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A proposal for an insurance program for Caribbean countries to protect selected public spending during times of distress

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Paper submitted to the conference organized by the University of West Indies, the Central Bank of Barbados and the IMF to discuss issues related to Caribbean economic growth, debt, and their associated policy challenges.

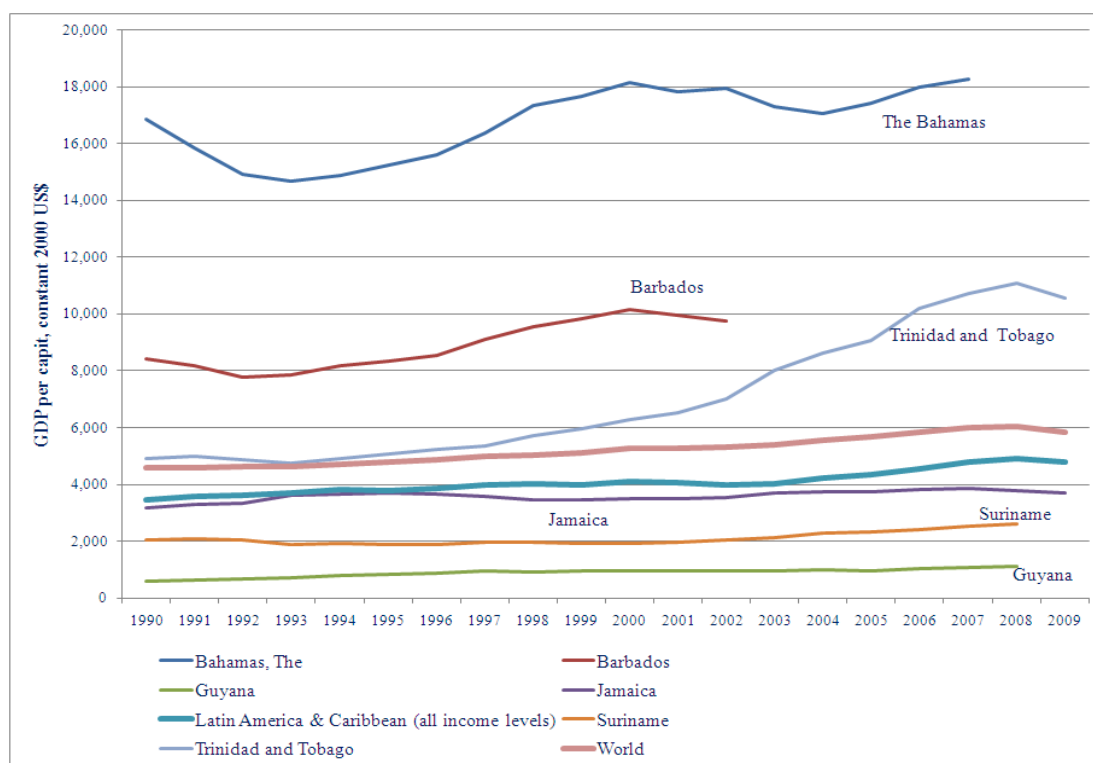
Abstract

This paper presents a macroeconomic analysis of the negative impact on priority public spending programs during periods of economic distress in the Caribbean, and offers a proposal to minimize such impact. We recognize the difficulties of maintaining public spending during a crisis and propose that feasible fiscal policy in the Caribbean should focus on the identification of priority discretionary programs, targeted for protection from budget cuts, and on adequate public spending that should be continued, or expanded, during a crisis in the context of receding government revenues. We provide guidelines to prioritize public spending. To maintain or expand, if desired, public spending during periods of economic distress we propose that governments in the Caribbean jointly design, establish and fund insurance or temporary lines of credit that will fill the fiscal gap to protect priority discretionary programs and the identified adequate level of public spending. The size of insurance or line of credit depends on the capacity of governments to cut spending in non-priority discretionary programs, on the size of the drop of government revenues, and on the duration of the downturn. Insurance or line of credit, as proposed in this paper, complement but do not replace catastrophe and other forms of insurance also needed in the Caribbean related to high exposure to hurricanes and other weather events. The analysis, and the proposed tool, can be easily expanded to cover greater fiscal gaps including closing the shortfall completely. The paper shows the potential benefits of such a tool, its impact on aggregate demand, confidence, and public debt, and discusses the conditions under which it can be created for Caribbean countries highlighting the role of regional International Financial Institutions.

I. The current situation—setting up the problem

The economies of the Caribbean region are highly exposed to positive and negative external shocks due to their small size and location, dependence on a limited set of export commodities and services, and government characteristics including size and high debt. These characteristics of the Caribbean have conditioned its growth and development. Since the financial crisis that started in the US in 2007 and expanded throughout the world most Caribbean economies have, once again, suffered from direct and indirect impacts of the international crisis. The latest IMF Regional Economic Outlook (IMF, 2010) points to transmission mechanisms related to less demand for tourism from the US and Europe and lower remittances. This report also notes that there is a differential in growth and recovery from the crisis: slower in the Caribbean compared to the rest of Latin America. The working hypothesis of the analysis is that the characteristics of the Caribbean are responsible for lower growth as compared to the rest of the continent the region is less competitive. We highlight the fact that Caribbean economies are remarkably different among themselves in their structure and performance, therefore the need to incorporate in the analysis each individual economy.

Figure 1: Real GDP per capita of selected Caribbean economies



Source: World Bank World Development Indicators Database

Figure 1 shows the performance, measured in real GDP per capita, of selected Caribbean economies and compares it to the World and Latin American average. In this sample we identify 3 sets of countries. The Bahamas and Barbados exhibit very high income in the context of slow and volatile growth, a direct consequence of their dependence on the tourism sector and

vulnerability to external shocks—such as hurricanes or financial crises that lower appetite for spending on tourism of the populace in developed economies. Trinidad and Tobago is the high performer in the region thanks to the development of its energy sector and the successful relative diversification of its economy. Jamaica, Suriname and Guyana, although at different levels of income, show very slow growth and not much volatility compared to The Bahamas and Barbados. These economies appear to be stuck at their respective income levels, although some of them did experience significant improvement in the recent past—Guyana recorded remarkable performance between 1991 and 1997, and again from 2006; while Suriname has also recorded strong growth since 2000. Compared to Latin America, The Bahamas, Barbados and Trinidad and Tobago show significantly higher performance, whereas Jamaica, Suriname and Guyana notably underperform. Regardless of the relative income levels, when we analyze the growth of these economies we find that only 2 of them have significantly increased since 1990: Trinidad and Tobago and Guyana. Per capita GDP in Guyana has almost doubled from 1990, increasing from \$590 (measured in constant 2000 US\$) to \$1104 in 2008.

This paper focuses on one particular characteristic of the Caribbean that has an impact on economic performance: the size of government and the amount of services that governments provide are large compared to other Latin American economies. We find that government spending in the Caribbean is significantly higher than in the rest of Latin America. Table 1 shows 2007 public spending as a percentage of GDP. In general Caribbean governments, with the exception of The Bahamas, play a much larger role in employment and demand for goods and services than in the rest of Latin America. In this context Caribbean governments have a larger impact on aggregate demand compared to other Latin American governments. Nor is the impact limited to aggregate demand because in the Caribbean governments provide key social services in health, education, and social protection. Large size can be a problem when it is combined with macroeconomic volatility, such as that reported previously in economies that depend on tourism and are exposed to natural disasters; and can also be a problem in the context of stagnation, as is the case with the Jamaican economy. In these cases, common to the Caribbean, large negative swings in macroeconomic conditions directly impact government revenues. Because government spending is large, Caribbean governments have limited ability to adjust spending in an orderly fashion. Moreover, the impacts of spending cuts are significant because of the large relative size of government. From a macroeconomic perspective the Caribbean authorities have limited power to make marginal changes using fiscal policy tools to smooth the negative impacts of shocks, and they find that expanding government spending during downturns is particularly difficult and costly, and almost impossible when governments also have high debt. Finding tools that allow for counter-cyclical fiscal policy interventions has been a concern since 2007 when the financial crisis that started in the US expanded to the rest of the world and caused economic distress in the Caribbean.

Table 1: Government spending as a % of GDP of selected Caribbean and Latin American countries

	2007
Barbados	40.1
Jamaica	34.1
Guyana	30.2
Suriname	27.2
Uruguay	25.9
Trinidad and Tobago	25.4
Honduras	22.3
Bahamas, The	18.0
Chile	17.2
El Salvador	17.2
Peru	17.0
Paraguay	16.8
Dominican Republic	14.8
Guatemala	12.5

Source: World Bank World Development Indicators Database and IMF Article IV reports for Guyana (2009) and Suriname (2008)

The concern with large government is that governments that spend a large portion of GDP on goods and services play an important role in economic performance and especially in the provision of services to the poor. Several papers have examined the purely macroeconomic impact of public spending on growth, in particular its pro-cyclical tendency in developing countries and the need to smooth government consumption especially in countries that have fixed or quasi-fixed exchange rates.¹ In particular, recent literature reviews find that the impact of fiscal policy on growth—the well-known fiscal multiplier—depends on the initial economic conditions and on links to coordinated or uncoordinated fiscal and monetary policy. Additionally, in times of budget distress, which are common in the Caribbean during economic contractions, it is possible to have either a contractionary or expansionary fiscal policy that is consistent with expansionary output (Auerbach et al, 2010). The lack of real understanding about the limits of fiscal policy during economic contractions, and the complexity of the analysis, makes general prescriptions for the Caribbean difficult.

There is more consensus among researchers and analysts of fiscal policy about the fact that government spending is, for developing countries, pro-cyclical. It is not difficult to see that this is the case for the Caribbean. During times of economic contraction governments find it difficult to borrow, or borrowing becomes more expensive—in general financial markets do not provide insurance to emerging markets during times of economic distress. Moreover, because economic contractions happen unpredictably, there is a time lag between the moment that government revenues drop and the moment when fresh loans may come in to the fiscal accounts. In addition

¹ Calvo et al 2003 study the impact of sudden stops with impact identical to a sudden drop in exports. Elias 2009 analyzes the impact of a sudden drop in oil exports on Ecuador and presents a methodology to estimate the drop in exports and necessary real exchange rate adjustment.

to agreeing on the overall impact of government spending on the economy, researchers find that spending on social protection is also pro-cyclical and that the degree of cyclicity increases for less developed economies (Arze del Granado et al, 2010).² For this reason, and given the high cost of making policy mistakes for small Caribbean countries with limited policy options and high debt, this paper addresses the less explored, and equally important, impact of a large reduction of public spending on the provision of goods and services to the poor.

To analyze the impact of such a reduction on the poor we divide government spending into discretionary and non-discretionary components. Although this is a somewhat unconventional division of government spending, it is wholly appropriate for Caribbean economies. Discretionary spending includes all Government provided goods and services which can be affected by short-term policy decisions, while non-discretionary spending includes those that cannot be affected by short-term policy decisions. Wages, salaries, interest payments, pensions and other entitlement programs constitute the majority of Government spending and we consider them non-discretionary. We cluster all other Government spending in the discretionary category because funding for those programs can be stopped abruptly—in fact these programs suffer from large cuts when government revenues drop, which explains the pro-cyclical nature of public spending.

The division of public spending into discretionary and non-discretionary is more relevant than the more conventional categories when analyzing fiscal policy options that focus on the impact of public spending on the poor. When a real or aggregate demand shock hits a Caribbean economy Governments have very little room to maneuver in implementing fiscal policy responses. On average Latin American countries' discretionary spending is only 26% of total spending.³ As explained above when a negative shock hits the Caribbean economies they lack borrowing access to compensate for drops in government revenues, and given the large proportion of government spending that is non-discretionary, governments indiscriminately cut discretionary public spending. We argue that cutting discretionary spending has 2 negative direct effects on economic performance: it reduces aggregate demand at the worst possible moment, causing Government spending to be highly pro-cyclical; and, more importantly, these indiscriminate cuts reduce the provision of key services—such as health, education, and related social programs—that primarily target the poor. We believe that the negative impact of these 2

² We note that Arze del Granado et al infer that spending on health and education in developing countries is, according to their analysis, pro-cyclical in “good” times but counter-cyclical in “bad” times. This conclusion leads the authors to claim that social protection is not an issue during economic contractions. We disagree with the conclusion of the analysis because it is based on the premise that overall recurrent spending, i.e. mostly wages and salaries, shows pro-cyclical behavior during good times and counter-cyclical during bad times. This is true because recurrent spending is inflexible and difficult to cut in the short-run but to conclude from this result that social spending is counter-cyclical during bad times is erroneous. Wages and salaries spent during bad times in all sectors, not just health and education, are probably counter-cyclical throughout the world. Social spending and social protection, however, refer to the capacity of maintaining or increasing spending on social programs during bad times—not on paying wages and salaries of employees in social Ministries. The demand for these social programs increases during bad times because the number of poor and unemployed increase. We refer to these programs as “priority programs” in this paper and note the need to be able to expand them during times of economic contractions.

³ World Bank World Development Indicators. The average is for non-discretionary spending 73.4% for 2003-2007 using employee compensation, interest payments, and transfers and subsidies as a proxy for non-discretionary spending.

direct effects is high and that the full impact of the second one has not been properly analyzed or highlighted.

We therefore present (i) an analysis of the impact of indiscriminately cutting public spending and (ii) an alternative methodology to identify priority discretionary programs that should be maintained or even expanded during a crisis, including a proposal on how to pay for them. In the following section we present a simple model to explain the impact of cuts on discretionary spending. We then present 2 indices which demonstrate the particular vulnerability of the Caribbean to economic contractions and subsequent government spending cuts on discretionary spending. We conclude with a proposal on the institutional conditions that would make it feasible to create insurance policies to be used by Caribbean countries when additional funds are needed to protect spending on priority discretionary programs.

II. A simple economic model to determine the process and magnitude of the problem

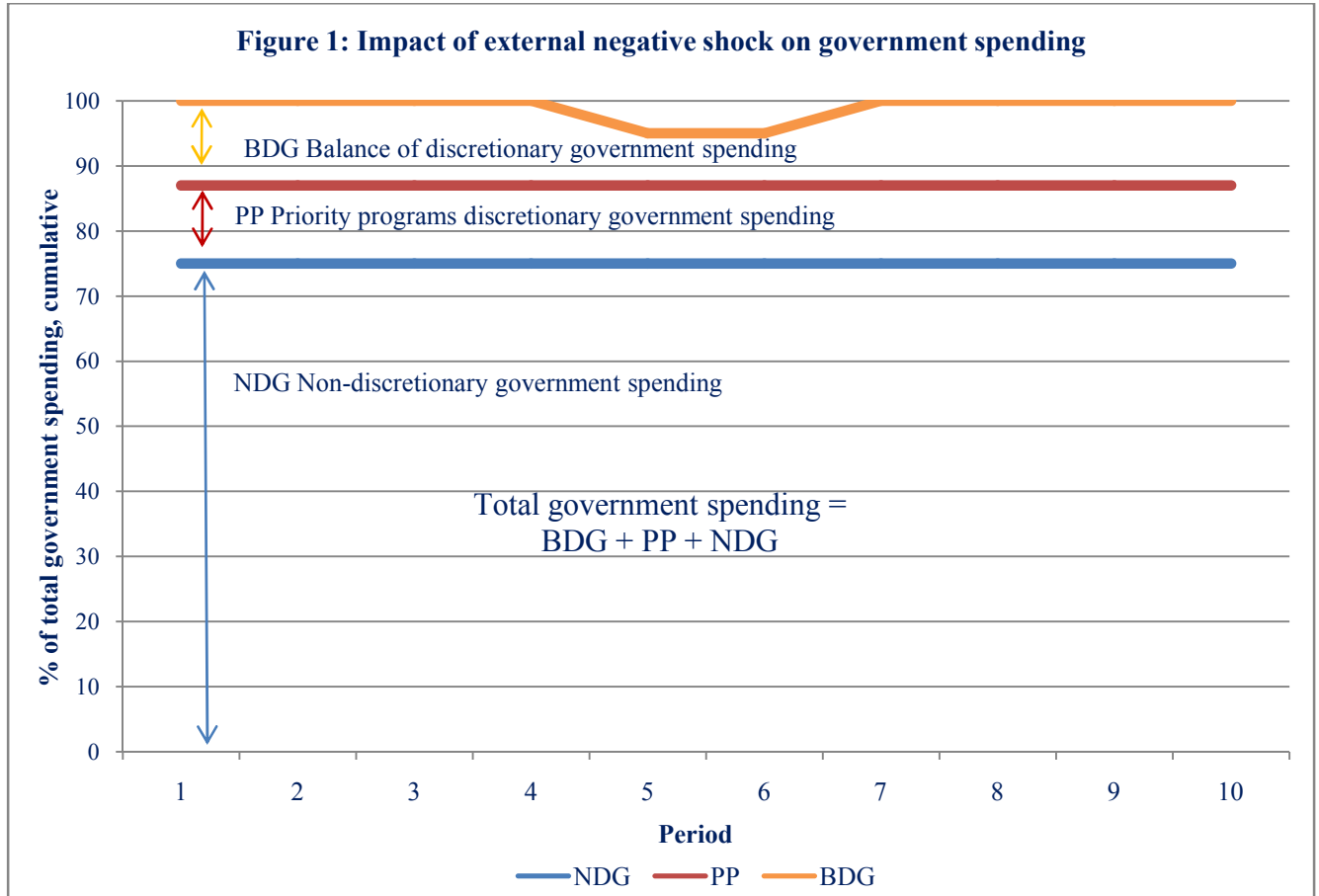
Equation (1) shows the budget of a government using our definition of public spending: total revenue (R) plus a fiscal deficit (S) equal total government spending (G) where government spending is divided between discretionary spending (DG) and non-discretionary spending (NDG). At this point we make an additional distinction in discretionary spending, by dividing it into priority programs (PP) and non-priority programs which are the balance of discretionary spending less spending on priority programs ($BDG = DG - PP$). Following our division of public spending, NDG would include all spending that is rigid and cannot be easily modified in the short-run, such as wages, salaries, pensions and other entitlement programs, and interest payments on debt. The balance between total government spending and non-discretionary spending is a residual, usually relatively small compared to total spending, that governments can control and marginally adjust to fund a large set of programs and investments. We assume that governments want to identify from this set a group of priority programs, PP, that are important for them to maintain, especially during an economic contraction. PPs would then include spending on social programs such as breakfast programs for low-income children, health care centers in poor and/or rural areas, and senior citizen programs among others. We emphasize that from our perspective the relevant criteria for selection of PPs is social protection because economic contractions affect the poor the most, and in the context of shallow safety nets and virtually nonexistent automatic stabilizers, these programs become even more important in offsetting the negative consequences of unemployment.

$$R + S = G = NDG + DG = NDG + PP + BDG$$

R is government revenues, S is the fiscal deficit, G is total government spending, NDG is non-discretionary government spending, DG is discretionary government spending, PP is priority programs and investments, and BDG is the overall residual of government spending (1)

Figure (1) presents the “ideal” reaction of government to an economic contraction. The figure shows periods on the horizontal axis with an economic contraction in periods 5 and 6, resulting in reduced public spending linked to a drop in public revenues. The vertical axis shows the proportion of the 3 components of public spending introduced in equation (1): the blue line NDG represents non-discretionary spending, which is the largest proportion of government spending (around 75%) and cannot be cut in the short-run during a contraction; the red line PP is the

selection of priority programs that government chooses not to cut during a contraction; while the orange line BDG represents the residual programs which the government does not protect and which absorb the total amount of the revenue drop during an economic contraction. During periods 5 and 6 the sum of these 3 components drop, and we propose that most governments attempt to follow the pattern shown in the figure and decide, based on their criteria, to pay for NDG, protect PP and use the residual to adjust public spending.



We present in equation (2) the decision making process for cutting spending during an economic contraction when governments cannot find short-term sources of funding to fill revenue shortfalls—a common occurrence in the Caribbean. A drop in revenues (R) has to be accommodated by spending reductions, and following our division of spending the only option is to reduce non-priority discretionary spending (BDG).

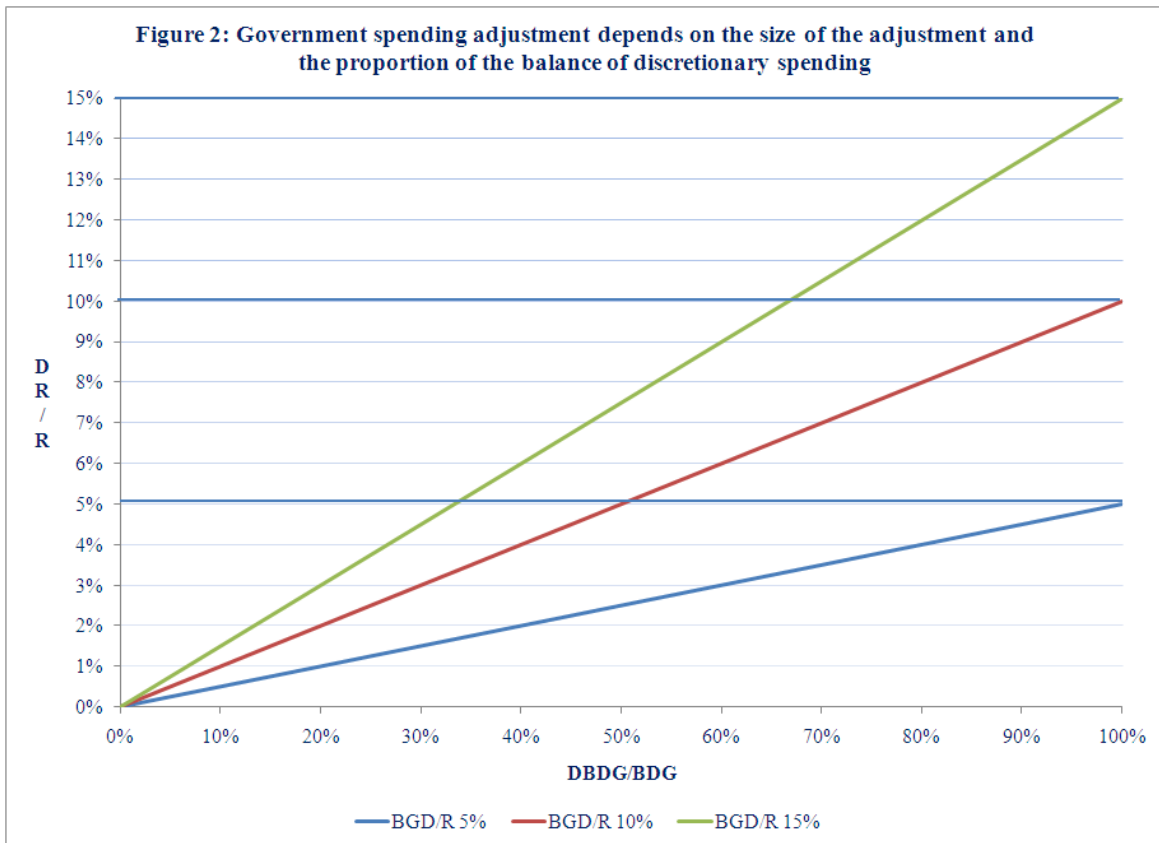
$$\begin{aligned}
 \Delta R + \Delta S &= \Delta G = \Delta NDG + \Delta DG = \Delta NDG + \Delta PP + \Delta BDG \\
 \text{with } \Delta S &= 0; \Delta NDG = 0; \Delta PP = 0 \\
 \text{results in } \Delta R &= \Delta BDG
 \end{aligned}
 \tag{2}$$

In this case the Government’s choices are limited and difficult because the residual, BDG, is usually small compared to total spending. Equation (3) shows the relationship derived from equation (2) between total revenues and the residual in the form of elasticity. The elasticity of the residual with respect to total revenues equals total revenues over the residual. The implicit

high elasticity of this result describes the painful process of cutting public spending during periods of economic distress. The smaller the maneuvering room available to government, i.e. the larger the relationship between revenues and residual discretionary spending, the larger are the cuts that must be made to non-priority government programs.

$$\frac{R}{BDG} = \xi_{BDG \text{ wrt } R} \quad (3)$$

Figure 2 shows the relationship between the size of the adjustment and the fiscal room to maneuver. The vertical axis measures the proportion of the revenue reduction, or change in revenue as a proportion of total revenue $\Delta R/R$, and the horizontal axis shows the proportion of the residual reduction $\Delta BDG/BDG$, or change in the residual as a proportion of total residual. The sloped lines represent the adjustment paths for 3 economies that have residual as a proportion of total revenues equal to 5% (the blue line), 10% (the red line) and 15% (the green line). Therefore the blue line represents the fiscal adjustment path of an economy whose residual proportion of revenues is 5%, the red line the adjustment path of an economy whose residual proportion of revenues is 10%, and the green line the adjustment path of an economy whose residual proportion of revenues is 15%. For example, any point on the blue line shows the amount that is required to cut the residual, which is read on the horizontal axis, and the corresponding revenue reduction, which is read on the vertical axis. Note that the slope of the 3 lines is the inverse of the elasticity of the residual with respect to revenues.



From this graph we learn 2 important lessons: (i) there is a limit to the size of the adjustment at total BDG, i.e. when the size of the adjustment is greater than BDG then government must cut spending on discretionary priority programs—note that on the horizontal axis the maximum amount that can be cut is always 100%; (ii) reading Figure 2 from any point on the horizontal axis and going up we find that when there is more room to cut spending, that is the larger is the share of residual spending of total spending, the easier it is to cut spending—note that for any amount of spending cut on the horizontal axis the overall impact on reducing revenues is highest for higher shares of residual spending of total spending; and (iii) reading Figure 2 from any point on the vertical axis and moving sideways we find that for any amount of revenue drop, a smaller overall adjustment on the residual implies a higher proportion of the residual of the total, i.e. the “faster” and less painful the adjustment required. In other words, the less constrained government is the easier it will be to accommodate cuts. The intuition behind these results is straightforward: governments find it difficult to cut spending when they have very little room to maneuver because a large share of their spending is “locked-in.” For governments in this situation, cutting spending is difficult and may lead to defaults or social unrest.

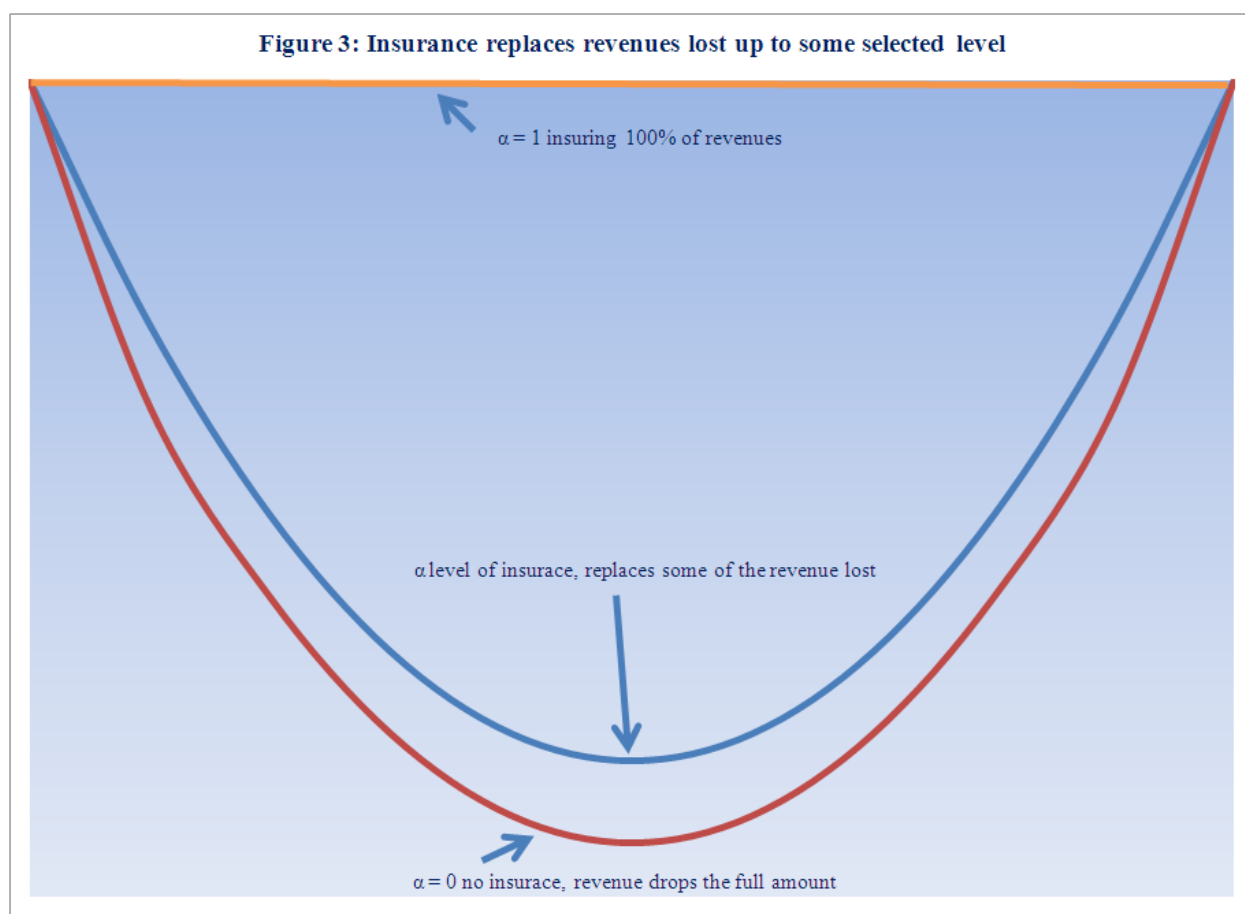
In general, governments that lack flexibility to cut spending face extremely painful choices and prefer to resist cutting spending. Governments, therefore, would like to have access to extraordinary sources of revenues when negative shocks hit the economy. Equation (4) shows the level of revenue adjustment that governments are willing to absorb by cutting revenues ($A\Delta G$). For governments with access to extraordinary sources of funding that wish to protect all government spending then $\alpha = 1$ in equation (4) and the acceptable level of spending cuts is zero. Governments that cannot find any extraordinary sources of financing have to acknowledge that their spending will necessarily be reduced by the full amount of the revenue drop—in equation (4) this happens when $\alpha = 0$. Most governments that face a crisis would like to be somewhere in between these 2 extremes. Note that the focus of this paper is on protecting social spending in times of economic distress, therefore counter-cyclical policy in this context is defined by α values between 0 and 1; for counter-cyclical fiscal policy with an impact on the expansion of aggregate demand, a different issue not considered in this paper, α would have values higher than 1 and spending would be prioritized using different criteria, i.e. fiscal multipliers.

$$A\Delta G = \Delta R - \alpha\Delta BDG$$

AΔG is the acceptable level of spending cuts, ΔR is the total revenue loss that results from the economic contraction, ΔBDG is the level of reduction of the residual that closes the revenue gap, and α is the protection factor that defines the amount of the residual that government does not want to cut (4)

Figure 3 shows graphically the significance of protection factor α and how to use it to estimate the overall size of the extraordinary source of finance required to protect social spending. We call this an insurance mechanism because it allows government to dampen the negative impact of revenue loss during a contraction. The vertical axis shows total revenues and the horizontal axis shows a period of economic contraction. The elliptical lines, in red and blue, represent cuts in spending while the horizontal orange line represents the normal level of spending. When a shock hits a Caribbean economy, causing a drop in revenues and thereby forcing an adjustment in spending, then governments without insurance would have no option but to decrease spending, as represented by the red line. In this case the protection factor α is zero and government has to

fully absorb the drop in revenues by cutting an equal amount of public spending. When governments have insurance then the protection factor α is higher than zero. In Figure 3 the blue line shows a protection factor that is below 1 and the orange line shows a protection factor that is equal to 1, in which case governments do not need to sacrifice any spending during an economic contraction. The area between the red line and the blue line, for partial insurance, or between the red line and the orange line, for full insurance, determines the total amount of extraordinary sources of funding that government needs in time of a contraction. Equation (5) formalizes this notion. Note that we are allowing for the protection factor to change over time as the duration of the crisis will be a determinant of the insurance level. We will explain in Section IV that the protection factor may be designed to be inversely proportional to the duration of the crisis. In the next 2 sections we present indices which demonstrate the particular vulnerability of the Caribbean to economic contractions followed by a proposal to insure the spending of Caribbean governments during economic contractions.



$$I\Delta G = \int_t \alpha_t \Delta BDG_t \partial t \quad (5)$$

$I\Delta G$ is the total amount of insurance that a government is willing/capable of buying to replace a drop in revenues, ΔBDG_t is the level of reduction of the residual that closes the revenue gap at any point in time t during the economic contraction, and α_t is the protection factor a time t .

III. Two indices of fiscal vulnerability of discretionary spending

In this section we present 2 indices that show the high exposure of Caribbean economies to economic contractions as compared to the rest of Latin America. We call the first index the “Fiscal rigidity index” because it provides a measure of non-discretionary spending in the economy. The second index corrects the Fiscal rigidity index by considering the overall size of public spending.

The “Fiscal rigidity index” (FRI) measures the size and proportion of public spending that can be characterized as non-discretionary spending. We provide 2 versions of this index. The first version measures the relative size of non-discretionary to total spending, while the second one corrects the index for the overall size of public spending. In both indices higher numbers indicate more rigidity. Equation (6) shows the definition of these 2 indices.

$$\text{FRI Simple index} = \left(1 - \frac{BDG}{G}\right) * 100 \tag{6}$$

$$\text{FRI Size corrected index} = \left(1 - \frac{BDG}{G}\right) * \left(1 + \frac{G}{GDP}\right) * 100$$

The simple FRI provides a measure of government spending rigidity with higher values indicating greater rigidity in spending. The index’s maximum value is 100, which would indicate total rigidity in public spending, i.e. that any reduction in revenues would have to be accommodated by reductions in non-discretionary spending. The minimum value is zero indicating total flexibility in government spending. Note that a country with a high FRI could face a substantial loss of revenue yet still find the situation manageable if the overall size of the problem was small. The size corrected FRI index considers this case. A country with highly rigid public spending that also has large overall public spending levels will have high values of the size corrected FRI (scFRI)—the largest value of the scFRI is 200 and the lowest value is zero. Table 2 presents a version of these 2 indices showing the rank for selected Caribbean countries.

Table 2: Fiscal rigidity index, simple and size corrected, for selected Caribbean and Latin American countries for the period 1999-2009

	FRI 1	FRI 2	scFRI 1	scFRI 2
Latin America & Caribbean (all income levels)	73.38	35.08	na	Na
Caribbean selected countries average	76.19	52.64	98.55	67.99
St. Kitts and Nevis	74.54	61.62	99.63	82.33
Jamaica	64.26	58.75	85.67	78.34
Bahamas, The	76.83	54.05	88.22	62.06
Barbados	86.58	43.81	121.31	61.38
Trinidad and Tobago	78.73	44.95	97.93	55.83
Central American selected countries average	71.25	46.94	84.56	55.86
Panama	83.99	58.39	102.63	71.35
Honduras	69.25	55.21	83.59	66.63
Costa Rica	67.53	53.71	82.72	65.79
El Salvador	68.39	52.97	80.42	62.23
Dominican Republic	74.25	41.89	84.97	47.95
Guatemala	66.58	35.70	74.94	40.19
Nicaragua	68.78	30.69	82.63	36.85
South American selected countries and Mexico average	77.03	35.63	94.37	43.41
Paraguay	80.45	56.24	94.14	65.80
Colombia	78.96	37.45	101.47	48.13
Brazil	86.31	35.16	107.41	43.76
Uruguay	85.67	34.10	108.52	43.20
Venezuela, RB	91.64	33.91	113.09	41.85
Bolivia	78.77	33.18	99.24	41.81
Peru	75.43	32.49	88.30	38.04
Mexico	32.61	32.61	37.56	37.56
Chile	83.46	25.56	99.57	30.50

Source: Authors' estimates using World Bank World Development Indicators Database and equation (6)

Table 2 shows 2 versions of FRI and 2 versions of the scFRI. FRI 1 and scFRI 1 use the sum of employee compensation plus interest payments plus transfers and subsidies as a proxy for non-discretionary government spending. FRI 2 and scFRI 2 only use employee compensation and interest payments. Transfers and subsidies are somewhat problematic because, although the largest share of that type of spending is made up of non-discretionary programs such as social benefit payments in pensions and other entitlement programs, the variability in reporting across the region is large and for some countries this may not be the case. For this reason we present both results but focus on FRI 2 and scFRI 2. According to our definition the country with the most rigid government spending is St. Kitts and Nevis, followed by Jamaica, The Bahamas, Barbados and Trinidad and Tobago. We note in particular the rigidity of Jamaica's spending, which is consistent with Jamaica's high debt and pervasive fiscal problems. When a negative shock hits the Jamaican economy decision makers face an almost impossible decision of how to

cut spending because a large share of it is in non-discretionary programs. For comparison purposes we also included in the table selected Central American and South American countries, and the data shows that for these countries fiscal rigidity is significantly less than it is for Caribbean countries. Finally we note that the index presented in Table 2 is sensitive to macroeconomic conditions, therefore Table 3 presents the estimation of FRI only for 2006 and 2007.

Table 3: Fiscal rigidity index, simple and size corrected, for selected Caribbean and Latin American countries for the period 2006-2007

	FRI 1	FRI 2	scFRI 1	scFRI 2
2006 & 2007 average	72.36	48.54	94.06	62.88
St. Kitts and Nevis	72.88	61.58	94.98	80.25
Jamaica	59.39	52.80	79.10	70.31
Bahamas, The	73.17	52.91	86.05	62.22
Barbados	86.58	43.81	121.31	61.38
Trinidad and Tobago	69.80	31.60	88.86	40.21

Source: Authors construction using World Bank World Development Indicators Database and equation (6)

We select 2006 and 2007 because these years may be characterized as “normal” years based on hurricane activity in the Caribbean. Hurricane activity matters because it is arguably the main source of macroeconomic disturbances. The years 2006 and 2007 are considered “quiet” hurricane years compared to previous years; 2004 and 2005 were particularly active with The Bahamas probably suffering a more than “normal” share of hurricane activity—the largest hurricanes in 2004: Charley, Frances, Ivan and Jeanne, and in 2005: Dennis, Katrina, Rita and Wilma. As expected the estimates of fiscal rigidity for these normal years—the ones that should be used for analytical and design of policy purpose—are somewhat lower than those presented in Table 2.

IV. A proposal to insure marginal government spending

The potential failure of Caribbean Governments to maintain priority spending during times of economic contraction has large negative consequences measured in both social and economic costs because it is not possible to implement counter-cyclical fiscal policy to protect priority spending. Tables 2 and 3 indicate that the Caribbean is more exposed than the rest of Latin America to adjustments in revenue shortfalls because of the rigidity and the overall size of public spending. Moreover, as presented in Section I of this paper, the Caribbean countries are particularly vulnerable to macroeconomic shocks that recurrently hit their economies. For this reason we argue that it is imperative for Caribbean governments to guarantee access to extraordinary sources of funding during a crisis. In this section we present 2 such sources—creating saving funds or buying insurance—and argue for the latter as the more feasible option. We then present the preconditions that would facilitate the creation of an insurance program, especially by giving credibility to governments and convincing potential financiers of the positive impact of such a program. We conclude the section by analyzing the institutional setup necessary to design and implement this proposal.

We identify 2 likely funding options available to Caribbean countries during an economic contraction: (i) creating savings funds; and (ii) buying insurance. Our analysis of the requirements to implement these 2 options indicates that the second one is better for the Caribbean. We realize that these 2 are not the only possible options, and that others may also be available. For example financial markets may be tapped during times of distress, however, it is broadly recognized that markets are usually “closed” when needed the most. In addition IFIs also provide extraordinary funding, however, it is also recognized as more effective for reconstruction than it is for budget support in a timely matter. Nevertheless IFIs play an important role in our proposal, as will be made clear later in this section, but their role in this case is not to lend directly and individually to Caribbean governments during times of economic distress.

The first option that we explore is the creation and maintenance of saving funds that are built during “good” times to be used during “bad” times. The literature on the design and use of these funds is deep (Davis et al 2001). These funds are generally recommended for countries that are exposed to large revenue swings related to changes in international prices of export commodities. The prime example is a country with large reserves of some mineral, such as oil, that is exported thereby providing temporary, large and volatile revenues to government. The macroeconomic management of large swings in export revenues is complex, and when it is not done properly the volatility of international prices is transferred to the domestic economy with severe repercussions on long-term investment and growth. Typically large swings in exports have a strong impact on closing the external and domestic gap, including severe swings in all macroeconomic variables, most notably the fiscal balance, the external current account and the real exchange rate. Moreover even the “good” times need management to avoid well known negative consequences known as Dutch disease. To prevent these large revenue swings some countries have built up reserves in saving funds to be used as fiscal buffers.

These funds require countries to save revenues when they are high so as to use them when revenues drop. The purpose of these funds, in general, is twofold: (i) to smooth government spending from good times to bad, thereby reducing volatility; and (ii) to save current resources for the future, an inter-temporal transmission of resources recognizing that some high value commodities, such as oil, are exhaustible. Remarkable examples of success, cited many times in the literature, are Chile’s copper fund and Norway’s oil fund (Davis et al 2001). In both cases clear rules for saving and using resources have resulted in a powerful tool that allows these governments to enhance macroeconomic management and facilitate growth. Unfortunately there are many more examples of failed attempts to create saving funds. Oil and other commodity exporting countries in Latin America—such as Venezuela and Ecuador with oil and Colombia with coffee—have attempted to create saving funds but with very limited success (Perry, 2002). The main problem is politics: it is too tempting to have significant amounts of money in the bank when times are good, particularly for politicians who focus on short-term horizons and do not necessarily benefit from endorsing counter-cyclical behavior.

Our assessment is that saving options are unlikely to succeed in the Caribbean, although the political difficulties would not be the primary challenge. In countries in which the rule of law is weak and constant revisions to key pieces of legislation result in unwieldy outcomes, savings funds will lack the ongoing and strong political support necessary to succeed in the long run. For

example Ecuador's Congress created the saving fund FEIREP in 2001 with the Law of Responsibility, Stabilization and Fiscal Transparency, which is no longer in use, and then replaced it with different versions of saving funds—CEREPS, FEP, FAC, FEISEH—each with different rules. The lack of continuity resulted in very little accumulation of resources in any of these funds (Elias, 2009). This is not the case in the Caribbean where the rule of law is better able to protect laws than in many Latin American countries. The Caribbean does have a prime example of a successful saving fund. Trinidad and Tobago has successfully maintained a savings fund related to gas and oil exports since 2000. The Interim Revenue Stabilization Fund, from 2000 to 2007, and since the Heritage and Stabilization Fund (HSF), accrues revenues from the gas and oil sector. To March 2010 the HSF holds reserves of US\$3,039 million, about 14% of GDP (HSF, 2010). Nor should the technical challenges of designing saving funds be a constraint, as this problem has been solved and a saving funds specific to each of the Caribbean economies can be easily and inexpensively commissioned for design.

The main reason why we recommend insurance over saving funds for the Caribbean is due to the difficulty of targeting sources of revenue. Ideally a savings fund accrues high revenues which are invested for use when revenues are low. The prime example of a saving fund linked to volatile prices is an oil saving fund. Oil is a highly volatile commodity that transfers its volatility to the economy. An oil saving fund would be built around the identification of a long-term reference price for oil, so that when current prices are higher than the reference price the fund builds assets, and when current prices are lower than the reference price the fund liquidates assets and transfers funds to government to maintain spending. In this example, identifying the source of revenues linked to the volatility is straightforward—taxes and royalties paid by public or private oil companies. Therefore it is relatively easy to identify the rules of the saving fund and the sources of funding, and to transparently create a saving fund.

This is not the case for Caribbean countries, whose economies are subject to high revenue volatility from sources that are spread throughout the economy. Even for those economies that depend mostly on tourism, the linkages between this sector and others in the economy are so complex that it is not easy to define a saving rule. For oil this is relatively easy, as governments have only to look at one price and determine if it is above the price at which the saving rule is triggered. Such a convenient indicator is not available for Caribbean governments to determine when they should be in “saving” mode. In addition there are multiple players because the tourism industry touches on so many areas and sectors. The source of savings would then have to be general revenues, which complicates the creation and maintenance of the fund. We also note that a proposal was put forward in 2004 to create a fiscal insurance scheme for the Eastern Caribbean currency union. This is an insurance proposal to replace fiscal downturns in the common currency Eastern Caribbean region. The proposed program would require the contribution of members to a common buffer fund that would be built up, as conditions allowed, and used by contributors, as needed. Essentially this proposal is the equivalent of a multi-country savings fund. As we will explain next, compared to our proposal this one differs in the lack of reliability on market mechanisms and more on joint saving capacity of members (dos Reis, 2004).

The option that we recommend for the Caribbean is to have access to insurance/lines of credit that would be available at the discretion of government under some well-defined contractual

agreements between governments and lenders in the private sector, with IFIs playing an intermediation role. These lines of credit, or insurance, will protect Caribbean countries government spending from large negative shocks to their economies.

This type of insurance program would require a clear identification of policy objectives, and as suggested by this proposal, such policy objectives should be linked to, in order of importance: (i) protection of non-discretionary spending; (ii) protection of discretionary spending in selected programs; and (iii) maintenance of a level of total spending that ensures a minimum level of public services with emphasis on social protection.⁴ Although the objective of the insurance is linked to spending on selected public services, the benefits go beyond the beneficiaries of the specific programs because the insurance would also serve a counter-cyclical purpose by maintaining a public spending floor. The dual affect of this insurance, therefore, would be to ensure that priority spending is preserved so that services for the poor are available when the number of poor and unemployed is growing, while simultaneously dampening the impact of the economic contraction by limiting the drop in aggregate demand, the depreciation of real exchange rates, and consequent drop in output. Note that the goal of the policy is not to wholly avoid any drop in output, but rather is to ensure an adequate level of public services during an economic contraction. We suggest that this approach is, above all, feasible, and recognize that there may not be “magic solutions” that allow for strong counter-cyclical fiscal policy in the Caribbean. By limiting the scope of the proposal we believe that we are making a real contribution to the design of a program that is cost-efficient and within reach given the current situation of the Caribbean and its support institutions. The process to design and implement this proposal is not trivial and will require significant effort and decisions from government officials and support from development partners in the Caribbean.

The first step in the process, perhaps the most time-consuming and delicate step, is a complete revision and restructuring of public spending following the general definition of public spending provided in this document. Caribbean governments’ public spending includes a variety of programs. Many of these overlap as they have similar objectives but were enacted at different periods by different administrations. In general once a program is established it goes through a period of intense relevance and generous funding. Over time, however, some programs may lose priority and become less relevant, although they are seldom closed down entirely. Moreover, programs and public spending are organized around existing public institutions, such as Ministries and quasi-public institutions, which complicates the analysis as social protection requires a multidisciplinary approach that usually cannot be provided by one Ministry or public institution alone—preliminary analysis of subsidies and transfers in Suriname reveals a large number of current and past programs that overlap, are firmly based in individual Ministries and

⁴ We note that we are not talking about insurance against natural disasters. This is a topic that has been thoroughly discussed in the Caribbean (Crowards, 2000; Andersen, 2005; Borensztein, 2008). In general the recommendation that comes from the reports prepared for the Caribbean is for governments to focus on prevention and preparedness, and on insurance to help the rebuilding process after a hurricane hits a country. Insurance for catastrophic events has been estimated for Caribbean countries. For Belize Borenstein et al (2008) estimate that the country would require an insurance level of US\$120 million to cover for relief and infrastructure rebuilding related to a catastrophic risk that would make public finances, and debt, sustainable—i.e. a hurricane. In fact the Caribbean Development Bank focuses on prevention and post-disaster support (CDB 2009). This paper recognizes the value of this approach and suggests that it should be considered in addition to the proposals presented in this paper that focus on overall drops of fiscal revenue and the link to social protection regardless of the source of economic contraction.

lack efficient control and administration.⁵ As a consequence, a revision of public spending should attempt to identify all programs and services provided by government and quasi-public institutions with the objective of: (i) creating an inventory of programs and classifying them by purpose and priority; (ii) preparing a plan to consolidate similar programs and eliminate older inefficient and ineffective programs; (iii) re-designing and re-launching a set of fewer but larger and better designed programs that would emphasize targeting and measuring results; and (iv) defining a priority ranking among programs and public spending. This step is a key input in designing an insurance program for Caribbean governments.

The second step in the process requires a technical analysis of tradeoffs between various public spending and priority programs. The analysis would determine the impact of spending and programs measured at the macroeconomic level using fiscal multipliers, and at the microeconomic level through estimating the number of beneficiaries of the programs and the change in well-being that results from program execution. The end result of this analysis is the definition of the largest amount of public spending that the country can afford—that is the upper bound of acceptable cuts during a contraction, thereby defining the level of insurance by estimating the likely revenue drop for an economic contraction. This estimate would lead to an agreement about the level of the protection factor α presented in equation (4). This exercise is politically complex as the authorities need to follow through with the priorities identified in the first step and announce what would be less important during a crisis—clearly a difficult process because any selection would have winners and losers. Note that the protection factor need not be constant and should be inversely proportional to the duration of the crisis. Short crises would allow governments to cut less spending—that is to carry larger protection factors—than long crises. Given that the duration of any crisis is uncertain, this issue will have to be carefully addressed in the design of the insurance policy.

The third step is the design of the insurance policy itself. Note that the previous 2 steps give credibility to the process because stakeholders and markets will have information about the implicit tradeoffs in the prioritization process, and the extent to which government is committed to following through on their plans for protection and spending reduction. Moreover, the analysis required for the first steps defines the basic parameters for the design of the insurance policy. This paper is not the place to present a formal technical design of the insurance policy, this is currently a common practice extensively used by the private sector that can be commissioned to experts in the field (Culp, 2002). We clarify that the design of the policy, most importantly the coverage, premium and triggers, will rest on both macroeconomic and microeconomic assumptions. Macroeconomic assumptions should include the probability, depth and duration of shocks, along with relevant external conditions that impact real economies in the Caribbean. The microeconomic assumptions are more difficult to define as they must include the definition of non-discretionary and discretionary priority programs, and the acceptable amount of spending cuts.

To conclude this section we highlight the role that the development partners of Caribbean countries can play in facilitating the creation of an insurance program. The heterogeneity of macroeconomic conditions within the Caribbean region would make individual insurance

⁵ The authors are preparing an analysis of subsidies in Suriname. Additional information may be provided by contacting the authors of this paper.

arrangements complicated and subject to large variations in the cost structure. In part for this reason but also to lower costs by spreading risk among participating countries, a multi-country program appears to be ideal for the Caribbean. As far as we know this would be a unique program in the world, but the Caribbean countries are known for their extraordinary success in joining as one region so we believe that this project is feasible. In fact, this has already happen for the purpose of catastrophe insurance. The Caribbean Catastrophe Risk Insurance Facility (CCRISF) illustrates the Caribbean capacity to organizing join common purpose initiatives. After hurricane Ivan hit the Caribbean in 2004, CARICOM Heads of State, with technical support from the World Bank, designed and created CCRISF to provide short-term financing to begin recovery efforts after a catastrophic event.⁶ We highlight, therefore, that regional development partners are ideally positioned to provide know-how and funding for the design of this program. Moreover, these partners could take the technical lead in designing the financial tool that would make such a project successful.

Some existing financing tools, already available to hedge and insure individual countries may inform the design of a Caribbean-wide insurance program. The World Bank offers currency and interest rate conversion and swaps, interest rate caps and collars, and commodity swaps.⁷ All these instruments offer hedging products linked to debt of countries held by the World Bank. The World Bank also offers weather, catastrophe, and natural disaster risk management products. In Malawi the World Bank uses an option, linked to a drought index, to compensate maize production lost due to drought conditions—a maximum payment of US\$5 million may be used to import food.⁸ Catastrophe risk management is provided to Costa Rica, with a drawdown of up to US\$500 million or 0.25% of GDP when government declares a state of emergency due to a natural disaster.⁹ Finally the MultiCat program, or catastrophe bonds (CATs), provides insurance to governments for a wide variety of natural disasters.¹⁰

An interesting alternative is to use a version of the World Bank’s commodity swap program that offers debt swaps linked to changes in commodity prices—see footnote (7). In this program the World Bank acts as an intermediary for governments that want to hedge against drops in export commodity prices. The World Bank option, a debt swap, is placed on the market at the lowest possible cost given the institution’s AAA credit rating. The options are then transferred to participating countries which have to pay the option cost, linking the country’s debt service to the World Bank to levels of prices of commodities. In other words, if the price of a commodity hits a lower bound, the swap option is triggered and replaces debt service payments from the country to the World Bank. A similar design might be considered by Caribbean countries, in this case with swaps related to debt service to regional development partners, but instead of triggers related to commodity prices we recommend either interest rate levels on some recognized sovereign debt indicator, such as J.P. Morgan Emerging Market Bond Index (EMBI) or the Latin America Eurobond Index (LEI), overall level of exports of goods and services, or prices of baskets of goods and services that reflect the current Caribbean situation. In addition the ample experience of hedge funds in what is called “macro funds” should inform the design of an

⁶ <http://www.ccrif.org/faq>

⁷ <http://treasury.worldbank.org/bdm/htm/index.html>

⁸ http://treasury.worldbank.org/bdm/pdf/Handouts_Finance/Financial_Solution_WeatherHedge_Malawi.pdf

⁹ http://treasury.worldbank.org/bdm/pdf/Handouts_Finance/Financial_Solution_CatDDO_CostaRica.pdf

¹⁰ http://treasury.worldbank.org/bdm/pdf/Handouts_Finance/Financial_Solution_MultiCat.pdf

insurance policy for the Caribbean region. Macro funds use mathematical models to predict changes in macroeconomic variables, more notably interest rates and exchange rates among other economic fundamentals, to take advantage of arbitrage opportunities. These funds' know-how could be applied to the design of triggers for the insurance policy.

V. Potential impact of the implementation of this proposal

The expected impact of the implementation of this proposal is significant. In this section we present the likely impact on aggregate demand, confidence, and public debt. We note that in addition to the impact on these macroeconomic issues, the implementation of this proposal will benefit the lower income population that is most exposed to the negative impact of an economic contraction, because of the protection of selected government programs as explained in Section II.

This proposal would set the foundation for further counter-cyclical fiscal policy, if so desired by Caribbean authorities, and would marginally increase aggregate demand during an economic contraction. Both objectives are accomplished by designing and implementing an insurance program that can provide fresh resources at a time when fiscal revenues drop. Aggregate demand will be affected by the ability of government to protect high value programs. The size of the impact on aggregate demand will depend on the programs that governments select to protect and the extent to which they choose to protect them. From this perspective, governments should take into consideration the fiscal multipliers of programs as one selection criterion. The literature reports that fiscal stimulus related to low income groups in the context of high unrealized growth potential have higher multipliers than other government programs (Auerbach, 2010).

This program will also provide confidence to the market. We note that this proposal does not replace disaster insurance or efforts to reduce risk related to increased preparedness, but rather complements such efforts. Financial markets in particular would have a more positive outlook on pricing sovereign debt to Caribbean countries because such an insurance policy would improve the capacity of government to manage the economy during periods of economic distress.

Finally, debt should not be significantly increased by the implementation of this proposal. The insurance policy is not a contingent liability; therefore it should not be counted as public debt. On the other hand, lines of credit, the alternative to an insurance policy, *are* contingent liabilities and if governments decide to use this alternative then the lines of credit should be added to current debt in the analysis of debt sustainability and the fiscal outlook.

VI. Conclusions and recommendations

This paper contributes to the analysis of fiscal issues in the Caribbean by: (i) refocusing the research agenda, and data collection efforts, on the analysis of public spending of key programs with the objective of protecting them during times of economic distress; (ii) offering a roadmap for a methodology to identify priority public spending and classify spending into a minimum of 3 main groups: non-discretionary spending, discretionary spending in priority programs, and the

residual; (iii) proposing the prioritization of a subset of programs and protecting them during times of economic distress; and (iv) recommending the design of an insurance program to protect selected public spending that would be available for governments to use when revenues drop.

We note that this proposal's aim is modest as it does not aim to fully replace revenues lost during an economic contraction, which means that the overall counter-cyclical power of the proposal is limited. However it provides a feasible program with high value added by ensuring the counter-cyclical behavior of priority programs that target the poor and unemployed. During an economic contraction the poor and unemployed are even more exposed to the negative impact of said contraction so that during these times the demand for government support increases. In the context of shallow safety nets and nonexistent automatic stabilizers, this proposal offers a cost-effective and feasible alternative for governments to maintain spending on priority programs.

In conclusion, we wish to emphasize that this proposal does not replace the need for risk reduction activities and insurance for post disaster reconstruction. This proposal is complementary to these activities and focuses narrowly on the fiscal problem of sudden drops of revenues, regardless of the cause, to which Caribbean economies are permanently exposed.

Finally we also highlight the role of IFIs in facilitating the creation of a regional insurance policy shared by the Caribbean countries that agree to participate. We do not minimize the challenges of organizing and convincing countries in the region of the benefits of this proposal. Moreover we understand the difficulties in the design of such an insurance policy, especially in the process of identifying which government spending should be consolidated or cut. In spite of the difficulties we believe that the implementation of a program along the general lines provided in this paper will transmit high returns to governments in the region.

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