Natural Hazards in the Caribbean: Too costly to ignore?

For the period 1990-2008, the Caribbean experienced 165 natural disasters. The total impact (damage and losses) for this period was estimated to be US$ 136 billion, with the economic impact being the highest at US$ 63 billion (46%). Even a cursory glance at these figures reveals that the economics of natural disasters in the Caribbean is volatile, alarming and, most certainly, cannot be ignored.

Macroeconomic vulnerability to natural hazards is predicated on five basic conditions that can be classified as both location and time specific. These include: the type of natural hazard; the overall structure of the economy; the geographic size of a country; the country's income level and stage of development and the prevailing socioeconomic conditions, including the policy environment and the state of the economy. When placed in the context of Caribbean Small Island Developing States (SIDS) and the reality of small size, undiversified economies' high degree of exposure to the global economy, inability to take advantage of economies of scale and the subsequent dependency on imports is considered, it is hardly surprising that the cost of disasters can be substantial.

In order to aptly capture this strain, the economic impact can be broken down into three categories: damages, indirect losses and secondary effects. Firstly, damages are those that occur right at the time of the hazard and include damages to physical assets (roads, utility supply equipment, etc.) and productive capital (i.e. stocks of capital such as infrastructure). In addition to damages, the economy in general, and agents in particular, incur indirect losses or losses in the flows of income. These refer to, for example, shortfalls in harvest and higher operational costs, such as higher transportation costs due to the damage sustained by roads and transport infrastructure. In this case, the distinction must be made that geological disasters such as earthquakes generate higher damage to assets with fewer indirect damages, while climatic disasters such as hurricanes, flooding or drought usually have a more significant impact on indirect losses. It is estimated that the impact of the 2004 hurricane season in the Caribbean, measured by the sum of indirect losses and damages,

totalled more than US$3 billion. For the period 1990-2008, damages and indirect losses in Belize, Dominica, Haiti, Saint Lucia, Jamaica and Suriname accounted for between 80%-85% of the total national impact of natural disasters.

Notwithstanding the severity of these repercussions, of even greater significance is the fallout that these damages and indirect losses trigger in the macroeconomic variables of a country, the so-termed secondary effects. The United Nations University and the World Institute for Development Economics Research in their article entitled, “Analysing the Impact of Natural Hazards in Small Economies”, effectively summarise such secondary effects as being brought on: (i) by affecting production and distribution channels of an economy and thus depressing the overall rate of growth of the economy; (ii) through the loss of aggregate income and employment and the spillovers on consumption profiles; (iii) through increased imports resulting from the need to purchase intermediate goods and raw materials for repairs; (iv) by increasing insurance flows, and (v) by lower government revenues. Thus they note that there is a considerable spillover to the external balance (the balance of payments, the level of indebtedness) as well as the internal balance (inflation, growth and income, the fiscal balance, employment, etc.) of the respective economy.

In examining data on the economic impacts of disasters on imports and external debt, attention must be brought to the fact that, once again, for the period 1990-2008 there was a marginal increase in imports in the Caribbean between the year prior to and the year of the natural disaster. From 2003-2004 when Hurricane Ivan occurred, there was a 4% increase in Bahamas, in Belize and Grenada a 7% increase, and in Jamaica a 2% increase.

It is important in the context of macroeconomic stability, that attention be given to the increase in external debt as a share of GDP in affected nations during the period of crisis, given that damages from the event account for a large portion of GDP. During the 2004 hurricane season, the damages of US$3.1 billion translated into significant proportions of GDP, ranging from approximately 10% in Jamaica to more than 200% in Grenada. With regard to external debt, the region on a whole has an average external debt to GDP ratio of 100%. It is projected that the average hurricane will reduce output by nearly 1 percent; accordingly debt to GDP is expected to grow faster during and after the year a storm strikes. Given these disturbing trends, the wider implications for the region must be explored.

Ex-ante or ex-post mitigation?

While stumbling block to regional development can be identified from among a plethora of issues, natural hazards by themselves have the potential to undo years of development through the repeated destruction of economic and social capital. When it is considered for example that agriculture accounts for a significant proportion of GDP, 14% in Dominica and 21% in Guyana (2011), and that tourism contributes 77.4% and 48.4% in Antigua and Barbuda and Bahamas respectively, the passage of a natural hazard represents a huge blow to the productive sectors of the economies. This raises the debate of the cost-benefit evaluation of mitigation. Generally, governments of the region have been reluctant to undertake ex-ante mitigation due to the high-perceived opportunity cost and the inability to predict where or when the next disaster may occur.

Nevertheless, given the increasing frequency and severity of natural disasters in recent years, it is advisable to adopt an approach that would create an environment that is less susceptible to negative impacts and thus more cost-effective in the long run.

Coping with risk: greater role for insurance and capital markets?

Within the insurance market, natural disasters are commonly considered “high severity, low frequency” events that are much less preferred by insurance companies to “low severity, high frequency” events. As a result, market for catastrophe risk insurance still remains in its infancy stage. Reducing vulnerability to disaster however should not be counted as a cost but an opportunity to promote sustainability and resilience. Seen in this way, insurance becomes an important tool for reducing the burden associated with natural disasters by spreading that burden over space and time. Allusions have been made to the fact that risk reduction must involve some degree of partnership with the private sector, including investment banks and insurance agencies. It remains therefore to establish an appropriate role for the government vis-à-vis the private sector in catastrophe insurance markets. In addition, decisions must be taken relative to the appropriate institutional set-up that facilitates the smooth functioning of insurance schemes while minimizing moral hazard and adverse selection.

The extent to which a hazard manifests itself as a disaster inevitably depends on the capacity of a country to cope. Indeed, the economic cost of disasters in the Caribbean is high; however the cost of inactivity is even higher.