

# Juxtaposing economic vulnerability and resilience<sup>1</sup>

## Introduction

Many small states manage to generate a relatively high GDP per capita in comparison to other developing countries in spite of their high exposure to harmful exogenous economic shocks. This would seem to suggest that there are factors which may offset the disadvantages associated with economic vulnerability. As explained in the previous chapter, this could be associated with a policy framework conducive to resilience building.

This chapter examines the relationship between economic vulnerability and economic resilience and presents a number of implications associated with the juxtaposition of the two conditions.

## The ‘Singapore paradox’

The ‘Singapore paradox’ refers to the seeming contradiction that although Singapore is highly exposed to exogenous shocks, this small island state has managed to register high rates of economic growth and to attain high GDP per capita. This reality can be explained in terms of the ability of Singapore to build its resilience in the face of external shocks.

Briguglio (2003, 2004) explains this in terms of the juxtaposition of economic vulnerability and economic resilience and proposes a methodological approach in this regard. In this approach, economic vulnerability is ascribed to inherent conditions affecting a country’s exposure to exogenous shocks, while economic resilience is associated with actions, undertaken by policy-makers and private economic agents, which enable a country to withstand or recover from the negative effects of shocks<sup>2</sup>.

On the basis of this approach, Briguglio (2004) identifies four possible scenarios into which countries may be placed according to their vulnerability and resilience characteristics. These scenarios are termed as *best case*, *worst case*, *self-made*, and *prodigal son*.

The *best case* category applies to countries that are not inherently vulnerable and which, at the same time, adopt resilience-building policies. The *worst case* category refers to countries that compound the adverse effects of inherently high vulnerability by adopting policies that run counter to economic resilience. Countries classified as *self-made* are those with a high degree of inherent economic vulnerability, but which are economically resilient through the adoption of appropriate policies that enable them to cope with or withstand the

effects of their inherent vulnerability. Countries falling within the *prodigal son* category are those with a relatively low degree of inherent economic vulnerability but whose policies are deleterious to economic resilience, thereby exposing them to the adverse effects of shocks<sup>3</sup>. These four scenarios are depicted in Figure 4.1, where the axes measure inherent economic vulnerability and nurtured resilience, respectively.

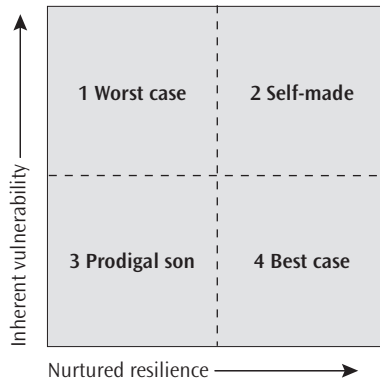
This method of defining vulnerability in terms of inherent features and resilience in terms of policy-induced changes has a number of advantages.

First, the vulnerability index would refer to permanent (or quasi-permanent) features over which a country can practically exercise no control and therefore cannot be attributed to inadequate policies. In other words, countries scoring highly on the index cannot be accused of inflicting vulnerability on themselves through misguided policy approaches.

Second, the resilience index would refer to what a country can do to mitigate or exacerbate its inherent vulnerability. Scores on this index would, therefore, reflect the appropriateness of policy measures.

Third, the juxtaposition of the two indices would indicate the overall risk of an economy being harmed by external shocks due to inherent vulnerability features counterbalanced by appropriate policy measures.

**Figure 4.1. The four scenarios**

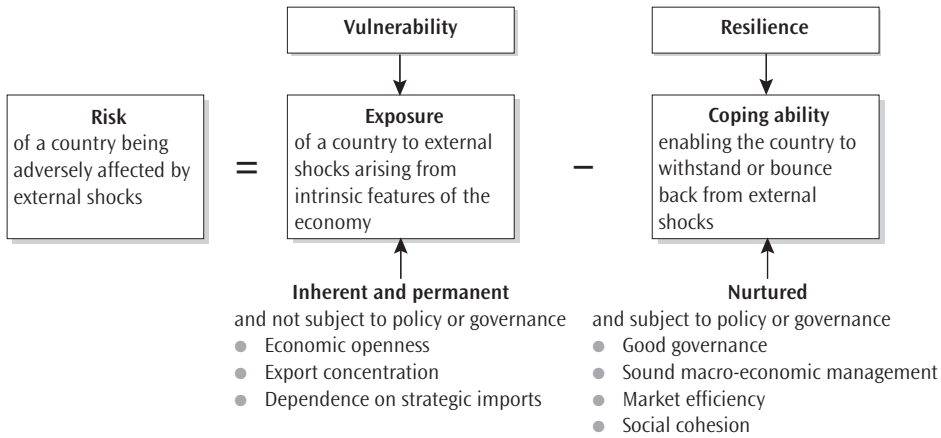


Source: Briguglio (2004)

Given that vulnerability refers to inherent characteristics which render countries prone to exogenous shocks, vulnerability scores for a particular country should not differ much over time, and therefore it is not expected that a country moves vertically along the quadrants of Figure 4.1. But horizontal movement is possible for those countries that adopt measures which build resilience and vice versa. It would thus be possible for countries to switch between the *worst case* and the *self-made* scenarios, or the *prodigal son* and the *best case* scenarios, through changes in their economic policies.

By distinguishing between inherent economic vulnerability and nurtured economic resilience, it is possible to create a methodological framework for assessing the risk of being affected by external shocks, as shown in Figure 4.2.

**Figure 4.2. Risks associated with being adversely affected by external shocks**



Source: Briguglio (2004)

Figure 4.2 shows that risk has two elements, the first is associated with the inherent conditions of the country that is exposed to external shocks and the second associated with conditions developed to absorb, cope with or bounce back from adverse shocks. The risk of being adversely affected by external shocks is therefore the combination of the two elements. The negative sign in front of the resilience element indicates that the risk is reduced as resilience builds up.

## The country scenarios

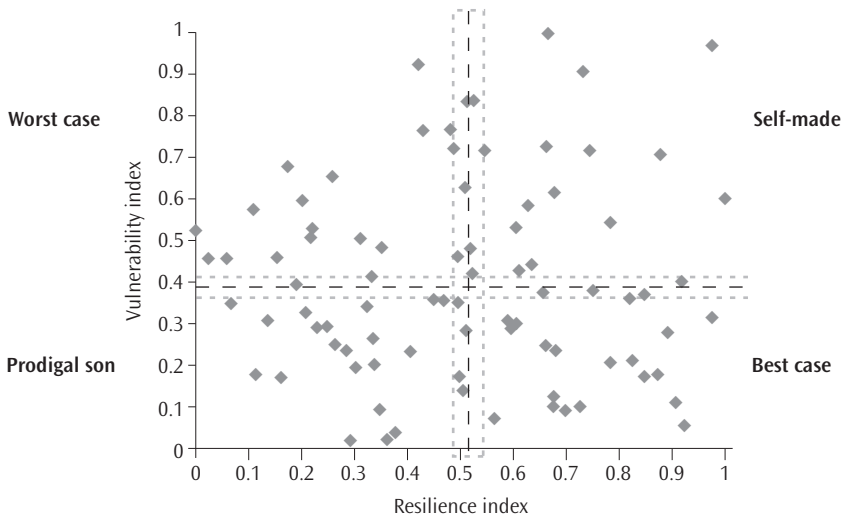
Going back to the scenarios proposed in Figure 4.1, it is possible to place the countries in the four quadrants shown therein, using the vulnerability index presented in Chapter 2 and the resilience index presented in Chapter 3. The results are shown in Figure 4.3. It should be pointed out that the cutoff values chosen for the quadrants (represented by the dashed lines in Figure 4.3) are the averages of the vulnerability and resilience scores for all countries.

This decision is subjective and the classification of countries will change if different cut-off points are chosen. Consequently, it was decided to allow a 'borderline' margin of +/-5 per cent for the vulnerability and resilience indices (shown by the dotted lines on each side of the dashed lines) and countries falling within these margins are classified as 'borderline' cases.

The Appendix to this chapter shows the classification of countries within the different quadrants. The overall tendencies that can be derived from this table are that:

- 1 countries falling in the *best case* quadrant are mostly the large 'developed countries';
- 2 countries falling in the *self-made* quadrant include a number of small states with a high vulnerability score;
- 3 countries which fall in the *prodigal son* quadrant include mostly large developing countries; and
- 4 countries falling in the *worst case* quadrant include a few vulnerable small countries with weak economic performance.

**Figure 4.3. Economic resilience and economic vulnerability**



Source: Computed by the authors

### **GDP per capita, resilience and vulnerability**

It would be interesting to investigate the extent to which GDP per capita of the different countries is related to vulnerability and resilience.

Using the ordinary least squares (OLS) method of regression, GDP per capita was regressed on the vulnerability index (as proposed in Briguglio and Galea 2003, reproduced in the Appendix of Chapter 1) and on the resilience index produced in this study. The results are shown in Table 4.1.

In Table 4.1, G represents GDP per capita; R represents the resilience index; and V represents the vulnerability index. All variables have been standardised as explained above, so that their values range between 0 and 1.

**Table 4.1. Regression results**

G =	0.14	+	0.95R	-	0.14V
<i>t</i> statistics	(3.5)		(17.2)		(-2.4)
<i>R</i> <sup>2</sup> = 0.78 Number of observations = 86					

As expected, the sign on R is positive while that on V is negative. This is not an extraordinary finding, as it validates a very plausible assumption that good economic governance leads to good economic performance<sup>4</sup>. The result confirms the hypothesis in Briguglio (2004) and Cordina (2004a, 2004b) that the performance of countries is related to their inherent vulnerability and their nurtured resilience. It also confirms that the resilience index is highly correlated with GDP per capita, with countries having the highest GDP per capita, being, as expected, those with the highest resilience scores<sup>5</sup>.

## Policy implications

The construction of indices to measure economic vulnerability and resilience have provided valuable insights into the development processes of small states. They have also provided a better understanding as to why small states can, in spite of their handicaps, perform well economically. The key phrase in this regard is 'good economic governance'. Many small states have adopted policies aimed at building economic resilience so as to enable them to withstand or cope with economic vulnerability. Other small states, however, failed to do so, with the end result that they fell backward economically, with some even facing the risk of becoming failed states.

In this regard, putting in place a policy framework to build economic resilience should be given major importance in the development strategy of small states, particularly those with a low GNP per capita.

Towards this end, the donor community could consider, as a priority in their aid packages to small developing states, assistance to help such states develop a policy framework conducive to resilience building. Although the provision of development assistance to satisfy basic needs, such as feeding mouths and curing the sick, is essential in emergency cases and in impoverished developing countries, it is of paramount importance that medium-term and long-term aid be aimed at enabling developing countries solve their own economic problems, notably through improved economic governance.

Because of country peculiarities and diversities in culture, size and political structures, the recipient countries themselves should be enabled to determine their development policies and to implement them in order to attain their development goals. For this reason, assessments regarding the need for ODA to identify policy and institutional weaknesses (through, for example, vulnerability and resilience profiling), should be carried out by the recipient countries themselves, in collaboration with the donors.

Development aid can then be directed towards the identified policy and institutional gaps, so as to enable the recipient country to enhance its economic governance capacity, with the ultimate aim of improving the possibilities for the country to generate growth and development.

The next part of this volume proposes a conceptual and practical approach aimed at building a template of variables to be considered in the derivation of a vulnerability/resilience profile of an individual country, through which resilience gaps can be identified and addressed, possibly with the assistance of donors.

## Notes

- 1 This chapter is reproduced from sections of Briguglio et al. (2006), as revised and updated in Briguglio et al. (2009), with minor changes to render it compatible for inclusion in this volume.
- 2 Cordina (2004a, 2004b) introduces the concept of exposure to shocks within a mainstream model of economic growth based on the neoclassical paradigm to show that the per capita GDP of a country depends positively on its resources and productivity and negatively on its inherent vulnerability. It is further shown that the negative impact of vulnerability depends

upon the degree of diminishing marginal productivity in a country, which can be influenced by policy actions and is therefore consistent with the notion of resilience. The application of this approach shows that capital formation and the fostering of economic conditions which retard the onset of diminishing marginal productivity, including amongst others, macro-economic buffers and micro-economic market flexibility can be important sources of resilience.

- 3 The analogy with the prodigal son is that these countries, though 'born rich', squander their riches.
- 4 This also validates the assumption put forward in Briguglio (2003).
- 5 The relationship between GDP per capita and the resilience index (i.e., excluding the vulnerability variable) exhibits a high correlation coefficient ( $R^2 = 0.77$ ) and t-statistic ( $t = 16.7$ ). However, the inclusion of the vulnerability variable in the equation improves the results by producing a higher correlation coefficient and a higher t-statistic on the resilience variable, as shown above.

# Appendix

## Four country scenarios

Country	Resilience index	Vulnerability index*	Country	Resilience index	Vulnerability index
<b>Self-made</b>			<b>Worst case</b>		
Barbados	0.741	0.717	Belize <sup>c</sup>	0.478	0.768
Costa Rica	0.609	0.436	Côte d'Ivoire	0.000	0.524
Croatia <sup>a</sup>	0.516	0.480	Dominican Republic	0.427	0.768
Cyprus	0.526	0.840	Egypt, Arab Rep.	0.257	0.658
Estonia	0.729	0.908	Honduras	0.221	0.534
Hong Kong, China	0.877	0.713	Iran, Islamic Rep.	0.309	0.508
Iceland	1.000	0.607	Jamaica	0.420	0.922
Israel	0.630	0.443	Jordan <sup>c</sup>	0.484	0.725
Kuwait	0.661	0.731	Kenya	0.216	0.511
Latvia	0.546	0.718	Lithuania <sup>c</sup>	0.494	0.466
Luxembourg	0.676	0.615	Madagascar	0.060	0.465
Malaysia	0.626	0.587	Nicaragua	0.107	0.578
Malta	0.663	1.000	Nigeria	0.173	0.677
Mauritius <sup>a</sup>	0.509	0.632	Papua New Guinea	0.216	0.508
Norway	0.781	0.543	Philippines	0.353	0.485
Panama <sup>a</sup>	0.514	0.837	Senegal	0.020	0.464
Singapore	0.974	0.971	Sri Lanka <sup>d</sup>	0.328	0.415
Tunisia <sup>a</sup>	0.521	0.426	Uganda	0.203	0.597
Trinidad & Tobago	0.603	0.533	Venezuela, RB	0.153	0.465
<b>Best case</b>			<b>Prodigal son</b>		
Australia	0.872	0.184	Albania	0.321	0.344
Austria	0.824	0.216	Argentina	0.350	0.100
Belgium	0.750	0.384	Bangladesh	0.136	0.313
Canada	0.905	0.117	Bolivia	0.247	0.299
Chile	0.653	0.379	Brazil	0.294	0.001
Czech Republic	0.589	0.309	Cameroon <sup>a</sup>	0.188	0.397
Denmark <sup>c</sup>	0.915	0.407	China	0.363	0.000
Finland	0.889	0.286	Colombia	0.263	0.254
France	0.675	0.129	El Salvador	0.447	0.362
Germany	0.696	0.100	India	0.301	0.201
Hungary	0.596	0.294	Indonesia	0.161	0.174
Ireland	0.845	0.371	Mexico	0.378	0.046
Italy	0.564	0.082	Morocco	0.332	0.272
Japan	0.674	0.106	Nepal	0.208	0.327
Netherlands	0.817	0.364	Pakistan	0.069	0.349

Country	Resilience index	Vulnerability index*	Country	Resilience index	Vulnerability index
<b>Best case</b>			<b>Prodigal son</b>		
New Zealand	0.975	0.320	Paraguay	0.230	0.297
Portugal	0.680	0.242	Peru	0.403	0.242
Slovenia	0.601	0.307	Poland <sup>b</sup>	0.497	0.175
South Africa <sup>d</sup>	0.505	0.147	Romania	0.336	0.206
Spain	0.663	0.250	Russian Federation	0.281	0.241
Sweden	0.780	0.208	Slovak Republic <sup>a</sup>	0.494	0.357
Switzerland	0.845	0.178	Thailand	0.467	0.363
United Kingdom	0.725	0.106	Turkey	0.114	0.182
United States	0.921	0.060			
Uruguay <sup>d</sup>	0.514	0.288			

## Notes to appendix

\* The vulnerability index is that presented in Chapter 1, produced by Briguglio and Galea (2003).

**a** Borderline with *worst case*.

**b** Borderline with *best case*.

**c** Borderline with *self-made*.

**d** Borderline with *prodigal son*.

