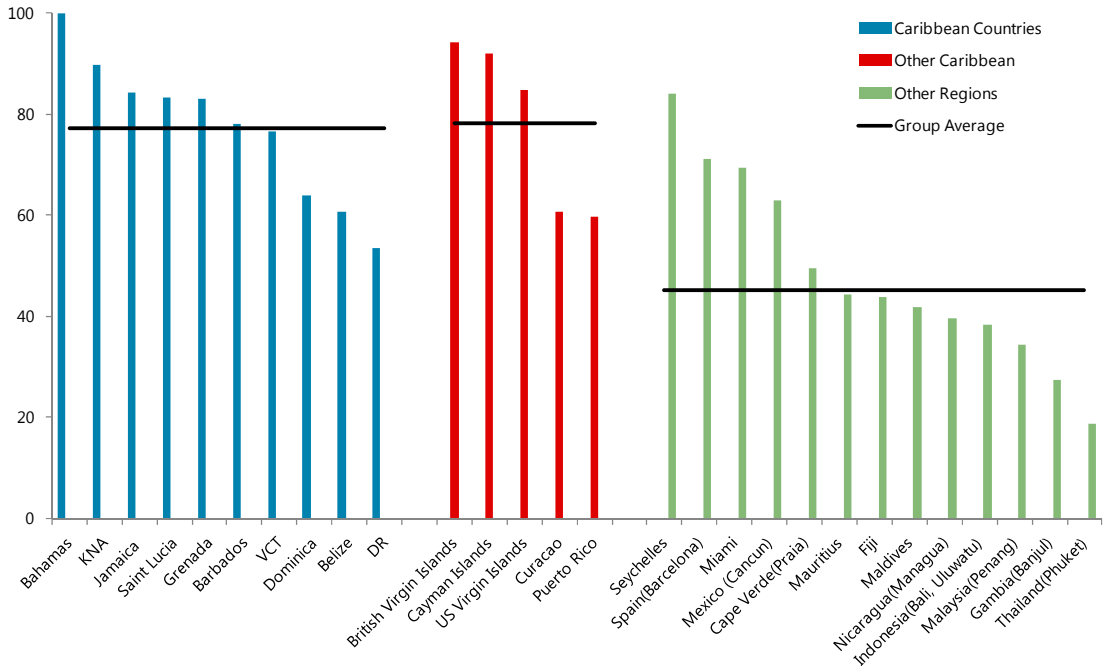
One observation of interest arising from the index is that many countries at the higher end of the index are geographically closer to the U.S. market (Appendix IV. Figure 4). While there is no obvious reason, one possible explanation could be that any gains from travel costs to the island from the U.S. have been absorbed by the tourist providers or eroded over time in the destination country. The historical trend of the U.S. Department of State's *per diem*—where data is available from 2007—supports the findings of our index. The cost comparison between Caribbean countries and other regions with this data shows the existence of a Caribbean 'premium' since at least 2007 (Appendix IV. Figure 5).

D. Caveats

Results from the index should be interpreted with care. Like in the Economist magazine, this is a lighthearted measure of relative vacation prices, and does not provide a definitive estimation of tourism competiveness or exchange rate alignment. The notion of PPP signals where exchange rates (and/or relative prices) should be heading *in the long run.* There are several other important limitations to this index, including (but not limited to) that there

could be important quality variations between hotels and meals, even using the same star rating from a common source; it does not account for differences in administered fees like import duties, or differences in the costs of non-tradable goods such as property; and it does not capture non price features (e.g., tourist attraction, language) that might matter to tourists.

Figure 7. A Week at the Beach Index, v.1
(The Bahamas = 100)



Sources: Travelocity, www.worldcabfares.com, NUMBEO, and Fund staff calculations.

VI. Conclusions and Policy Considerations

A. Conclusions

Findings from the preceding analysis point to following conclusions. Most notably:

1. Tourism arrivals and expenditure in the Caribbean are sensitive to the real effective exchange rate. However, this finding is not supported in higher-end tourism destinations.

2. Tourism arrivals and expenditure are sensitive to source countries' unemployment rate. Per capita income in the source markets is also an important determinant of tourism flows.

3. The behavior of tourism flows and expenditure changed after the onset of the global financial crisis in 2008. Both price and income elasticities of tourism have declined since the start of the Great Recession.

4. A simple nominal price comparison, excluding taxes and non-price features, suggests that the cost of an average one week beach holiday in the Caribbean is higher than in other beach regions of the world.

B. Policy Considerations

From these findings, the following issues might be taken into consideration when developing macroeconomic and structural policies with the tourism sector in mind.

Price and cost factors. The findings have different implications for each country grouping. At the higher end, countries should ensure that the tourism "plant" (hotels, facilities, restaurants) and service remain of a quality commensurate with the "high-end" brand. This highlights the importance of having supporting infrastructure, social development, and institutions that provide the public services and security expected by high-end tourists. In this regard, governments should reduce administrative impediments to doing business and avoid sustained exchange rate overvaluation that could erode profitability—in order to encourage private sector operators to invest adequately. Governments should also make sure that public investment in infrastructure and institutions supports the delivery of a "high end" tourism environment.

In the absence of the price instrument to affect demand for high-end destinations, and depending on available substitutions, countries could experience sharp declines in tourist arrivals if quality does not meet the "high-end" caliber. Declining tourist arrivals to a small island state would have adverse effects on the balance of payments, fiscal revenues and employment.

Lower-cost destinations, on the other hand, may wish to focus more on ways to lower domestic costs, for example the costs of energy and water, labor, and transportation, to affect a boost in the tourism demand response. The exchange rate could also be used to help lower relative costs, but consideration would also need to be given to other factors such as the share of tourism in the economy, its contribution to the balance of payments, the openness of the economy, the impact on external debt, to name a few.

Post-financial crisis. Since 2008, tourism arrivals and expenditure are less sensitive to price or income indicators, which suggests a structural change in the behavior of tourism demand from traditional markets. In this respect, the Caribbean may not see sustained strong growth in the tourism sector again, or at least not until we see pre-crisis growth rates and full employment again in North America and Europe. In the near term, potential growth may have been affected, suggesting the need for structural reforms to encourage resource re-allocation and increase productivity. Until output capacity is enhanced through other means, in a transition period, governments would need to pursue prudent fiscal policies to adjust domestic absorption to match with potential GDP.

Price and tourism quality. In designing a tourism sector strategy, the findings for "high end" destinations suggest that it would be important to review carefully whether product and service quality is consistent with the "high end" classification. For the Caribbean overall, the 'Week at the Beach' index suggests that non price factors would, *ceteris paribus,* need to be

superior to ensure that the marginal benefit is at least as high, or higher, than the marginal cost of a holiday in Caribbean.

Vulnerability. Since the demand for tourism in the Caribbean is sensitive to shocks in key source countries, governments may wish to place more emphasis on policies that help diversify source markets, and especially to countries with higher growth rates, such as large emerging markets in Latin America.

APPENDIX I. DATA

Table I.1. Country list

Anguilla	Antigua & Barbuda	The Bahamas	Barbados
Belize	Dominica	Dominican Republic	Grenada
Guyana	Haiti	Jamaica	St. Kitts & Nevis
St. Lucia	St. Vincent & the Grenadines	Suriname	Trinidad & Tobago

Table I.2. List of variables in determinants analysis (annual data)

Variable	Rationale	Source
Tourism arrivals	Dependent variable	Caribbean Tourism Organization
Tourism receipts	Dependent variable	WEO
Tourism-weighed real exchange rates*	Proxy for price factor	WEO
UN per diem	Proxy for price factor	UN
Tourism-weighed Unemployment rate*	Proxy for income factor	WEO
Tourism-weighed per capita real GDP*	Proxy for income factor	WEO
US household net wealth	Proxy for income factor	Fed
Homicide rates	Proxy for non-economic factor	WHO
Average unit labor cost	Proxy for competition effect	HAVER
Hurricanes	Proxy for external shock	Climatology of Caribbean Hurricanes
September 11 terrorist attacks	Proxy for external shock	Wikipedia
Number of airlines	Proxy for supply factor	Transtats
Number of hotel rooms	Proxy for supply factor	Caribbean Tourism Organization
Ratio of 4-5 star hotels to all hotels	Proxy for high end	Travelocity

Note: *The weights are based on the share tourist arrivals from the United States, United Kingdom, and Canada in 2010.

APPENDIX II. REGRESSION RESULTS

Table II.1. Robustness checks, determinants of tourism arrivals

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Panel GMM	Panel OLS	Panel OLS	Panel OLS	Panel OLS	Panel OLS	Panel OLS	Panel OLS	Panel OLS
	Arrellano Bond regression	Control competition effect	Control cruise passenger	Alternative price proxies		Alternative income proxies			Tourism-based countries only
Dependent variable				ΔLn(Tourism expenditure)					
ΔLn(Tourism weighted real exchange rate)	-0.158***	-0.164***	-0.183***			-0.109***	-0.127***	-0.163***	-0.156***
	(0.00982)	(0.0143)	(0.0210)			(0.0108)	(0.0154)	(0.00852)	(0.00745)
ΔRogoff measure of exchange rate misalignment				-0.147***					
				(0.0368)					
ΔLn(UN per diem)					-0.0855***				
					(0.0218)				
ΔTourism weighted unemployment rate	-2.081***	-1.780***	-1.929***	-2.216***	-1.309**				-2.174***
	(0.429)	(0.321)	(0.518)	(0.485)	(0.559)				(0.475)
ΔLn(Tourism weighted GDP per capita)						0.669***			
						(0.0957)			
ΔLn(US household net wealth)							0.242***		
							(0.0594)		
ΔUnemployment rate gap with HP-filter								-1.861***	
								(0.311)	
ΔHurricane	-0.0138**	-0.0137	-0.0129*	-0.0117**	-0.0203***	-0.0142*	-0.00793	-0.0137**	-0.0151**
	(0.00597)	(0.00808)	(0.00631)	(0.00538)	(0.00550)	(0.00765)	(0.0123)	(0.00607)	(0.00640)
ΔSept.11 terrorist attacks	-0.0229***	-0.00595	-0.00980	-0.0249***	-0.0411***	-0.0135*	-0.0241***	-0.0220***	-0.0205***
	(0.00625)	(0.00980)	(0.0206)	(0.00572)	(0.0113)	(0.00624)	(0.00732)	(0.00657)	(0.00579)
ΔHomicide rate	-0.00110	-0.000696	-0.00118	-0.00104	-0.000558	-0.00108	-0.00175	-0.000944	-0.000987
	(0.00101)	(0.000823)	(0.00104)	(0.000907)	(0.000397)	(0.000768)	(0.00125)	(0.000858)	(0.00104)
ΔLn(Number of airlines)	0.0846***	0.0900***	0.107**	0.0761***	0.129***	0.0806***	0.0621***	0.0854***	0.0893***
	(0.0175)	(0.0190)	(0.0405)	(0.0145)	(0.0174)	(0.0156)	(0.0173)	(0.0174)	(0.0219)
ΔLn(Number of hotel rooms)	-0.0104	0.0176	-0.0103	-0.0625	0.0405	0.0132	0.0398	-0.00741	-0.0350
	(0.0659)	(0.0856)	(0.0824)	(0.0594)	(0.114)	(0.0574)	(0.0850)	(0.0637)	(0.0605)
ΔLn(Average unit labor cost in periphery Europe)		-0.642***							
		(0.207)							
ΔLn(Cruise passenger arrivals)			-0.0260						
			(0.0213)						
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of country group	16	16	16	16	16	16	16	16	12
Observations	141	141	116	141	61	141	141	141	120
R-squared		0.406	0.370	0.391	0.500	0.404	0.334	0.362	0.351

Table II.2. Robustness checks, determinants of tourism expenditure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Panel GMM	Panel OLS	Panel OLS	Panel OLS	Panel OLS	Panel OLS	Panel OLS	Panel OLS	Panel OLS
	Arrellano Bond regression	Control competition effect	Control cruise passenger	Alternative price proxies		Alternative income proxies			Tourism-based countries only
Dependent variable	ΔLn(Tourism expenditure)								
ΔLn(Tourism weighted real exchange rate)	-0.105***	-0.107**	-0.143***			-0.0269	-0.0656***	-0.111***	-0.103***
	(0.0312)	(0.0384)	(0.0325)			(0.0239)	(0.0133)	(0.0312)	(0.0321)
ΔRogoff measure of exchange rate misalignment				-0.0294					
				(0.0360)					
ΔLn(UN per diem)					-0.206***				
					(0.0483)				
ΔTourism weighted unemployment rate	-3.724***	-3.473***	-3.362***	-3.729***	-3.338***				-3.438***
	(0.492)	(0.508)	(0.516)	(0.542)	(0.572)				(0.435)
ΔLn(Tourism weighted GDP per capita)						1.037***			
						(0.156)			
ΔLn(US household net wealth)							0.282***		
							(0.0577)		
ΔUnemployment rate gap with HP-filter								-3.350***	
								(0.393)	
ΔHurricane	-0.0224**	-0.0228*	-0.0221**	-0.0208**	-0.0407***	-0.0210*	-0.00921	-0.0225**	-0.0221**
	(0.00965)	(0.0107)	(0.00812)	(0.00751)	(0.00600)	(0.0110)	(0.0138)	(0.00864)	(0.00850)
ΔSept.11 terrorist attacks	-0.0286**	-0.0177	-0.0164	-0.0385***	-0.0915***	-0.0214*	-0.0378***	-0.0343**	-0.0297***
	(0.0122)	(0.0173)	(0.0224)	(0.0101)	(0.0227)	(0.0101)	(0.0110)	(0.0117)	(0.00914)
ΔHomicide rate	-0.00141	-0.00112	-0.00164	-0.00160	0.000132	-0.00164	-0.00276	-0.00127	-0.00170
	(0.00130)	(0.00116)	(0.00112)	(0.00126)	(0.000855)	(0.00101)	(0.00178)	(0.00100)	(0.00124)
ΔLn(Number of airlines)	0.0928***	0.102***	0.111**	0.0970**	0.156***	0.0943**	0.0820*	0.0970**	0.0785*
	(0.0313)	(0.0298)	(0.0453)	(0.0334)	(0.0449)	(0.0324)	(0.0457)	(0.0319)	(0.0382)
ΔLn(Number of hotel rooms)	0.0263	0.0617	0.0734	0.0270	-0.309*	0.0826	0.115	0.0402	0.0846
	(0.0668)	(0.0804)	(0.0539)	(0.0745)	(0.150)	(0.0859)	(0.0866)	(0.0702)	(0.0513)
ΔLn(Average unit labor cost in periphery Europe)		-0.690**							
		(0.255)							
ΔLn(Cruise passenger arrivals)			-0.0378						
			(0.0278)						
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of country group	16	16	16	16	16	16	16	16	12
Observations	139	139	113	139	61	139	139	139	116
R-squared		0.252	0.309	0.221	0.292	0.253	0.158	0.250	0.320

Table II.3. Robustness checks, high-end versus lower-cost destinations(GDP per capita criterion)

	(1)	(2)	(3)	(4)
	Panel OLS	Panel OLS	Panel OLS	Panel OLS
	High-end	Lower-cost	High-end	Lower-cost
Dependent variable	ΔLn(Tourist arrivals)		ΔLn(Tourism expenditure)	
ΔLn(Tourism weighted real exchange rate)	-0.0817	-0.151***	0.202	-0.105**
	(0.250)	(0.00818)	(0.306)	(0.0417)
ΔTourism weighted unemployment rate	-3.163**	-1.636***	-4.181*	-3.426***
	(0.823)	(0.298)	(1.506)	(0.689)
ΔHurricane	-0.00330	-0.00989	-0.00443	-0.0156
	(0.00258)	(0.0145)	(0.00281)	(0.0211)
ΔSept.11 terrorist attacks	-0.0300*	-0.0174***	-0.0461	-0.0288***
	(0.00948)	(0.00490)	(0.0286)	(0.00712)
ΔHomicide rate	0.00135*	-0.00191	0.00218	-0.00247
	(0.000539)	(0.00156)	(0.00210)	(0.00183)
ΔLn(Number of airlines)	0.0468	0.0889***	0.109*	0.0950*
	(0.0226)	(0.0222)	(0.0414)	(0.0465)
ΔLn(Number of hotel rooms)	-0.135	-0.0371	-0.205	0.104
	(0.231)	(0.0608)	(0.103)	(0.0726)
Country fixed effects	Yes	Yes	Yes	Yes
Number of country group	4	12	4	12
Observations	42	99	41	98
R-squared	0.558	0.366	0.302	0.229

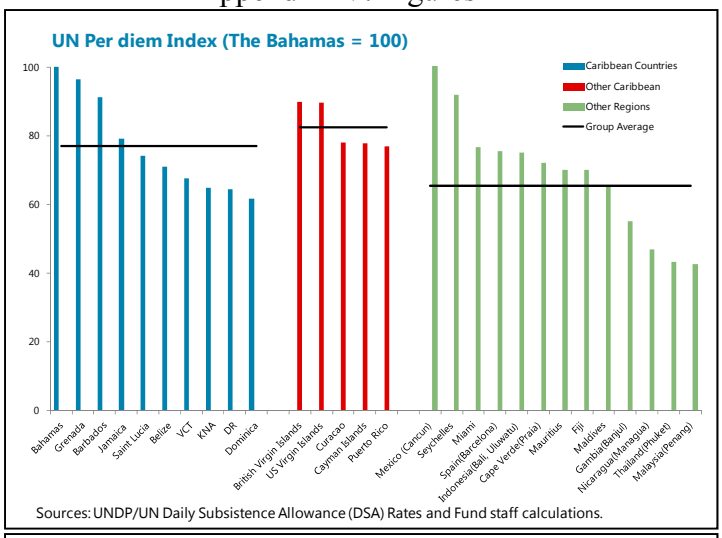
APPENDIX III. COMPOSITION OF THE 'WEEK AT THE BEACH' INDEX

Variable	Source
3 Star hotel room rate	Travelocity
Taxi	Worldcabfares
Meal	Numbeo
Water	Numbeo
Beer	Numbeo
Coffee	Numbeo
UN per diem	UN
US Department of State per diem	IMF

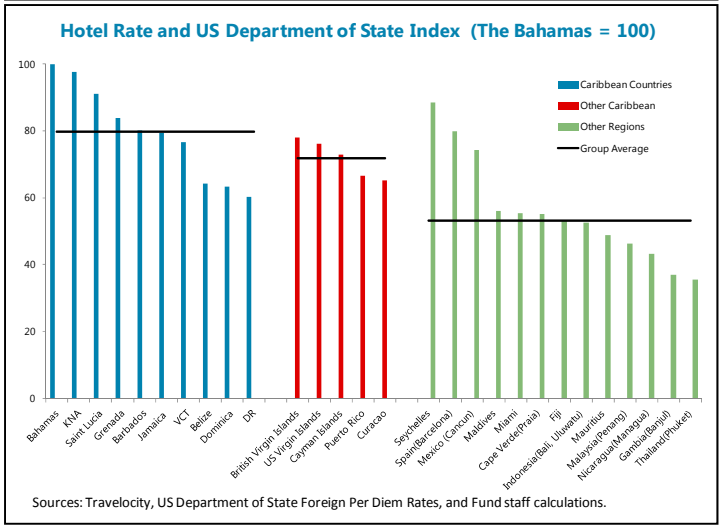
Note: Total cost=7*(3 star hotel) + 2*(taxi fare from/to airport) + 7*(2 inexpensive meal + 1 mid-range meals) + 7*2 liters water + 7*0.3 liter beer + 7*coffee.

APPENDIX IV. 'WEEK AT THE BEACH' INDEX AND OTHER VARIABLES

Appendix IV. Figures 1-2

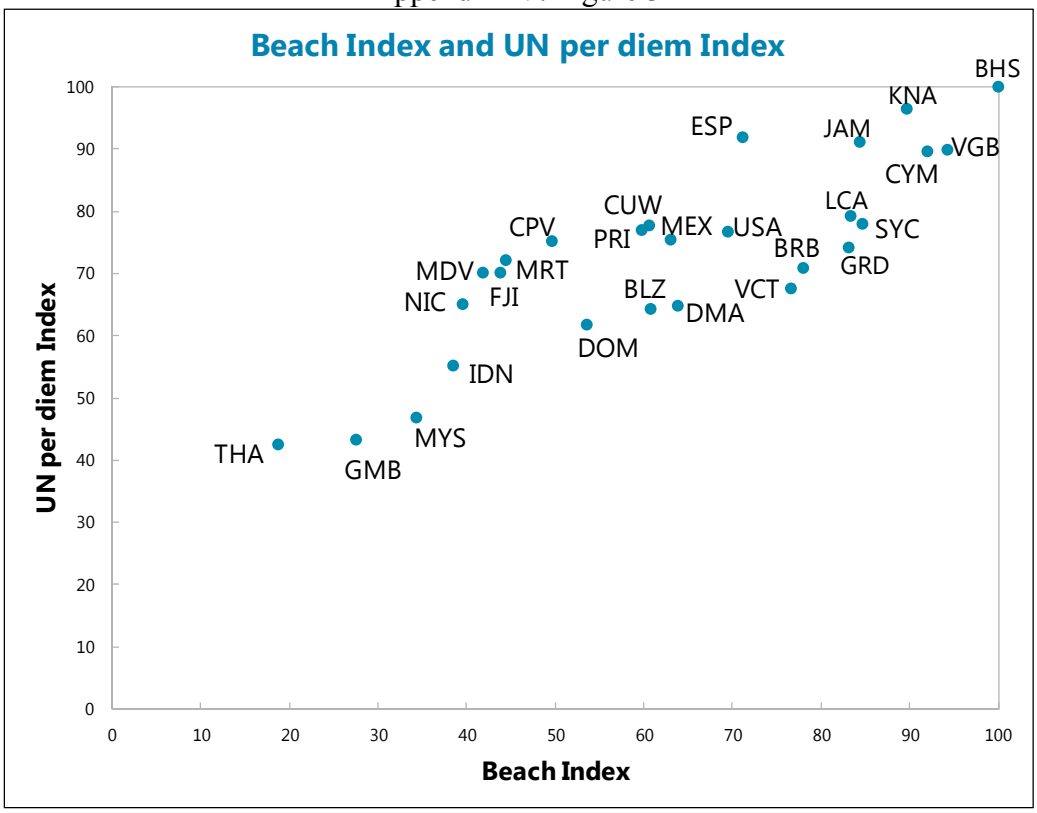


Sources: UNDP/UN Daily Subsistence Allowance (DSA) Rates and Fund staff calculations.

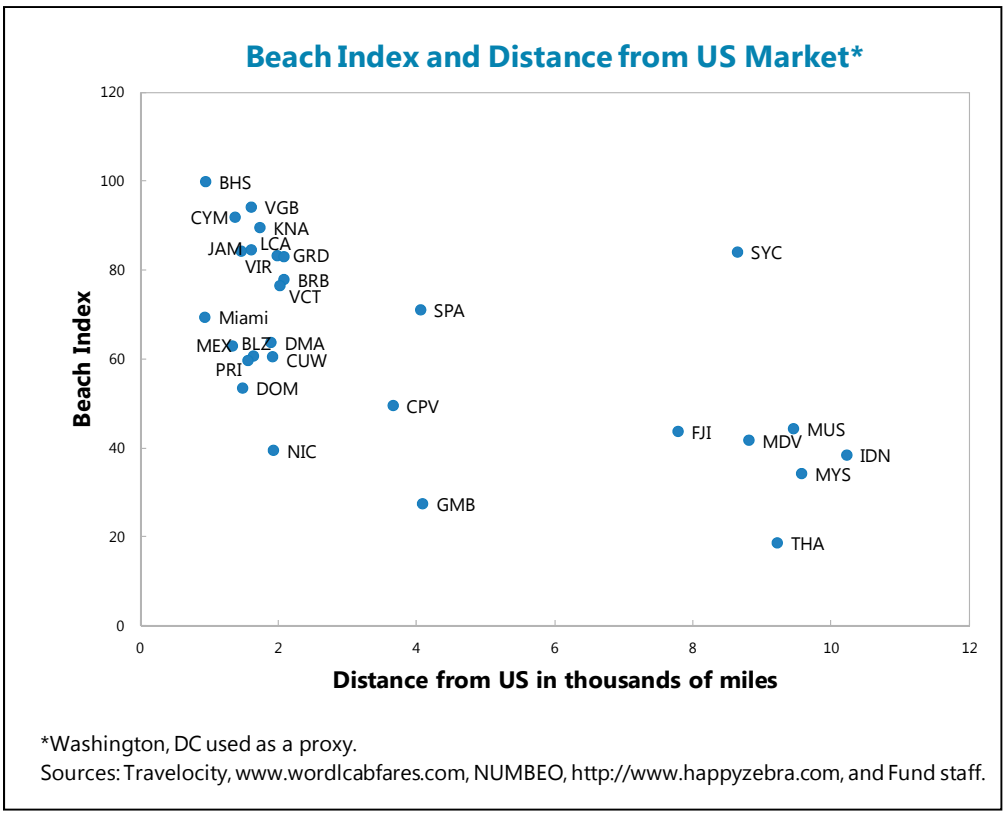


Sources: Travelocity, US Department of State Foreign Per Diem Rates, and Fund staff calculations.

Appendix IV. Figure 3

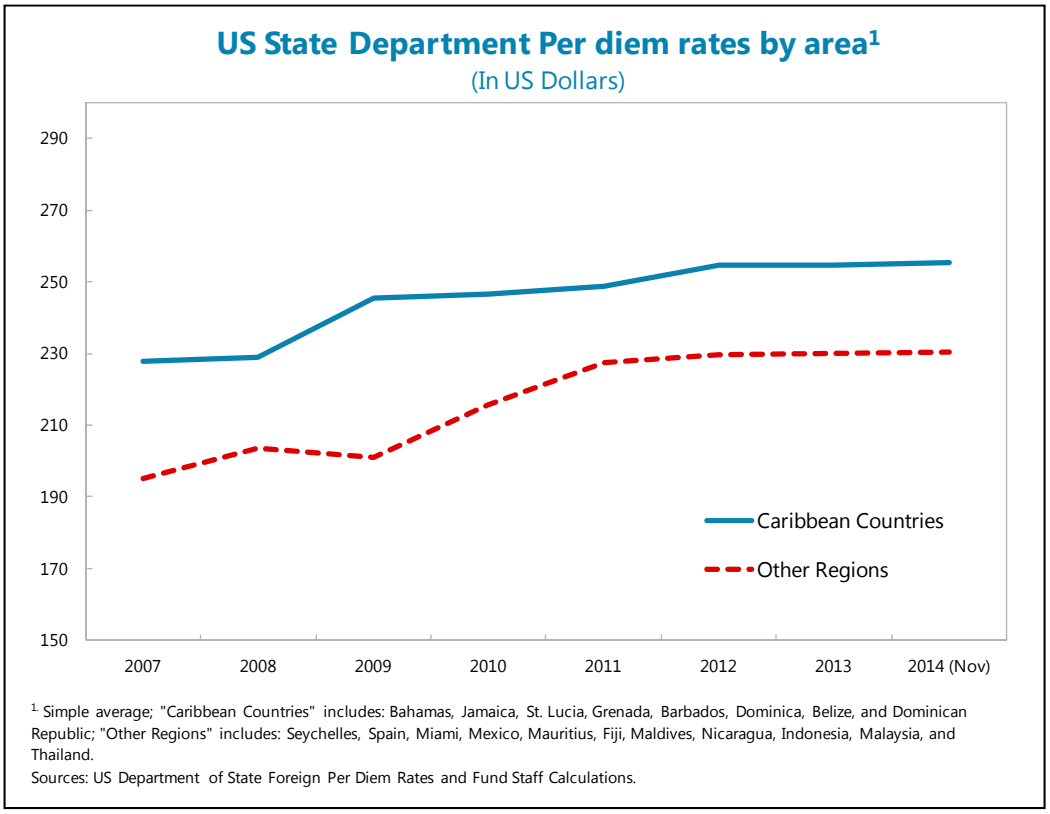


Appendix IV. Figure 4



*Washington, DC used as a proxy.
Sources: Travelocity, www.wordlcabfares.com, NUMBEO, http://www.happyzebra.com, and Fund staff.

Appendix IV. Figure 5



[1] Simple average; "Caribbean Countries" includes: Bahamas, Jamaica, St. Lucia, Grenada, Barbados, Dominica, Belize, and Dominican Republic; "Other Regions" includes: Seychelles, Spain, Miami, Mexico, Mauritius, Fiji, Maldives, Nicaragua, Indonesia, Malaysia, and Thailand.

Sources: US Department of State Foreign Per Diem Rates and Fund Staff Calculations.

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