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A Framework for Assessing Fiscal Vulnerability

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A Framework for Assessing Fiscal Vulnerability[1]

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Abstract

Fiscal vulnerability describes a situation where a government is exposed to the possibility of failure to meet its aggregate fiscal policy objectives. The suggested framework for assessing vulnerability highlights four macro-fiscal aspects of vulnerability: incorrect specification of the initial fiscal position; sensitivity of short-term fiscal outcomes to risk; threats to longer-term fiscal sustainability; and structural or institutional weaknesses affecting the design and implementation of fiscal policy. Fiscal vulnerability indicators are suggested.

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I. Introduction

Fiscal vulnerability goes beyond a situation where a government currently pursues inappropriate fiscal policies and/or it lacks the ability to implement better policies. While obviously bad policies and a lack of implementation capacity will nearly always signal vulnerability, governments that are apparently well placed in these regards may nonetheless find that they are vulnerable in two respects. First, underlying weaknesses may be present that do not affect fiscal outcomes today but could at some time in the future prevent a government from achieving its fiscal policy objectives. And second, such weaknesses may limit a government's ability to respond to future fiscal policy challenges, such as the need for fiscal consolidation as part of a coordinated policy response to an external shock.

The focus in this paper is on fiscal vulnerability from a macroeconomic perspective, and the suggested framework for assessing vulnerability highlights four macro-fiscal aspects of vulnerability: incorrect specification of the initial fiscal position; sensitivity of short-term fiscal outcomes to risk; threats to longer-term fiscal sustainability; and structural or institutional weaknesses affecting the design and implementation of fiscal policy. The framework is intended primarily as a basis for identifying situations where an anticipatory response to potentially poor macro-fiscal outcomes is called for. But it also goes beyond this, since there is a clear link between fiscal vulnerability and economic vulnerability more generally.[2] This being the case, *the importance that should be attached to assessing fiscal vulnerability derives mainly from its contribution to effective macroeconomic surveillance,* and in this connection it can make a useful contribution to the work of the IMF. Vulnerability assessments can also provide information that would help in designing IMF-supported programs and in prioritizing fiscal technical assistance. Moreover, it is advisable that countries develop their own capacity to assess fiscal vulnerability, and the framework suggested in this paper can be viewed as providing guidance to assist them in doing so.

Work on fiscal vulnerability can be viewed as paralleling work that is underway in the IMF on financial sector vulnerability (see Downes, Marston, and Ötker, 1999). There are strong links between fiscal and financial sector vulnerability, since fiscal vulnerability can manifest itself as a financial sector problem while addressing a financial sector problem can be a source of fiscal vulnerability. Government preemption of bank lending on concessional terms and government support for bank restructuring are respective examples. A new financial architecture should pay attention to both fiscal and financial sector vulnerability, although the former has so far attracted much less attention.

Reflecting the fact that a lack of transparency can be a major source of vulnerability, *there is considerable overlap between assessments of fiscal vulnerability and assessments of fiscal*

[2]This is illustrated by recent work which points to variables related to fiscal imbalance—e.g., high domestic credit growth and large current account deficits—as being among the strongest predictors of an external crisis (IMF, 1999).

transparency. For this reason, many of the issues discussed in this paper are also covered by the IMF's Code of Good Practices on Fiscal Transparency (the transparency code) and taken up in more detail in the Manual on Fiscal Transparency (the transparency manual). Indeed, it is inevitable that vulnerability assessments will be informed by fiscal transparency assessments included in Reports on the Observance of Standards and Codes (ROSCs), for those countries where they are available, or undertaken independently of the ROSC process. Transparency is also important because a prerequisite for a vulnerability assessment is a reasonable degree of transparency. It would be difficult to assess the vulnerability of a totally nontransparent fiscal system. While it has been necessary to cover in this paper certain parts of the transparency material that are absolutely central to vulnerability assessments, both in the sense of identifying sources of vulnerability and of facilitating assessments, an attempt has been made to keep the overlap between this paper and the transparency code and manual to a minimum.[3]

The paper is organized as follows: Section II specifies the fiscal policy objectives that provide a benchmark against which vulnerability assessments are made; Section III discusses different macro-fiscal aspects of vulnerability and the methodology for vulnerability assessments; Section IV suggests vulnerability indicators and provides guidance on their interpretation; Section V addresses some aspects of vulnerability that are of a micro-structural, as distinct from a macro-fiscal, nature; and Section VI offers concluding comments.

II. Fiscal Policy Objectives

Fiscal policy can be viewed as operating at three levels: *at the aggregate level*, where the concern is with total expenditure and taxation (or the revenue effort more generally), the overall fiscal balance and the associated deficit financing or use of fiscal surpluses, and the fiscal consequences of accumulated liabilities and assets; *at the sectoral level*, where there is a strategic focus on the broad structure of spending (i.e., across major programs) and revenue (i.e., mainly across major tax bases); and *at the program level*, where the emphasis is on the microeconomic efficiency of individual spending and tax programs.[4]

Fiscal vulnerability can manifest itself and can therefore be assessed at any of these three levels. However, for the purposes of surveillance, and consistent with the IMF's emphasis on macroeconomic issues, *this paper focuses on fiscal vulnerability reflecting a situation where*

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[3]Allan (2000) describes and discusses in more detail the links between assessments of fiscal transparency and fiscal vulnerability.

[4]The World Bank refers to these as level 1, 2, and 3 operations of fiscal policy (World Bank, 1998).

a government is exposed to the possibility of failure to achieve its aggregate fiscal policy (or macro-fiscal) objectives. These objectives are specified as follows.[5]

- First and foremost, a government should seek to *avoid excessive fiscal deficits and debt,* which could directly threaten short-term macroeconomic stability and longer-term fiscal sustainability.

- Second, a government should ensure that *fiscal policy contributes to effective demand management* by retaining sufficient flexibility to respond in an appropriate and timely way to domestic and external macroeconomic imbalances.

- And third, a government should raise revenue in a manner consistent with *maintaining reasonable and stable tax rates.*[6]

Fiscal vulnerability could reflect a possible inability to meet any or all of these macro-fiscal objectives. Certainly each is important in its own right. Thus a fiscal vulnerability assessment might suggest, given a government's expenditure plans, that: the money creation necessary to finance the fiscal deficit may lead to inflation or that a debt sustainability problem is in prospect; fiscal policy will have to be undesirably tight, and maybe procyclical, during an economic downturn; or tax rates will have to increase over time to levels that are likely to have significant disincentive effects. Any one of these possible macro-fiscal outcomes would be a source of concern. However, in most circumstances such outcomes will not be independent. So if deficits and debt are a concern, providing a fiscal stimulus during a recession will usually be costly given the high interest rate premia that are imposed when the fiscal position is weak. And if the need instead is to contain a boom, the scope to do so may be limited if the room for tax increases has been exhausted before deficits and debt become a concern.

There are also clear interactions between macro-fiscal objectives and what might be referred to (so as to distinguish them from macro-fiscal objectives) as micro-structural objectives of fiscal policy, that is objectives set at the sectoral and program level. The causality can run both ways. Weaknesses in the design and operation of spending and tax programs can and do contribute directly to poor macro-fiscal outcomes. At the same time, if poor macro-fiscal outcomes are in prospect, then it is likely that some of a government's micro-structural objectives will go unmet as a consequence. There is also a possibility that the aggregate fiscal

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[5]In addition to these general objectives, a country may have specific fiscal policy objectives a government has set for itself (e.g., as reflected in a fiscal rule) or that may have been agreed with others (e.g., as part of IMF conditionality).

[6]Justification for stability of tax rates is based on the result that the distortionary cost of taxation is reduced by smoothing tax rates over time. Tax smoothing is consistent with countercyclical fiscal policy.

policy approach could point to a country as not being especially vulnerable, while at the same time falling short of meeting, for example, a high-priority poverty alleviation target. Clearly, such an outcome can create vulnerability in the obvious sense that a government which fails to meet such a critical equity goal may have to respond in a manner that either compromises its macro-fiscal objectives (if it has to spend more on poverty alleviation programs and raise already high taxes or borrow excessively to pay for the additional spending) or—if there is little unproductive spending—it will have to cut some other high-priority programs (which simply shifts the source of vulnerability). To do neither of these things may threaten a government's political survival.

III. Macro-Fiscal Aspects of Vulnerability

The starting point for meaningful analysis and discussion of fiscal vulnerability from an aggregate fiscal policy perspective is a clear view about the initial fiscal position, both in terms of whether macro-fiscal objectives are initially being met, and the quality of the information that is available about the initial fiscal position. In particular, it is important that the initial fiscal position describes the full range of fiscal activity in the economy. The next step is to develop an understanding of the range of possible short-term macro-fiscal outcomes by assessing their sensitivity to underlying risk. The focus should then shift to government exposure to medium- and long-term adverse trends or influences that may affect fiscal sustainability. Finally, attention should be paid to vulnerabilities that arise from weaknesses in the structure of public finances, the institutional capacity for fiscal management, and the broader effectiveness of government. These four aspects of fiscal vulnerability provide the organizational structure of the framework for assessing vulnerability that is suggested in this paper.

Since assessing vulnerability is a forward-looking endeavor, it necessarily requires that a view is formed about future economic developments in general, and future fiscal developments in particular. In this connection, the position taken in this paper is that *fiscal vulnerability assessments need to be prudent*, in the sense that they should be prepared using a framework that has a bias toward downside risks. A prudent approach can be justified by asymmetries in the economic implications of unfavorable versus favorable outcomes, especially given the weak initial fiscal positions and/or deficit bias in many countries.[7] It is also necessary to lean against a systematic tendency toward optimism arising from elements of the political environment, such as the short-time horizon of politicians.

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[7]Prudence is consistent with the usual approach in accounting, where financial statements consistently err on the side of caution in recording events or transactions that are likely to have a favorable impact, while being less cautious when the results are likely to be unfavorable.

A. The Initial Fiscal Position

The initial fiscal position is clearly a source of vulnerability to the extent that the macro-fiscal objectives described above are initially not met. Thus if the starting position is characterized by high deficits and debt, an inability to respond to macroeconomic imbalances (e.g., because automatic stabilizers are small, and discretionary fiscal policies take time to formulate and implement), and/or very high tax rates, then there would usually be a presumption of vulnerability. However, the concern here is more with the possibility that available fiscal information may not relate to the full range of fiscal activity that is undertaken by or on behalf of the government.

It would typically be the case that *a description of the initial fiscal position takes the latest central government budget as its starting point*, and this is reasonable if the budget is realistic. With an unrealistic budget, the estimated outturn for the preceding year should be the starting point. If a vulnerability assessment is being made some time after a budget has been formulated, it would be appropriate to begin with an estimate of the budget outturn rather than the budget or the preceding year's outturn. This would allow several factors to be taken into account, including: new data for the outturn for the preceding year which render a budget based on an earlier estimate unrealistic; revised macroeconomic forecasts affecting the assumptions underlying the budget; and other fiscal policy developments (new programs, official statements about budgetary policy, etc.).

From such a starting point, it is crucial to go beyond the budget, since it is most unusual that this captures all fiscal activity.

- First, where lower levels of government are large, *the focus should be on the general government.*[8]

- Second, *extrabudgetary activities of the central government and lower levels of government should be included.*

- And third, *quasi-fiscal activities undertaken outside government should also be covered.* The central bank, public financial institutions, and nonfinancial public enterprises to varying degrees are all involved in such activities, but in many cases precise quantification may be difficult. A qualitative statement about quasi-fiscal activities would in the first instance suffice, but rough orders of magnitude should be provided for the main quasi-fiscal activities and the need for better information should be emphasized.

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[8]While lower levels of government which set their own objectives and are subject to market discipline can be viewed as independent of central government from an economic perspective, from a vulnerability perspective consolidation is desirable (although vulnerability could be assessed independently for lower levels of government).

Another problem is that fiscal activity is often measured in an unreliable or incomplete manner because of weak accounting and control systems. With poor fiscal data, there will often be large discrepancies in the fiscal accounts, for example between above-the-line and below-the-line fiscal balances. The cash accounting traditionally used by governments, while having a number of advantages, also has inherent weaknesses as a measure of fiscal activity. Most notably, it fails to reflect activities that give rise to arrears and noncash-based provisions to clear arrears (e.g., netting of expenditure arrears and tax offsets).

It is important to take into account changes in the stock of government liabilities and assets. Knowing a government's gross debt is a minimum requirement for longer-term sustainability analysis, while information on the structure of debt (i.e., maturity, fixed vs. variable interest rates, and currency composition) is needed to assess short-term fiscal risk. If a government has sizable financial assets, net financial debt is more relevant than its gross debt to longer-term sustainability. And where available, even partial information on other asset transactions (most usefully on privatization and government investment in productive assets) would provide some basis for determining whether the effects of fiscal policy actions that show up as changes in aggregate revenue and expenditure, and resulting changes in the fiscal deficit, are being matched by changes on the government's balance sheet that undo their impact.[9]

Contingent liabilities should also be covered. Explicit contingent liabilities include government guarantees, indemnities, and warranties, while implicit liabilities include the potential obligation on a government to bail out an insolvent lower level government, public enterprise, or financial institution. Where there is provisioning against contingent liabilities, for example, a deposit insurance scheme, the level of provisioning should be noted and the focus should be on the uncovered contingent liability. Again, quantification may be difficult in the case of contingent liabilities, in which case they should be handled in the same way as quasi-fiscal activities.[10] It is also necessary to be aware of conjectural liabilities that could arise, that is liabilities that do not reflect a formal government obligation but where there is a presumption that the government will step in if need be. Such liabilities could arise in respect of government-mandated or regulated activity, or in respect of catastrophic events (such as a natural disaster).

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[9]Easterly (1999) finds evidence from an analysis of countries borrowing from the IMF and the World Bank, and European countries covered by the Maastricht Treaty, that fiscal adjustment often takes the form of privatization and cuts in government investment, so that changes in reported fiscal deficits represent illusory rather than real adjustment because there is an offsetting balance sheet transaction.

[10]Public pension obligations are not treated as a contingent liability, because their aggregate level can generally be established from pension scheme rules, demographic trends, and economic and labor force projections. This does not mean that public pension plans do not give rise to contingent liabilities. For example, a guaranteed minimum rate of return to a funded scheme does create a contingent liability.

Finally, the difficulty in interpreting fiscal balances can be a source of vulnerability. This difficulty derives in part from the extent of fiscal activity to which the fiscal balance refers. But it also relates to the way in which the fiscal balance is measured. Since assessing vulnerability will necessarily become a comparative exercise—assessments for some countries will inform assessments for other countries—there are advantages to using an internationally comparable measure of the fiscal balance (and other fiscal aggregates) in all countries. The overall balance, appropriately adjusted in response to its most obvious shortcomings (e.g., to reflect expenditure arrears, the use of privatization proceeds), is best suited to this purpose. However, *the overall balance should be supplemented by other fiscal balance measures where they provide a better indicator of the stance of fiscal policy from a macroeconomic perspective.*[11]

B. Short-Term Fiscal Risks

Fiscal risk analysis is an attempt to gauge the sensitivity of fiscal outcomes to variations in key underlying assumptions and other factors. For the purpose of assessing fiscal risk, it is necessary to move beyond the initial fiscal position, since the one-year time horizon of a budget, and by implication of the initial fiscal position, does not do justice to the full extent of the short-term risks to which fiscal outcomes are exposed. For this reason, the initial fiscal position should be accompanied by a short-term forecast which looks at least two years ahead. The short-term forecast should be based on unchanged policies, in the sense that policy intentions which have been announced but not implemented should be excluded, and it should be purged of temporary measures affecting the initial fiscal position. This forecast should be fairly detailed, but possibly less so than the description of the initial fiscal position. Both the initial fiscal position, which typically itself has a forward-looking component, and the short-term forecast should then be subjected to fiscal risk analysis.

The principal short-term fiscal risks that need to be addressed are the following.[12]

- *The initial fiscal position and the short-term forecast is sensitive to changes in macroeconomic variables and other sources of economic risk.* Unanticipated changes in GDP growth rate, unemployment, inflation, interest rates, external trade, capital flows, the exchange rate, and other macroeconomic variables affecting macro-fiscal outcomes gives rise to forecasting risk affecting revenue, expenditure, and financing. The structure of debt is important in this regard, since it affects the fiscal risk associated with short-term movements in interest rates and the exchange rate. Revenue and expenditure are also

[11]Depending on a country's circumstances, other such measures might include the structural balance, the operational balance, the primary balance, or the augmented balance.

[12]These risks are the same as those discussed in the fiscal transparency manual, since a requirement of the fiscal transparency code is that all governments should publish a fiscal risk statement with the annual budget.

subject to other risks affecting the tax base (e.g., corporate profitability), nontax revenue (e.g., mineral prices), and spending programs (e.g., government wage increases).

- *It is possible that contingent liabilities will be called when no budget provision has been made to meet them.* While a case can be made in principle favoring budgetary provision for explicit liabilities, the appropriate way to provide for them and the practicalities of doing so raise issues that have resulted in limited provisioning (see Schick, 1999). Implicit liabilities will always entail more substantial risk, since provisioning is usually judged inappropriate because of moral hazard problems.

- *There may be a lack of clarity about the size of specific expenditure commitments* in that provision may be made in the budget for spending on an activity (e.g., bank restructuring), but there is less than usual precision about the cost implications of that activity.

- Finally, *some fiscal policies may be imprecisely defined.* This would be the case where a government announces a policy intention (e.g., to provide incentives for saving and investment) but either the details of the way in which is to be implemented may not be well developed or the implications of an announced method of implementation are unclear.

Fiscal risk analysis therefore involves examining the range of possible short-term macro-fiscal outcomes, with a focus on variations in underlying assumptions and other parameters to which a probability or likelihood of different events can be attached, albeit in some cases only approximately. However, while the realization of a typical risk might signal the need for policy adjustment, it would not necessarily imply vulnerability since the consequences may be easily accommodated. This being the case, there is merit in subjecting a short-term forecast to more aggressive stress testing, especially when there are reasonable grounds to consider that a substantial shock to the economy, be it global, regional, or country specific, is more than a remote short-term possibility. This is addressed in the next section in the context of stress testing a baseline medium-term projection.[13]

C. Longer-Term Fiscal Sustainability

Even if fiscal outcomes are not exposed to significant short-term risks, running persistent fiscal deficits may result in debt levels which become a source of fiscal and broader macroeconomic difficulties over the medium term. The standard debt dynamics analysis is the usual basis for identifying the impact of deficits on indebtedness, and more generally for assessing the implications of past and current fiscal policies for longer-term sustainability.

[13]However, if the focus of a vulnerability assessment is on short-term fiscal outcomes alone, stress testing should be part of such an assessment.

Where available, market-based indicators (e.g., a government debt rating and/or interest rate premia) can supplement debt dynamics analysis.[14]

The starting point for an assessment of longer–term sustainability is a baseline medium-term fiscal projection, which would typically look at least five years ahead. It should assume a continuation of current policies, which will often require difficult judgements as to what is and what is not a current policy.[15] While it encompasses the initial fiscal position and the short-term forecast, such a baseline does not need to be as detailed. To assess vulnerability, *the baseline medium-term projection should be supplemented by alternative scenarios.* These scenarios should illustrate the responsiveness of the medium-term fiscal outlook to different initial fiscal positions and short-term forecasts (mainly reflecting the medium-term consequences of short-term fiscal risk). *Stress testing would then be used to assess the impact of short-term and medium-term shocks* (e.g., a global interest rate or business cycle shock, a regional or country-specific reversal of market sentiment, or a sharp terms of trade deterioration).

Stress testing should identify how the fiscal outlook would change under circumstances ranging up to the fairly extreme, and to understand why the outlook changes in the way it does.[16] It is therefore important to identify the key transmission mechanisms through which the main fiscal aggregates are affected. Moreover, the likely correlation between different transmission mechanisms should be recognized. For example, a major macroeconomic shock such as an output collapse may cause revenue to fall, expenditure to increase (e.g., on the social safety net), and contingent liabilities to come home to roost, all at the same time. A downside scenario should envisage some of the worst things that can happen (e.g., full-blown crises).[17] In this way, stress testing, in combination with the identification of policy responses

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[14]However, they cannot substitute for such analysis, or for vulnerability assessments more generally, since there is little evidence that either debt ratings or interest rate premia adequately reflect fiscal sustainability. They are influenced more by external sustainability, level of development, and the depth of the market for a country's debt.

[15]The difficulty can be illustrated by reference to the discussion of fiscal policy in Asia in IMF (1998), where in distinguishing discretionary from nondiscretionary fiscal measures it had to be decided whether holding nominal spending constant when it had in the past increased represents changed or unchanged policy.

[16]Stress testing clearly goes beyond the usual scenario analysis, which in the fiscal area tends to involve producing higher growth and lower growth scenarios to illustrate the benefits of stronger fiscal policies and the costs of weaker fiscal policies than in the baseline.

[17]There is a parallel here with risk assessment in the private sector. Standard value at risk methodologies used in financial analysis show how much a bank or firm could potentially lose over a specified time period for likely market movements. Stress testing is used to assess and manage extreme risks.

that reduce vulnerability, provides the basis for systematic fiscal contingency planning, which has to be a key outcome of effective surveillance.

Long-term projections and scenarios are a natural extension of medium-term analysis. However, they can be even less detailed given their more speculative nature. It is particularly important to take into account long-term expenditure pressures. The impact of demographic developments on pensions and health spending is an obvious source of such pressure in many countries. The possible exhaustion of a natural resource which generates substantial revenue, and any associated environmental degradation, will also be relevant to long-term fiscal sustainability in some countries.

D. Structural Weaknesses

The composition of expenditure and revenue is important in assessing vulnerability. A *principal source of vulnerability is a high proportion of nondiscretionary spending to total spending,* which limits a government's flexibility to adjust spending levels downward when it is necessary to do so. Nondiscretionary spending is that for which there is a legal or other strong obligation on a government to meet. The most notable examples are interest payments, formula-based transfers to lower levels of government, and public pensions.[18] However, the components will vary from country to country, and classifying all spending as either nondiscretionary or discretionary may require difficult judgements. In many countries, the distinction may boil down to that between spending on transfers (broadly defined) and spending on goods and services.

Some large items of expenditure are a source of vulnerability because they are resilient to adjustment given the powerful interests groups they serve. Military spending is a case in point, although a large government wage bill may be every bit as entrenched where public sector unions are strong or the government is an employer of last resort. *There may be also latent expenditure needs that do not manifest themselves until triggered by a shock or discontinuity of some kind.* Any significant gap in expenditure, compared to established norms, could be exposed in this way. For example, the need for a social safety net may become apparent only following an economic crisis, but once in place it will almost certainly become permanent.

A good tax structure is one where revenue derives from a range of taxes with broad bases, ideally large macroeconomic aggregates (i.e., wages, profits, and consumption, including imports of consumables). Not only will this tend to result in reasonable tax rates, but it will also ensure a moderately elastic tax system, which is desirable from the point of view of

[18]Of course, not all nondiscretionary spending is necessarily a problem. For example, spending on unemployment compensation is cyclically sensitive. It therefore acts as an automatic stabilizer during a cyclical downturn, reducing the need for discretionary fiscal policy.

facilitating countercyclical fiscal policy through the operation of automatic stabilizers. *A revenue composition dominated by just one or two taxes, especially if they have narrow bases, is a source of vulnerability*, both in terms of increasing a government's exposure to unexpected fiscal developments because revenue from just a few taxes is likely to be volatile (e.g., reflecting the fact that trade tax revenue is highly sensitive to exchange rate changes), and limiting its capacity to respond when the need arises because tax rates probably have to be very high. Frequent tax law changes, especially when they result in more exemptions, tax holidays, and other reliefs, as is often the case, can add to vulnerability by progressively undermining the tax base. A government's capacity to respond is also constrained by extensive earmarking which limits the scope for discretionary tax changes. Finally, a heavy reliance on nontax revenue, the main sources of which (grants, royalties, privatization proceeds, central bank profits) may not be stable and/or particularly responsive to policy intervention, can also contribute to vulnerability.

The institutional capacity for fiscal management is a major determinant of fiscal vulnerability. There are numerous aspects of the institutional capacity for fiscal management that could be relevant to fiscal vulnerability. Many are covered in the fiscal transparency code, most notably roles and responsibilities of government and within government, the public availability of information, the budget process, and the integrity of fiscal information. But since the emphasis in this paper is on fiscal vulnerability assessments from an aggregate fiscal policy perspective, the focus is on aspects of the institutional capacity for fiscal management that are most closely related to macro-fiscal outcomes, namely the administrative capability for expenditure management and revenue collection. Moreover, from a vulnerability standpoint, the emphasis should be on particular weaknesses which can signal that poor macro-fiscal outcomes are in prospect (e.g., expenditure and tax arrears, ineffective audit procedures).

Finally, *a government that has a general reputation for being ineffective will usually be vulnerable.* Thus a government that gets involved in too many activities that should be left to the private sector, whose agents (i.e., public servants, public enterprise managers) have a relationship with politicians which is inconsistent with the arm's-length principle, and/or that is characterized by extensive nontransparency and corruption, cannot be expected to meet its macro-fiscal objectives on a consistent basis.

As is perhaps by now clear, the four aspects of vulnerability highlighted above are closely related. There is an obvious sense in which an incorrect specification of the initial fiscal position makes it difficult to assess both short-term fiscal risk and longer-term sustainability. Moreover, a chronic misspecification of the initial fiscal position is likely to be a manifestation of weak institutional capacity for fiscal management. But some of the interactions are more subtle. For example, weak fiscal institutions can act to amplify rather than dampen macroeconomic volatility, as would be the case when a country pursues procyclical fiscal policy because an inability to save fiscal resources generated by a buoyant economy— reflecting political pressures for such savings to be spent—leads to a pattern of tax rate cuts during expansions and tax increases during recessions.[19]

IV. Vulnerability Indicators

There are clear gains in terms of convenience if the results of the analysis of the initial fiscal position, short-term fiscal risks, longer-term sustainability, and structural weaknesses could be summarized in a few key vulnerability indicators, and the preceding discussion suggests some obvious candidates. However, selecting a set of vulnerability indicators involves trade-offs. While the inclusion of a large number of indicators increases the probability that fiscal vulnerability will be identified, it may make it difficult to identify the main sources of vulnerability. A large number of indicators will also tend to increase the information requirements of vulnerability assessments, which would create difficulty in ensuring comparability across countries and generally make assessments less manageable. In the end, *the need is for a set of vulnerability indicators which is fairly parsimonious.*

The set of indicators included in Box 1 focuses on the aspects of vulnerability discussed in this paper, and avoids reference to features of the fiscal system that are unrelated to vulnerability at the aggregate level. Even so, for a number of reasons these indicators should still be regarded as provisional.

- First, Box 1 describes the indicators in general terms, and while Annex 1 discusses their measurement in more detail, the acid test of their suitability will only come when they are implemented in the context of actual vulnerability assessments. *Country experience may suggest that there are more useful alternatives to the suggested indicators.*

- Second, *country experience may also suggest a need for additional indicators.* Political factors, for example, are not included, despite the fact that a specific political event, such as an approaching election, may generate an unusual amount of uncertainty about short-term fiscal policy in many countries. There may also be a case for looking at characteristics of the fiscal management system that give rise to vulnerabilities beyond those directly related to aggregate fiscal policy, since indirect effects (e.g., where macro-fiscal outcomes are affected by the need to meet micro-structural objectives) will often be important. Finally, the scope for greater use of survey-based indicators that capture

[19]Talvi and Végh (2000) find that fiscal policy in developing countries is for such a reason highly procyclical. They suggest that attention should be paid to designing fiscal arrangements (such as stabilization funds) aimed at ensuring that fiscal savings generated during good times are saved for when times turn bad.

important supplementary information bearing on fiscal vulnerability should be explored.[20]

Box 1. A Possible Set of Fiscal Vulnerability Indicators

- *Fiscal position indicators* – weak initial fiscal position; incomplete coverage of government fiscal activity; poor accounting and control; insufficient balance sheet information; sizable uncovered contingent liabilities; and significant quasi-fiscal activities.
- *Short-term fiscal risk indicators* – high sensitivity of short-term fiscal outcomes to changes in key macroeconomic variables; inappropriate debt structure; variable revenue sources and expenditure programs; calling of uncovered contingent liabilities; and other expenditure risks.
- *Longer-term sustainability indicators* – unfavorable debt dynamics; low government debt rating and/or high interest rate premia; adverse demographic trends; and rapid natural resource depletion and/or serious environmental degradation.
- *Expenditure indicators* – large share of nondiscretionary spending and/or transfers; excessive military spending; and significant gaps in expenditure (e.g., social security, safety net, health and education, infrastructure).
- *Revenue indicators* – inelastic revenue system; highly concentrated tax revenue; frequent tax law changes; extensive earmarking; and reliance on grants and other major nontax revenue sources.
- *Fiscal management indicators* – large expenditure arrears and use of netting arrangements; marked deviation between the original budget and the budget outturn; nonexistent or weak medium-term budget planning; long delays in preparing and auditing final accounts; large tax arrears and use of tax offsets; a large stock of tax refunds, especially for VAT; an out-of-date taxpayer register; and an ineffective tax audit program.
- *Government effectiveness indicators* – poor results from surveys of public sector performance, corruption etc.

[20]The weakness of survey-based indicators is that surveys fail to reflect the strength with which views are held, and hence the weight of opinion. However, they can incorporate information from a wider range of sources.

The fiscal vulnerability indicators can be used in a range of ways. At the least demanding extreme, they can be viewed as no more than a checklist against which someone making an assessment of fiscal vulnerability could keep track of whether they have covered all the relevant aspects of vulnerability. At the other much more demanding extreme, it is easy to envisage them as being a stepping stone on the way to the type systematic assessment that could ultimately produce an index of vulnerability. In the first instance, the indicators should probably be used more as a checklist, albeit an evolving one as the indicators are modified in response to experience with their use. But once a final set of indicators begins to emerge, they can begin to be used in a more ambitious way, perhaps with the objective being to develop a small number of broad categories of vulnerability. In this connection, however, *it will be necessary to prioritize the indicators*, to take account of differences in fiscal institutions across countries, and perhaps to develop indicators relevant to particular groups of countries (or weight indicators differently across groups of countries).[21]

In whatever form they are used, it has to be emphasized that *fiscal vulnerability indicators will have to be interpreted with caution.* It has already been noted that indicators of short-term fiscal risk may indicate the need for a relatively small fiscal correction within the context of an otherwise strong underlying fiscal position. It is important to distinguish this from a situation where the underlying position is also weak.[22] While it will often be the case that a high level of exposure to short-term fiscal risk will be a leading indicator of longer-term vulnerability, it is important that fiscal vulnerability assessments avoid judgements based on only a few indicators.

The policy significance of a similar level of fiscal vulnerability will also vary across countries, depending on the broader economic context in which fiscal policy is placed. For example, evidence of short-term fiscal risk may be a serious concern in a country with a currency board or a fixed exchange rate, where the scope for discretionary monetary policy is limited. There may be much less of a problem in a country with a flexible exchange rate. Government deficits and debt may also be more of a concern in a country with relatively low national saving and high external debt, or with high inflation and an underdeveloped financial sector. And fiscal vulnerability in a country where an external crisis could have contagion effects should be regarded as warranting particular attention. Finally, a given level of fiscal vulnerability may also be a cause for greater concern if combined with a low level of adherence to a broader set of standards related to government performance.

[21]In this connection, Bird and Banta (1999) suggest indicators for transition economies that take account of their special circumstances.

[22]This is analogous to the differentiation often applied to companies to distinguish those with short-term cash flow problems but positive net worth from those with negative net worth.

V. Micro-structural Aspects of Vulnerability

The focus of this paper so far has been on a government's aggregate fiscal policy objectives. It has been noted, however, that a government has to pursue other micro-structural objectives, and that failure to meet such objectives can create vulnerability just as surely as failure to meet macro-fiscal objectives. A government can have a wide range of micro-structural objectives. In a companion paper, Abedian (2000) focuses on those *micro-structural objectives that are most closely linked to a government's socio-economic legitimacy*. Equity goals related to poverty alleviation, income redistribution, and improvements in other indicators of human development fit into this category. So too do many of the efficiency goals that traditionally (i.e., in a welfare economics sense) justify government intervention in the economy, such as the provision of public goods and merit goods, the need to take account of external costs and benefits associated with private decisions, and addressing other aspects of market failure.

Two micro-structural aspects of vulnerability are then discussed. The first aspect reflects undesirable features of the enabling environment that supports government activity which lead to government (or bureaucratic) failure. This in turn manifests itself in the pursuit of inappropriate equity and efficiency goals. Weaknesses in this area extend beyond those noted above as relevant to macro-fiscal vulnerability, and cover such things as the political process, the public sector culture or ethos, and the general approach to governance. The second aspect is the fiscal management system, where weaknesses which again extend beyond those noted above result in delivery failure, that is a large gap between a government's equity and efficiency goals and what it actually achieves.[23]

While Abedian suggests indicators of micro-structural vulnerability, there is no intention that the vulnerability assessments which might be undertaken in connection with IMF work should require a judgement as to whether a government can meet the full range of macro-fiscal and micro-structural objectives that it sets for itself, since this would go beyond the aggregate fiscal policy approach on which such assessments are based. However, there are clearly some aspects of the IMF's work where micro-structural aspects of vulnerability may be relevant. For example, in assessing a government's poverty reduction strategy, it is useful to know about specific sources of vulnerability that could result in that government failing to meet its equity goals.

[23] These sources of micro-structural vulnerability also affect what Tanzi (1999) refers to as the quality of the public sector.

VI. Concluding Comments

Fiscal vulnerability assessments could fit in with the more forward-looking approach to surveillance that is being adopted by the IMF. Their aim is to identify those features of a country's fiscal system that compromise the ability of a government to meet its aggregate fiscal policy objectives. They also provide a basis for managing vulnerability, so as to limit the government's exposure to possible adverse outcomes, in particular by enhancing its ability to respond to fiscal and broader economic developments. Managing vulnerability requires a pre-emptive effort to address potential problems revealed by vulnerability assessments.

It is important to emphasize that fiscal vulnerability assessments are based largely on existing approaches in the IMF to fiscal policy analysis and that they utilize a lot of currently available information. It is primarily the organizational framework that vulnerability assessments provide for fiscal surveillance, and for designing IMF-supported programs and prioritizing technical assistance, that is new. However, the true value added will not become clear until the framework is implemented, and *the next step could be the preparation of some experimental vulnerability assessments*, so that the general appropriateness of the framework can be gauged, and the way in which assessments are conducted can be tailored to the more general approach to IMF surveillance and to country circumstances. In particular, the vulnerability indicators will almost definitely need fine tuning and possibly more extensive reconsideration.

Finally, while this paper has discussed government debt and financial assets in terms of the importance of having information on their levels, and on the structure of debt, as indicators of vulnerability, a government's strategy for the management of its debt and assets has not been discussed. Yet, it is clear that debt and assets can be managed in a way to contain vulnerability, and that the sophistication of a government's risk management strategy may not be done justice by the indicators suggested above. However, it is far from straightforward to assess whether a particular debt and asset management strategy is appropriate. Determining a government's exposure to financial risk raises extremely complex issues that have not been addressed by public finance theory. In the absence of clear practical guidance on optimal risk reduction strategies, incorporating debt and asset management into fiscal vulnerability assessments is a possibility that can be taken up later.[24]

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[24]For some discussion of the issues in this area see Skilling (1999).

Measurement of Fiscal Vulnerability Indicators

Indicators	Measures
Fiscal position indicators	
Weak initial fiscal position	Overall fiscal balance as a share of GDP Other fiscal balance measures as a share of GDP (where relevant) Net financial debt as a share of GDP Size of automatic stabilizers (small/average/large) Average and maximum rates of tax (for each main tax)
Incomplete coverage of government fiscal activity	Revenue covered in fiscal data as a share of general government revenue Expenditure covered by fiscal data as a share of general government expenditure
Poor accounting and control	Fiscal balance measured from above-the-line relative to the fiscal balance measured from below-the-line
Insufficient balance sheet information	Gross debt (yes/no) Net financial debt (yes/no) Other balance sheet data (yes/no)
Sizable uncovered contingent liabilities	Gross contingent liabilities as a share of total revenue Net contingent liabilities as a share of total revenue **Or** Description of main contingent liabilities and quantification of largest net contingent liabilities
Significant quasi-fiscal activities	Quasi-fiscal activities as a share of total revenue **Or** Description of main quasi-fiscal activities and quantification of largest quasi-fiscal activities
Short-term fiscal risk indicators	
High sensitivity of short-term fiscal outcomes to changes in key macroeconomic variables	Impact of variations in forecast GDP growth, inflation, balance of payments, exchange rate, and interest rates on the fiscal balance
Inappropriate debt structure	Maturity (short, medium, and long term), interest rate structure (fixed vs. variable rates), and currency composition of debt
Variable revenue sources and expenditure programs	Impact of variations in other economic and noneconomic determinants of revenue and expenditure on the fiscal balance
Calling of uncovered contingent liabilities	Net contingent liabilities as a share of GDP; expected payments in connection with guarantees, etc
Other expenditure risks	Description of programs and policies that give rise to risks
Longer-term sustainability indicators	
Unfavorable debt dynamics	5–10 year projection of gross or net debt as a share of GDP, and change in the primary balance as a share of GDP required to stabilize the debt ratio at the current level or at a specific target level
Low government debt rating and/or high interest rate premia	Information is available on the Bloomberg web site to calculate interest rate premia

Adverse demographic trends	Long-term projection of retirement age and school age population relative to total and working population; impact on expenditure as a share of GDP and on tax rates
Rapid resource depletion	Years of usable reserves at current exploitation rate; resource-related revenue as a share of total revenue; resource-related financial assets as a share of GDP; serious environmental degradation (yes/no)
Expenditure indicators	
Large share of nondiscretionary spending and/or transfers	Nondiscretionary spending and transfers as a share of GDP
Excessive military spending	Military spending as a share of GDP
Significant gaps in expenditure	Programs for which spending as a share of GDP is significantly below the average for comparable countries
Revenue indicators	
Inelastic revenue system	Tax elasticity or buoyancy
Highly-concentrated tax revenue	Revenue composition, particularly trade tax revenue as a share of total tax revenue
Frequent tax law changes	Major tax changes, especially new exemptions and other reliefs, every year or every two years (yes/no)
Extensive earmarking	Revenue from earmarked taxes as a share of total revenue
Reliance on grants and other unstable nontax revenue sources	Nontax revenue as a share of total revenue; composition of nontax revenue
Fiscal management indicators	
Large expenditure arrears and use of netting arrangements	Expenditure arrears as a share of total revenue; significant netting of arrears (yes/no), inability to report on sizable arrears (yes/no)
Marked deviation between the original budget and the budget outturn	Expenditure outturn relative to original expenditure; resort to large supplementary budgets (yes/no)
Nonexistent or weak medium-term budget planning	Effective medium-term budget planning (yes/no)
Long delays in preparing and auditing final accounts	Length of time between end of fiscal year and (i) preparation of final accounts and (ii) release of audited accounts
Large tax arrears and use of tax offsets	Tax arrears as a share of total revenue, sharp increase in tax arrears (yes/no), significant tax offsets (yes/no)
A large stock of tax refunds, especially for VAT	Stock of tax/VAT refunds as a share of tax/VAT revenue
Out-of-date taxpayer register	Currentness of taxpayer register by main tax (up-to-date/adequate but needs updating/completely out-of-date
An ineffective tax audit program	Coverage of tax audit (adequate/inadequate), targeting of tax audit (appropriate/inappropriate)
Government effectiveness indicators	
Poor results from surveys of public sector performance, corruption etc.	Information available from the Institute for Management Development World Competitiveness Report; the Transparency International Corruption Perceptions Index

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