



**ISLANDS AND SMALL STATES INSTITUTE,
UNIVERSITY OF MALTA, MSIDA, MALTA**

**OCCASIONAL PAPERS
ON ISLANDS AND SMALL STATES**
ISSN 1024-6282

Occasional Paper Number: 04/2017

**A STUDY OF POST-2008 GROWTH
IN CARIBBEAN SMALL ISLAND STATES**

Matthew Zammit

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A STUDY OF POST-2008 GROWTH IN CARIBBEAN SMALL ISLAND STATES

Matthew Zammit¹

Abstract

This study analyses the pattern of economic growth following the 2008 crisis in nine Caribbean small island states, focusing on their recovery from the initial economic shock. The paper tests two main hypothesis, the first of which is that all the nine small states under consideration experienced a marked fall in GDP growth in 2009 and that after the 2009 setback, some of the nine Caribbean states recovered markedly better than others. This hypothesis is tested through the use of charts and graphs plotting each nation's gross domestic product per capita.

The second hypothesis is that GDP growth in these small states was influenced by a number of selected variables, including natural disaster damage, trade openness and public debt. To test this second hypothesis a fixed effects panel data analysis was conducted.

As expected, debt as a ratio of GDP as well as disaster damage were found to have a negative effect on growth. Surprisingly, trade openness was also found to adversely affect economic growth efforts. It is argued that On the one hand such openness stimulates countries to pursue competitiveness and benefit from comparative advantage, but at the same time, such openness render countries highly exposed to external shocks. The findings relating to trade openness shed light on the issue as to whether or not trade openness is desirable

Keywords: Caribbean small island states, economic growth, financial crisis, trade openness

¹ This paper is an abridged and revised version of a dissertation on the same subject by the same author, submitted in partial fulfilment of a B.Com.(Hons) (Economics), University of Malta.

1. INTRODUCTION

Economic growth in terms of real GDP changes is a major indicator used to assess the state of health of a nation's economy. Whilst some of the factors affecting such growth always remain within the control of the individual nation itself, a globalised world has resulted in a situation whereby the effects of a butterfly flapping its wings in one location may indeed have an effect halfway across the world. Perhaps no better example of this butterfly effect can be found than the 2008 financial crisis, whereby the failure of a few financial institutions (the effects of which in a previous era may have been largely localised) sent shockwaves around the globe. Briefly, the aim of this study is to examine the effects that the 2008 financial crisis, which emanated largely from the United States of America and then from Europe, had on the Caribbean economies which had played no part in the onset of the crisis, but certainly felt its effects.

The small Caribbean island states were chosen for this study due to both their 'innocence' in the crisis onset as well as their inherent features, including a high degree of economic vulnerability and high incidence of natural disasters. The economic growth of the Caribbean small island states will be assessed in the period 2010 to 2015, as well as a longer period of 1995 to 2015 to help place the analysis into a longer run context.

The paper is organised in six sections. The next section discusses the context within which this study set. Section 3 presents a literature review on topics relating to the overall theme of the paper. The methodology to be used to test the hypothesis of this paper are discussed in chapter 4, which section 4 presents and analyses the results. Section 6 concludes the paper with a summary of the findings.

2. CONTEXT

2.1 Small Island States

In order to identify the Caribbean small island states that are to be subjected to examination, it is first necessary to provide a definition of what exactly constitutes a small state. Such a definition rests on two salient points, the first of these being that a small state is one that possesses a population not in excess of 1.5 million (World Bank, 2018), and the second being that of political independence.

The next step is to examine what makes small island nations of such interest in a study on the impact of the financial crisis on growth. One of the main aspects of small island states' economies is the concept of vulnerability, defined by Briguglio et al in 2009 as the exposure of an economy to exogenous shocks, arising mainly out of economic openness. A large number of small island states regularly rank amongst the most vulnerable nations on earth, due to high degrees of trade openness and export concentration (Briguglio, 2016).

2.2 The 2008 Financial Crisis

this study centres on is the 2008 financial crisis and its dramatic impact on economic growth rates across the world. Although debates continue to occur with regard to the exact causes that sparked the crisis, certain facts are not held in dispute. The crisis originated in the developed economies of the United States of America and Europe, set off in the former by a combination of lax regulation and shoddy enforcement which led to the subprime mortgage crisis and to the ensuing collapse of financial institutions and government-backed bailouts of others. The mass globalisation of the modern world ensured that the crisis' effects led to a near-worldwide epidemic.

2.3 The Caribbean Region

The Caribbean region is one of the three main regions in the world where a cluster of small island states can be found, the other two regions being the Indian and the Pacific Oceans. Although the Caribbean is dominated by large islands such as Cuba, Jamaica and Hispaniola, most states are smaller islands. Nine of these island territories fit both of the previously-described criteria; Antigua and Barbuda, the Bahamas, Barbados, Dominica, Grenada, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines and Trinidad and Tobago.

Table 2.1 Salient Economic Statistics for the year 2015

	Population²	GDP Growth per Capita (% change)³	GDP at Current Prices (\$ billions)⁴	Degree of Trade Openness (% of GDP)⁵	Public Debt (% of GDP)⁶
Antigua and Barbuda	99,923	3.00	1.29	48.93	94.26
The Bahamas	386,838	-4.20	8.71	42.49	64.44
Barbados	284,217	0.6	4.41	47.66	104.96
Dominica	73,162	-3.1	0.50	43.45	82.46
Grenada	106,823	6.0	0.95	34.57	91.42
St. Kitts and Nevis	54,288	2.9	0.90	44.26	67.76
St. Lucia	177,206	1.6	1.42	44.80	79.13
St. Vincent	109,455	1.3	0.76	43.31	79.29
Trinidad and Tobago	1,360,092	-1.0	24.55	-	44.20

² World Bank, 2017a

³ World Bank, 2017b

⁴ International Monetary Fund, 2017

⁵ United Nations Conference on Trade and Development, 2017

⁶ International Monetary Fund, 2017

3. LITERATURE REVIEW

3.1 Being a Small Island State: Disadvantage or Advantage?

One of the most pressing issues for small island states is economic vulnerability, stemming from inherent characteristics such as small size, a high degree of trade openness and remoteness. However, acknowledgement of such vulnerabilities is not universal – with various entities claiming that the severity of these disadvantages is often overblown, and in some cases even stating a number of advantages that being small can confer. When catering for growth, it is of great interest to examine both sides of the literature.

The case for disadvantage

An early work supporting the claim that small size is a disadvantage is that of Briguglio (1995), which whilst proposing the construction of an economic vulnerability index refers to a large number of inherent disadvantages for small island states. These include limited ability to reap the benefits of economies of scale, remoteness, disaster proneness and environmental fragility.

Small island states suffer from the fact that their small size renders them both highly dependent on imports (due to a lack of natural resources) as well as exports (due to a small domestic market). These two factors lead to heavy participation in international trade, rendering their economies more open and exposed to events beyond their control (Briguglio, 1995; 2016).

The effect on growth of the high degree of export concentration that these states are subject to is another matter of importance (United Nations Conference on Trade and Development, 2013a). Meilak demonstrates that although specialisation in the production of a few products should in theory lead a country to benefit from gains in trade, in practice such cases of ‘too many eggs in one basket’ leave states severely susceptible to external market shocks (2008) (The Economist, 2014).

Ruprah et al (2014), in their study on stagnating economic growth in the Caribbean region, laid partial blame on the disadvantages associated with small size. that affect the provision of public services and private sector competitiveness in an international setting.

Other reasons as to why disadvantages to economic performance may occur are the remoteness of certain island nations (McGillivray et al., 2008). Remoteness, through the onset of higher transport costs, results in local firms being uncompetitive in international markets (Thacker et al., 2012). This problem, along with uncertainty of supply and the inability to hold large stocks of production materials, can work against economic growth (Briguglio, 1995).

Perhaps one of the greatest challenges in terms of economic growth faced by small island states is that of the disproportionate damage they suffer as an effect of natural disasters (Pelling and Uitto, 2001). The Caribbean is no exception to this, with the cost of annual disaster damage running into the hundreds of millions (EMDAT, 2017).

Many small states also experience a high rate of emigration (Ruprah et al., 2014). This is a particular problem, with Caribbean small island states facing some of the highest emigration rates in the world – in certain islands over 80% of tertiary educated students emigrate (Mishra, 2007). As skilled labour is widely accepted to be one of the crucial factors fuelling economic growth, such statistics are indeed a source of concern, although some compensation is received in the form of remittances (Chand, 2008).

The case for advantage or little effect

The studies which seek to prove that small size is not an inhibitor of growth often focus on statistics showing that a number of small states perform as well as or even better than their larger counterparts in this regard. From these findings two lines of thought seemingly develop, the first of which recognises that small island states suffer from disadvantages due to their small size, but that they have managed to overcome them through a combination of factors, including good economic and political governance (Briguglio, 2016).

However, there is a second line of reasoning which states that small size is either of no encumbrance to economic growth, or that indeed it can be seen to stimulate such growth. Two of the main proponents of this line of thought are Easterly and Kraay (2000), who cite small states as possessing higher productivity levels than their larger counterparts. However, it should be noted that no distinction between small island states and small states is made, and thus the inherent disadvantages caused specifically by ‘islandness’, which induce higher trading costs, are not taken into account (McKee and Tisdell, 1990). Easterly and Kraay also admit that the growth volatility for such states has been found to be far bigger than that of large countries. In turn, Baldacchino and Bertram (2009) argue that labelling small island states as vulnerable could be a ploy in order for such states to gain more in terms of foreign aid, and that in reality such states have inherent strengths which allow them to survive and thrive. The authors argue that small country size may actually be an advantage due to the possibilities for flexible specialization, and multi-functionality which are key attributes of small, island economies as much as of their constituent citizens, households and firms. Armstrong and Read (2002) further argue that small states are not really constrained in their economic growth by their economic vulnerability.

3.2 Economic Growth in the Caribbean

The post-colonial period

All nine small island states examined in this study were participants in the rapid post-war decolonisation process, gaining independence over a twenty-year period. By and large, the majority of these nations opted to focus on the scant natural resources they had, and in no way was this more clearly manifested than in their focus on tourism and financial services, which half a century later became the mainstay of many of these states, with the exception of Trinidad and Tobago that remains highly dependent on petroleum products.

However, the intervening decades saw large variations in the economic progress made by the small island states, most of which ‘experienced sharp falls in real GDP’ during the 1970s (Bourne, 2008) before managing ‘to achieve some of the best growth rates in the world during the 1980s’ (United Nations Economic Commission for Latin America and the Caribbean, 1999). These good times did not last, with the 1990s witnessing a decline in the

islands' agricultural sector, in part due to the adoption of the Uruguay Round – thus wiping out many favourable trade agreements and providing incentives for foreign firms to turn towards cheaper sources of production such as Brazil (Thacker and Acevedo, 2011). This same decade also witnessed profound debt accumulation by many of the Caribbean states. The situation of low growth appears to have persisted in the early 2000s up until 2008.

The post-2008 period

In the immediate crisis aftermath, short-term damage to growth prospects was alarming, with each of the nine nations experiencing economic contractions. However, long term reduction of growth rates is a topic of equal concern. Faced with large balance of trade deficits, as well as substantial debt racked up over the previous decades (Andrian et al., 2013), a number of these Caribbean nations would seem to have been ill-placed to deal with a long, drawn-out economic recession, bringing with it falls not only in tourist numbers but also in foreign direct investment, funding aid and public revenue (Seerattan, 2012).

3.3 Growth Theory and Determinants of Economic Growth

Overview of Economic Growth

Although what determines economic growth is the subject of endless discussion, most theories and models are based on a number of stylised facts, be it through observation or mathematical theorisation.

Determinants of Economic Growth: Analysis

There are many variables which are thought to affect economic growth, with two widely accepted ones being capital, labour and technology (Solow, 1956). The traditional growth models later developed into the endogenous growth theories of economists such as Lucas (1988) and Romer (1994). It is also generally accepted that as nations become more and more developed, their rate of economic growth tends to embark on a process of continual slowing, thus in turn allowing for global economic convergence - although evidence shows that such convergence in reality varies extensively according to numerous factors (Abramovitz, 1986; Sokoloff and Engerman, 2000). However, in countries with similar capital, labour and technological attributes, growth performance often differs.

In the case of the Caribbean island nations natural disasters could have an important effect on growth, with Hsiang and Jina (2015) demonstrating that such events cause a 'higher predicted depreciation of assets' which are in turn 'correlated with lower long-run growth rates'. The degree of trade openness is also ascribed to be a factor influencing economic growth (Ramkissoon, 2002), although in this case a positive one, as it would seem to be the case that 'that small states with a higher degree of openness do better'.

Furthermore, public debt levels for most Caribbean small island states have reached such amounts as to propagate fears of a debt overhang problem (Andrian et al., 2013). The literature on the relationship between public debt and economic growth, however, is divided, with one of the viewpoints put forward being that once debt as a percentage of gross domestic product surpasses a certain threshold, the negative effect of debt on economic growth becomes more pronounced (Checherita and Rother, 2010) (Reinhart and Rogoff, 2010)

(Cecchetti et al., 2011). On the other hand, alternate views are put forward that the level of debt is not a crucial factor in the determination of economic growth, with Pescatori et al. (2014) finding no evidence of a debt threshold as put forward by other authors, and those such as Herndon et al. (2013) citing errors in previous works.

3.4 Literature Synthesis

The literature on small island states often identifies small size as an inherent feature affecting the economic prospects of small island states. Such literature also refers to a number of additional growth determinants, including public debt and trade openness and natural disasters. In the case of the Caribbean small states, whilst economic growth varied by both nation and decade during the pre-2008 period, post-2008 saw all of them being severely affected, possibly due to their high degree of trade openness.

4. METHODOLOGY

In order to undertake analysis of the growth patterns of the economies of the Caribbean small island states following the 2008 economic crisis, a two-prong approach will be adopted. The first approach will take the form of a comparison of GDP per capita growth across all nine nations, explained through the use of graphs, while the second approach involves an attempt to identify the factors that affect growth through a panel data regression analysis.

4.1 Patterns of growth in Gross Domestic Product per Capita

In order to show the patterns of growth in the nine small island states under consideration, the time period will be split into two segments, the first being a comparison of performance along the entire available data range (1995-2015), and the second covering only the period stemming from the start of the crisis recovery period until the end of the data range (2010-2015). The initial crisis period spanning the two years from 2008 and 2009 is excluded in order to prevent the recovery data being skewed through the large initial shock.

4.2 Multiple Regression Analysis

The panel data regression approach tried to identify which variables may have had an effect on the growth patterns of the nine small island states under consideration. The basic equation to be tested is specified as follows:

$$\Delta Y_{jt} = \alpha_{j1} LG_t + \alpha_{j2} ND_t + \alpha_{j3} TO_t + \alpha_{j4} PD_t$$

Where:

ΔY is the rate of growth of GDP per capita

LG is a one-year lag of the rate of growth of GDP per capita

ND is a three-year lag of natural disaster damage

TO is Trade Openness

PD is the level of Public Debt (as a percentage of GDP)

All data pertains to the period 2010 to 2015.

4.3 Description of Utilised Data

Change in Gross Domestic Product per Capita. Gross Domestic Product is the most commonly used measure of the value of a country's output of goods and services. For the purposes of this study, percentage change in real GDP per capita will be utilised as the dependent variable within the chosen methodology. The source of the data is the International Monetary Fund (2017).

One-Year Lag of Change in Gross Domestic Product per Capita. It is assumed that changes in the level of gross domestic product per capita in year t is influenced by its value in year $t-1$. It can be noticed that the equation does not contain labour and capital inputs, as is normally done in growth models, due to data limitations, but these are likely to be captured in past values of GDP growth. The utilised dataset is the also drawn from the International Monetary Fund (2017) as above, and lagged by the author.

Natural Disaster Damage. Natural disasters are of particular relevance to the degree of economic growth in the Caribbean region, due to both their frequency and severity. In this instance the data has been sourced from the International Disaster Database (EMDAT, 2017) in terms of absolute damage in dollars caused by natural disasters. In order to account for the long-term effects of natural disasters, weighted lags were added over a three-year period with weights of 0.2, 0.3 and 0.5 (i.e. a value for the natural disaster damage of year 2010 would see that year weighted by 0.5, whilst 2009 and 2008 natural disaster damage value would be weighted by 0.3 and 0.2 respectively). It was found that such a method helped to more realistically explain natural disaster damage than merely using a single year.

Degree of Trade Openness. Trade openness is measured as the average of exports plus imports of goods and services as a percentage of GDP. Such openness is a vital consideration in terms of economic growth, and indeed made more so by the rapid globalisation of the world in the past few decades. Prevailing economic theory suggests that the more 'open' a country, the better this would tend to be for economic growth, although this view is disputed in some quarters (Menyah et al., 2013). In this instance, the trade openness data used has been sourced from the UNCTAD statistical database.

Public Debt as a percentage of GDP. Empirical work suggests that high levels of debt are associated with disadvantages relating to growth, due to such factors as a lack of investor confidence and high rate of debt servicing, possibly leading to debt overhang problems. The data for this variable was obtained from the International Monetary Fund database (2017).

5. RESULTS AND ANALYSIS

5.1 Patterns of change in GDP per Capita

Patterns of change in real GDP between 1995 and 2015

Figure 1 compares percentage changes in gross domestic product per capita at constant prices across the nine countries for the entire period 1995 to 2015.

Common tendencies that can be observed across all nine countries are sharp dips in percentage change in GDP per capita in the period between 2000 and 2003, followed by a

general surge in the following five years. Unsurprisingly, all nations experienced a dramatic decrease in economic growth with the onset of the 2008 financial crisis – indeed, each country experienced a fall in GDP per capita, the worst case being that of Antigua and Barbuda, with the nation most initially resistant to the crisis being St Lucia.

Another common occurrence that can be observed is that for the time period taken, which is between 1995 and 2015, each small island state had a downward sloping trend-line, varying only in the degree of slope. Surprising results include the fact that the largest economy of the nine states covered in this study, that of Trinidad and Tobago, has the sharpest trend-line decrease of the nine nations, whilst Antigua and Barbuda has the shallowest (alongside St Lucia).

Patterns of change in real GDP between 2010 and 2015

It is also instructive to examine changes in gross domestic product per capita solely during the period between 2010 and 2015, in order to analyse the extent of the recovery from the initial crisis amongst the individual states (Figure 2).

When considering this data range, differences are once again noticeable. In terms of recovery, Grenada would appear to be the state that reacted best to the crisis, trailed by Antigua and Barbuda, St Kitts and Nevis and St Vincent and the Grenadines.

On the other hand, the Bahamas and Trinidad and Tobago have seemingly been less able to cope with the aftermath of the economic crisis. This comes as a relative surprise due to their more developed nature, which *a priori* would suggest a better ability to recover. Neither does the evidence suggest that economic recovery and growth are just around the corner, as both nations experienced their two largest economic contractions in the last two years of the dataset.

Figure 1: Patterns of change in real GDP between 1995 and 2015

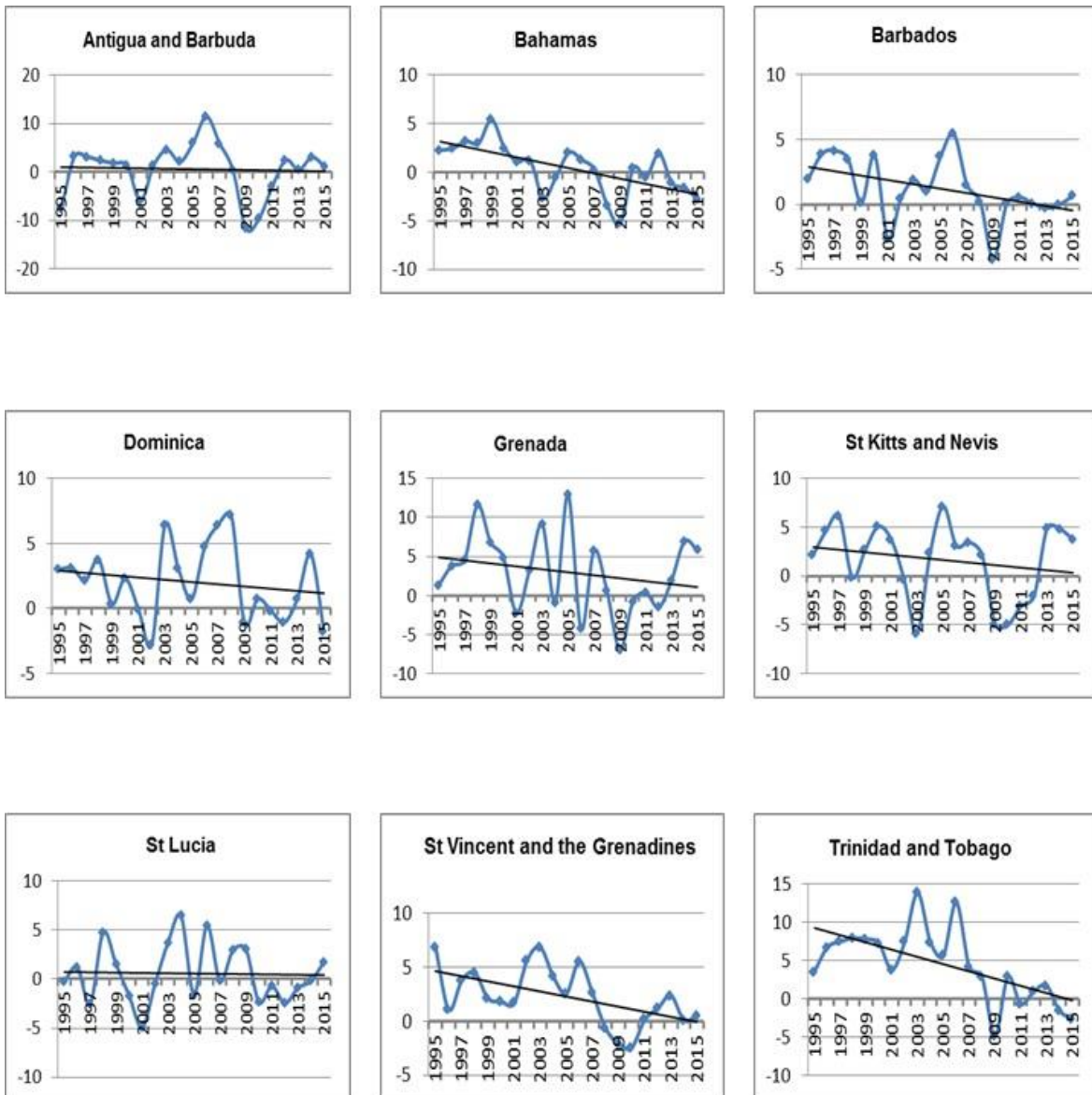
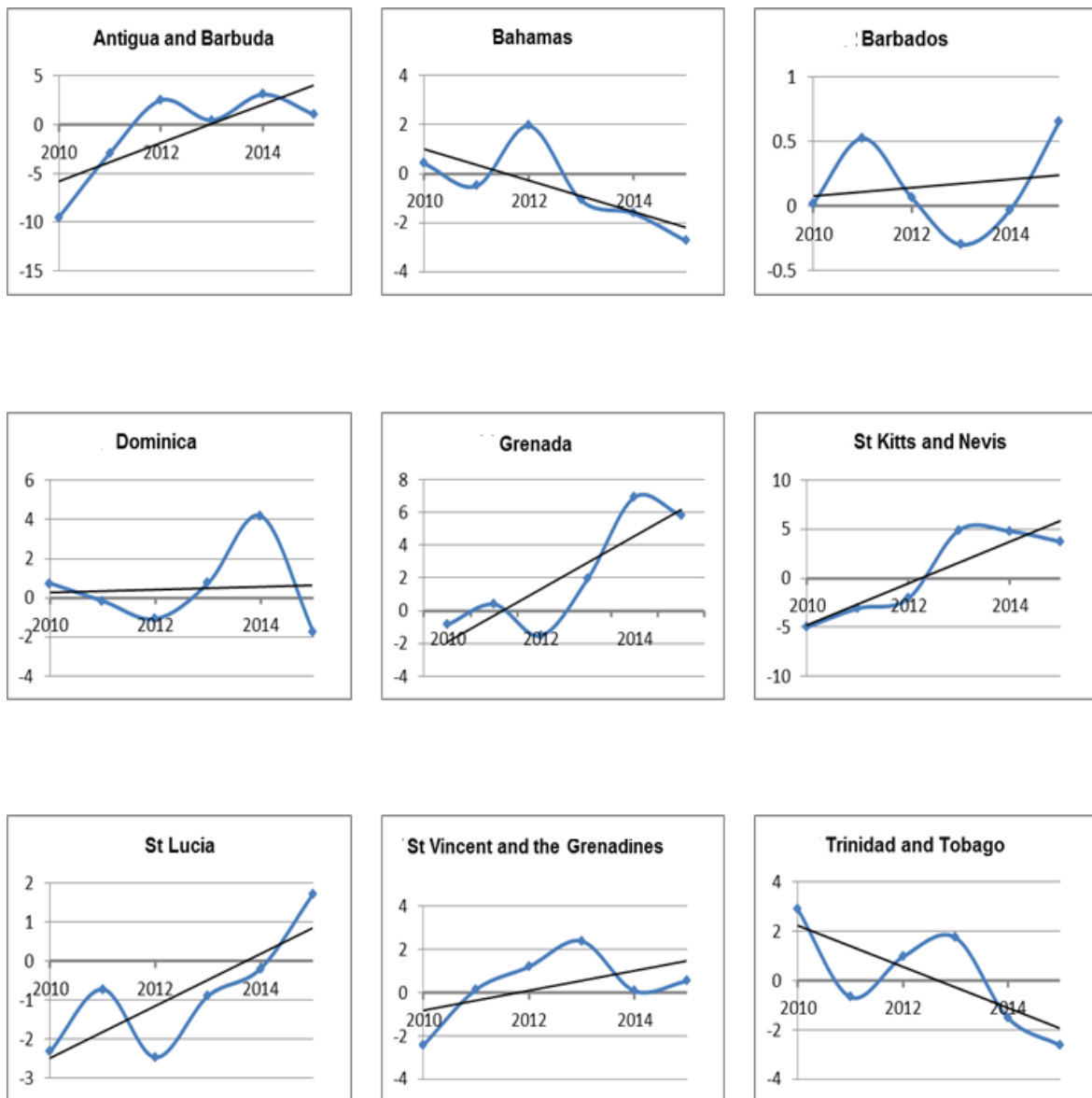


Figure 2: Patterns of change in real GDP between 2010 and 2015



5.2 Panel Data Estimation and Discussion of Results

This second section will examine the results given by fixed effects panel data analysis of the utilised datasets, through the use of the already-described equation below. After undertaking the usual statistical procedures and correcting for any errors in the data that may have emerged after initial testing, the results presented below emerged.

$$\Delta Y_{jt} = \alpha_1 LG_t + \alpha_2 ND_t + \alpha_3 TO_t + \alpha_4 PD_t$$

After conducting stationarity tests, a Hausman test was conducted to determine whether fixed or random effects should be used, with the result confirming the use of the former. All results are also described as ‘significant’ or ‘insignificant’ through the 5% confidence interval.

All the variables and the sources of the data have been explained in Section 4.

Table 1: Panel Data Statistical Analysis Results

Variable	Coefficient	Std. Error	T-Statistic	Probability
Constant	18.36240	6.348648	2.892333	0.0064
Lagged GDP per Capita (LG)	0.445147	0.094935	4.688942	0.0000
Natural Disasters (ND)	-0.074805	0.050669	-1.476347	0.1483
Trade Openness (TO)	-0.292731	0.129386	-2.262461	0.0296
Public Debt (PD)	-0.055291	0.019995	-2.765198	0.0088
R ²	0.563300			
Adjusted R ²	0.421667			
N = 54				

One-Year Lag of Change in Gross Domestic Product per Capita

The first variable of lagged change in gross domestic product per capita can immediately be seen to be both the most highly statistically significant of the four tested independent variables, as evidenced by the t-statistics. It thus would seem clear that in accordance with *a priori* expectations, Caribbean small island states that manage to achieve economic growth in a particular year or set of years will find themselves more likely to continue to propagate such growth in the following years, with the opposite also holding true.

Natural Disasters

The results for natural disasters indicate that this variable has a negative effect on growth, although the statistical significance is somewhat weak, possibly due to the fact that not all the states experienced major natural disasters.

Trade Openness

Trade openness would seem to have a negative effect on growth. Analysis of the raw data corroborates the results achieved here, as the two best performers in terms of crisis recovery (Grenada and St Kitts and Nevis) were in the years up to 2008 the least trade-open out of all the nine analysed nations. Such results would suggest that the exposure to economic shocks that additional openness brings about had a larger effect than the increased competitiveness and specialisation that this trade openness brings with it.

Public Debt

The coefficient on this variable was found to be negative as expected, and statistically significant, suggesting that higher levels of public debt dampen economic growth in the case of the Caribbean small island states.

5.3 Implications of the results

The variables used in the regression may be broadly divided in two types, namely inherent and policy induced features. Trade openness and natural disasters are considered as inherent in the sense that they do not stem in the main as a result of government policy. Public debt is policy induced in the sense that it is to a large extent the result of government policy.

The results indicate that trade openness has a negative effect on growth. Trade openness is to a large extent an inherent feature of small states, with their small domestic market compelling them to seek out foreign clients. Such openness has positive connotations because it encourages exporting countries to be competitive – however, openness has a downside because it exposes economies to conditions outside their control, as was the case during the 2008-2009 crisis.

The relation between openness and growth merits further discussion. It does not make much sense to suggest that these small countries should reduce their degree of openness to shelter themselves from exposure, as this may result in the loss of previously-described benefits. One possible measure to reduce the downsides of a high degree of exposure to external economic conditions is through the encouragement of economic diversification and resilience building through macroeconomic stability policy measures. Given that small island states are by their very nature highly economically vulnerable, the case for making up for this deficiency through the encouragement of induced economic resilience grows ever greater (Briguglio, 2016).

As to natural disasters, this is obviously not a policy-induced variable, although governments may undertake measures to reduce their negative impact. In the regression results it appears that disasters, as expected, have a negative effect on growth. Comparison between the incidence of such events and the changes in gross domestic product per capita present a clear connection – an example being that of Grenada, which experienced a catastrophic drop in gross domestic product per capita in 2004 from the previous year, fuelled in part by the natural disasters that ravaged the island during the year. However, the absence of any effects of natural disaster damage beyond 2006 undoubtedly played a role in the island's strong recovery from the initial shock of the crisis.

The results also indicate that there is a policy-induced variable, namely public debt, which negatively affects growth. As demonstrated in the literature review, the relationship between debt and growth has been shown to exist in various studies. If this is so, the growth performance of the Caribbean small states can be influenced by good economic management, including long-term policies targeting fiscal prudence so as to reduce reliance on public debt.

6. CONCLUSION

The aim of this study was to assess the effect of a number of factors, namely disaster damage, trade openness and public debt, on the economic growth of nine selected Caribbean small island states, with particular reference to the period encompassing the 2008 financial crisis.

The analysis utilised two main approaches, the first being through graphical means by plotting the changes in gross domestic product per capita on an annual basis for each state, first focusing on the entire 1995-2015 period followed by an analysis of the data from 2010

onwards, i.e., the aftermath of the financial crisis. The second approach was the utilisation of a panel data regression in an attempt to identify which factors affected growth in the nine small island states.

The graphical analysis indicated that the small economies of St Kitts and Nevis, Grenada, St Vincent and the Grenadines and Antigua and Barbuda were overall the best performers in terms of economic crisis recovery, whilst Barbados, the Bahamas and Trinidad and Tobago relatively underperformed.

The panel data analysis resulted in the conclusion that public debt, trade openness and natural disasters all negatively affected growth to some degree.

6.1 Limitations of this study

Whilst it is felt that this study has made a modest contribution to the field of growth in the small island states of the Caribbean, and could be of use to those who wish to conduct further research in this area, it must also be added that this study possesses some limitations, most of which centre on data availability. This precluded the use of certain variables, including capital, normally employed in growth models.

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