LONG-TERM DEBT SUSTAINABILITY FOR HIPCs:
HOW TO RESPOND TO SHOCKS

Matthew Martin
with Randa Alami

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EXECUTIVE SUMMARY

Background and Introduction
The Enhanced HIPC Initiative aims to provide long-term debt sustainability, but most HIPCs face regular fiscal and balance of payments shocks, which in HIPC I made four HIPCs’ debt unsustainable by their completion points. HIPC II will not provide long-term debt sustainability unless it acts more forcefully against shocks, and IFID has commissioned this report to suggest how.

Identifying Shocks
Almost any line of the balance of payments and budget can be subject to shocks. The report describes such shocks, before suggesting that the crucial shocks are those which increase poverty. Every PRGF Board paper should contain a 20-year projection of the path to the IDTs and shocks which might derail this, rather than focussing on the BoP and budget.

Many shocks are predictable or the result of misdesign, misimplementation or miscalculation of the effects of policy changes. With more realistic projections which take these into account, most shocks would disappear. On the other hand, it is important to examine all shocks, regardless of source or duration, to avoid compromising poverty reduction.

HIPC Shocks
The report shows that HIPCs are highly vulnerable to shocks due to aid dependence, export concentration, import dependence and low reserve coverage. The most common shocks have been to aid flows, exports, climate, imports and budget revenue, and most HIPCs have suffered multiple different shocks in the last 10 years. The report details which HIPCs have been most vulnerable to which types of shocks, dealing in turn with each of these variables.

Next it examines the likelihood of future shocks, using three types of analysis:
• comparing recent growth rates with those projected in DSAs, it finds that projected export and especially GDP growth rates are much higher, giving cause for concern about whether outcomes lower than forecasts will stop HIPCs from reaching poverty reduction targets.
• it analyses sensitivity analysis in DSAs and finds that (compared to analysis by HIPCs themselves) it is insufficiently pessimistic, does not examine comprehensively the effects of shocks, and pays too little attention to revenue and climate shocks. It gives only a flavour of the scale of disruption which shocks could provoke.
• many key global trends are often omitted from DSA analysis, including the fallacy of composition, climate change, health pandemics and capital market shocks. These also indicate greater and growing vulnerability to future shocks.

Finally, the report indicates the scale of shocks necessary to undermine debt sustainability. It finds that, of 21 countries examined, seven will never become sustainable under HIPC II because of the way relief is provided; 3-7 have sustainability predicated on unrealistic growth rates; and only around one third of HIPCs are likely to remain sustainable because projections are based on realistic growth rates which would require large shocks to undermine them.

Based on these findings, the report makes a comprehensive set of recommendations for analysing, preventing and combating shocks to avoid renewed unsustainability of debt and ensure steady progress to poverty reduction (see Conclusion).
I. BACKGROUND AND INTRODUCTION

The Enhanced HIPC Initiative aims to provide sufficient debt relief to enable countries to keep their debt burdens sustainable over the medium- and long-term. As specifically defined in HIPC Board Papers, this implies that their ratios must stay below the following levels:

- present value of debt/exports of goods and services under 150%;
- present value of debt/budget revenue under 250%;
- debt service/exports of goods and services under 15% and falling steadily;
- debt service/budget revenue low and falling steadily.

A companion paper has already shown that, in spite of HIPC debt relief, some HIPCs will have humps in these various ratios and therefore cannot be considered truly sustainable, even under the baseline economic assumptions made in HIPC Board Papers.\(^1\)

In addition, as will be analysed in detail in this paper, most HIPCs face regular shocks to both the fiscal and balance of payments accounts, which can dramatically change their ratios and push them back into unsustainability. Among the major shocks are those which impact directly on the denominators of the above ratios - exports (commodity price changes, drought and floods) and revenue (import duty shortfalls, devaluation); and those which impact less directly by increasing balance of payments or budget financing needs (for example import price increases, notably for food and petroleum; erratic donor flows; and budget spending shocks such as for emergency relief).\(^2\)

It has long been established that such shocks hit low-income countries frequently and that the international community is ill-prepared to combat them.\(^3\) The existence of such shocks was recognised by the original HIPC Initiative, in two ways:

- Debt Sustainability Analyses were required to include sensitivity analyses reflecting potential shocks, so as to warn the Executive Boards of the Bretton Woods Institutions of potential downside risks.
- As relief provided was based on debt sustainability ratios projected for the completion point at the time of the decision point, provision was made for increasing the amount of debt relief to be provided if a country’s ratios deteriorated between decision and completion points.

Of the first five HIPCs which reached their completion points under the original HIPC Initiative, four had sustainability ratios higher than projected, due to shocks which were considerably larger than those examined in the sensitivity analysis, and therefore had to be provided with more relief than expected.

Partly as a result, the need for predictability in the amount of relief to be provided by the international community led the Enhanced HIPC Initiative to calculate relief based on actual

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1 See Johnson 2001.

2 Of course, many HIPCs are frequently subject to shocks arising from conflict and other political factors, which will also make their debt less sustainable, but these are not considered in detail in this paper.

ratios at the decision point rather than projected (and unpredictable) ratios at the completion point. But the new design of Enhanced HIPC does not resolve the underlying problem caused by shocks. It merely continues with the inadequate types of protection or compensation provided under HIPC I: sensitivity analyses, and a possible review at the completion point of the amount of debt relief to be provided. However, the recent Board paper for Niger has hinted that such a review might be limited to cases where there were secular “permanent shocks” to exports or other variables, providing no protection against temporary shocks.

As a result, it is highly likely that the Enhanced HIPC Initiative will not provide permanent debt sustainability for a considerable group of HIPCs unless it takes account of such shocks, and incorporates measures to protect against and compensate for them. The measures are particularly vital because, in addition to undermining debt sustainability, they will reduce the amount of financing available for poverty reduction towards the IDTs in the HIPCs.

The International Financial Institutions Department of DFID has therefore commissioned this paper, the aims of which are as follows:

- to identify the key potential shocks which may affect debt sustainability for HIPCs;
- to alert DFID as to which HIPCs are most sensitive to the different shocks identified;
- to propose possible solutions open to the international financial community, in both preventative and curative terms.

The remaining sections of this paper deal with each issue in turn.

The views expressed in this paper do not necessarily represent those of DFID.

### 2. IDENTIFYING SHOCKS

What exactly is a shock? Under the HIPC Initiative, the key ratios for debt sustainability are present value of debt/exports of goods and services; present value of debt/domestically-generated budget revenue; debt service/exports; and debt service/revenue. The most direct impact of a shock on debt sustainability will therefore be felt on the denominators of these ratios - exports of goods and services and budget revenue.

The main shocks which can impact on exports of goods and services are: changes in the international market prices or international market conditions for exports; and climatic, disease or other shocks to export production. External shocks can also have a major indirect impact on budget revenues by reducing exports (in the few countries where export taxes continue, notably on tourism), by cutting imports and related import tax/VAT/other revenue; or when foreign exchange shortages reduce the dollar value of budget revenues compared to debt.

However, almost every line of the balance of payments and the budget can be subject to shocks which will increase financing gaps. Insofar as these gaps are filled by additional borrowing, this will also raise debt ratios above sustainable levels. Tables 1 and 2 present potential shocks and their sources for each line of the balance of payments and the budget.

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4 Bolivia, Burkina, Gambia, Ghana, Kenya, Lao, Madagascar, Sierra Leone, Sao Tome, Tanzania and Uganda all have tourist revenues which account for more than 10% of exports.
One should of course go beyond the balance of payments and the budget in the context of Enhanced HIPC. The shocks which really should matter are those which impact on poverty - given that the aim of the relief under HIPC is to finance poverty reduction. All of the shocks described above may of course reduce scope for poverty reduction - for example, by decreasing smallholder export earnings, by reducing imports of goods or aid flows destined for poverty reduction, and by reducing budget expenditure on poverty reduction. But a closer focus on shocks which exacerbate poverty the most would identify other vital factors such as the incidence of diseases (e.g. HIV/AIDS which might over the longer-term be seen as a shock, because it is still not effectively factored in to economic projections in HIPCs with the highest prevalence), or would lead to greater stress on shocks such as drought or floods - to which the poor are generally most vulnerable, and would lead a more comprehensive analysis to go beyond purely economic shocks.

Because HIPC Board Papers have provided very few data on the amount of funding freed for poverty reduction, and made no long-term projections of potential progress towards the International Development Targets, it has been impossible in this study to quantify the potential impact of any shocks on poverty reduction: but such analysis of the impact of shocks on the long-term path to the International Development Targets should be a top priority. Every PRGF Board Paper should ideally contain a 20-year projection of the path to the International Development Targets and the associated financing which is necessary, and of the key shocks which could derail such progress.

A final crucial point is: when is a shock really a shock? This covers three sets of issues:

1) many shocks are not really shocks. These include:
   - **largely predictable trends or repeated events** at a national, regional or international level which should be easy to foresee. Among obvious national examples are repeated droughts, creeping desertification and depletion of water tables to which all Sahelian countries and some other HIPCs have been subject for more than 20 years; gradual depletion of resources or increases in extraction costs which reduce mineral or timber exports; and repeated shortfalls of donor aid disbursements which are therefore virtually routine. Among international examples are the fallacy of composition under which many countries try to increase exports of a single commodity simultaneously in the absence of any notable increase in world demand, leading to price falls.\(^5\)
   - **miscalculations of the effects of policy changes:** good examples have been dramatic underestimations of the negative effects on budget revenues of tariff reductions due to regional or international agreements; overprojections of the revenue collections resulting from tax reforms; and overprojections of the positive effects of efforts to liberalise or diversify exports.

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\(^5\) For more on this, see section 3.3.3 below.
<table>
<thead>
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<td><strong>BALANCE OF PAYMENTS</strong></td>
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<td>Exports of G and S</td>
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<td>Loan Amortisations</td>
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<td>Loan Disbursements</td>
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<td>Portfolio Investment</td>
<td>International market trends (e.g. US bond interest rates, global stock market problems, regional contagion)</td>
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<td>Reserves</td>
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<td>Line Item</td>
<td>Source and Nature of Shock</td>
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<td><strong>BUDGET</strong></td>
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<td>Tax Revenue</td>
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<td>Trade Taxes</td>
<td>Shortfalls in exports (especially tourism) and imports due to foreign exchange shortages</td>
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<tr>
<td>Indirect Tax</td>
<td>Shortfalls in VAT and sales taxes linked to e.g. tourism and imports</td>
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<td>Non-Tax Revenue</td>
<td>Shortfalls in privatisation revenues; cuts in fishing licences or mineral exploration.</td>
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<td>external/domestic</td>
<td>International or domestic interest rates; other shocks forcing up borrowing</td>
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<td>Capital Expenditure</td>
<td>Donor project aid shortfalls = cut; maybe from lack of counterpart funds due to programme</td>
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<td>Devaluation increases payments and receipts</td>
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to these should be added the “shocks” caused by misdesign or misimplementation of policies which therefore produce what seem like perverse “shock” effects (when with more analysis and adaptation of policies to the structural conditions or administrative capacity of the recipient economy, such effects could have been foreseen).6

A large number of “shocks” would therefore not be shocks if more reliable and less optimistic analysis was undertaken before projections were made. Many previous authors have indicated systematic tendencies to optimism in the projections underlying programmes with the Bretton Woods Institutions, whether due to optimism over effects of policies in the country, or to overoptimism about global economic trends.7 With more realistic projections, based on probability and frequency analysis of volatility in key variables, and properly calibrated vulnerability indices, most shocks would disappear from future programmes.8

2) some would like to define very narrowly the types of shocks against which the international community should take action. This includes
< accepting some types of shocks (e.g. commodity price falls, oil price rises) as more valid than others; or
< setting false periods (e.g. 3-year averages) over which shocks have to persist in order to be valid for compensation or for changing adjustment programme targets.

But the most crucial debate is over whether temporary or permanent shocks should be compensated. Some feel that temporary shocks make the strongest case for compensation, because with rapid financing a country can move back to the correct long-term path almost immediately; others prefer permanent shocks, arguing that a country can more easily adjust to temporary shocks and needs more compensation for long-term shocks.

This paper treats all such limitations of and distinctions among shocks as spurious. If a country is making genuine efforts to promote economic growth and poverty reduction, shocks should be foreseen and avoided - and if this is not possible, genuine or unforeseeable “shocks” should be compensated regardless of their source or duration.9

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6 These issues have been extensively treated elsewhere: see Killick 1984, Martin 1991, Martin and Mistry 1992.

7 For a comprehensive earlier analysis see Martin and Mistry 1992; for a more recent analysis on global economic forecasts, see Consensus Economics 2000.

8 For an excellent example of a vulnerability index see Commonwealth Secretariat 2000. Another similar index is provided by OECD 2000.

9 This argument could also be applied to domestically-sourced shocks, which are not covered in this paper. It is one of the continuing paradoxes of the international community’s efforts to promote development that although most developed country governments have electorally-linked spending cycles, and frequently cave in to pressure from powerful interest groups to reduce taxes or spend more - we regard it as “morally hazardous” to finance any gradual phasing in of tax increases or budgetary latitude at election time in developing countries. Even when domestic political reactions lead to far more serious shocks such as riots, general strikes, coups or civil wars, we at first insist on more “adjustment” to those shocks, and only when countries reach a post-conflict stage (with a conflict defined gruesomely according to its length and severity) do we then pour in huge amounts of money to rebuild the countries. Earlier action to avoid and compensate domestic political shocks would avoid such disasters.
III. HIPC SHOCKS

In order to prioritise solutions, we need to know which shocks are most important for HIPCs overall, and which HIPCs have been most subject to certain types of shocks, so that we can identify the need for solutions to specific or overall vulnerability. This section of the report summarises the key conclusions of this analysis to identify key overall shocks, their severity and probability.  

3.1. Which Shocks Hit HIPCs?

Table 3 presents in summary form indicators of the potential vulnerability of HIPCs to shocks, as well as the shocks to which HIPCs have been subject in the last 10 years. It shows:

- **high aid dependency and volatility:** of the HIPCs for which information is available, 28 are potentially vulnerable to aid shocks, as measured by aid dependency (aid/GDP ratio over 10%); and 34 of 38 have suffered aid volatility as defined by a standard deviation over 20% in the last ten years.
- **high prevalence of climatic shocks:** at least 23 countries have suffered from climatic shocks in the last ten years, including 17 suffering from various types of drought and 8 from other shocks such as heavy rains, floods, cyclones or hurricanes;
- **high export concentration and volatility:** 16 countries are potentially vulnerable to export shocks, depending on one commodity for more than 50% of export revenues; and 28 have suffered export volatility (standard deviation over 20% in the last ten years);
- **high import dependence and volatility:** 26 countries are highly import dependent (over 30% of GDP) indicating potential vulnerability; and 18 have suffered high volatility in the last ten years (standard deviation over 20%);
- **low protection against external shocks due to low reserves:** with 32 countries having reserves lower than 4 months of imports of goods and services, and only 2 reaching 6 months of import coverage;
- **slightly less volatility of domestic revenue (excluding grants):** with only 17 countries experiencing standard deviations over 15% (only 10 over 20%) in the last 10 years.

Overall, it would appear that the most serious shocks suffered by countries relate to aid flows, exports, climate and imports, but that most HIPCs suffer multiple shocks - more than 20 have suffered at least three of the five from aid, climate, exports, imports and budget revenue - and all have suffered at least one type of shock during the last ten years.

3.2. How Severe Are the Shocks?

In order to quantify the scale and severity of shocks, we have examined several key indicators of vulnerability and volatility using the last ten years’ data, and also looked specifically at whether recent ESAF/PRGF programme documents find shortfalls compared to projections.  

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10 It has not been possible given time and budgetary constraints to calculate comprehensive vulnerability index results for HIPCs.

11 For more detail on each of these shocks, see the following sections.

12 For more detailed discussion of export concentration, see 3.2.1 below.

13 Import concentration, especially in food and petroleum, is discussed in 3.2.2 below.
3.2.1. Exports
The vast majority of HIPCs appear highly vulnerable to commodity shocks as expressed by their dependence on commodity exports (Table 4). Seventeen HIPCs have more than 90% of their exports in commodities, and 33 have more than 70%. The most dependent (with commodities over 99%) are Mauritania, Sao Tome, Chad, Guinea-Bissau and Yemen.

Within this commodity focus, most HIPCs have exports heavily concentrated in between 1 and 3 commodities (Table 5). Fifteen countries depend on one commodity for more than 50% of revenues. In addition, 22 depend on three products for more than 70% of revenues.

Exports have been highly variable for many HIPCs in the last 10 years (Table 5). Standard deviation as a percentage of the mean level has averaged 26% for all HIPCs. It has exceeded 20% for 27 of the 39 HIPCs for which information is available, and has been over 10% for all but Mauritania, Senegal and Zambia. The HIPCs with the most volatile exports have been Viet Nam, Lao, Uganda, Nicaragua, Tanzania, Guinea-Bissau, Honduras and Mozambique. 14

ESAF/PRGF programme documents examined for 30 of 36 HIPCs (the only exceptions being CAR, Ethiopia, Ghana, Guinea-Bissau, Guyana and Mozambique) indicate persistent shortfalls of exports compared to projections, particularly for non-traditional exports as well as traditional commodity exports. This is in line with analysis for the early 1990s which found that more than three quarters of programmes were overoptimistic about the effects of adjustment on export growth (Mistry and Martin 1994).

3.2.2. Imports
HIPCs are also as a group highly dependent on imports, with a mean import/GDP ratio of 39% and 26 HIPCs having import/GDP ratios exceeding 30% (Annex Table 1). The highest dependence is found in Guyana, Sao Tome, Congo Rep, Nicaragua, Gambia, Mauritania, Yemen, Honduras and Viet Nam.

Imports have been considerably less volatile than exports and aid flows, with mean standard deviation of only 21% and only 18 countries with a standard deviation over 20%. The most volatile imports are found in Viet Nam, Uganda, Myanmar, Lao, Honduras, Nicaragua, Burundi and Congo (Annex Table 1).

It has not been possible to find comprehensive recent data sets on composition of imports, to show dependence on food and fuel, which are generally the least elastic and flexible types of imports and therefore most subject to international price shocks. However, the International Task Force on Commodity Risk has indicated that food accounts for more than 20% of merchandise imports in 16 HIPCs (Burkina, CAR, Chad, Congo Rep, Côte d’Ivoire, Guinea-Bissau, Lao, Madagascar, Mali, Mauritania, Mozambique, Senegal, Sierra Leone, Togo, Uganda, Yemen and Zambia), and fuel accounts for more than 20% of imports in seven countries (Côte d’Ivoire, Ethiopia, Guinea, Kenya, Madagascar, Uganda and Zambia).

According to ESAF/PRGF Board papers, the vast majority of HIPCs have also been subject to import excesses over projections. This has been particularly true for oil imports in 1999-

14 In Lao and Vietnam’s case, exports have increasingly rapidly over the period, with variations essentially reflecting annual rises.
TABLE 5
2000, given international price rises - but again this is in line with earlier analysis (Martin and Mistry 1992) which found that around 65% of programmes were too optimistic about the effects of adjustment programmes on reducing import demand or rationalising their use, partly because they assumed that price effects through devaluation would reduce demand, when this was very rarely borne out by past experience.

3.2.3. Aid

According to Table 6, no fewer than 28 HIPCs are highly dependent on aid - representing more than 10% of their GNP. The most dependent countries in 1998 were Sao Tome, Guinea-Bissau, Nicaragua, Mozambique, Malawi and Lao.

The potential vulnerability of HIPCs to aid-related shocks has been borne out by the volatility of aid flows in the last ten years, measured in relation to the aid/GNP ratio in order to assess the potential knock-on effects on the economy (Annex Table 1). The mean standard deviation of aid flows for HIPCs over the last ten years has been 37%. All but 4 of the 38 HIPCs for which data are available have a standard deviation of aid flows which exceeds 20% of average flows, and for 15 the standard deviation exceeds 40%. The most vulnerable to aid shocks in order have been Rwanda, Angola, Congo Rep, Guyana, Zambia, Côte d’Ivoire and Congo DR (all over 50%).

Other analysis (Martin and Mistry 1992; Johnson 2001) as well as almost all ESAF/PRGF Board papers examined refer to considerable aid shortfalls each year compared to programmed amounts, as one of the most persistent shocks blowing adjustment programmes off course, even for those countries which have lower levels of volatility such as Ghana. In turn these shortfalls reflect over-optimism about donor aid pledges being turned into actual disbursements, which are often delayed by donor conditionalities, donor or recipient procedural problems, or failures of donor coordination behind government policy.15

3.2.4. Reserves

Another commonly-used indicator of vulnerability to shocks is the level of reserves measured in months of imports. The usual standard objective is to have around 6 months of import coverage to protect against shocks. As shown in Table 7, only 2 of the HIPCs (CAR and Nigeria) attained this level of coverage at the end of 1998, and 32 countries having import coverage under 4 months.16

Reserves have also been highly volatile for most HIPCs, with mean standard deviation over the last 10 years exceeding 45% of average levels, and volatility of more than 20% for all but three HIPCs (Burkina, Gambia and Guyana). The countries with the most volatile reserves have been Senegal, Côte d’Ivoire, Congo Rep, Sudan, Mauritania, Cameroon, Sierra Leone and Honduras (Annex Table 1).

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15 Another area of persistent shortfalls and delays for almost all countries has been foreign direct investment, which is not discussed in detail here.

16 This presentation probably understates vulnerability because IMF programmes now normally measure reserves in months of the following year’s imports of goods and services.
Table 6
Table 7
ESAF/PRGF documents indicate that the majority of countries have been failing to meet their programmed reserves targets - due usually to foreign exchange shortfalls reflecting other external shocks.

3.2.5. Budget Revenue (excluding grants)
The poor quality and limited existence of budget revenue data has made it difficult to reach firm conclusions about the concentration and volatility of budget revenue. However, for the 34 HIPCs for which data are available, the evidence is that budget revenue has been somewhat less volatile than the other elements measured here. The mean volatility has been only 19%, and only 10 countries’ volatility exceeding 20% (Annex Table 1).

It is also vital to realise that, in relation to the HIPC Initiative, devaluation can reduce the value of revenue denominated in local currency, relative to debt variables denominated in foreign currency, and therefore increase debt/revenue ratios (PV or service). This has already happened for many countries - notably Ghana and Guyana - during the HIPC Initiative.

ESAF/PRGF documents also show persistent shortfalls of revenue/GDP ratios in many countries, due to over-optimism about the potential effects of new revenue measures or administrative reforms. Where these revenue ratio targets were met, they often reflected last-minute ad hoc tax increases which themselves could act as a negative shock to wider economic activity. Where they were not, they often resulted in expenditure cuts and negative shocks for public investment or recurrent payments.

3.3. How Likely Are Future Shocks?
To assess the likelihood of future “shocks” for each country, we have used three methods:

- recent growth rates in key variables compared to projected trends in HIPC DSAs. Of course, it is true that past rates might not be repeated in future, where they were due to policy slippages or domestic political/conflict-related events. However, where they were due to commodity prices, climatic events or aid/import shortfalls, there is every reason to believe that past trends might well continue.

- sensitivity assumptions made by HIPC Governments, the IMF and World Bank in HIPC DSAs, and by HIPC Governments in their National Debt Strategy Reports prepared by their technicians under the HIPC Capacity-Building Programme.17

- other factors which were not prevalent in the past and are not always taken into account in DSAs or DSRs.

3.3.1. Recent and Projected Trends
Table 8 shows recent export and GDP growth compared to projected trends in the DSAs.18

17 Countries not covered due to lack of a DSA or National Debt Strategy report are: Burundi, Congo DR, Kenya, Lao, Liberia, Myanmar, Nigeria, Sierra Leone, Somalia, Viet Nam and Yemen.

18 Unfortunately, due to lack of medium-term projections for other variables in DSAs, this analysis has had to be limited to GDP and exports.
The table indicates that the projected growth rates for GDP are higher than recent averages in all cases except two (Guyana and Uganda). The most dramatic differences are for Cameroon, Madagascar and Zambia, which would therefore be most likely to fall short of their export projections in future years - though had the projections been more realistic in the first place this shock would not be likely to occur. But the vast majority of countries have projected GDP growth rates well in excess of recent levels.\(^{19}\)

The other striking feature of the projections is the similarity of the GDP growth rates for most countries at between 5% and 6% (only 4 countries fall outside this range). This is because, given regional population growth rates of 2.5-3%, 5-6% is the minimum real growth needed to make any difference to poverty levels in countries. It is important to note that in almost all countries, these growth rates are still below those needed to halve poverty by 2015: and therefore the question should be not, how can we make projections more realistic compared with past levels, but how can we change policy to increase growth dramatically?

The relationship between historical and projected growth rates for exports is only slightly more balanced, with 21 of 28 countries having projected export growth rates above recent trends, compared to only 7 which are lower. The widest disparity and the greatest potential vulnerability to shocks are for Chad (reflecting potential petroleum exports), Mozambique (reflecting gas exports), Rwanda, Honduras, Sao Tome, Zambia and Burkina Faso.

Two other issues are important here. First, projected growth rates have fallen sharply for most countries in the last 3-4 years under HIPC. This is a positive trend as it indicates that (partly because of the experience of overoptimistic projections with the first few HIPC candidates) projections in Bretton Woods programmes are becoming more realistic. Second, and somewhat less positive, the relationship between projected GDP and export growth rates has changed fundamentally, as projected GDP growth rates have stabilised or risen while export growth rates are falling. Based on evidence from national debt strategy workshops, there is no sign that this reflects analysis of a different relationship between exports and GDP or a switch from externally- to domestically-driven growth. Unfortunately it seems that there may be a growing tension between the need to have slightly more realistic export projection levels to avoid major reconsiderations of relief levels at the completion point, and the need to have optimistic growth rates to project even a limited degree of poverty reduction.

In sum, if we expect historical trends to continue, then very many countries are likely to be exposed to substantial “shocks” on both GDP and exports. While it is possible to make reasonable arguments that projected trends might be realistic if countries avoid policy slippage and domestically-generated shocks, this seems less plausible on GDP, raising major worries over whether HIPCs will reach their GDP growth and poverty reduction targets.

\(^{19}\) We also tested periods such as the last five or three years, in order to take into account the fact that many HIPCs have started adjustment programmes only recently, but these made no substantial difference to the growth rates or the conclusion that projected growth rates are much higher than historical rates.
<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>GDP AVERAGE</th>
<th>GDP PROJECTED</th>
<th>EXPORTS AVERAGE</th>
<th>EXPORTS PROJECTED</th>
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<tr>
<td>Benin</td>
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</tr>
<tr>
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<td>6-7%</td>
<td>1.4%</td>
<td>6.4%</td>
</tr>
<tr>
<td>CAR</td>
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<td>4%</td>
<td>13%</td>
<td>7%</td>
</tr>
<tr>
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<td>3.8%, 11.4%*</td>
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<tr>
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</tr>
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</tr>
<tr>
<td>Sao Tome e Principe</td>
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<td>4%</td>
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</tr>
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<td>2.0%</td>
<td>7.6%</td>
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<tr>
<td>Tanzania</td>
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<td>5-5.6%</td>
<td>8.9%</td>
<td>11.9%</td>
</tr>
<tr>
<td>Uganda</td>
<td>7.1%</td>
<td>6.5-5.5%</td>
<td>14.8%</td>
<td>11.5%</td>
</tr>
<tr>
<td>Zambia</td>
<td>0.2%</td>
<td>5%</td>
<td>2.8%</td>
<td>11.5%</td>
</tr>
</tbody>
</table>

Recent figures are averages for 1989-99 from the World Bank; Projected are from DSAs for 2000-2005. * second figure reflects period of petroleum production; ** - projections from staff-monitored programme - 1 year only.
3.3.2. Potential Shocks Projected in DSAs and DSRs

Table 9 shows a second potential measure of shocks - those considered likely in the tripartite Debt Sustainability Analyses.

Some of these shocks are broadly similar to those constructed by HIPCs in their national Debt Strategy Reports in DRI-sponsored workshops, for example in identifying areas of vulnerability such as commodity prices, drought or aid falls. For many countries this reflects the fact that DSA assumptions have fed into DSRs and vice versa. Nevertheless, four key characteristics emerge from analysing the types of shocks used in sensitivity analysis in the tripartite DSAs, and comparing them to those in government DSRs:

- the negative shocks assumed in national DSRs are generally larger than those in DSAs. This is because countries usually try in Debt Strategy Workshops to look at the most realistic recent trends and adjust the baseline scenario downwards accordingly. In contrast, shocks assumed in DSAs are frequently small - limited in many cases to export growth rates which are around 2% lower (and still well above historical trends). In general, almost all HIPC countries working with the DRI programme feel that the scale of downside risk assessed by the Fund is not large enough.

- the shocks calculated in the DSRs are generally fed through and analysed for all of their primary (and in some cases secondary) impacts on all line items of the balance of payments and budget, therefore allowing for potential additional financing gaps which will also increase debt. In contrast, the early tripartite DSAs simply adjusted one line item of the balance of payments, and did not even look at the effects on the financing gaps; many current DSAs continue to adjust one line item of BoP (and in one case of budget) and recalculate gaps accordingly, without looking at the potential effects of a shock on GDP, and other elements of the BoP and budget. HIPCs have frequently expressed the view that the primary effects of shocks on other lines of the macroeconomic accounts (and secondary effects on the economy) should be analysed.

- DSAs take virtually no account of potential shocks to the budget, with only one country’s DSA having looked at a potential revenue shock, while all DSRs examine alternative budget revenue levels, particularly where countries are vulnerable to revenue shortfalls from, for example, regional trade liberalisation or slower GDP growth rates. In particular, most DSAs maintain exchange rates at current levels, while DSRs in countries with floating exchange rates tend more realistically to adjust exchange rates downwards on a purchasing power parity basis, thereby automatically and realistically worsening debt/revenue ratios. HIPCs frequently urge greater attention to potential revenue shocks, especially given the volatility of revenue described in Section 3.2.5 above.

- DSRs take much more frequent account of climatic shocks than DSAs (which have included them only for Mali and Mozambique). Yet in Section 3.1 we have seen that 23 HIPCs have been vulnerable to climatic shocks in recent years.
Table 9 - 2 pages
Overall, which countries are the most vulnerable to shocks? Judging by the scale of impact of the shocks on PV/export ratios (shown in column 2 of Table 9), Chad, Benin, Mali, Rwanda, Guinea-Bissau and Mozambique are the most vulnerable over the medium term (5-10 years), with Ethiopia and Nicaragua also having high longer-term vulnerability. The pessimism of the tripartite DSAs might perhaps also be judged by the number of downside risks analysed (though this may simply reflect the amount of time devoted by missions). On this basis, Ethiopia, CAR, Ghana, Mali and Senegal might be seen to be more vulnerable.

As for types of shocks, almost all governments in their DSRs believe they are highly vulnerable to terms of trade shocks, with the second most common negative scenarios being lower export production and drought. In the DSAs, terms of trade, export production and aid shocks predominate, with occasional reference to negative climatic conditions and higher imports. Both provide an interesting contrast to Section 3 above on recent shocks which have affected HIPCs, which shows the key importance of aid shocks, followed by exports, climate and imports and budget revenue (and of reserves volatility reflecting all of these different shocks) - as well as much larger scales of shocks than those in the DSAs, and the vulnerability of almost all HIPCs to multiple different shocks.

3.3.3. Other Factors
It is not enough to compare past trends with projections and look at the potential shocks projected by the BWIs and HIPC governments. Other factors also need to be taken into account in assessing the likelihood of shocks.

The first set of factors revolves around global trends which are not always analysed with sufficient consistency or pessimism in DSAs and DSRs. For example, detailed analysis of individual commodity markets indicates that some commodities are likely to be subject to falling prices on the basis of a “fallacy of composition” - i.e. because many countries are increasing production simultaneously in the absence of any major increase in world demand:

- coffee (Burundi, Cameroon, Cote d’Ivoire, Ethiopia, Honduras, Kenya, Lao, Madagascar, Nicaragua, Rwanda, Sao Tome, Sierra Leone, Tanzania, Togo, Uganda and Viet Nam);
- cotton (Burkina, CAR, Cameroon, Chad, Mozambique, Mali, Senegal, Sudan, Tanzania, Togo and Uganda),
- cocoa (Cameroon, Cote d’Ivoire, Ghana, Sierra Leone, Sao Tome);
- gold (Bolivia, Burkina, Ghana, Mali, Nicaragua and Tanzania);
- tea (Burundi, Kenya, Malawi, Rwanda, Tanzania, Uganda and Viet Nam).

There are also commodity- and market-specific factors (for example in bauxite for Guinea and Guyana, fishing for Mauritania, phosphates for Togo, and uranium for Niger) which make prospects for traditional exports more bleak than based on global market analysis, and of which BWI and government analysts are frequently not aware.

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20 According to commodity market analysts, other commodities are cashews, groundnuts and timber.

21 The recent Niger DSA is a remarkable positive exception, presenting frankly the bleak prospects for uranium exports.
Until recently, it would also have been fair to say that global commodity markets were evaluated overoptimistically by the IMF (WEO) and the World Bank (Global Commodity Markets), with price projections used for country programmes therefore much more optimistic than those made by such private sector market analysts as the Economist Intelligence Unit. However, in the last 12 months, IMF price projections have been revised dramatically downwards and are now more in line with private forecasts. It is to be hoped that this new realism will persist, reducing some of this downside risk to projections.

A third set of global factors relate to climate: the changes in climate due to global warming need to be factored into projections - and there is no evidence of such being the case.

A fourth set of issues relates to global health trends: for example, HIV/AIDS makes virtually no impact on the projections in DSAs, apart from overall vague references in HIPC documents. This is in marked contrast to the analysis by independent sources such as ODI, which shows the potential dramatic negative shocks to economic growth from HIV/AIDS.

A fifth set relates to global capital market shocks. Most current projections in DSAs make highly optimistic assumptions about flows of FDI and other private capital to HIPCs. It looks unlikely that these will materialise, because projections often fail to take sufficient account of negative offsetting flows such as imports, expatriate labour payments, private sector debt contracted for apparently FDI projects, and the expectations of investors for both rapid repatriation of capital and high rates of dividend payments. However, even if they do, this will imply greater integration into global capital markets for HIPCs, with all the herd mentality volatility of such markets needing to be factored into projections.

As already illustrated with reference to devaluation and PV/revenue ratios, other factors beyond country-specific trends can influence debt sustainability ratios and therefore make debt unsustainable without reductions in macroeconomic aggregates: examples would include changes in CIRRs, which can change the PV of debt; changes in exchange rates, which can change service or stock; and changes in interest rates, which can change variable interest payments.

Finally, there is the evidence in recent adjustment programmes of repeated negative shocks compared to projections. Though programmes appear to be becoming somewhat more realistic, notably on exports (as discussed above), past experience gives a large degree of confidence that country results will fall short of projections in future programmes.

3.4. What Scale of Shocks Would Undermine Debt Sustainability?
In order to identify the scale of shocks which would undermine debt sustainability, we have used data from recent DSAs and examined counterfactuals of export growth rates which would produce unsustainable debt levels again by 2005, as shown in Table 10.

Unfortunately, the countries for which this was possible were limited to 22 because some

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22 For example Hanmer and Naschold 2000.

23 For more on this see Griffith-Jones et al 2000, Martin 2000 and Williamson 2000.

24 A longer time period would have required less dramatic shocks for debt to become unsustainable.
DSAs (notably preliminary papers and old papers relating to HIPC I) do not present ratios after Enhanced HIPC assistance. The findings were fascinating if somewhat unexpected:

- Because of the way in which HIPC relief is provided gradually (notably under Paris Club Option B and by many multilaterals), unless one falsely assumes that all PV relief is provided at the decision point, a considerable number of HIPCs never actually reach sustainability. As a result, Bolivia, Burkina Faso, Malawi, Mauritania, Niger, Rwanda and Tanzania cannot afford any shock - indeed exports would need to grow faster than projected for them to be sustainable.

- Some countries apart from those listed in the tables are unsustainable on the revenue criterion because, though they would require much more relief to be sustainable on revenue than on exports, they do not receive it because they do not meet the “sub-criteria” of 15% revenue/GDP and 30% exports/GDP.

- Gambia, Sao Tome and Zambia will require export growth rates well above historical levels if they are not to become unsustainable, and with a small shock would be unsustainable.

- Benin, Madagascar, Mozambique, and Nicaragua will require export growth at or above recent levels if they are not to become unsustainable, and slightly larger shocks (4-6%) compared to projections would make them unsustainable. Guinea-Bissau would require export growth above recent levels and only a small shock compared to projections in order to become sustainable. Such assumptions are also probably unrealistic as sustained growth over 20 years at recent rates may seem implausible.

- Cameroon and Senegal will require export growth only slightly lower than historical to become unsustainable, and relatively large shocks (compared to projections) would make them unsustainable.

- Guinea, Guyana, Honduras, Mali and Uganda would require export growth well below historical levels to become unsustainable. Guinea, Guyana, Honduras, and Uganda would be made unsustainable by large shocks, and Mali by a relatively smaller shock (3%).

It has not been possible to undertake a similarly comprehensive analysis for budget ratios, because it was not possible to find historical revenue growth rate data with which to compare projections. However, countries tend to fall into three groups: i) those which qualified for more HIPC relief on PV/revenue than on PV/XGS but failed to meet the sub-criteria, and therefore remain unsustainable on PV/revenue, or more likely to become sustainable with smaller shocks; ii) those which qualified for more relief on PV/XGS and are therefore more sustainable on PV/revenue, requiring greater shocks to make them unsustainable; and iii) those which qualified on PV/revenue - of which Honduras would require a large shock (12 lower revenue growth) compared to programme projections to become unsustainable, and Mauritania would require a relatively small shock (2.7% lower growth).

Overall, based on this highly preliminary analysis, it would be fair to conclude that 15 of 22 countries examined are potentially vulnerable to shocks undermining their debt sustainability.
IV. SOLUTIONS

Based on the above analysis, HIPCs have been subject to considerable shocks in the 1990s and are likely to be subject to shocks in the next 15 years. What can be done to prevent such shocks or to offset them if they occur? There are three types of measures: improving analysis to prevent shocks from occurring; taking measures against individual types of shocks; and comprehensive measures against overall vulnerability to shocks. 25

4.1. Analysing and Preventing Shocks

1) Reducing Shocks

One fundamental way to prevent shocks is to remove all of those which are not really shocks, by improving the methodology of projections used in PRGF/HIPC programmes:

< improve the analytical base of baseline forecasts by enhancing baseline data availability and reliability, notably on imports, aid and private capital flows, y disaggregating projections more than is current practice, and by analysing historical trends and their causes as the basis for future projections;

< adjust baseline forecasts downwards to include largely predictable events at national, regional or international levels, such as repeated climatic shocks, resource depletion, climate change, HIV/AIDS, capital market shocks and international variables such as interest rates, exchange rates and CIRRs;

< in order to support these baseline forecasts, further refine analysis of predictable country-specific shortfalls and what causes them - notably export volume and budget revenue shortfalls, import excesses and aid disbursement delays,

< take even more account of independent market analysis of country-specific circumstances influencing commodity export prices and prospects, and of global commodity (export and import) markets and world economic trends;

< reduce overoptimism about the effects of policy changes, notably on export production, import rationalisation, aid mobilisation and budget revenue generation, and tailor the design of policies more to national circumstances to reduce perverse “shock” effects;

< more deliberately target policies to reduce vulnerability - by diversifying sources of export earnings and budget revenue, rationalising import use, reducing aid dependence and increasing reserves to 6 months of imports as fast as possible.

< provide HIPCs with more “voice” in forecasts. For many countries, long-term forecasts are still designed in Washington with little consultation of the HIPC officials who know the most about the economic prospects of their countries. Donors need to dramatically accelerate capacity-building assistance to HIPCs themselves on macroeconomic forecasting, to avoid their exclusion from the dialogue because they lack technical tools to prepare their own forecasts. In particular, they need their own simple long-term forecasting models which focus on poverty reduction rather than growth and stabilisation.

25 A fourth type of measure would be to modify the design of adjustment programmes so as to make economic policies (prices, exchange rates and labour markets) more flexible during periods of shocks. However, in most HIPC countries these are already largely flexible – and such a discussion is beyond the scope of this paper, which was asked to look at measures which could be taken at the international level rather than by HIPCs themselves.
2) Forecasting Remaining Shocks
It is laudable that all HIPC documents are now presenting downside sensitivity analysis to the BWI Boards. However, if they are to be of more use to HIPCs and the BWIs, these need to:

• base projected shocks on historical probability, frequency distribution and scale of all recent shocks, adjusting for i) any secular long-term changes in commodity prospects or climate and ii) any policy changes in HIPCs which might reduce the negative impact of shocks. Ideally, PRGF/HIPC papers would build their baseline economic scenarios on the most probable combination of these trends, and downside scenarios on the most probable extreme negative combinations.
• present considerably larger (though still historically realistic) potential shocks to show the genuine risk of a return to unsustainability of debt
• analyse the full primary and secondary impacts of shocks on the economy;
• place far more emphasis on fiscal shocks, especially to revenue mobilisation;
• take more notice of aid shortfalls and climate shocks in a large number of countries;
• in the particular context of HIPC, analyse systematically the scale of shocks which would make debt “unsustainable” once more, and build into programmes contingency measures to prevent this from occurring.

4.2. Offsetting and Compensating Shocks
Even with dramatic improvements in projections, there will still be some shocks caused by unexpected volatility in international markets, climate etc. On the principles discussed in Section 2, there should be no false distinction made between permanent and temporary shocks or among different types of shocks if there are genuinely beyond the control of the HIPC government. Nevertheless, it is possible to distinguish between measures which will help with only some types of shocks, and those which will cover a wider range, giving greater protection to HIPCs in future.

1) Measures Against Individual Types of Shocks
There already exist many ways of preventing, compensating for or offsetting individual shocks. Dealing with each of the shocks in order of their revealed importance above:

• improving the predictability and stability of aid flows has long been a preoccupation of the international community. Switches to programme/budget support, removal of multiple donor restrictions, and improvement of recipient absorptive capacity can all play important roles, but have a very mixed record of success, and all too frequently donors end up falling back on increasing their aid disbursements ex post, which usually brings significant delay and economic distortion in its wake.
• export shortfalls have been the most extensively examined of all shocks and, as a result, many types of measures have been recommended – and some implemented - to prevent them (of course they are also the key element of the contingency/compensatory financing systems discussed in 4.2.2 below). These have generally in recent years moved away from government-managed schemes such as commodity cartels and buffer stocks to more market-oriented suggestions for commodity risk management through hedging and derivatives (see UN 2000; World Bank ITF 1999). Developing countries, and particularly their small farmers and producers, are severely under-represented in world derivative and over-the-counter markets, and are currently largely unable (with the exception of a few mineral-producing transnationals) to hedge or insure against risk. Proposals to establish an intermediary in this field have been made since 1998, but progress has been very slow.

26 For many more details of these types of measures and their potential effects, see Government of Ghana 1999 and Martin and Mistry 1992.
Though the potential benefits should not be exaggerated (cp. the disastrous experience of Ashanti Goldfields in Ghana in 1989), action here should be a priority.

- **climate-related shocks**: as with most other shocks, these have until recently largely been compensated by interventions through donor emergency assistance. Recently the Commonwealth has launched a proposal for Insurance against natural disasters through the Commonwealth Disaster Management Agency. While entirely welcome, the coverage of this scheme is currently limited to small states (only 5 of the HIPC's) and to guaranteeing the repayment of financial obligations following discrete disaster “incidents” (for example excluding droughts). Though it would be possible to expand the country coverage, expanding insurance to cover longer-term incidents or a wider range of events such as commodity price shocks would be problematic, as the price of the insurance might become prohibitive given the frequency of such events which we have shown above.

- **import shocks**: these have also typically been dealt with by ex post compensation – though theoretically it would be possible to treat them through market-oriented commodity risk mechanisms and through insurance, but potentially at a high cost given their frequency and simultaneous impact on a wide range of countries.

- **budget revenue**: until recently there have been no explicit preventative or compensatory mechanisms for budget revenue shocks. The two solutions have been extra disbursements of donor budget support and – more often – tax increases. Hedging and insurance have already been used here in some cases (eg Madagascar), but it might be hard to convince intermediaries to take on risks which they perceive as subject to “moral hazard” of “lower revenue effort” by HIPC governments – even if it might seem to be easy to separate the effects of shocks.

2) **Overall Contingency and Compensatory Measures**

In general, it would seem to be preferable to have coordinated action against all shocks, rather than piecemeal action against individual risks. Given the frequency of multiple shocks which hit most HIPC's, it is hard to envisage that either risk management products or insurance schemes would be able to provide such comprehensive protection without prohibitive cost. In this light, the onus falls on the official system to find mechanisms which can supplement commercial systems of shock prevention. There are three main measures which the international community needs to take to offset and compensate for overall “genuine” shocks:

- **making PRGF programme performance criteria and objectives adjustable to shocks**. This has long been practice for some criteria for some countries, but could be generalised to all programmes, making such targets as fiscal and current account deficits explicitly adjustable according to both positive and negative shocks, or measuring them excluding elements which are vulnerable to such shocks (such as donor grants or interest payments). Alternatively, targets might be regarded as “indicative” and flexibly renegotiated in mid-programme reviews, without the need for requesting formal waivers. However, this would need to be done in ways which did not affect progress to poverty reduction negatively, which would require supplementary financing through two further types of solutions:

  - **highly concessional or grant compensatory and contingency financing against shocks from international institutions**. HIPC's currently have virtually no access to compensatory financing from international institutions. The IMF Contingency Credit Line (CCL) is not available to a country which is borrowing any other IMF facility (as
all HIPCs applying for relief are); and its Compensatory Financing Facility (CFF) is so expensive that it would breach the concessional borrowing ceilings which are standard in PRGF programmes.\textsuperscript{27}

The EU’s “B Envelope” funding, designed in part to replace its STABEX and SYSMIN export shortfall compensation windows, is much more flexible. It introduces a welcome element of contingent financing for export and budget shortfalls, based on indices of vulnerability to economic and climatic shocks. Unfortunately it is still too restrictive, requiring shocks which are too large (10% falls in export earnings as well as a 10% worsening of the budget deficit) before it will act.\textsuperscript{28}

Building on the precedent created by this EU facility, a top priority for the international community should be to establish a contingency financing element in all PRGF programmes (on PRGF lending terms), based on vulnerability indices, which could be disbursed immediately in the event of external shocks, to keep financing for poverty reduction at sustainable levels. It would be desirable to coordinate facilities such as that of the EU with such a facility to provide one overall source of support.

\textit{overall contingency mechanisms built into adjustment programmes.} In order to ensure the effectiveness of contingency financing, it would preferably be set aside up front, as genuine financing against contingencies, rather than after the shock when its negative effects on the economy have already been felt.

In order to provide a basis for such up front financing, the BWI Boards would be presented with two sets of economic projections: the “base case” and a realistic “low case”, allowing for shocks which would probably hit the balance of payments – or especially the budget, given that the focus is now on poverty reduction. The contingency/compensatory financing window discussed above, and the maximum possible debt relief and new financing, would be committed up to levels to keep debt sustainable in the event of the low case occurring. The funds representing the extra financing need for the low case scenario could be put into a contingency account and disbursed immediately following any shocks when these materialised. There is already a precedent for such planning in the “contingency mechanism” in Zambia’s IMF programme of 1989-91.\textsuperscript{29} As was the case in that programme, the semiannual reviews of the programmes would provide the occasion to review forecasts and set a new basis for up-front contingency financing.

It has been suggested that simply adding additional disbursements to new PRGF annual programmes, or continuing with the current practice of supplemental donor disbursements of programme aid, would be sufficient to reduce the problem of shocks. This would be woefully insufficient because i) it would not provide up-front automatic financing; and ii) it might not be sufficient on its own, given limits on country access to IMF facilities and iii) it would be conditional on additional adjustment measures - and based on past experience some of these

\textsuperscript{27} For more details on these see IMF 2000.
\textsuperscript{28} For more details on these see DFID EUD 2000 and European Commission.
\textsuperscript{29} This worked slightly differently, providing the extra money up front to Zambia and then allocating any funds which were not needed to compensate for shocks according to a somewhat complex formula. It would be much easier to disburse the funds from a contingency account when the shocks materialised.
would be designed to adjust to the shocks themselves rather than providing full compensation. If there is one lesson of financing adjustment programmes during the last 20 years, it is that ex post compensatory financing is – for these reasons - a recipe for magnifying economic instability and other distortions, and ends up costing donors more in the long-term because they have underprojected the initial financing needs of programmes. Therefore committing a proportion of PRGF financing as extra contingency finance up front (supplemented by other programme aid and debt relief commitments from donors and creditors), while maintaining a clear distinction maintained between shocks which require to be compensated and other reasons for slippages which require more adjustment, would be essential.

Such a solution would provide immediate, low-cost financing and guarantee protection against all but the most extreme and genuinely unforeseeable shocks, removing the risk that any HIPC’s debt might become unsustainable once more, and guaranteeing that shocks would not disrupt smooth progress towards the International Development Targets.
PAGE FOR ANNEX TABLE 1
References:


United Nations, Financing for development: report of the Secretary-General to the preparatory committee for the high-level international intergovernmental event on financing for development.

