

# MACROECONOMIC VULNERABILITY IN DEVELOPING COUNTRIES: APPROACHES AND ISSUES

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# **MACROECONOMIC VULNERABILITY IN DEVELOPING COUNTRIES: APPROACHES AND ISSUES**

Anuradha Seth and Amr Ragab\*

## **ABSTRACT**

Economic vulnerability is approached from micro- and macroeconomic perspectives. While the microeconomic perspective is concerned with the impact of shocks on the well-being of individual households, the macroeconomic perspective focuses on the impact of these shocks on economic growth. This paper reviews the literature on macroeconomic vulnerability and finds that there is no single approach to understanding macroeconomic vulnerability in the context of financial and economic crises in developing countries. It identifies the critical contributions of different studies on macroeconomic vulnerability and appraises their main differences. The paper then proposes elements for a more comprehensive framework of macroeconomic vulnerability for developing countries. In a world where shocks and crises are becoming more frequent, the imperative for countries to build resilience and protect themselves from development reversals has become all the more urgent. Not surprisingly, addressing macroeconomic vulnerability has become an important aspect of the international development agenda.

**Keywords:** vulnerability, resilience, macroeconomic, growth

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## 1 INTRODUCTION

There is no single approach to understanding macroeconomic vulnerability in developing countries in the context of financial and economic crises. In the literature, numerous conceptual frameworks have been proposed, but two approaches are dominant. The first approach addresses macroeconomic vulnerability only in the context of financial crises. Specific studies examine how macroeconomic vulnerability is manifest in macroeconomic imbalances of the financial sector of developing economies. Such imbalances can precipitate domestic financial crises, such as a currency, debt or banking crisis, and thus impair economic growth in a country (Kaminsky et al., 1998; IMF, 1998; Herrera & Garcia, 1999; Krkoska, 2000). Other studies are concerned with how the characteristics of the financial sector and international capital flows can trigger financial crises (Palma, 1998; Ocampo, 2008; Spratt & Bernini, 2010).

On the other hand, there are approaches that examine how macroeconomic vulnerability is determined by specific, structural conditions that expose economies to economic or financial shocks. If an economy has limited capacities to cope with such shocks, then it is probable that economic growth will be even more severely impacted. Thus, according to this perspective, an economy's exposure and resilience to shocks determine macroeconomic vulnerability (Briguglio, 1995; Briguglio & Galea, 2003; United Nations, 2006; Baritto, 2008; Guillaumont, 2010).

Global financial and economic shocks have become ever more frequent,<sup>1</sup> and the negative impacts of such shocks on growth, inequality and poverty in developing countries are well documented (World Bank, 2010). Since these crises have the potential to unravel development gains—that in many cases have taken years for countries to achieve—it has become even more necessary for countries to guard themselves from such reversals. Put differently: if crises have become a systemic feature of the global economy, then ensuring a more resilient pattern of growth has become a crucial aspect of the development agenda for policymakers across the world.

Generally, in economics, the concept of vulnerability is approached from both the macroeconomic and microeconomic perspectives. The microeconomic perspective focuses on the impact of shocks on the well-being of individual households, whereas the macroeconomic perspective focuses on the impact of these shocks on economic growth.

Central to the microeconomic perspective is a concern that the shock may result in a household's income falling below a given threshold such as the poverty line (Alwang et al., 2001). The reason for this is that poorer households have fewer assets, more limited risk-coping mechanisms and less access to capital markets to cope with economic fluctuations. Concepts of 'vulnerable households' and 'transient and chronic poverty' all arise from the study of a household's vulnerability to poverty (Hulme et al., 2001; Baulch & McCulloch, 2002; Dercon & Shapiro, 2007). In other words, the microeconomic perspective on vulnerability seeks to identify households that are 'at risk of poverty' in the event of a financial and economic crisis and identifies policies that increase the households' ability to 'manage risk' (Alwang et al., 2001).

Typically, households tend to adjust their consumption and investment behaviour in an attempt to cope with external shocks, and adverse coping strategies such as dropping out of school or cutting back on health care have regularly been observed. Since the impact of a shock often overwhelms individual households, community and government measures are needed to assist them. Moreover, since many of the goods needed to strengthen household resilience are public goods, the continued provision of basic goods and services, including education, health services and public infrastructure, are essential in times of crisis.

But it is precisely in the aftermath of such macro-level shocks that the capacity of the state to provide essential services is restricted. The inability of many developing countries to withstand, cope with or recover from such shocks is largely on account of macroeconomic vulnerability.

## 2 MACROECONOMIC PERSPECTIVES ON VULNERABILITY

Two perspectives dominate the literature on macroeconomic vulnerability. This discussion paper reviews and assesses both approaches.

### 2.1 CAPITAL FLOWS, FINANCIAL MARKETS AND MACROECONOMIC VULNERABILITY

As noted earlier, many studies in this group are concerned with how macroeconomic imbalances such as misalignments in asset prices or exchange rates can cause or precipitate a financial crisis, be it a currency, debt or banking crisis.

The more severe the macroeconomic imbalances, the higher the probability that a financial crisis will occur. Apart from macroeconomic imbalances, two other factors that influence macroeconomic vulnerability are the credibility of policies to correct such imbalances and the robustness of the country's financial system. Put differently: macroeconomic vulnerability is seen as driven by "domestic economic conditions and policies, such as over-borrowing for unproductive uses, a fragile financial sector, or an inflexible exchange-rate system" (IMF, 1998: 83).

Several of the studies in this group focus on developing indicators of macroeconomic vulnerability that can serve as a signal—'an early warning system'—for financial crises. Typically, such early warning systems include indicators related to the growth and instability of domestic credit, real effective exchange rates, the money supply relative to foreign reserves and, in some cases, inflation (Kaminsky et al., 1998; IMF, 1998; Herrera & Garcia, 1999).

However, since financial crises can take different forms and are complex phenomena, early warning systems have been mainly limited to assessing currency crises. Examples of such indicator frameworks are the International Monetary Fund's (IMF) 1998 Macroeconomic Vulnerability Index<sup>2</sup> (MVI) and the World Bank's 1999 Index of Macroeconomic Vulnerability (IMV), which was tested on a group of Latin American countries<sup>3</sup> (Herrera & Garcia, 1999).

Given the relatively restricted focus of the understanding of macroeconomic vulnerability in these studies (essentially on macroeconomic imbalances and financial sector fragility), it is not surprising that policy recommendations focus on measures such as containing credit growth and money supply, ensuring flexible exchange rates and guarding against expansionary fiscal policies. "Overly expansionary monetary and fiscal policies have spurred lending booms, excessive debt accumulation, and overinvestment in real assets, which have driven up equity and real estate prices to unsustainable levels" (IMF, 1998: 81).

Other studies in this group broaden the enquiry into macroeconomic vulnerability by examining the characteristics of international capital flows (Calvo et al., 1996; Palma, 1998; Montiel & Reinhart, 2001). According to these studies, financial sectors have inherent characteristics, such as herd behaviour and cyclical information, which make them susceptible to boom and bust cycles. These characteristics are further compounded by the laxity of

prudential and financial regulation. In other words, the origins of financial crises lie in the cyclical nature of financial flows, a fact that consequently has implications for the 'real' sector. Put differently: financial booms and busts lead to output volatility.

Yet other studies undertake a deeper investigation into the volatility of international capital flows and their implications for the real sector (Palma, 1998; Ocampo, 2008). While still concerned with macroeconomic stability, the latter is now viewed in a broader sense, which includes not only the stability of monetary and financial factors, but also the stability of the *real* sector—i.e. the stability of output.

Ocampo (2008) points out that the macroeconomic vulnerability of developing countries has increased in recent decades primarily due to the increased exposure of the *real* sectors of economies to financial markets. This increased exposure shifts the composition of capital (the sources, interest and maturity structure of capital) toward short-term, high-interest, external liabilities, which renders economic activity vulnerable to changes in interest rates, exchange rates and investor sentiments.

Moreover, the exposure of the private sector not only to external, but also to domestic, financial markets matters in the short and medium terms, since the exposure of firms to financial boom and bust increases the volatility of economic growth itself. Such exposure matters also in the long term, because it results in underinvestment in innovation, the adequate investment in which is instrumental for raising the long-term growth rate. According to Ocampo, the increased exposure of the private sector to financial crises is due to policies such as capital market and domestic financial liberalisation, the pro-cyclicality of fiscal and monetary policy, trade liberalisation and a reduction in export subsidies. Put differently: Ocampo highlights the risks of output volatility associated with exposure to financial markets and international financial flows.

To minimise macroeconomic vulnerability, the study proposes a combination of countercyclical monetary and fiscal policies, prudential regulations, measures to deepen domestic financial markets and undertake foreign exchange interventions, and policies to regulate capital flows (Ocampo, 2008).

More recent studies have attempted to use the concepts of 'vulnerability' and 'resilience' to capture the risks and benefits associated with international financial integration (Spratt & Bernini, 2010). The study by Spratt and Bernini constructs an index (The VulRes Index) to measure economic resilience and vulnerability and identifies five transmission channels<sup>4</sup> by which economies are integrated into the global financial system. The vulnerability sub-index measures the presence of those conditions that are related to negative outcomes (sensitivities) and the absence of those that are related to beneficial ones (adaptive capacities) for each of the transmission channels. The resilience sub-index is its opposite, representing the presence of favourable conditions and the absence of negative ones, associated with integration into financial markets.

To conclude: this perspective on macroeconomic vulnerability addresses vulnerability only in relation to financial crises. More importantly, the theoretical and empirical underpinning of the literature on macroeconomic imbalances and financial sector fragility has long been questioned.<sup>5</sup> Take, for instance, the idea that misaligned exchange rates are the cause of persistent trade deficits. This assumes that an inflexible exchange-rate system does not allow for a correction in trade imbalances, but there are actually many instances of trade

imbalances persisting even when exchange-rate systems have been flexible. Evidence from developing countries on the current account balance as a share of Gross Domestic Product (GDP) indicates a persistent deficit averaging 3.9 per cent for the entire period 1995–2009. This, of course, was also a period during which developing economies very rapidly liberalised their financial markets (UNDP, 2011).

The theoretical assumption that market agents, if provided with accurate and timely information about market fundamentals, will restore stability and equilibrium in the market and prevent a crisis, which underlies much of this literature, has also been questioned. “There is no reason to expect that the mere provision of accurate and timely information about the changing state of market fundamentals in developing countries will prevent crisis by changing agents’ behaviour” (Grabel, 2003: 244). Furthermore, there is no reason to assume that macroeconomic stability can be achieved without significant negative impacts on growth and poverty. Indeed, the fiscal consolidation called for in the wake of crises can work against the very principle of building long-term systemic resilience.<sup>6</sup>

Other studies from this group do not assume that markets are self-regulating. In fact, their emphasis is on highlighting the ‘inherent’ volatility of international capital flows and indicating how destabilising such flows can be for economic growth in developing countries (Ocampo, 2008). Macroeconomic vulnerability is thus seen as an outcome of highly volatile and highly deregulated financial markets. Still, this approach to macroeconomic vulnerability remains partial: the studies do not identify other important conditions that contribute to financial crises, such as rising global income inequalities. Nor do they consider the role of other capital flows (such as remittances or official development assistance, ODA) in either mitigating or contributing to macroeconomic vulnerability. By emphasising only the role played by volatile international capital flows (such as foreign direct investment and portfolio investment) in generating financial crises, these studies do not provide a comprehensive framework for assessing macroeconomic vulnerability in developing countries.

A second perspective approaches macroeconomic vulnerability more broadly—in the context of both economic and financial crises. The rapid integration of developing economies in international trade, coupled with their growing dependence on exports<sup>7</sup> and the increased frequency of commodity price and trade-related shocks, requires that any comprehensive framework on macroeconomic vulnerability in developing countries address economic shocks. This group of studies attempts to do that.

## 2.2 EXPOSURE, RESILIENCE AND MACROECONOMIC VULNERABILITY

The focus of studies in this group is mainly on identifying the structural conditions and transmission channels via which an economy is exposed to economic and financial shocks. Typically, exposure to such shocks has negative impacts on economic growth. Hence, macroeconomic vulnerability<sup>8</sup> in these studies is manifest in the vulnerability of economic growth to such shocks.

This concept of macroeconomic vulnerability was initially championed by Briguglio in the context of Small Island Developing States (SIDS) but was later developed into a conceptual framework applicable to all countries (Briguglio, 1995; Briguglio, 1997; Briguglio & Galea, 2003; Briguglio et al., 2009).

The SIDS were seen as being especially prone to macroeconomic vulnerability because of their remote geographical location and insularity; prompted by donor needs to establish criteria for aid allocations, the development of an index to assess their vulnerability was suggested (United Nations, 1994). The first such index, the Economic Vulnerability Index (EVI), identified three structural characteristics that made SIDS particularly vulnerable to external economic and financial shocks: small size (as reflected by their exposure to foreign economic conditions),<sup>9</sup> insularity and remoteness,<sup>10</sup> and proneness to natural disasters<sup>11</sup> (Briguglio, 1995).

Subsequent modifications of the EVI gave much more prominence to other structural factors, such as international trade, while proneness to natural disasters and size<sup>12</sup> were excluded (Briguglio, 1997).

In 1997, the EVI included five structural characteristics of an economy that exposed it to crises, with the transmission channels essentially via trade or finance. These were:

- economic openness;
- export concentration;
- peripherality;
- dependence on strategic imports; and
- dependence on foreign sources of finance.

The EVI was constructed for 111 countries, including 30 SIDS, and results confirmed that, among developing countries, the SIDS remained particularly vulnerable to crises. By 2003, in a further update, dependence on foreign sources of finance was dropped as a structural determinant of macroeconomic vulnerability (Briguglio & Galea, 2003). Still, estimations for 117 countries, including 19 SIDS, confirmed again that SIDS are more vulnerable than other developing countries to crises.

Importantly, by 2003 the conceptual framework went beyond an examination of the underlying structural determinants of macroeconomic vulnerability and began to focus on a complementary and important concept: that of resilience. While macroeconomic vulnerability was manifest in the “inherent and permanent or quasi-permanent features” of an economy that exposed it to economic shocks, resilience was defined as “a country’s ability to economically cope with or withstand its inherent vulnerability, as a result of some deliberate policy” (Briguglio & Galea, 2003: 3). Whereas exposure increased the risk of adverse impact from shocks, resilience reduced it. If macroeconomic vulnerability was driven by the inherent and structural characteristics of the economy, which cannot be influenced by policy, resilience was seen as those policy actions that enabled an economy to cope with the effects of shocks.

The emphasis on resilience was important because it explained why some countries that suffered high degrees of exposure to external shocks still managed to achieve notable levels of economic development.<sup>13</sup> Singapore, for example, despite its ‘inherent’ vulnerability, was able to nurture resilience through appropriate economic policies. Thus, by focusing on resilience, the attention shifted to the role of policy in mitigating macroeconomic vulnerability (Briguglio & Galea, 2003).

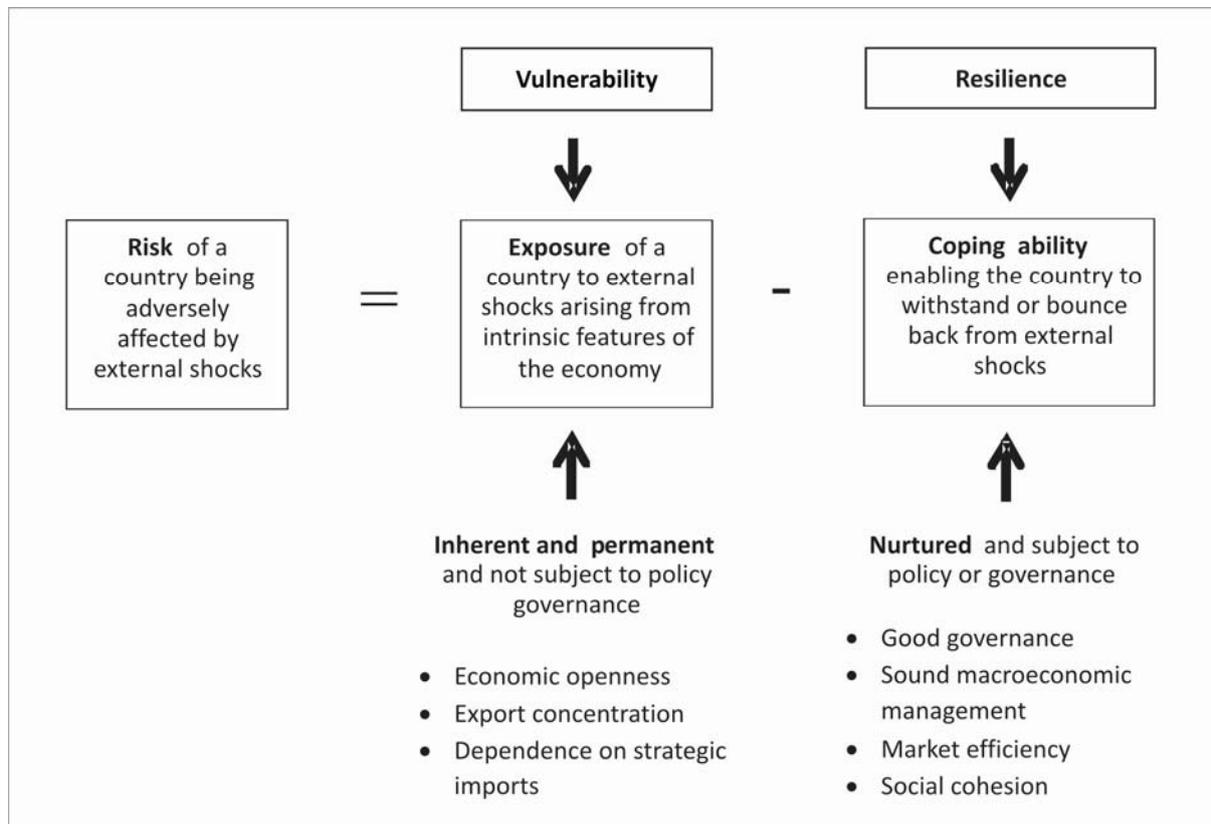
The most developed version of this framework was presented in 2009 (Figure 1). In this framework, the structural conditions that expose an economy to shocks remained unchanged from earlier versions and included economic openness,<sup>14</sup> export concentration<sup>15</sup> and dependence on strategic imports<sup>16</sup> (Briguglio et al., 2009).

Meanwhile, four factors<sup>17</sup> were identified as critical for resilience:

- Macroeconomic stability, since an economy with low inflation and unemployment can withstand the adverse impact of the shock without significant welfare losses. Further, a healthy fiscal position allows governments to increase expenditures to counteract or cope with shocks.
- Microeconomic market efficiency,<sup>18</sup> since markets that adjust rapidly toward equilibrium following an external shock will suffer a smaller negative impact.
- Good governance,<sup>19</sup> especially as it relates to the rule of law and security of property rights, because, without such mechanisms, crises can easily result in economic and social chaos.
- Social development,<sup>20</sup> since this allows for the effective functioning of an economy and limits the possibility of civil unrest as a result of a crisis.

FIGURE 1

### Vulnerability and Resilience



Source: Briguglio et al (2009).

As noted above, by explicitly addressing resilience, Briguglio expands the framework of macroeconomic vulnerability to address not only those factors that expose economies to economic and financial shocks but also policies that can help countries cope with or withstand the impact of such shocks. However, by identifying 'microeconomic market efficiency' and 'macroeconomic stability' as the principal indicators of resilience, the underlying assumption is still that there is an equilibrium that markets will adjust toward. But there is no *a priori* reason to assume that efficient markets or stable macroeconomic performance will restore the economy to its pre-crisis growth path. On the contrary, the economy could well reach 'equilibrium' around a lower growth path in response to shocks, especially if those shocks are recurrent.

Furthermore, by emphasising these aspects of resilience, Briguglio appears to only emphasise those conditions that relate to the ability of an economy to bounce back from shocks and to its ability to absorb shocks. Less emphasised are the policy measures needed to build longer-term systemic resilience. Building resilience in the longer term would also require policies that reduce an economy's exposure to shocks as well as measures that would reduce the frequency and intensity of economic and financial shocks to begin with.

The EVI (Briguglio & Galea, 2003) is not the only index of macroeconomic vulnerability proposed by this strand of the literature. In an extensive study of the linkages between macroeconomic performance and natural disasters, Baritto (2008) proposes a different index of macroeconomic vulnerability to external economic and financial shocks. Baritto tests the hypothesis that economies that are highly impacted by natural disasters are also highly susceptible to economic and financial shocks.

The adverse impact of natural disasters on economic growth is transmitted by the destruction of an economy's capital stock, which is the basis of economic activity. By destroying the physical stock of capital, shocks reduce productivity and thereby generate a permanent downward shift of the long-term growth trajectory. In other words, disasters derail the country from its growth trajectory and permanently reduce its growth by destroying the physical, natural and human capital stocks employed toward production. In this approach, the economic impact of natural disasters is measured by the ratio of economic losses to net capital formation (Baritto, 2008).

To assess the macroeconomic vulnerability of an economy to external economic and financial crises, the study adopts the EVI (Briguglio & Galea, 2003), but also proposes an alternative index: the Global Vulnerability Index (GVI). While the EVI focuses primarily on international trade-related determinants of macroeconomic vulnerability (such as export dependence and export concentration), the GVI goes further and includes additional determinants (Table 1). As such, it broadens the enquiry into macroeconomic vulnerability by expanding the number of 'structural' characteristics and transmission channels that determine macroeconomic vulnerability.

Specifically, the GVI includes the poverty rate and the share of agriculture in GDP as important indicators of macroeconomic vulnerability. "In view of the connection between vulnerability and poverty [...] it is hypothesized that a country with a major proportion of a poor population can be more vulnerable in economic terms than a country with a lower proportion" (Baritto, 2008: 49). By the same token, an economy that is more dependent on primary sectors such as agriculture is at a higher risk of seeing its economic performance hampered by external shocks, given commodity price volatility.

The GVI also includes foreign reserve holdings (measured in months of imports) as an indicator of macroeconomic vulnerability, based on the argument that, if a country has higher reserve holdings, it will suffer less from the economic impacts of shocks.

TABLE 1

**Global Vulnerability Index (GVI)**

Domain	Indicators
Trade	Merchandise export concentration
	Market export concentration
	Net Food Imports
Production structure	Agriculture / GDP
Reserves	Reserves to imports
Poverty	Poverty ratio

Source: Baritto (2008).

An estimate of the magnitude of economic losses from natural disasters in 180 countries for the period 1970–2006 revealed no statistically significant relationship between economic losses from natural disasters and the EVI or the GVI. In other words, countries whose macroeconomic performance was highly impacted by natural disasters were not necessarily more susceptible (exposed) to external economic and financial shocks.

Baritto's view of resilience is informed by the context of natural disasters. Since natural disasters impact economic growth by destroying the physical stock of capital, an economy's resilience is determined by a country's ability to mobilise its 'own available funds' to replenish its capital stock. In national accounts, the net savings rate (both private and public) is used as the indicator of resilience, since savings represent the maximum resources available for investment.

The study goes further to examine whether there is a relationship between this indicator of resilience and the Economic Resilience Index (ERI), the measure of resilience proposed by Briguglio. The results show a high correlation between the two measures of resilience; this correlation is attributed to the fact that both are also strongly correlated to GDP per capita. In other words, countries with high GDP per capita are more resilient on account of a higher savings rate and "good governance, sound macroeconomic management, market efficiency and social cohesion"—the dimensions of resilience captured by the ERI (Briguglio et al., 2009).

Other studies on macroeconomic vulnerability have focused more on 'growth instability' as an indicator of an economy's vulnerability to shocks. This is a significant departure in methodology from the earlier studies mentioned in this literature review. By examining how recurring economic and financial crises impact growth instability and long-term economic growth, these studies shift to a dynamic definition of macroeconomic vulnerability—"the risk of economic growth being clearly and durably reduced by shocks (or the risk of the long-term average rate of growth being reduced by shocks)" (Guillaumont, 2010: 830).

One such study is that of Guillaumont (2010), who argues that, unlike natural disasters that are typically one-time shocks, economic shocks can recur. Moreover, economic shocks

can be ‘two-sided’—that is, exhibit up and down movements caused by boom and bust cycles in economic activity. Thus, economic shocks increase growth volatility and instability.<sup>21</sup>

In turn, growth volatility is empirically associated with lower average growth rates (Ramey & Ramey, 1995; Aghion et al., 2005). Several transmission channels are identified that link growth instability with lower average growth rates. The study identifies ‘primary instabilities’ (such as the instability of export revenues, terms of trade and political instability) that affect growth through ‘intermediate instabilities’ such as prices, productivity and investment.

According to this perspective, macroeconomic vulnerability is determined by three factors:

- shocks and the consequent growth instability;
- exposure to shocks; and
- resilience or a country’s coping capacities to deal with the impact of shocks.

A key contribution of this framework is its focus on the shock itself as a primary determinant of macroeconomic vulnerability. Since shocks are recurrent and increasingly frequent, growth instability is likely to increase. Such instability constricts economic growth by reducing the average investment rate and lowering productivity. Thus, according to Guillaumont (2010), shocks themselves are an important determinant of macroeconomic vulnerability.

Another important aspect of this framework is its distinction between ‘structural’ vulnerability—i.e. those factors that are “independent of a country’s political will” (such as population size and remoteness)—and “policy-induced vulnerability”, which can be affected by political will (such as export diversification) (Guillaumont, 2010).

As noted earlier, much of the work on macroeconomic vulnerability was initially prompted by a concern with the particular situation of SIDS. Indeed, different versions of a macroeconomic vulnerability index (such as the EVI) were developed to signal their particular vulnerability. In later iterations, such indices were also used as part of the criteria to identify Least Developed Countries (LDCs), as they—like the SIDS—were also seen to be highly susceptible to external economic shocks and natural disasters.

TABLE 2

**CDP Economic Vulnerability Index (EVI)** (respective weights in parenthesis)

Components	Sub-index	Variables
Exposure Index (1/2)	Size sub-index (1/8)	Population size (1/8)
	Location sub-index (1/8)	Remoteness (1/8)
	Economic structural sub-index (1/8)	Merchandise export concentration (1/16)
		Share of agriculture, forestry and fisheries in total GDP (1/16)
	Environment sub-index (1/8)	Share of population in low elevated coastal zones (1/8)
Shock Index (1/2)	Trade shock sub-index (1/4)	Instability of exports of goods and services (1/4)
	Natural shock sub-index (1/4)	Victims of natural disasters (1/8)
		Instability of agricultural production (1/8)

Source: United Nations (2011).

Beginning in 1998, the Committee for Development Policy at the United Nations adopted an EVI in 2001 and later updated it in 2011 (Table 2) (United Nations, 2011a). This version of the EVI consists of two equally weighted components: an exposure index that captures structural conditions and a shock index that captures instabilities associated with natural and trade-related shocks. In other words, this version of the EVI includes indicators of vulnerability to economic shocks, climate change and natural disasters.<sup>22</sup>

### 3 CRITICAL APPRAISAL OF THE LITERATURE REVIEW

As the preceding literature review indicates, the understanding of macroeconomic vulnerability differs considerably among different strands of the literature.

The differences are mainly on account of four factors:

- the type of shock or crisis being considered as well as its origins, size and frequency;
- the number of transmission channels and structural characteristics identified as exposing an economy to crisis;
- the understanding of resilience and policy focus if countries are to reduce macroeconomic vulnerability; and
- how macroeconomic vulnerability is to be measured and its application.

#### 3.1 NATURE AND ROLE OF SHOCK

A key difference among the studies consists in the type or nature of shock under consideration, since this informs the context in which macroeconomic vulnerability is viewed. From a narrow focus on domestic currency crises to a broader focus on financial shocks to economic shocks to shocks on account of natural disasters, macroeconomic vulnerability has been viewed through various prisms.

Moreover, the frequency, size and origin of a shock also help to determine its impact on an economy. For example, an economic shock that originates from within the financial markets of a middle-income developing country will pose different risks than an external global economic recession.

Shocks can be one-time or recurring, the latter taking the form of volatility (recurring in the short term) or pro-cyclicality (recurring in the medium term), and these too impact economic growth through different channels.

In other words, the shock itself and how it should be treated is approached from different angles in the literature on macroeconomic vulnerability. But what the literature has in common is an assumption that shocks are exogenously driven—that is, the drivers of crises lie outside the economy, whether national or global. However, this too has been contested, and—as has been frequently noted—systemic economic and financial shocks may well be driven by factors such as the liberalisation of capital markets<sup>23</sup> or a change in growth expectations.<sup>24</sup> And if crises are path-dependent outcomes, then their frequency and severity can be minimised by adopting appropriate policies at the national and global level.

### 3.2 STRUCTURAL CONDITIONS AND TRANSMISSION CHANNELS

Economic and financial shocks are transmitted from the global economy to the national economy via specific channels, most commonly trade, private capital flows and ODA. Consequently, when international prices fall and impact the export revenues of a country dependent on such exports for growth, such losses impact economic growth adversely. In this case, the transmission channel is international trade. If foreign direct investment (FDI) or ODA decline as the result of a global economic slowdown, countries dependent on such sources of finance for development may find that economic growth is adversely affected. Although international trade and international capital flows are important transmission channels of economic shocks, most studies on macroeconomic vulnerability tend typically to tackle either one or the other.

The studies also differ with respect to identifying the structural characteristics that are responsible for *exposing* an economy to shocks. For instance, some studies focus on structural characteristics such as size and location as important structural conditions that expose countries to crises, whereas others identify export dependency or dependency on private capital flows as the primary conditions that expose an economy to shocks.

Apart from focusing on a limited number of structural conditions that underlie macroeconomic vulnerability, none of the studies reviewed examines the critical and unique role of rising inequalities as a key factor in determining macroeconomic vulnerability. Yet, in recent times, rising income inequality has been seen as a major contributor to the greater frequency and volatility of financial crises (Vandemoortele, 2009; Rajan, 2010; Fitoussi & Saraceno, 2010). Income inequality contributes to financial instability through several interrelated channels: a rise in income inequality can reduce the purchasing power of middle- and low-income households, creating a tendency toward lower aggregate effective demand. Moreover, the search for high-return investments by those who benefit from an increase in inequalities can lead to the emergence of asset bubbles. In other words, rising inequality fuels financial instability because it creates a political environment whereby pro-cyclical policies (such as poor regulation or loose monetary policy) are more likely to be implemented to avoid political instability and lower economic growth.

Another unique but often ignored determinant of macroeconomic vulnerability is poverty. Although linkages between poverty and economic shocks are extensively explored in the microeconomic literature on vulnerability, they also have implications for macroeconomic vulnerability. Shocks and the instability they generate not only lead to a higher poverty rate but also trap people in poverty. Poor and near-poor households often use adverse measures to deal with the impact of a shock (such as cutting back on health and education spending), which, in turn, have a long-term impact on their productivity and income.<sup>25</sup> In other words, the incomes of poor households respond asymmetrically to shocks, falling during economic downturns more than they rise during economic upswings.

This asymmetric response of the income of poor households to shocks also implies that countries with a higher proportion of poor households will have lower average productivity and economic growth after a shock than a country with a lower proportion of poor households. Higher poverty rates can thus exacerbate the impact of a shock on economic growth and, in so doing, act as a structural determinant of macroeconomic vulnerability. In this literature review, Baritto's study (2008) is unique in acknowledging the role of poverty as important for any measurement of macroeconomic vulnerability in developing countries.

But poverty is also an outcome of macroeconomic vulnerability. If so, then the role of poverty in a macroeconomic vulnerability assessment becomes all the more critical: the reason is that economies could enter a vicious circle where higher instability leads to higher poverty, which, in turn, would increase an economy's exposure to shocks and more instability.

### 3.3 UNPACKING RESILIENCE

As noted earlier, the financial crises-oriented perspective on macroeconomic vulnerability does not explicitly refer to the concept of resilience.<sup>26</sup> Depending on the assumptions regarding market efficiency and the rationality of market participants, different studies propose different sets of policies to reduce macroeconomic vulnerability. For instance, studies proposing an 'early warning system' to signal currency crises assume that well-informed markets are self-stabilising and, therefore, recommend policy measures such as containing credit growth and ensuring a flexible exchange system to lower macroeconomic vulnerability. However, the group of studies that emphasise the inherent volatility of capital flows proposes policies that would reduce capital account volatility, such as accumulating foreign reserves during booms, regulating the capital account or adopting countercyclical monetary and fiscal policies to manage the impacts of volatile capital flows. Put differently: the first set of studies from this perspective advocates for policies that reinforce free market mechanisms, and the second set advocates for market regulation and intervention.

The second perspective on macroeconomic vulnerability develops and defines resilience more explicitly than the first perspective. Generally, resilience is defined as an economy's ability to counteract or withstand the effects of a crisis (Briguglio et al., 2009). Briguglio, for instance, identifies macroeconomic stability, microeconomic efficiency, good governance and social development as the four critical policy dimensions that capture resilience. However, besides social development, the other three indicators of resilience assume that free and well-informed markets are essential for resilience. But, as already noted, there are no guarantees that markets will always help to restore the economy to a high growth path after a crisis. Moreover, many developing economies suffer from persistent 'disequilibria' such as high unemployment rates or current account deficits. Thus, these economies require resilience-building policies that go beyond just keeping markets efficient and ensuring that property rights are upheld. But Briguglio does not identify these dimensions of resilience.

Other studies in this group do not differ much on the definition, but they identify different sets of economic dimensions that capture resilience. For instance, Baritto focuses on the savings rate as an indication of available funds for rebuilding efforts in the aftermath of a natural shock. On the other hand, Guillaumont focuses on the role of competitiveness and human capital in building resilience.

Yet, very few of the studies elaborate on policies that lessen the exposure of an economy to shocks to begin with. In other words, less emphasis is placed on the policy measures needed to make economic growth structurally more resilient and less exposed to shocks.

Moreover, a reduction of the frequency and severity of shocks themselves is a component of resilience-building policies that is also given little attention in this perspective on macroeconomic vulnerability. Even Guillaumont, who emphasises the role of shocks in determining macroeconomic vulnerability, limits his discussion of resilience to maintaining an appropriate level of competitiveness to reduce export instability and building coping capacity through human capital.

There is no disagreement that policies that build resilience to economic and financial shocks are essential, but many of the studies offer a limited or narrow set of policy options to build resilience, depending on their theoretical assumptions and their perception of what constitutes resilience. Lowering macroeconomic vulnerability will require resilience-building policies that fully address three key objectives:

- building coping capacity to withstand and counteract a shock;
  - reducing exposure to shocks; and
  - reducing the frequency and severity of shocks at the national and global levels.
- Most of the policies identified by the literature to build resilience tend to emphasise only one or two of these objectives.

### 3.4 MEASURING MACROECONOMIC VULNERABILITY

Many of the studies proposed different types of indices to measure macroeconomic vulnerability—from the MVI proposed by the IMF to the World Bank's IMV to the GVI (Baritto, 2008). Many of these indices were developed to perform specific functions. For instance, the 'early warning system' such as the MVI and the IMV were designed to identify vulnerabilities that give rise to a substantial risk of financial crises and to predict future crises. On the other hand, the EVI was designed to rank and classify particularly vulnerable country groups, such as the LDCs.

However, these aggregate vulnerability indices do not reveal important information about the different determinants of macroeconomic vulnerability.<sup>27</sup> Does a country rank high on the EVI as a result of too much trade openness or on account of a disadvantageous geographic location? Disaggregated indicators may provide better answers to such questions and could allow for the formulation of more effective, resilient growth strategies.

## 4 CONCLUSION

The increasing frequency and severity of financial and economic shocks over the past three decades have raised important questions about their systemic character and the ability of individual countries to withstand the most damaging and lasting effects of such uncertainty. The problem of economic vulnerability and the need for policies that make nations more resilient to volatility has a human face. It directly impacts how well households meet basic needs. Responsive strategies, or the lack thereof, affect how many people live in poverty, the overall impact of disease, the educational hopes and aspirations of the youth, the overall sustainability of food supplies, and the likelihood of meaningful work opportunities for all men and women.

This paper has noted that there is not yet a consensual approach to understanding macroeconomic vulnerability in developing countries in the context of financial and economic crises. A comprehensive framework for future assessments of macroeconomic vulnerability in developing countries could provide important guidance on the key drivers of macroeconomic vulnerability in a country and the policies needed to build systemic resilience.

Such a framework would require:

- identifying the different types of financial and economic shocks that most frequently face developing countries;
- mapping comprehensively the structural conditions and transmission channels that are underlying determinants of macroeconomic vulnerability, including those related to income inequality and poverty;
- proposing policies for resilience that: (a) build coping capacities to withstand and counteract a shock, (b) reduce exposure to shocks, and (c) reduce the frequency and severity of shocks themselves; and
- advocating for global policies and international coordination mechanisms to minimise the frequency and severity of shocks themselves. For instance, International Commodity Agreements and Compensatory Funds, which are designed to reduce the volatility of revenues from commodity exports, have been proposed as examples of such mechanisms. More recently, on the heels of the 2008 global crisis, calls for multilateral surveillance and global financial regulation to reduce the instability of international private capital flows have been proposed (United Nations, 2011b).

In a world where the development landscape is rapidly changing and where crises are becoming ever more frequent, addressing macroeconomic vulnerability has become crucial. If development gains are to be sustained, if growth is to be resilient and if poor and vulnerable households are to be protected from the aftermath of such crises, there are but a few options.

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## NOTES

1. Globally, systemic banking crises were 10 times more likely throughout the 1990s than in the late 1970s (Ernst & Escudero, 2008).
2. The MVI is calculated as the weighted average of the deviations in the real exchange rate, the 12-month percentage change in real domestic credit and the ratio of M2 to foreign reserves from their three-year means (IMF, 1998).
3. The IMV uses the same methodology as the IMF's MVI but expands the list of indicators. Specifically, the IMV adds inflation and equity prices to the indicators of the MVI (Herrera & Garcia, 1999).
4. Spratt & Bernini (2010) identify five transmission channels of integration into the global financial system: exports, FDI, external public debt, foreign portfolio investment and external loans.
5. See Minsky (1986), Taylor (1998) and Grabel (2003) for an extensive critique of the theoretical and empirical underpinning of the models of currency crises.
6. Macroeconomic stability has usually been achieved by setting stringent deficit targets and cutting budget expenditures. Indeed, such fiscal consolidation policies are recommended as ways of coping with a crisis (IMF, 2010).
7. As of 2010, trade represented 56 per cent of GDP in all developing countries, whereas FDI inflows, despite rapid growth in the last decade, amounted to only 2.6 per cent of GDP (World Bank, 2012).
8. It should be noted that Briguglio's work uses the term 'economic vulnerability' rather than 'macroeconomic vulnerability'. For the sake of consistency and to avoid confusion, we follow Guillaumont (2010) and use only the term 'macroeconomic vulnerability'.
9. The indicators that measure 'exposure to foreign economic conditions' include GDP, population and land area.
10. Insularity and remoteness were indicated by the ratio of transport and freight costs to export revenues.
11. Proneness to natural disasters was indicated by an estimate of damages to GDP.
12. According to Briguglio, if size is an indicator of macroeconomic vulnerability, then "this amounts to assuming what needs to be proven." In other words, since the aim is to prove that SIDS are more vulnerable than others, using smallness (size) as part of the vulnerability index biases the results toward small countries (Briguglio, 1997: 5).
13. This is sometimes referred to as the 'Singapore Paradox', in which an inherently vulnerable small country achieves high levels of economic development (Briguglio & Galea, 2003).
14. The indicator used to measure economic openness is the ratio of international trade to GDP.
15. Export concentration is measured using the merchandise export concentration index.
16. Dependence on strategic imports is measured as the ratio of imports of energy, food or industrial supplies to GDP.
17. Briguglio earlier proposed a fifth factor – environmental protection – but it was dropped from the construction of the index due to lack of readily and extensively available data (Briguglio, 2004).
18. To measure microeconomic market efficiency, indicators from the Economic Freedom of the World Index (Economic Freedom Network) gauge the extent to which markets function freely, competitively and efficiently.
19. Indicators to measure 'good governance' are also drawn from the Economic Freedom of the World Index. These indicators are related to judicial independence, impartiality of courts, the protection of intellectual property rights, military interference in the rule of law and the integrity of the legal system.
20. Although social development could include variables relating to the dispersion and proportion of the population in poverty, the long-term unemployment rate and/or the proportion of the population with low levels of educational attainment, education and health attainment were selected to reflect the level of social development (Briguglio et al., 2009).
21. The relationship between macroeconomic vulnerability and growth instability has also been investigated by Wells (1997). Wells finds that the instability of terms of trade, the instability of capital flows and proneness to natural disasters are associated with volatile economic growth. The work initiated by Wells led to the development of another index on macroeconomic vulnerability: the Composite Vulnerability Index (CVI). The CVI considers three factors as principal determinants of macroeconomic vulnerability: export dependence; export diversification; and vulnerability to natural disasters (Atkins et al., 1998; Commonwealth Secretariat & World Bank, 2000).
22. It has been argued that climate change can increase the frequency and/or the size and intensity of events leading to homelessness due to natural disasters or instability of agricultural production. Thus, the respective magnitudes of the CPD-EVI shock indicators may have progressively changed over time (reflecting already the impact of climate change) (Guillaumont & Simonet, 2011).
23. See Stiglitz, J. (2000) for a review of the effects of capital market liberalisation on financial crises.
24. Cerra & Saxena (2008) show that crises are associated with changes in growth expectations.
25. In endogenous growth theory, human capital is typically shown to promote growth. It can also be argued that human capital has a role in resilience-building, since resilience also results from the accumulation of human capital. "The presence of shocks to human capital are [sic] an important factor detracting from resilience and hence from the accumulation of physical capital" (Farrugia, 2009: 14).
26. Spratt & Bernini (2010) discuss resilience but define it as the benefits or positive outcomes of financial flows.
27. One problem with composite indices is that the choice of weights for each indicator of macroeconomic vulnerability is often subjective.



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