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Three criteria that a multidimensional vulnerability index should meet to be used effectively*

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As commonly agreed, the vulnerability of a country is here considered as the risk it will be hurt by exogenous shocks. The vulnerability of countries has been recognised since the beginning of development economics as one of the main problems they face, due to shocks, either of external or natural origin. For decades, there has been a rich literature on the economic, social and political consequences of unstable export earnings. More recently, there has been a growing concern about other kinds of vulnerability, linked to shocks such as outbreaks of violence and other expressions of political fragility, epidemics, natural disasters and, above all, climate change: the vulnerability that climate change brings to developing countries in varying degrees constitutes a global challenge.

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* This note relies on the main conclusions of the United Nations report: *Possible Development and Uses of Multi-Dimensional Vulnerability Indices. Analysis and Recommendations*, of which Patrick Guillaumont and Laurent Wagner are the lead authors, edited by Tishka Hope Francis and Sai Navoti, December 2021. It also develops the presentation given by the authors to the members of the High-Level Panel at its opening session on March 28 2022.

... /... Small Island Developing States (SIDS) have traditionally been considered highly vulnerable, both through the instability of their exports, often linked to their small size, and through climatic hazards, often linked to their insularity. They now appear particularly vulnerable to climate change. The UN General Assembly has repeatedly highlighted the vulnerability of SIDS, and the need for international measures to address their vulnerability. The last Secretary-General's report on the implementation of the "SIDS Accelerated Modalities of Action" (SAMOA) Pathway summarises the challenges faced by these countries and the responses that the international community has attempted to provide (A/76/211, dated 22/7/2021).

In December 2020, following the General Assembly Resolution A/RES/75/215 requesting the Secretary-General to provide recommendations for the development of a multidimensional vulnerability index relevant to SIDS, a report was prepared by OHRLLS (Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States), entitled "Possible Development and Uses of Multi-Dimensional Vulnerability Indices. Analysis and Recommendations". This presentation is based on the findings of this report. The report, which is to serve as a reference document for the High-Level Panel recently established to make proposals to the President of the General Assembly, is based on an in-depth review of the various existing indices and academic literature on vulnerability indices. The above-mentioned report of the Secretary General on the implementation of the "SIDS Accelerated Modalities of Action" or SAMOA Pathway summarises its content and endorses its recommended principles.

It should be noted that simultaneously the UN Committee for Development Policy (UN CDP) has long used a vulnerability index (alongside per capita income and a human asset index) as a criterion for identifying least developed countries (LDCs) and that this process has itself been regularly endorsed by the UN General Assembly.

The OHRLLS report and the proposals it contains have been drawn up with the intended use of the index in mind. The index should be used to determine what preferential treatment can be given to the most vulnerable countries, starting with SIDS, particularly in accessing concessional resources.

In order to be used effectively, the multi-dimensional vulnerability index(MVI) should meet three specific criteria, in addition to the usual conditions that any composite indicator must satisfy. The usual requirements, which we do not elaborate on here, are the availability and reliability of the data on the one hand, and its easy comprehensibility and transparency on the other. We highlight here the three specific criteria of the multidimensional vulnerability index that the international community needs:

- the index should indeed be multidimensional;
- it should be universal, what is needed for its consistency;
- it should be separable (i.e. able to isolate structural from non-structural vulnerability), which is an essential condition for it to be useful for policy.

The index should be truly multidimensional: some principles

There may of course be a debate about the number and scope of the various dimensions of the vulnerability index. In the course of the discussions, the principle of retaining three main dimensions emerged as ensuring an optimal balance between the need for diversity and the need for simplicity, the three dimensions being economic, environmental and social.

These three dimensions correspond to three clearly identifiable categories of shock. They are identified more by their impact (economic, environmental and social) than by their origin (which itself may be economic, environmental or social). A differentiation by the ways of measuring the impact makes easier to avoid redundancy of

components from one dimension to another. For example, meteorological or seismic events may affect components of economic vulnerability, while the intensification of climate change-related events may be measured in physical units. Classification according to the impact of shocks rather than their origin can be discussed, as can be a mixed solution. The key is to avoid redundancy of components and to assess separately the three dimensions identified, keeping in mind they may be interrelated.

The three dimensions are to be aggregated in such a way that a high vulnerability in only one dimension is adequately reflected, even if vulnerability appears low in another or the other two. This means that the three dimensions are not perfectly substitutable and that the index must aggregate them accordingly. One way to do this is to use a quadratic average of the three dimensions rather than an arithmetic one.

The index should be truly multidimensional: the three dimensions retained

One is economic vulnerability, which is the traditional dimension of macroeconomic vulnerability. Economic vulnerability has been used since 2000 by the UN Committee for Development Policy as a criterion for identifying LDCs and the Economic Vulnerability Index (EVI) developed for this purpose has been revised several times. This index, recently renamed "Environmental and Economic Vulnerability Index" (EEVI), is likely to capture the possible economic impact of various kinds of exogenous shocks (economic, environmental, health, etc.).

A second dimension is environmental vulnerability, which can be focused on vulnerability to climate change. Indeed, because of the major and growing importance of this vulnerability, especially for SIDS, it is logical and convenient to consider it separately, through purely physical indicators. The impact of other forms of vulnerability due to environment can be captured through the economic dimension, or possibly the social one.

Finally, the third dimension is social or socio-political vulnerability. This involves targeting recurring social shocks that reflect the fragility of states and their exposure to these shocks. This vulnerability can be specifically captured by violent events, which occur either within the country or at its borders.

The index should be universal

The initial request from the UN General Assembly refers mainly to the vulnerability of small island developing states. It expresses an intention to show the high vulnerability of these countries and to be able to use the index as an argument for special support for them, especially with regard to development financing.

For the argument to be credible and for the index to provide robust support for SIDS, it is necessary that their vulnerability can be fairly compared with that of other developing countries, some of which may also be highly vulnerable, albeit in different ways. For this reason, the Commonwealth Secretariat (Kattumuri et Mitchell, 2021) has proposed the concept and measurement of a Universal Vulnerability Index (UVI).

It is precisely because the index is multidimensional that it should be universal. This leads to re- emphasising the need to highlight the vulnerability of countries in their specific dimension. When in the MVI the different dimensions are aggregated, more impact will be given to those components that reflect higher vulnerability, what can be done, as indicated above, by using a quadratic average.

The index should be "separable"

A country's vulnerability depends on the one hand on structural factors, as well as other exogenous factors, i.e. factors that are beyond

the present control of governments, and on the other hand on factors that are related to their present policies.

The vulnerability to be taken into account in order to justify a higher aid allocation or a preferential treatment (such as that given to LDCs) is indeed that vulnerability which do not result on the weakness of the present policy, and only depends on structural factors, which makes the separability criterion essential.

Disentangling the structural or exogenous factors of vulnerability from those due to current policy is not always easy, but is absolutely necessary. Extensive attention has been paid to this issue in the report on multidimensional vulnerability. The exogenous or structural vulnerability results both from the recurrence of shocks, which reflects their probability, and from the exposure to the shocks, which determines their potential impact and corresponds to structural features inherited from the past.

As for resilience, i.e. the ability to cope with shocks, this itself depends on both structural (or inherited) factors, such as the level of per capita income or human capital, and of course on the current policy: thus, to guide aid allocation or grant preferential treatment, a low structural resilience must be considered either within structural vulnerability or separately alongside it, as is done for the identification of LDCs. The MVI, as presented in the OHRLLS report is thus composed by five parts: (i) the structural vulnerability of economic nature; (ii) the structural (or physical) vulnerability related to environment (or more precisely to climate change); (iii) the structural vulnerability (or fragility) of social nature; (iv) the weakness of structural resilience; (v) the weakness of resilience linked to present policy. In the intended use of the MVI, the separation between "Structural MVI" and "General MVI" can then be set up by two ways, depending on whether the weakness of structural resilience (iv) is included in the Structural MVI, which then encompasses (i) to (iv), or is treated separately, as we can see below.

The expected uses of an MVI that would meet these criteria

A general vulnerability index, including structural and political factors, can be used for domestic policies. But to guide international policies, what is first expected is a structural vulnerability index: this, as a major index of structural handicap to sustainable development, provides an ethical basis for the special treatment in favour of the most vulnerable countries (see Guillaumont, Guillaumont Jeanneney and Wagner, 2017, 2020; Guillaumont 2021).

This index can be used in two ways.
It can be used in a discontinuous way, referring to a threshold value, as is already the case with the CDP vulnerability index for the identification of LDCs, or, as could be the case, to determine eligibility for special funds, as the concessional windows of the multilateral banks, or other special measures. The choice of eligibility thresholds, which is always difficult, may of course differ between the institutions that would like to use the index in this way.

It can also, and most importantly, be used on a continuous way, as a criterion for allocating ODA, as recommended by the UN General Assembly in 2012 to smooth the transition of graduating LDCs (and as also applied in 2014 by the European Commission for the former European Development Fund (EDF) and Development Cooperation Instrument (DCI)). There are now two new challenges.

The first is that the structural MVI be introduced into the Performance Based Allocation (PBA) of the multilateral development banks, so that this formula becomes a Performance and Vulnerability Based Allocation (PVBA) . As noted above, the factors of structural resilience weakness of resulting from the levels of per capita income and human capital, if they are not included in the MVI, can be included separately in the allocation formula, as is generally the case for per capita income. At the same time, it would be consistent that present policy resilience be

included in the performance indicator.

The second challenge would be to use the structural vulnerability index in other financial mechanisms, such as bilateral aid, or possibly debt treatment. A new and timely application would be to take into account the structural MVI in the reallocation of SDRs, which is at the heart of the current international agenda (see on this subject the contribution of B. Cabrillac and S. Guillaumont Jeanneney, 2022, and the simulations made by A. Cornier and L. Wagner, 2022). For the (Structural) MVI to be progressively used by the international community and benefit the SIDS and other developing vulnerable countries, it is important it relies on a broad consensus on its principles, in other words on the criteria it should meet and on the ensuing index structure. It then can be used either as the completed and precise index designed by the High Level Panel or as a common framework reflecting these principles, with a precise content likely to be adapted according to the user needs or preferences.

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