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**Spillovers of Global  
Shocks Over Caribbean  
Countries: So Large That  
There Is Little Room to  
Maneuver  
An Impulse Response Analysis**

Valerie Mercer-Blackman  
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November 2013

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## **Abstract**

Caribbean countries are many times described as “vulnerable” in that they are highly prone to shocks such as food price hikes, natural disasters, and other global phenomena. This policy brief discusses a particular type of “vulnerability,” namely, the impact of the trading partner, output changes, and commodity price changes on their GDP growth. The analysis is based on a cointegration analysis that shows why much of the growth trend of these countries can be explained by one or two variables: a commodity price and trading-partner GDP. We also discuss how that effect unfolded during the recent global recession and what its consequent effect was on the fiscal accounts. In addition, we consider how output could change going forward if such a global shock were to reoccur.

**JEL codes:** F43, F47, F62, O47, O54

**Keywords:** Co-integration analysis, GDP shock, commodity price shock, gold prices, Caribbean, global recession

## 1. Introducing the Growth Problem

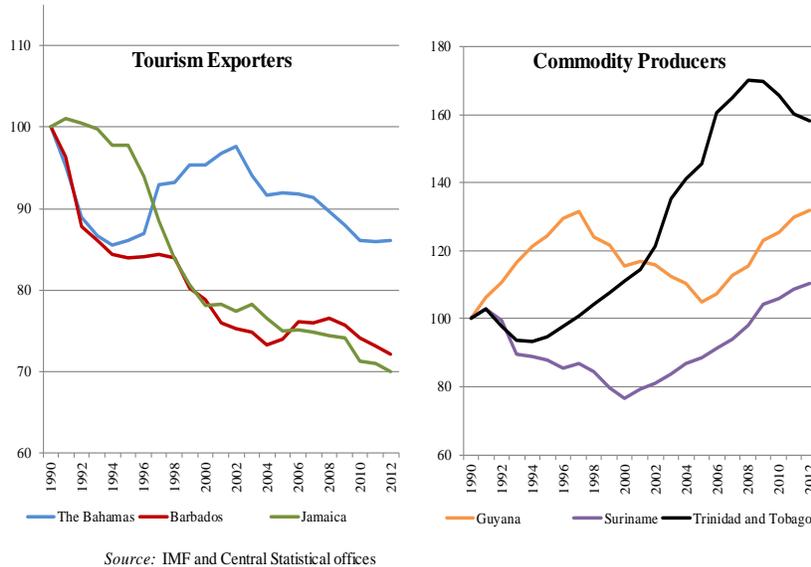
A recurrent theme in the literature on small economies, particularly in the Caribbean, is that they are vulnerable and have few policy buffers. This policy brief considers to what extent a particular type of “vulnerability” impacts GDP growth, namely, the impact of trading partner, output changes, and commodity price changes on their GDP growth. If the impact of these external macro variables is large (in the sense of explaining the majority of variations in GDP movements), it suggests that Caribbean governments have less room to use fiscal policy to counteract fluctuations in comparison with larger countries with a similar fiscal stance. It may also indirectly explain why the post-Lehman global recession had such a large impact on their output. We examine the effect on the six IDB-member countries: The Bahamas, Barbados, Guyana, Jamaica, Suriname, and Trinidad and Tobago.

**Given their relative size and contribution to global activity, it is not difficult to surmise at first glance that movements in the large trading partners and in commodity prices will have an impact on the Caribbean economies.** However, this comes after a period of relatively low growth since 1990, particularly in the tourism-exporting countries: The Bahamas, Barbados, and Jamaica. Moreover, growth for these countries has been disappointing. Figure 1 shows GDP growth of each country relative to the United States. The first panel shows the tourism-exporting countries losing ground since 1980. Traditional economic convergence theories suggest that the Caribbean would grow faster than its large and more developed trading partners as it “catches up,” but the trends suggests otherwise.<sup>1</sup> Meanwhile, commodity exporters have had more variability and have only just been able to catch up over the past decade.

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<sup>1</sup> The forthcoming Caribbean Macroeconomic Report will focus more in depth on this issue.

Figure 1. Real GDP Growth Relative to U.S. Growth (1990 = 100)



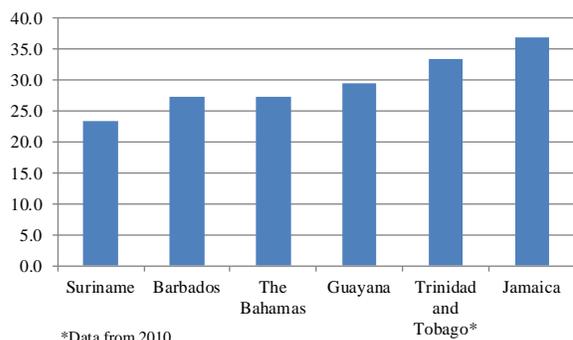
## What does it mean to be “undiversified”?

Is there a link between the disappointing growth and the lack of diversification? On the one hand, lack of diversification is the direct consequence of the small size of the economies, because the domestic markets are not large enough to create the demand that justifies

economies of scale in many sectors. However, they are very open economies, as trade openness indicators show. Trade (sum of exports and imports) is almost the size of their GDP for most countries and is larger than their GDP in the case of Guyana and Suriname (Figure 2). This is generally associated with higher growth. Therefore, the key is **what** you trade and **with whom**. In terms of what, all except Trinidad and Tobago export a few commodities and are highly dependent on the import of petroleum products, which has been costly with the rising prices (Figure 2).<sup>2</sup>

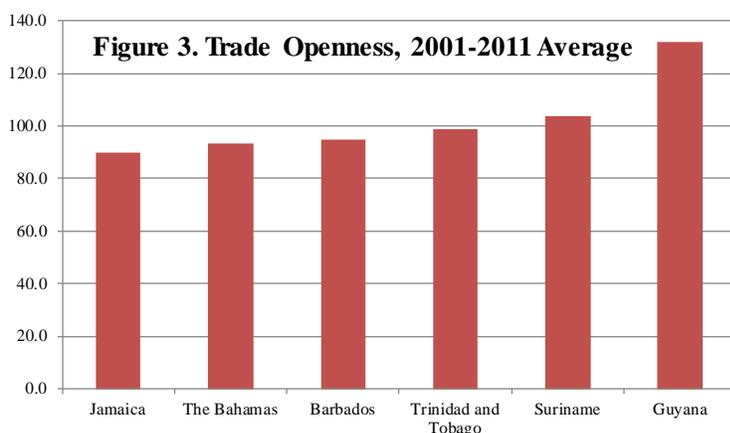
<sup>2</sup> Trinidad and Tobago also imports hydrocarbons for domestic consumption from a consumption that is of lower grade than what they export.

**Figure 2. Imports of Mineral Fuels, Lubricants, and Related Materials (% total imports), 2011**



Source: Central Bank of Bahamas and Caricom.

six countries) is an important exporter to Guyana and Suriname. In the case of Guyana, remittances, particularly from the United States, are equivalent to around one fifth of GDP. Until recently, aid from The Netherlands was an important inflow for Suriname’s government (equivalent to about a quarter of its revenues but less than 10 percent of GDP).



Note. Trade openness is defined as sum of exports and imports of goods and services as a share of GDP.

Source: World Economic Outlook.

Sheridan, Tumbarello, and Wu’s (2012) study of Pacific islands, we found that one or two global variables are sufficient to explain the long-term trend in real output of each of these economies. Table 1 summarizes the results of this exercise, and the Appendix shows the impulse-response

In terms of trading partners, most countries trade heavily with the United States, the United Kingdom (the latter trades particularly with Barbados where the bulk of tourism visitors are from the U.K.), European Union (particularly Guyana and Suriname), and within Caricom countries. For example, Trinidad and Tobago (the most diversified of the

**The small size of these economies implies that the impact of global economic forces is very large, enough to overwhelm the relatively small effect that fiscal policies may have.** Using vector-error correction models and time-series analyses and following an analysis similar to that of

functions that result from this exercise.<sup>3</sup> The Appendix shows that the real GDP of the United States and oil prices explain output for the three tourism-dependent economies. Gold prices (one of the main export commodities of Guyana and Suriname) and European Union GDP (for Suriname) explain the trend in these two countries. Moreover, given the importance of fuel imports in tourism-dependent economies, oil prices have a negative and permanent impact on their respective GDPs. For example, a 1 percent increase in oil prices over the long term (more than 5 years) will lower the GDP of The Bahamas, on average, by 0.08 percentage points.

## 2. What was the effect of the 2007–08 recession?

To illustrate the extent of the impact of global forces on Caribbean real GDP, a simple exercise was carried out to measure the impact of the 2008 recession on output of these economies, using the relations established in Table 1.

**Table 1. Explaining the Trend in Real Output: Just a Few Global Factors Explain the Majority of Output Movements of Caribbean Countries**

Results From Vector-Error Correction Model: Long-Run Elasticities\*

	US GDP	UK GDP	EU GDP	Oil Price	Gold Price
<i>percentage point permanent change in real GDP</i>					
<b>Tourism exporters</b>					
The Bahamas	0.02			-0.018	
Barbados		0.038		-0.02	
Jamaica	0.007			-0.017	
<b>Commodity exporters</b>					
Guyana					0.003
Suriname			0.005**		0.04
Trinidad and Tobago	0.04			0.045	

*Source:* IDB Caribbean Economics Team Working Paper.

\*Elasticity is defined as the permanent percentage change of the country's real GDP as a result of a 1 percent change in the variable of the respective column, all else being equal.

\*\*Elasticity becomes negative after 9 years.

**It is important to recall that the extent and depth of the recession on advanced**

**economies was unexpected.**<sup>4</sup> At the beginning of 2008, there were some signs of weaknesses in property markets of the United States and the United Kingdom, among others, as well as overleveraged banks, but few were able to predict the meltdown and aftermath prompted by the fall of Lehman Brothers in September 2008. Around April 2008, the International Monetary Fund and others produced baseline projections 5 years out of the real GDP of major economies, and of Caribbean countries for the 2008–2012 period.<sup>5</sup> The projection was intended as a baseline

<sup>3</sup> The full exercise, including tests for cointegration, is developed in more detail in Mercer-Blackman and Melgarejo (2013).

<sup>4</sup> For example, some popular models in macroeconomics such as some real business cycle models assumed that the financial sector and monetary and financial variables could not have a real and permanent effect on output.

<sup>5</sup> The information was derived from various Article IV consultations that took place between end-2007 and early 2008, where active scenarios for growth were presented.

exercise, assuming no drastic changes in the environment, notwithstanding some known underlying weaknesses in financial markets. We use these projections as the scenario of what would have happened had there not been a recession.

**Commodity prices also initially reacted to the recession but have since recovered and have remained high.** Specifically, oil prices fell from US\$150 to US\$50 a barrel between September 2007 and September 2008 and since then have hovered around US\$100 per barrel, with some fluctuations. Gold prices, which were barely expected to stay past US\$1,000 per troy ounce in early 2008, soared to unprecedented heights, so the price in 2008–2011 ended up being much higher than initially projected. Box 1 describes the possible causes of the gold price increase. Byron and Kamau (2013) also show the important impact of Gold on Suriname and Guyana’s fiscal and external accounts.

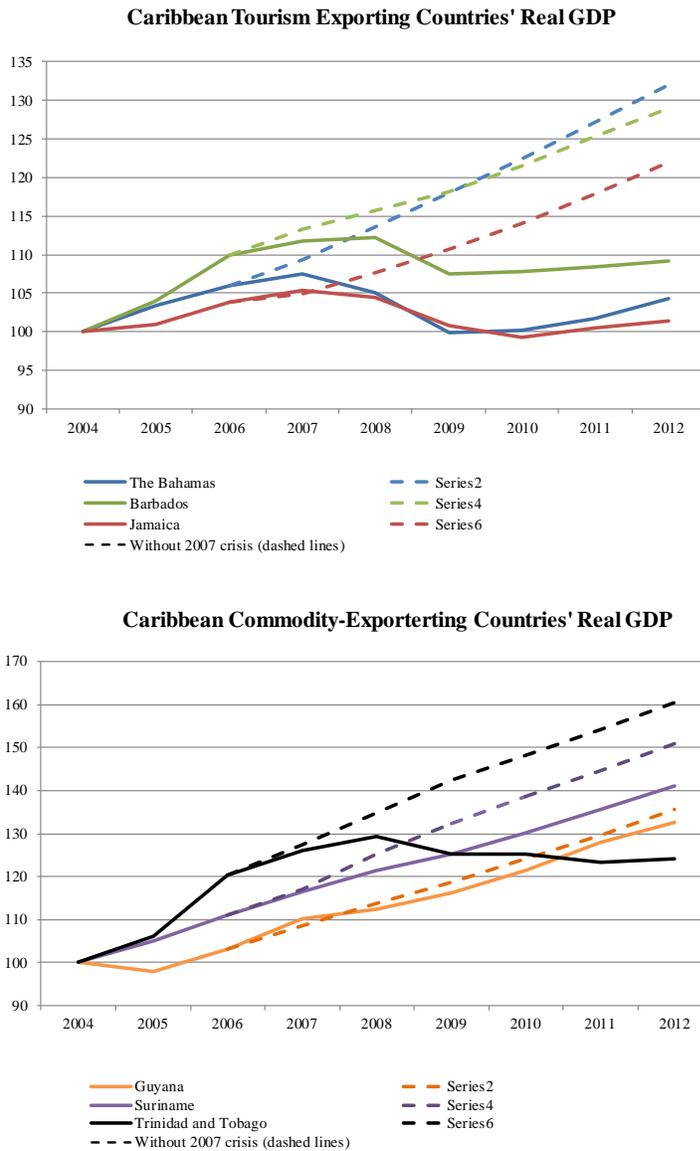
**Box 1. Why Are Gold Prices so High?**

*Gold prices experienced a sharp rise, from US\$450 per troy ounce in 2004, to almost US\$900 just before the recession, eventually breaking its all-time real record. Unlike other commodity prices that subsided during the recession, gold prices continued to rise, reaching an average of US\$1,680 per ounce at end-2012.*

*Gold prices have always been a store of value, particularly during times of political uncertainty. This has continued to be the case during the last few years. Before the recession, gold prices were rising because of fear of inflation by investors, as well as an increased demand from India, where growth has enabled Indian women, in particular, to enhance the cultural custom of buying jewelry. After Lehman Brothers, these factors persisted. Moreover, the United States was no longer a safe haven for investors. Moreover, U.S. Treasury bills gave investors almost negative real returns given the drastic drop in interest rates, thus raising gold’s demand as a safe investment. Gold also continued to be an important store of value. It is also possible that at end-2011 and -2012—as the United States began monetary easing—renewed fears of inflation maintained demand high. The upward push in prices may reflect higher costs of mining metals in general.*

*As fears of monetary easing ending have impacted the market, gold prices have been falling steadily since their all-time record of US\$1,895 per ounce in September 2011, and prices reached less than US\$1,400 in mid-2013.*

**Figure 4. Caribbean Growth Under 2008 Global Recession.  
(Actual and Pre-Recession Projections, Index 2004 = 100)**



Source: Country Statistics, International Monetary Fund Article IV (various), International Monetary Fund World Economic Outlook 2008 and International Monetary Fund Western Hemisphere Regional Economic Outlook, April 2008.

Figure 4 shows a comparison of the World Economic Outlook’s projected (dotted lines) and actual (solid lines) GDP for the main countries.<sup>6</sup> As expected, the situation was significantly worse than projected. However, the difference is particularly stark for the tourism exporters (The Bahamas, Barbados, and Jamaica). During 2007–2011, the cumulative output lost relative to a counterfactual of no global meltdown was 22.4, 14.5, and 16 percentage points of GDP for The Bahamas, Barbados, and Jamaica, respectively. Moreover, the output that has been lost since 2007 has not been recovered. Trinidad and Tobago also experienced an important loss relative to the counterfactual of no recession during 2007–2011, but some of the loss was attributable to unexpected maintenance issues in the domestic

oil and gas facilities. Suriname’s real GDP was almost 7 percentage points lower than the counterfactual of no recession, most likely because of the impact of lackluster European Union GDP on its output. In contrast, Guyana experienced a fairly small recessionary effect.

<sup>6</sup> Note that 2007 GDP data for most Caribbean countries would have still been a projection, or at best an estimate in early April 2008 when the International Monetary Fund made these projections.

### 3. How did the recession impact the fiscal balance?

This external shock also reduced the fiscal defenses of the countries in the sense that it impacted government revenues drastically. It led to the expansion of already large deficits and eliminated any policy space some countries may have had. To estimate the impact, we compare the average share of tax revenue to GDP of the general government over the previous decade before the onset of the crisis (i.e., 1997–2006) to the actual outcome. As a result, the cumulative loss of fiscal revenues resulting from the recession in 2007–2011 was substantial and added to the debt—up to 3.6 percentage points of GDP in Jamaica and Trinidad and Tobago. The biggest impact was on the tourism exporters, as the counterfactual loss for Suriname and Guyana was negligible (see Table 2).

**Table 2. Calculation of Loss of Fiscal Buffers**

	Cumulative Loss of Output Compared With Counterfactual of No Global Recession (percentage points of GDP)	Share of Tax Revenue to GDP, 1997-2006 (before base period of comparison)	Cumulative Loss of Fiscal Revenues Resulting From Recession, 2007-2011 (percentage points of nominal GDP)*	Implied Loss of Government Revenues Per Year on Average (percentage points of GDP)
The Bahamas	4.5	12.4	2.8	0.56
Barbados	2.9	25.6	3.7	0.74
Guyana	0.3	18.6	0.3	0.05
Jamaica	3.2	22.6	3.6	0.72
Suriname	1.3	17.4	1.2	0.23
Trinidad and Tobago	4.6	15.8	3.6	0.72

*Source:* International Monetary Fund World Economic Outlook and authors' calculations.

\*Calculation assumes GDP deflator would have been the same with or without global recession, and equal to that used to deflate taxes.

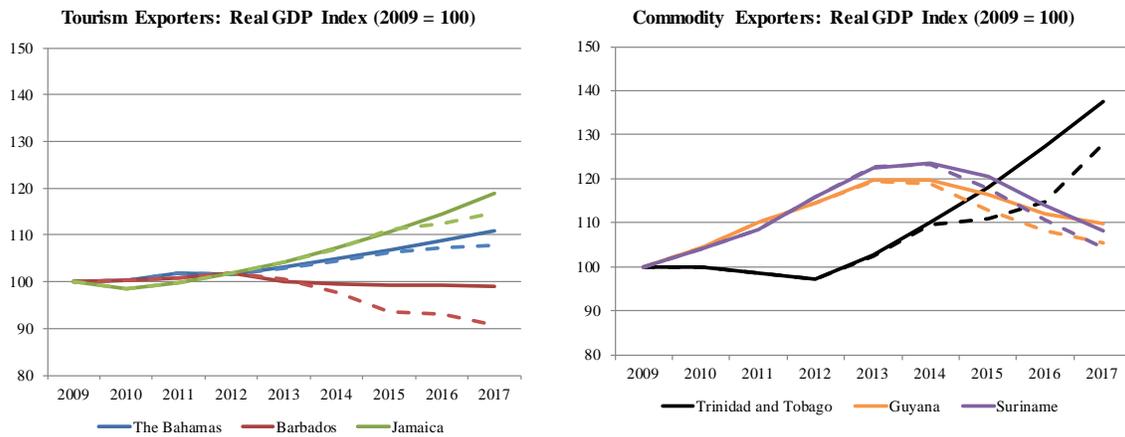
### 4. What if it happened again? The double-dip scenario.

A final exercise was to use the estimations of the long-term relations shown in Table 1 to project the impact on real output if the values of the exogenous variables (trading partner GDPs and commodity prices) were to change by the same amount they did in 2008–2012 over the 2013–2017 period. This is compared with the baseline projection. In other words, we know that the U.K. real GDP was 1.8 percentage points lower every year, on average, compared with the counterfactual projection in 2008–2011. Taking the International Monetary Fund's October 2012 World Economic Outlook baseline projection of U.K. real GDP from 2012 to 2017 and subtracting 1.8 percentage points from that every year, we arrive at a projection of U.K. GDP that assumes a second global recessionary shock. We call this scenario the “double dip” because

it assumes another (currently unlikely) additional global recession. What will happen to the Caribbean countries?

Figure 5 shows the projections from the model using the values of exogenous variables under the baseline (solid line), and the double-dip scenario. As expected, all countries could experience a worse outcome (lower growth) relative to the baseline projection, particularly Barbados and Trinidad and Tobago, which would also experience lower terms of trade because of lower oil prices. Suriname and Guyana’s output would be lower under both baseline and the double-dip scenario because gold prices are projected to come down from recent highs. As expected, real GDP is lower for all countries under the double-dip scenario, particularly the tourism exporters who are also impacted through a reduction of the terms of trade because of higher oil prices. Barbados, in particular, is unlikely to have the buffers to withstand such a shock.

**Figure 5. Projections Using Baseline Projections (World Economic Outlook) and Double Dip**



Source: World Economic Outlook and authors' calculations.

## 5. Conclusions

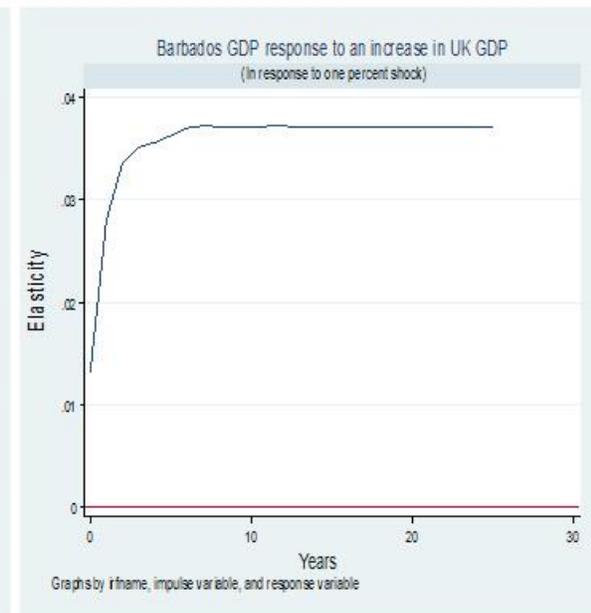
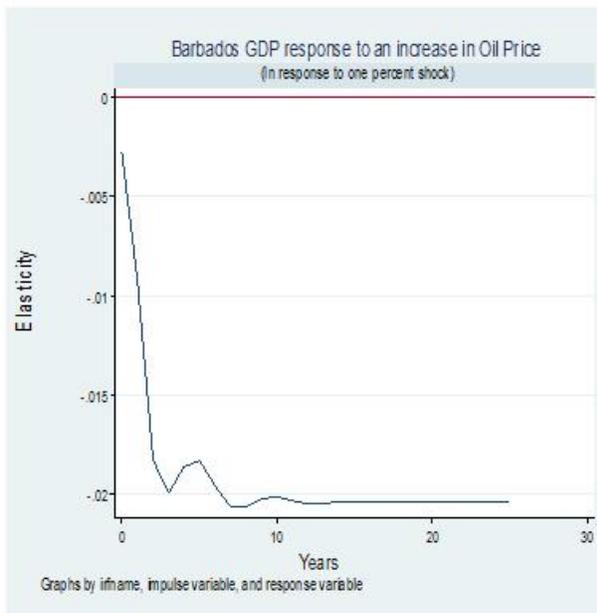
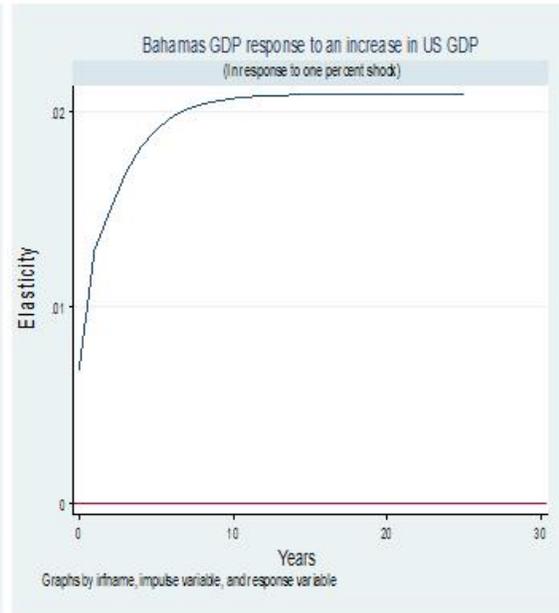
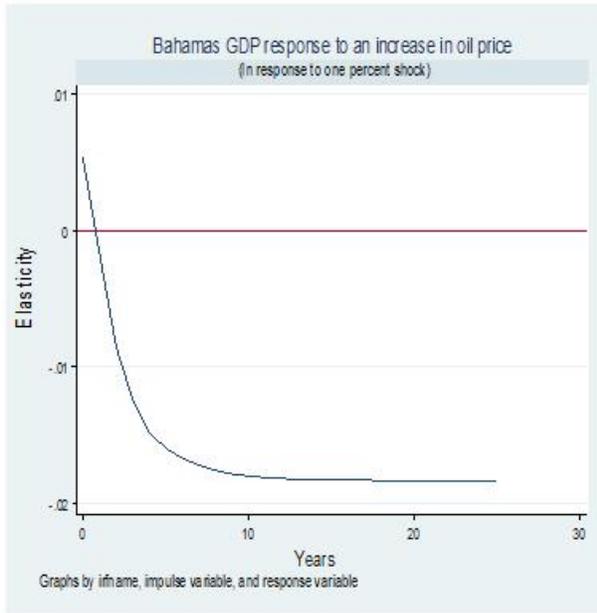
This analysis has shown that Caribbean countries are in a precarious situation given their exposure to global forces, against a background of mediocre growth performance for the noncommodity sectors since 1990. Although GDP is recovering, a few possibilities exist for tourism exporters to withstand a sizable shock. The fiscal deficit grew during the recession, leaving The Bahamas, Barbados, Jamaica, and Trinidad and Tobago with fewer defenses (fiscal buffers) to confront a hypothetical (but unlikely) second global shock. Suriname and Guyana have benefitted immensely from the commodity price boom. Nonetheless, these countries should

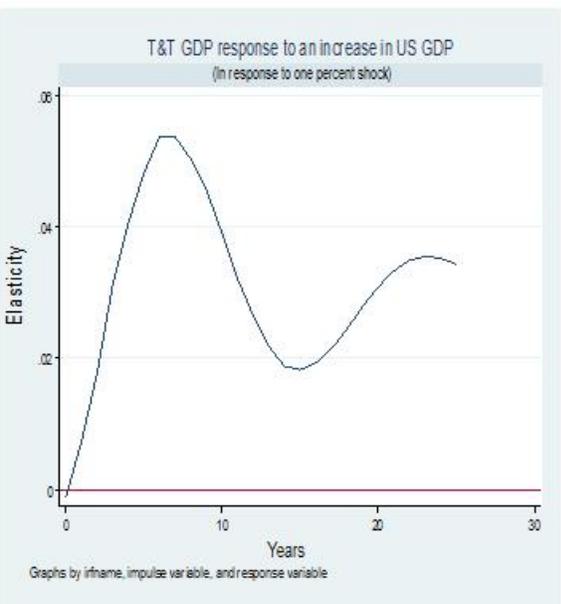
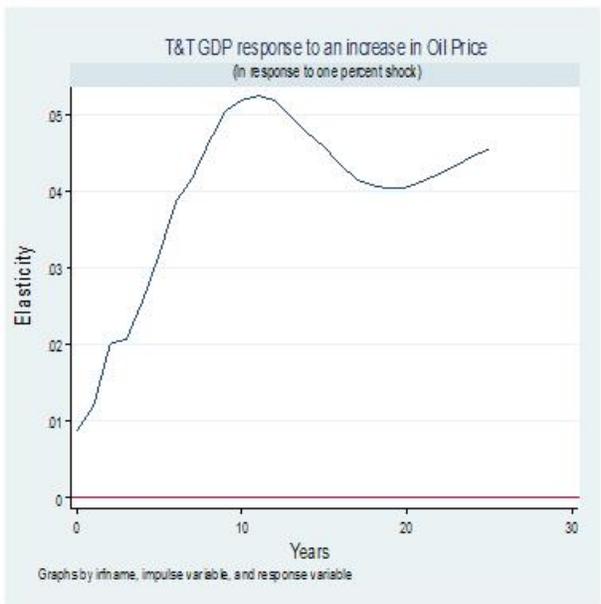
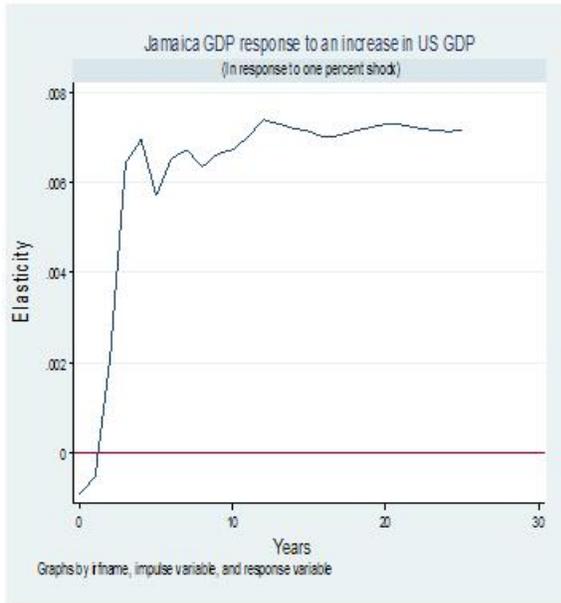
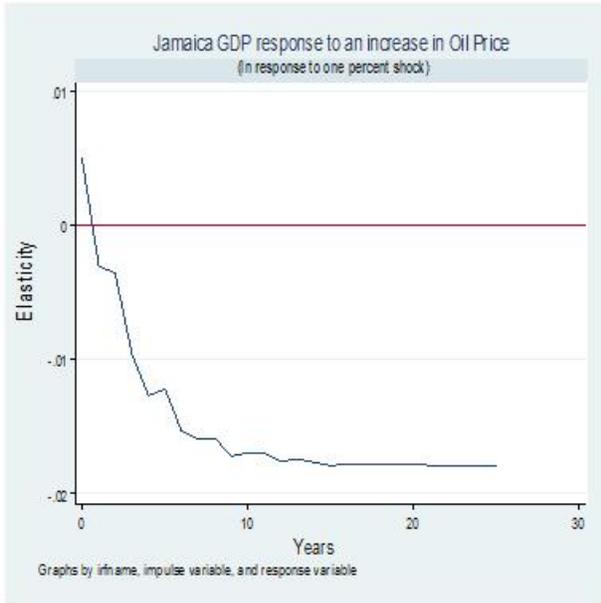
not be complacent; rather, they should take advantage of the situation to consolidate their fiscal accounts in order to better prepare for a negative shock. Such a shock could occur, for example, if gold prices plummet to levels closer to their historical average (below US\$700 per troy ounce).

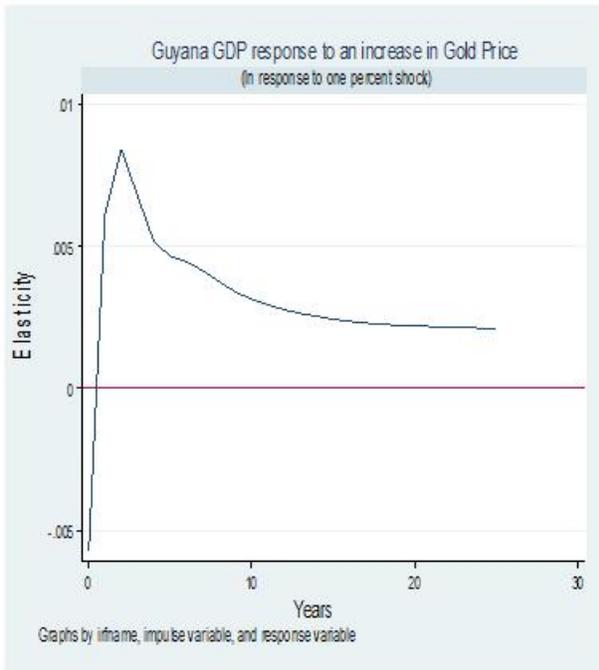
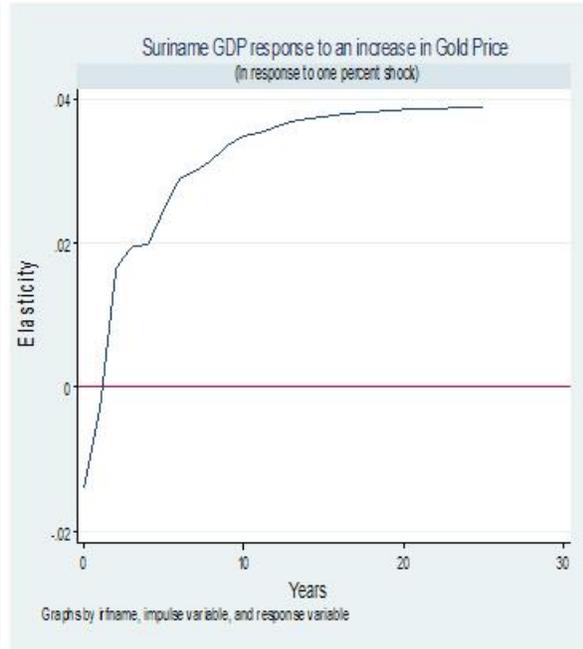
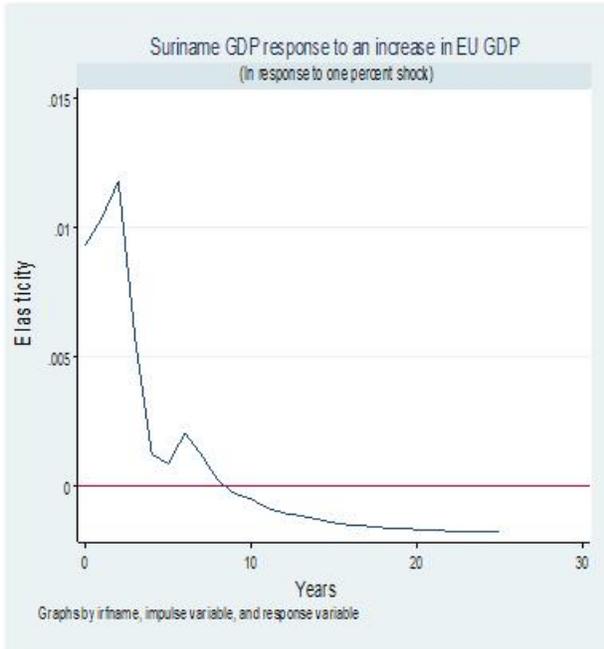
## References

- Byron, Sherri, and Musheer Kamau. 2012. "The Effect of Commodity Prices on Fiscal Performance in Small Open Mining Economies: The Cases of Guyana and Suriname." Mimeo, IDB, Washington, DC.
- International Monetary Fund. 2012. "2012 September. Western Hemisphere Regional Economic Outlook." International Monetary Fund, Washington, DC.
- Mercer-Blackman, Valerie, and Melgarejo, Karl. 2013. "The Impact of External Changes and Commodity Price Changes on the Caribbean." Mimeo, Caribbean Department, IDB, Washington, DC.
- Sheridan, Niamh, Patrizia Tumbarello, and Yiqun Wu. 2012. "Global and Regional Spillovers to Pacific Island Countries." IMF Working Paper No. 12/154, International Monetary Fund, Washington, DC.

Appendix Panels a–k. Impulse-Response Functions of Shocks of Exogenous Variables on GDP of The Bahamas, Barbados, Jamaica, Trinidad and Tobago, Suriname, and Guyana







## **Previous Caribbean Policy Briefs**

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