



Economic Commission for Africa

## **Session II**

# **A Critical Assessment of Existing Debt Proposals**

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## **An Issues Paper**

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## Executive Summary

The appropriate definition of debt sustainability---the capacity of a country to repay its debt--- and how the concept is applied in practice lies at the heart of attempts to reach a lasting solution to Africa's external debt problem. The debate on how to judge whether a country's debt is sustainable revolves around: (i) the way to measure debt burdens (ii) the types of debt to include in the measurement (iii) the way to judge payment capacity (iv) the identification of critical threshold values for such indicators, and (v) the design of stress tests and other tools to deal with vulnerability to stochastic shocks. This paper evaluates recent proposals related to the above elements as well as other issues specifically linked to debt-sustainability.

### **Proposal with respect to how measure debt burdens —**

While it is true that the net present value (NPV) of debt reflects the concessionality of the debt owed by African countries it is not an accurate measure of what is known as the "debt overhang" (the burden of debt stock which deters investors and has other pernicious effects). Private market actors do not assess debt burdens using NPV - they all use the nominal "stock" of debt. If the international community is to continue to use NPV rather than stock, creditors and investors need to be educated about its meaning and trained to track it - but it would be preferable to abandon it altogether and revert to stock. If the international community insists on retaining PV for the overhang measure, it would be far more equitable among countries and over time to freeze discount rates at those applying on investments by developing countries (around 2.5-3%).

### **Proposal with respect to which debts to include —**

All debt sustainability analyses and PRGF documents should examine total (domestic + external) debt burdens, and the international community should give high priority to solving domestic debt problems, which are undermining the private sector, growth prospects and the sustainability of external debt. In addition, there is an urgent need to enhance monitoring and analysis of private sector debts in order to ensure that they will stay sustainable and not produce their own foreign exchange crises in the recipient countries if private sector

debtors fail to reimburse the debts or foreign exchange reserves become short for other reasons.

### **Proposal with respect to judging payment capacity —**

The key burden for African governments is fiscal liquidity and therefore top priority should be given to reducing debt service/revenue. Therefore, in assessing payment capacity, budget revenue should be the key denominator for government debt, and export earnings for total national external debt (other denominators can be used as extra checks if required). Both should be calculated using averages tailored to the measured volatility of national budget revenue or export earnings, and calculated on an annual basis from the decision point.

### **Proposals for more realistic indicators and threshold values----**

Multiple indicators should be used in the analysis of debt sustainability. For a comprehensive assessment, such indicators can be combined into an aggregate index by applying the method of principal components. The “danger zone” of debt sustainability should be informed by critical threshold values that account for country-specific and time-specific factors. The marginal impact of those factors on the propensity of debt-crises can be assessed from a standard econometric model of debt vulnerability estimated on large panel of countries.

### **Proposals for stress testing and shielding against shocks —**

The growth projections that are at the basis of stress tests must be jointly conducted by the Bretton-Woods institutions and indebted countries. To deal appropriately with shocks, countries should identify less pressing imports and foreign exchange uses that can therefore be cut back when adverse shocks hit the economy (contingency planning). As a further shield against vulnerability, insurance schemes, such as the one currently provided by the World Bank to all its non-concessional or IBRD borrowers, can be designed.

### **Proposals for the debt of non-HIPC countries —**

Angola and Kenya are “semi-HIPCS”. They have appeared on the HIPC list as candidates for relief but have not qualified yet. Preliminary estimates indicate that Angola will not qualify for HIPC

relief, but is eligible for Naples terms. Urgent steps should be taken to move Angola towards this goal. The position of Kenya is less clear, especially given the recent fall in tourist revenues and the high levels of parastatal debts. Kenya therefore requires a rapid and robust HIPC debt sustainability analysis. Nigeria and Zimbabwe are eligible for concessional debt relief from the Paris Club but because they have not been declared IDA-only or followed IMF programs cannot receive it. Both these countries are eligible for at least Naples terms and should be early candidates for detailed analysis of their debt burdens to see whether they qualify for HIPC. Gabon is middle income and severely indebted but according to Paris Club rules could qualify only for rescheduling of its debt. A disaggregated in-depth analysis of Gabon's middle income status with particular emphasis on income inequality and the depth and severity poverty should be undertaken.

#### **Proposals for a new lending architecture —**

The lending architecture needs to be designed taking into account the impact that the grant versus loan composition of external finance has on debt sustainability. The proposal is to split concessional loans into a pure-grant and a non-concessional component, leaving to the country the choice of how much to take of the latter. This architecture would dissuade countries from over-borrowing and it would impose greater discipline in the selection and implementation of projects.

#### **Proposals for special treatment in assessment of debt sustainability and eligibility for debt relief —**

Special treatment needs to be granted to odious debt, to conflict-affected countries and to countries prone to epidemics (HIV/AIDS in particular).

## I. Introduction

The notion of debt sustainability is central to all of the proposals that have been put forward to deal with the external debt of low income countries. The debate on how to judge whether a country's debt is sustainable revolves around: (i) the way to measure debt burdens (ii) the types of debt to include in the measurement (iii) the way to judge payment capacity (iv) the identification of critical threshold values for such indicators, and (v) the design of stress tests and tools to deal with vulnerability to stochastic shocks.

For the majority of African countries (34)<sup>1</sup>, which are classified as Heavily Indebted Poor Countries (HIPCs),<sup>2</sup> a lasting solution to their external debt problems depends on the progress of HIPC II. As a result, this paper concentrates largely on HIPCs. However, the final section does analyse the debt burdens and relief prospects of African non-HIPCs.

HIPC II has marked a major step forward in debt relief to African countries:

- it bases debt relief on targets for the “sustainability” of the debt of the debtor country, rather than rules fixed by creditors
- it in theory includes all types of creditors in provision of relief, including multilateral creditors, which had previously been exempt from relief.
- it links the spending of relief to poverty reduction spending, and the progress of relief to poverty reduction strategies rather than adjustment strategies.

As a result of this flexibility, HIPC II has been able to promise to reduce the “present value” (PV) of HIPCs’ debt by US\$25 billion (and

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<sup>1</sup> Angola, Benin, Burkina Faso, Burundi, Cameroon, Chad, Comoros, Congo DR, Congo R, Cote d’Ivoire, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, RCA, Rwanda, Sao Tome e Principe, Senegal, Sierra Leone, Somalia, Sudan, Tanzania, Togo, Uganda and Zambia.

<sup>2</sup> HIPCs are defined as IDA-only countries with heavy debt burdens. It is important to note the distinction between these countries and those which receive full HIPC Initiative relief, which are defined by whether their debt exceeds the HUPC eligibility criteria after the provision of maximum non-HIPC relief (Naples Terms or 67% debt cancellation by the Paris Club).

additional pledges of debt relief by creditor governments will provide another US\$5 billion) for the 26 countries which have already reached their decision points. When relief is delivered to all 34 countries which are currently believed to be eligible for the Initiative,<sup>3</sup> the total amount of PV relief will be US\$36.4 billion, plus US\$8 billion of additional bilateral pledges – or 47% of the pre-HIPC PV. In terms of “liquidity” relief, HIPC has promised around US\$56 billion of relief over 33 years (out of US\$124 billion of scheduled service) – or around 45%, and additional bilateral pledges will add another US\$11 billion.<sup>4</sup>

However, in terms of delivery of actual relief, the HIPC II has fallen well short of its promises. In a recent contribution, the IMF staff (IMF, 2003) has advanced a set of proposals regarding debt sustainability criteria for low-income countries. While the purpose of the IMF paper is not to propose modifications to the HIPC initiative framework or to other existing debt-relief commitments, it sets out a road-map for assessing debt sustainability and designing prudent borrowing policies. The proposal thus forms the base for a critical discussion on how to define and measure debt sustainability.

The rest of this issues paper is therefore organised as follows. Section 2 provides a brief overview of the IMF proposal. Section 3 will critically evaluate the suggestions spelled out in the IMF paper and advance new proposals for a lasting solution to Africa’s external debt problem. Section 4 summarises the key issues for consideration and discussion. Section 5 concludes.

## **II. Towards a forward-looking strategy for debt sustainability in low-income countries: The IMF proposal**

This section provides a brief overview of the IMF proposal. The proposal advanced by IMF identifies debt sustainability with the requirement that indebtedness be kept in line with a country’s capacity to repay. Specifically, sustainable debt is defined “as a situation in which a country has the capacity to meet its present and future debt-

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<sup>3</sup> Excluding Liberia, Somalia and Sudan (which are almost certainly eligible for relief if they were to resolve political problems and launch IMF programmes) and Angola, Kenya, Vietnam and Yemen which have conducted DSAs which so far indicate that they are ineligible for the Initiative.

<sup>4</sup> All of the data on relief in this paragraph are from IMF and World Bank (2002c).

service obligations without requiring a major correction in its balance of income and expenditure” (IMF, 2003 paragraph 10). Based on this definition, a number of issues that need be resolved in the context of forward-looking debt strategy are identified. The pivotal elements of the IMF proposal can be summarised as follows.

## **2.1 Indicators of debt sustainability**

Both debt-stock and debt-service variables are identified as desirable numerators in the construction of indicators of sustainability since they both provide information on the burden of debt. For debt-stock variables, however, the proposal is to use NPVs rather than the face value. This is because the NPV, being computed as the sum of the discounted flows of future service payments, represents a more effective measure of the actual debt burden associated with a given debt stock. It is also argued that the superiority of NPV measures remains in spite of the possible complications stemming from the choice of the discount rate.

The choice of the numerator also calls for a decision on whether to include external debt (encompassing private and public sector debt) or public debt (both external and domestic debt of the public sector) or a combination of both. In this regard, the IMF paper stresses that the focus of debt sustainability will largely depend on country circumstances. While for middle-income countries there is a clear distinction between external and public debt, for low-income countries the delineation is less significant and hence the relevant concept should be the one of public and publicly guaranteed external debt. This is for instance the concept used in the HIPC initiative, where domestic debt is excluded because it is more open to manipulation and therefore its inclusion might distort the incentives of policymakers. Yet, the IMF recognises that for low-income countries where the two concepts of external and public debt differ, a careful analysis of debt sustainability should make use of both indicators.

Turning to the denominator, it is noted that the chosen variable should measure the main constraint on debt payment capacity. In turn, it is argued that this is best measured by the size of GDP in large economies (i.e. middle-income countries) and by exports of good and services and government revenues in low-income countries.

## 2.2 Threshold values

Threshold values identify the level of the indicators above which countries enter the “danger zone”. From the point of view of borrowing policies, when indicators overshoot the threshold, borrowing should be curtailed. Two key issues are involved in the definition of thresholds. First is their numerical determination. Second is the question of whether the threshold value should be defined generally for all (or a subset of) low-income countries or should be determined on a case-by-case basis, to take into account individual country’s peculiarities.

The two issues are clearly endogenous and as such are treated in the IMF contribution. The paper recognises that the empirical values derived from historical data might have limited relevance in specific cases, as they result from econometric analysis that does not necessarily account for heterogeneity across countries. Thus, it is suggested that empirical thresholds “can be used as first reference points that would need to be adjusted on the basis of country-specific characteristics, including debt-service ratios and volatility to shocks informed by stress tests” (IMF, 2003 paragraph 32). In fact, striking the right balance between a uniform simple rule and a country-by-country judgement is admittedly difficult. The route chosen by HIPC is to apply a uniform rule. The underlying argument is that, while any specific number might sound arbitrary and hence criticised for being too high (or too low), the need for transparency and equity of treatment are better served by the flat-threshold approach, with numerical values obtained from empirical investigations.

## 2.3 Vulnerability and Stress Testing

Many African countries are vulnerable to a broad range of shocks that affect their underlying capacity to repay the debt. The aim of stress testing is to forecast the dynamics of debt indicators from a set of macroeconomic projections and accounting for major exogenous shocks that may hit the economy. A specific complication that arises for low-income countries is that macroeconomic projections are notoriously imprecise.

The analytical framework proposed by the IMF for stress testing is articulated in two steps. As a first step, the debt dynamics must be specified so to identify the set of explanatory variables that can affect

sustainability. The specific set-up considered in the paper consists of dynamic equations that express the change in the relevant debt indicator (i.e. the NPV debt to export revenues ratio) as a function of endogenous debt dynamics and the (external or fiscal) financing gap. In turn, endogenous debt dynamics result primarily from the difference between the (concessional) interest rate and the growth rate of the denominator of the indicator (i.e. export revenues).<sup>5</sup> The second step is the projection of changes and shocks for the set of explanatory variables identified the first step. At this stage, a decision must be made about the magnitude of shocks. In this regard the IMF proposal is to use historical volatilities, if the country under analysis has not undergone major structural changes in its recent past. However, flexibility is called for to deal with changed structures and extreme-conditions, such as the spread of the HIV/AIDS pandemic.

As a rule of thumb derived from the discussion on vulnerability and shocks, the IMF paper concludes that “[These] considerations highlight, once again, the importance of reducing debt ratios in good times to create room for maneuver when external conditions deteriorate” (IMF 2003, paragraph 33).

### **III. A critical Assessment of IMF proposals related to debt sustainability in African countries<sup>6</sup>**

The IMF proposals surveyed in Section 2 provide a platform for discussion on debt sustainability but should not limit the options available. There is need for further proposals to be advanced to arrive at a definition of debt sustainability that takes into account not only the interest of creditors to repayment, but also the development aspiration of borrowing countries. In a joint document, IMF and World Bank (2001) adopt a broad notion of sustainability, where “A country can be said to achieve external debt sustainability if it can meet its current and

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<sup>5</sup> The endogenous debt dynamics include other elements, such as the change in the grant components. The fiscal financing gap is equivalent to the primary deficit after grants. The external financing gap is defined as the combined deficit in trade and services that is not financed by grants and other current transfer, equity inflows, or a reduction in official reserves and foreign assets. The extent to which a given financing gap raises the debt indicator depends on a multiplier. For details see IMF (2003, Box 4).

future external debt service obligations in full, without recourse to debt rescheduling or the accumulation of arrears and without compromising growth". It is from such a vision of sustainability that the proposals outlined in this Section stem.

### Proposals with respect to how to measure debt burdens

Three elements are usually suggested for measuring debt burdens

- Debt stock – the nominal amount of debt owed by a country
- The present value of debt – the future debt service on a debt aggregated based on its cost in today's money (see Martin, Johnson and Aguilar 2000)
- The debt service – the annual amounts payable on the debt.

Until the early 1990s, stock and service were the preferred concepts to measure debt burdens. They were easy to understand and to calculate for governments, creditors and foreign and domestic private sector investors. They remain the key concepts private investors and rating agencies use to judge debt burdens. Nevertheless, in the 1990s, the concept of Present Value (PV) debt reduction was introduced to allow Paris Club creditors to show that their different ways of providing debt relief (some cancelling debt up front, other reducing interest rates and therefore providing relief over several decades) were of equal value to a debtor country (even if this was not the debtor's viewpoint).

The IMF proposal states that PV is the most theoretically valid concept. It is true that PV reflects the concessionality of the debt owed by low-income countries. However, it is not an accurate measure of what is known as the "debt overhang" (the burden of debt stock which deters investors and has other pernicious effects), because:

- no private market actors assess debt burdens using PV – they all use the nominal "stock" of debt. While creditors may wish to pretend that reductions of stock and service are equivalent by using PV calculations, the investor community and civil society in the debtor country react very differently to reductions in debt stock and service. *If the international community is to continue to use PV rather than stock, creditors and investors need to be educated about its meaning and trained to track it – but it would be preferable to abandon it altogether and revert to stock.*

Many also question the validity of how PV is calculated. The IMF proposal discusses the problem at length but produces no solution. The IMF proposal indicates that the PV discount rate should be based on the interest rate which countries could earn by investing the loan disbursements internationally. This would currently be around 2.5%, after a dramatic fall in 2001-03. Yet the actual discount rates used for HIPC II and IMF calculations of the concessionality of new loans, are linked instead to the cost of borrowing export credits from OECD governments (so-called CIRRR rates), which are around 4%. So the PV is actually discounted much more heavily than it should be and therefore seems less of a burden, depriving countries of debt relief. These interest rates also fluctuate. With their rise in 1999-2000, countries reaching decision points in 2000-2001 lost hundreds of millions of dollars of debt relief without any objective justification. As they tumbled after September 11, countries with the worst adjustment "track record" gained hundreds of millions of dollars of debt relief at decision point. *If the international community insists on retaining PV for the overhang measure, it would be far more equitable among countries and over time to freeze discount rates at those applying on investments by developing countries (around 2.5-3%).*

### **Proposals with respect to which debts to include**

The IMF proposal (IMF 2003) indicates that external public and publicly-guaranteed debt remains the most reliable indicator. It marks a major step forward in acknowledging that low-income countries' debt problems are similar to those of other countries, by suggesting including domestic and private sector debt in the analysis, but hints that these would not be important for most low-income countries.

Recent analysis indicates that these two types of debt, which are excluded from HIPC assessments, are essential to assessing debt sustainability in HIPCs. Fortunately, HIPCs have been analysing them for themselves, reaching the following conclusions:

- domestic debt is a huge burden in most HIPCs (see Johnson 2000). Treasury bills, bonds and stocks are small in many countries, partly because they are only just now beginning to use market-based instruments. However, when less traditional debt – central bank overdrafts, arrears to suppliers and government employees – is taken into account, the burden of domestic debt service is higher than external debt service for

more than 20 HIPCs. This is currently being largely ignored, with PRGF programmes assuming optimistic rapid clearance of domestic arrears, or falls in inflation which reduce domestic debt interest rates. It is impossible to ensure adequate resources for poverty reduction spending unless we analyse and resolve the domestic debt problem. The international community insists that this burden cannot be reduced using resources committed for HIPC, but there are many other ways of doing so, using programme aid or privatisation receipts (cp. Cape Verde, Ghana, Tanzania). As a result, HIPC Ministers have insisted that *all debt sustainability analyses and PRGF documents should examine total (domestic + external) debt burdens, and the international community should give high priority to solving domestic debt problems, which are undermining the private sector, growth prospects and the sustainability of external debt.*

Another key burden emerging for low-income countries, especially those which have liberalised capital accounts and have received large foreign investment (eg Gambia, Ghana, Mozambique, Tanzania, Tchad, Uganda and Zambia) is the rapidly growing *private sector debt* to finance foreign investment projects or export/import transactions. The IMF paper (IMF 2003) indicates that most low-income countries have low private capital flows, but this is not so (Martin 2003). Private sector debt stocks of 50-100% of export earnings are not uncommon in these countries, and there is an *urgent need to enhance monitoring and analysis of these debts in order to ensure that they will stay sustainable and not produce their own foreign exchange crises in the recipient countries if private sector debtors fail to reimburse the debts or foreign exchange reserves become short for other reasons* (Baball 2002; Martin 2002b).

HIPC has included all *publicly guaranteed debt* in debt sustainability. This includes debt contracted by other public sector institutions (parastatals, federated states, municipalities), as well as debt contracted by the private sector but guaranteed by the government. The IMF has proposed that some of such debt (subject to case-by-case country examination) might be excluded because it is to finance “enclave” projects which earn enough foreign exchange to repay it. However:

- excluding such loans from past IMF programme concessionality ceilings encouraged irresponsible lending of expensive, less high-quality finance by export credit agencies and commercial

lenders, often providing continuing “escape funding” to parastatal agencies which therefore failed to restructure.

- high projected foreign exchange earnings often fail to materialise, and the debt service falls on the government or undermines the foreign exchange market.
- this is why all international institutions (ref Debt Compilers Guide) still treat such debt as publicly guaranteed debt.

As a result, countries would rather see all such debt included in analysis - though some of it might need to be treated outside the HIPC framework.

### **3.1 Proposals with respect to judging payment capacity**

There remains a huge amount of confusion about how to judge the payment capacity of a country. Theoretically, one could use GDP, exports or budget revenue, preferably expressed in present value terms if PV is being used as the measure of the debt. But the fundamental issue is who pays the debt service. This means that:

- payment capacity of government external debt or total debt depends on budget revenue (excluding grants). Most African governments have liberalised foreign exchange markets and do not have captive private sector export earnings to pay debt service. In addition, they may be unable (or unwilling given inflationary risks) to buy foreign exchange in the markets to transform private export earnings into government forex to pay external debt service (or local currency to pay domestic debt service). This is particularly true when most export earnings are held in offshore accounts and used to repay private sector debt; or when export-earning projects are given long tax holidays, so that they contribute no tax revenue to government.
- if we are judging total national debt payment capacity, we should use export earnings (because private sector export earnings are available to pay private sector debt). However, it is vital in most African countries to analyse government, parastatal and private sector export earnings (breaking down the private sector where necessary into sub-sectors or mega-companies or projects) and their fungibility to protect against foreign exchange shortage.
- It is very difficult to see what relevance GDP have to any assessment of payment capacity for low-income countries, as

there is no necessary correlation between it and the availability of resources to pay debt.

In addition, the HIPC denominators are flawed because they are based on:

- a three-year average, or the most recent year, of export earnings, and the most recent year of budget revenue;<sup>7</sup> and
- a snapshot of sustainability taken only twice in a 3-4-year period - at decision and completion points, thereby taking no account of the need to respond immediately to “shocks” to the economy between or after these points (see section 3 below).

In assessing payment capacity, budget revenue should be the key denominator for government debt, and export earnings for total national external debt (other denominators can be used as extra checks if required). Both should be calculated using averages tailored to the measured volatility of national budget revenue or export earnings, and calculated on an annual basis from the decision point.

In addition, African and HIPC Ministers are clear that the key burden for them is fiscal liquidity and therefore top priority should be given to reducing debt service/revenue.

### **Proposal with respect to which indicators to use**

It is vital to analyse debt sustainability using the broadest possible range of indicators (PV compared to GDP, exports, and budget revenue and debt service compared to exports and revenue), and to tailor analysis and prioritise indicators according to country circumstances.

Different indicators measure different dimensions of the same underlying problem. Hence, taken together, they are likely to provide more accurate information on countries’ debt vulnerability than what could be obtained by looking at only one of them.

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<sup>7</sup> Though the Board papers defining HIPC methodology left it open for DSAs to use different averages, based on country-specific analysis of export volatility, all have used the 3-year average.

The approach followed by the World Bank in the *Global Development Finance* (previously *World Debt Tables*) is to consider four different indicators - debt-to-GNP, debt-to-export earnings, scheduled debt service-to-current exports and scheduled interest-to-export - and compare each of them with a relevant threshold. A low-income country whose three of the four indicators exceeded the thresholds would be regarded as being severely debt-burdened and hence having unsustainable debt.

A suitable extension of the approach is to combine all the relevant indicators into a composite index of debt sustainability. In principle, this composite index should be obtained as a weighted average of normalized values of individual indicators. Weights should be proportional to the relative effect that each indicator has on the underlying country's debt vulnerability.

While rules of thumb can be used to determine the weights and the aggregation procedure, a more statistically sound approach can be implemented through the principal component method. The composite index can then be compared against an empirically pre-determined benchmark for a broad assessment of sustainability (see Appendix 1 for a more detailed description of the procedure).

### **Proposal with respect to threshold values**

Several studies (eg Cohen 1998; Elbadawi, Ndulu and Ndung'u 1997; Johnson 2000; Martin 1999a; Pattillo 2002; and Vaugeois 1999) have examined the levels of debt which have proven historically or econometrically unsustainable. They have found that the PV/export criterion of 150% in HIPC II is somewhere near sustainable levels. However, the PV/budget revenue criterion is far from sustainable. Vaugeois (1999) and Martin (1999a) indicate that PV/BR should be reduced to 155%. Johnson (2000) finds that PV/BR of total (external plus domestic) debt has proven unsustainable at 150%, implying much lower thresholds for external debt. These studies also indicate that debt service/exports should be set at 12% (as opposed to 15-20% under HIPC).

In addition, and in spite of the fact that all HIPCs regard this as the key indicator of debt burden if the aim is to free resources for poverty reduction spending, HIPC II continues to avoid systematic attention to debt service/budget revenue. It aims only for a ratio which is "low and

declining". This leaves a large leeway for subjective viewpoints about the desirability of poverty reduction spending and the need for further budget deficit reduction, and especially for tailoring the profile of relief to creditor preferences, leaving many HIPC's with high ratios in the initial years of HIPC relief. *Independent analysis has found that this ratio should be set at around 13 % - a level near the 10% endorsed by bodies as diverse as Oxfam and the US Congress.*

To strike a balance between the need to account for country specificities and the need to ensure transparency and equity in the definition of threshold values, a procedure based on the adjustment of *empirically observable critical values* is proposed. In a nutshell, the procedure is as follows (for more details see Appendix 2).

The first step is the computation of the average value of the relevant debt indicator for a group of countries that, over a specified sample period, had repayment difficulties. This average constitutes the empirically observable critical value for the given indicator. A flat rule of the type framed into the HIPC initiative would state that this empirical value defines the danger zone for all low-income countries ("one-cap-fits-all" practice). However, because the empirical value is an average for many countries and over different periods, it cannot account for country-specific factors that affect sustainability. Thus, the second step consists in adjusting the empirical critical value.

The adjustment is undertaken by estimating a regression model of the propensity to incur in a debt crises. The set of explanatory variables of this regression include the indicator of debt sustainability plus a number of control variables representing country specific effects. The estimated coefficients from this regression together with actual values of the controls are then used to compute the marginal effects of the country-specific factors on the propensity of a debt crises. The sum of these marginal effects is divided by the estimated coefficient on the debt sustainability indicator and then subtracted from the empirical critical value to obtain the country-specific threshold.

The proposed procedure defines the country-specific adjustment of the empirical critical value from a set of pre-determined parameters estimated from a standard regression model. The same parameters can be used to compute the adjustment in all countries. Furthermore, the regression model can be publicised and replicated by all concerned. These features ensure the equity and transparency of the procedure. At

the same time, because actual values of country-specific factors enter the computation of marginal effects, the direction and magnitude of the adjustment will differ across countries. The resulting adjusted thresholds will therefore be country-specific, thereby avoiding the weaknesses of the “one-cap-fits-all” practice.

### **3.3 Proposals with respect to stress testing and vulnerability to shocks**

#### **Macroeconomic projections must be formulated more transparently**

In the framework of stress testing, growth and macroeconomic projections play a key role as they determine the future dynamics of debt indicators. In the past, the projections of the IMF and the World Bank have been systematically overoptimistic. While it is clear that, especially for low-income countries, the precision of projections cannot be particularly high, it is quite surprising that errors have almost exclusively been on the positive side. The methodology adopted for the formulation of these projections has often been unclear, as for instance it is noted by OED (2003) with respect to the HIPC initiative.

Overly optimistic projections and lack of transparency of the underlying economic models have made sustainability analysis ambiguous, even leading to the suspicion that projections have been manipulated to minimize debt relief. The one-sided bias in the projections must be therefore removed. **To this purpose it is suggested that in the future projections be jointly derived and agreed upon in a transparent way by Bretton Woods institutions and the country involved.**

#### **Need to integrate stress testing with contingency planning**

Stress testing is a useful exercise, at least to the extent that it is derived from careful economic modelling and based on reliable projections. Still, it has weaknesses that can hardly be removed. One is certainly the difficulty in predicting timing, magnitude and persistence of shocks and structural changes. This simple consideration suggests that, above all, maintaining debt sustainability will require prudent borrowing behaviour. The IMF contribution highlights the importance of reducing debt ratios in good times to buffer debt accumulation in bad times. However, because of the uncertainty on the duration of shocks, it can

be difficult to determine if and when good times have come. In this sense, the type of behaviour suggested by the IMF might be not practical.

An alternative option is for countries to devise contingency plans that identify less pressing imports and foreign exchange uses. When adverse economic shocks, such as an unexpected fall in export earnings or a contraction in the growth rate of GDP, hit the country, then those less pressing imports and uses of foreign exchange can be cut back or postponed. The existence of such a plan would therefore allow the country to maintain control over debt ratios while minimising the damage to development priorities.

### **Hedging instruments can be designed to insure countries against shocks that affect sustainability**

Most often, shocks affect the debt vulnerability of low-income countries through their effect on the volatility of export earnings and import prices. Risk management market instruments can then be used for insurance purposes to smooth the debt implications of such volatility (Gilbert and Tabova, 2003). **In this sense, the World Bank ought to extend the insurance scheme Commodity Hedges Instrument, currently available to all non-concessional or IBRD borrowers, to all IDA loan borrowers.** In addition, a multilateral arrangement should be established – whether in the World Bank or elsewhere – that could provide such hedging instruments to other official and eventually commercial loans of the Sub-Sahara African countries.

### **3.4 Proposal with respect to non-HIPC countries**

#### **World Bank (GDF 2003) data show non-HIPC debt burdens fall into seven groups:**

- Two countries (Angola and Kenya) are “semi-HIPCs”. They have appeared on the HIPC list as candidates for relief, but have not qualified for any yet. This is partly because they do not have track records of IMF programmes, but also because they have not conducted their own independent debt sustainability analyses to assess their burdens. Preliminary estimates by the BWIs and the Angolan government indicate that it will not qualify for HIPC relief, but is eligible for Naples Terms. The

position of Kenya is less clear, especially given the recent fall in its tourist revenues and the high level of parastatal debts, and it should be an early priority for a HIPC debt sustainability analysis.

- Two countries (Nigeria and Zimbabwe) which are by income and debt burdens eligible for concessional debt relief from the Paris Club but, because they have not been declared IDA-only or followed IMF programmes cannot receive it. According to GDF numbers, Nigeria is severely-indebted and Zimbabwe is only moderately-indebted but, following the recent collapse in Zimbabwe's exports, it now has nominal debt/export ratios of 230%. ***Both countries are eligible for at least Naples Terms, and should be early candidates for detailed analysis of their burdens to see whether they qualify for HIPC.***
- One country (Gabon) which is middle income and severely indebted but according to current Paris Club rules, could qualify only for rescheduling of its debt. Though severely-indebted lower-middle-income countries, such as Jordan and Yugoslavia, have received large-scale Paris Club debt cancellation, Gabon's upper-middle income makes debt cancellation difficult to envisage.
- One country (Tunisia) which is middle-income and moderately-indebted but has no intention of asking for debt relief.
- Three countries (Equatorial Guinea, Eritrea and Lesotho) which are less-indebted and low-income and do not intend to ask for debt relief.
- Ten countries which are middle income and less indebted (Algeria, Botswana, Cape Verde, Djibouti, Egypt, Mauritius, Morocco, Seychelles, South Africa, Swaziland) and for which debt cancellation cannot be envisaged, though high service ratios for Algeria and Morocco indicate a case for debt rescheduling.
- Two middle-income countries for which the World Bank does not publish debt data (Libya and Namibia) but which are believed to be less indebted.

Some of the above countries (as well as many HIPCs) might easily qualify for debt relief if relief were to be provided on "odious debts" accrued by odious regimes or for odious purposes such as military conflicts, capital flight etc. However, the principal problem with relieving odious debts is that neither creditor nor debtor governments appear to support such a concept, whatever its moral justification. The

only way out of odious debt appears to be enhanced efforts by all sides to avoid creating it in future.

Overall, then, the current debt burden for non-HIPC African countries is rather limited, and initiatives to cancel debts of all African countries are not likely to prove very fruitful at an international level, though *Angola, Kenya, Nigeria, Zimbabwe and possibly Gabon appear good candidates for early analysis and action.*

### **3.5 Proposal with respect to a new lending architecture consistent with debt sustainability**

The IMF proposal does not carefully investigate the impact that the grant *versus* loan composition of external finance can have on debt sustainability. Still the issue deserves specific consideration. Tables 1 and 2 in the Statistical Annex report some statistics for various groups of developing countries on: (i) foreign grants and gross official flows and (ii) foreign concessional and non-concessional official loans. The basic message from those tables is that the bulk of gross resource flows to some groups of countries, and particularly to HIPCs and Sub-Saharan Africa, have increasingly been in form of grants – though not because grants have been increasing but because loans have been falling. However, the proportion of loans in both groups is still considerable, accounting for about one-third. The implication is that the terms and conditions of such loans can go a considerable way in explaining the debt burdens of many countries. Hence a new lending architecture is required to facilitate debt sustainability.

Most of the loans to Sub-Saharan countries are highly concessional. In fact, high concessionality is likely to have contributed to the worsening of external debt positions of borrowing countries through two main channels. First, concessionality has enabled creditors to push their loans irrespective of whether this was in the interest of borrowers. The incentive of creditors to over-loan might have come from the need to meet lending targets or from political interests. Without concessionality it would have been much more difficult to persuade recipients to borrow more. Second, concessional loans represent a form of soft budget constraint and as such determine inefficient (i.e. less productive) use and waste of the proceeds. Coupled with the observation that new loans improve debt sustainability only if more concessional than the maturing ones, the above considerations suggest that new borrowing, even on concessional terms, should be pursued

with great caution. In principle, a shift to an all-grant regime would be the first best option for borrowers. However, it can be argued that such a shift would entail a further reduction in the total volume of transfers; that is, the amount of resources available to low-income countries under a pure grant regime is most likely to be smaller than what it would be under a regime of concessional and non-concessional loans.

Concessional loans are in effect grants and non-concessional loans bundled together and given to the recipient in a take-it-or-leave-it manner. Then, taking into account the previous considerations on concessionality and desirability of grants, the following proposal can be advanced. *The concessional (soft) loan should be unbundled into its two components: grant and non-concessional loan. The recipient would receive the grant component and it would have then the choice to take as much as it wishes from the non-concessional loan component. With this arrangement, the total amount of resources available to borrowers would remain the same. Furthermore, there would be no disadvantage to the donor, while the recipient, especially if facing a non-concessional loan component with short grace period and/or maturity period, would be dissuaded to over-borrow*<sup>8</sup>. *Greater discipline in the selection and implementation of projects financed in the borrowing countries will also be achieved.*

### **3.6 Proposals related to borrowing policies and debt sustainability**

There are two additional issues that are relevant for the assessment of debt sustainability, but on which the IMF document is substantially silent: (i) the pro-cyclicality of lending patterns and (ii) the adverse implications that some of the policy prescriptions of Bretton Woods institutions have on debt ratios.

The empirical literature has provided a body of evidence suggesting that lending from multilateral and even bilateral creditors is pro-cyclical (e.g. Bulir and Hamann, 2001). Because also the denominators of debt indicators tend to be pro-cyclical, the implication of this lending pattern is that external debt will appear to be sustainable at the time of receipt and unsustainable as the business cycle turns into a

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<sup>8</sup> It would be therefore more difficult for creditors to push their loans if this is not in the interest of the borrowers.

negative phase. **It is therefore proposed that in the future creditors will refrain from pro-cyclical lending.**

With respect to the second issue, countries under programs sponsored by Bretton Woods institutions are generally encouraged to liberalize trade and promote exports. However, because most Sub-Sahara African countries produce and export the same type of commodities, if they all follow the prescription of the World Bank and IMF, world markets will become more congested and international prices will fall. The consequence will be a decrease in the debt repayment capacities of the low-income countries. Adjustment and better co-ordination of policy prescriptions are therefore required to internalise this potentially negative externality.

### **3.7 Other debt-sustainability related proposals**

Sustainability issues that are not related to new borrowing are not addressed in IMF (2003), yet some of them are crucial in the definition of a strategy for a lasting solution to Africa's external debt problem. In particular, a case has to be made for selectivity in the application of sustainability thresholds and hence in the design of debt-relief interventions.

#### **Write-off of odious debt**

Odious debts are those incurred by an undemocratic government, with the proceeds being used against (or, at least not being used for the benefit of) the population and the creditors are not unaware of such facts. The Legal opinion is that such type of debt is not binding on a succeeding regime. However, most often debtor countries do not repudiate, but instead repay odious debt. The reason is that defaulting would still harm the reputation of the country, thus hampering the chances of attracting foreign investment and capitals in the future (Kremer and Jayachandran, 2002).

To ensure a 100% write-off of odious debt without compromising the future ability of the debtor country to borrow again, Kremer and Jayachandran (2002) have proposed the creation of an independent institution that could determine whether regimes are legitimate. This institution would be then in the position to pronounce debts incurred by illegitimate regimes as being odious, freeing the succeeding regime

from the obligation to repay. This mechanism would also be immune from the moral hazard that characterises unilateral repudiation. However, it might take a long time to set-up the legal framework for such a mechanism. In the meantime, countries with urgent debt sustainability problems and a significant component of odious debt should work in tandem with international development advocacy NGOs to create international support for their cause. It can also be suggested that write-off of odious debt should be generally granted independently from debt sustainability problems and combined with reparation grants from creditors.

### **Special treatment for conflict and post-conflict countries**

Most conflict affected countries are heavily indebted, poor, and have substantial arrears outstanding to various creditors. That is, they face clear problems of debt sustainability. Yet, they cannot participate into the HIPC initiative because they are unable to achieve the required standard of track records of policy performance. Since debt relief might be a force to ensure peace and stability (as suggested for instance by the analysis in Addison and Murshed, 2001), there is need for special treatment of those countries.

The proposal is to concede conflict-affected countries a more liberal procedure for participation into debt relief arrangements. For instance, donors could help them to clear the outstanding arrears and the Bretton Woods institutions could include them into the HIPC initiative on the basis of softer policy performance requirements.

For post-conflict countries, the IMF has established fast-track emergency credit assistance. These loans however are subject to a non-concessional rate of charge and must be repaid within a relatively short period of time. The importance of freeing resources for economic and social recovery suggests that emergency assistance to post-conflict countries should come in the form of grants and that they should enjoy deeper debt relief than that available from HIPC initiative, if not 100% write-off.

### **Special treatment for epidemic-infected countries**

Some African countries, while characterised by middle-income levels, are prone to epidemics, HIV/AIDS in particular. Epidemics have negative large effects on the economy and worsen debt vulnerability

by slowing down exports and growth and by increasing the need for government social spending. Therefore, debt relief arrangements should be granted to those countries on a case-by-case basis even if they do not qualify as low-income and/or severely indebted.

### **External debt sustainability needs broader and deeper debt relief**

In general, long-lasting external debt sustainability in Africa does require additional debt relief. First, some severely indebted low-income countries are excluded from HIPC initiative (i.e. Nigeria) or they have seen their eligibility status reversed (i.e. Angola and Kenya). In the absence of debt-relief, for those countries it will be more and more difficult to maintain debt sustainability without compromising development priorities. Therefore, it is necessary to widen the narrow selection criteria of HIPC so to avoid a situation where deserving countries are excluded.

Second, the relief granted to the countries in the HIPC initiative is not deep enough to ensure a robust exit even at the completion point. Table 3 reports some statistics on debt for countries included in the enhanced HIPC. It can be seen that the percentage reduction in NPV of total debt upon reaching completion point is lower than 33% in 7 out of 20 countries and lower than 50% in 12 countries. In terms of volume of resources involved, it can be estimated that for the 27 countries that have successfully reached either the decision or the completion point, a total of USD 3.142 billion per annum reduction in the NPV of debt is granted. This compares with the average USD 100 billion per annum that has been estimated as the needed donor transfers to achieve the Millenium Development Goals (IFF, 2003). Overall, the figures suggest that the HIPC initiative is unlikely, in its present form, to ensure long-lasting improvements in the debt sustainability situation of African countries.

Third, the HIPC initiative does not take into account that adverse shocks hitting countries immediately after they have reached completion point would immediately push those countries back to the danger zone of un-sustainability. This for instance has been the case of

Uganda<sup>9</sup>. To correct for such distortion, it is proposed to design debt relief in such a way that it will lower the debt capacity ratios of beneficiaries to a level which is lower than the critical thresholds currently used. That is, a downside safety margin below the critical values of sustainability must be ensured to compensate for possible adverse shocks after completion point. A margin of 10% below current critical values can be used as initial reference.

#### **IV. Summary of issues for consideration**

Based on the discussion in Sections 2 and 3 the following issues emerge for consideration.

- Debt sustainability should be assessed by looking at many indicators simultaneously and comparing them against empirically determined critical values adjusted to account for country specific-factors. Key issues related to this proposal include:
  - The feasibility of the procedures designed for aggregation of indicators and corrections of critical values must be critically assessed, taking into account data availability.
  - It is possible that a case-by-case approach to debt sustainability analysis, even if based on an econometric procedure replicable by all those concerned, might still be regarded as arbitrary
  - Will Bretton Woods institutions accept the proposal, given that the current framework of the HIPC initiative takes a completely different approach, with a uniform threshold applied for a single primary indicator to all countries ?
  - The type of reaction expected from the authorities of individual countries must also be assessed
  - Possible additional problems arising from the implementation of the proposal ought to be projected

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<sup>9</sup> ECA (2003) investigates the case of Uganda. Once Uganda reached completion point under the HIPC initiative, aid and external finance flows to Uganda have been resumed, thus re-upsetting debt sustainability.

- To deal with the impact of shocks on debt sustainability it is proposed that: (i) growth projections are jointly done, in a transparent way, between the Bretton Woods institutions and the affected countries, (ii) that borrowing countries device contingency plans, (iii) that hedge instrument are introduced for World Bank's IDA facility in addition to IBRD loans. The following issues thus emerge:
    - The low capacity of government staff in low-income countries could limit the extent to which growth projections can effectively be jointly and transparently developed
    - The feasibility of the proposal on hedge instruments is to be assessed. Also, it must be evaluated to what extent it is feasible for a reputable third party to do something similar for other official loans to low income countries
    - Contingency plans will be effective only to the extent that they effectively identify top-priority imports or uses of foreign exchange. Can those priorities be defined unambiguously ex-ante ?
  
  - According to the new lending architecture suggested in Section 3, concessional loans should be split into a pure grant and a non-concessional component. The borrowing country has the choice to take as much as it wishes of the non-concessional component. Relevant issues for discussion include:
    - The need to assess the possible reaction of lenders, who sometimes have lending objectives that might be difficult to achieve if the proposal is accepted.
    - The proposal in its present form generates a significant structural break in lending practices. Could the proposal be rejected only because of a biased preference for maintaining the status-quo ?
  
  - Additional issues emerge from the critical assessment of Bretton Woods institutions and other creditors practices:
    - There is need for proposals on the type of actions that lenders should take to avoid (or to curtail) pro-cyclical lending.
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- How can the policy prescriptions of the IMF and the World Bank be co-ordinated to avoid the depressing effect that the simultaneous promotion of exports in low-income countries has on the international prices of export-commodities and hence on export earnings and debt sustainability indicators ?
- Other debt-sustainability proposals advanced in Section 3 concern (i) the special treatment to be granted to odious debt, to conflict-affected countries and to countries prone to epidemics; and (ii) the need for broader and deeper debt relief. Some of the issues that in this regard deserve deeper attention are:
  - Leaving the determination of whether a debt is odious to the borrowing country is likely to maximise moral hazard problems. For this reason it has been proposed to set up an independent agency in charge of assessing the legitimacy of regimes. The legal and institutional arrangement for such an agency however need to be designed taking into account the existing framework of international laws. Proposals on such a design must be advanced. Moreover, in addition to what is proposed in the text, what kind of actions can be taken to solve the urgent problems of debtor countries in the interim period before that the independent agency is established ?
  - Are there any other special circumstances, in addition to conflict, post-conflict and epidemics that should entitle a country to special treatment in the assessment of debt sustainability and hence in the design of debt-relief ?
  - The call for broader and deeper debt relief raises a whole set of issues concerning financial and political implication of the proposed expansion. Those issues are in fact the object of a companion issues paper.

## V. Conclusions

Despite the original and enhanced HIPC initiatives, external debt sustainability remains problematic in most Sub-Saharan African countries. This paper has investigated some of the key issues related to the assessment of sustainability and practices to enhance it. A few proposals have been put forward to define appropriate indicators of

sustainability and associated threshold values, to account for the impact that exogenous shocks have on the vulnerability of countries, to design a new lending architecture consistent with sustainability requirements, to adopt a selective approach in the application of sustainability thresholds, and finally to broaden and deepen debt relief.

## **Appendix 1: Application of the principal component method for the construction of a composite indicators of debt sustainability .**

Consider six possible indicators of debt sustainability: debt service to export earnings ( $x_1$ ), debt service to government revenues ( $x_2$ ), debt service to GDP ( $x_3$ ), debt stock to export earnings ( $x_4$ ), debt stock to government revenues ( $x_5$ ) and debt stock to GDP ( $x_6$ ). The objective is to construct a composite index of sustainability for the generic country  $i$  at time  $t$ . The obvious way to proceed is to determine the composite index as a weighted averages of the six indicators. The problem is then the determination of the weights. As a first approximation, one could use subjective judgment to assess the relative importance of each indicator. A more sound approach consists in the application of the principal component method.

The principal component method requires that for each indicator, historical data are collected for a broad sample of countries that have experienced debt repayment problems. The resulting data-set can thus be represented as a set of six vectors (one for each indicator) and each vector contains a sequence  $\{x_k\}$  of observations on the generic indicator  $k$  (where  $k = 1, 2, \dots, 6$ ). The principal component method reduces the dimensionality of the data-set by weighting each variable in proportion to its contribution to the variability of the data. The outcome of the method is a group of six weights, called factor loadings, which can be used for the computation of the weighted average.

As an exemplification, assume that from the application of principal components to the data-set of historical observations on debt indicators the following weights are obtained: 0.25 for  $x_1$ , 0.2 for  $x_2$ , 0.18 for  $x_3$ , 0.15 for  $x_4$ , 0.12 for  $x_5$  and 0.1 for  $x_6$ . Now assume that the normalised observed values of the six indicators for country  $i$  at time  $t$  are:  $x_1 = 20\%$ ,  $x_2 = 35\%$ ,  $x_3 = 10\%$ ,  $x_4 = 50\%$ ,  $x_5 = 10\%$ ,  $x_6 = 60\%$ . By multiplying the observed values times the respective weights the following weighted values are obtained  $x_1 = 5$ ,  $x_2 = 7$ ,  $x_3 = 1.8$ ,  $x_4 = 7.5$ ,  $x_5 = 1.2$ ,  $x_6 = 6$ . The composite index is therefore equal to  $X_{it} = 28.5$ .

To assess sustainability,  $X_{it}$  must be compared with some given benchmark. This can be constructed as an empirically pre-determined critical value using the same methodology. First, for each of the six indicators an empirical critical value is determined as the simple

average of observed values in the sample of countries with debt repayment problems. Thus, for the generic indicator  $x_k$ , the empirical critical value is  $(x_k)^* = (\sum x_{k,z})/n$ , where  $n$  is the total number of countries in the sample,  $z$  denotes the generic country in the sample and the summation is taken from  $z = 1$  to  $n$ . Then, the six critical values for the disaggregated indicators can be combined into a weighted average by applying the weights derived from the principal component analysis.

## Appendix 2: Case-by-case determination of debt sustainability indicators

The purpose of the procedure is to adjust the empirically determined threshold value  $(x_k)^*$  of a debt indicator  $x_k$  to account for country-specific factors. The empirical critical value  $(x_k)^*$  is determined from a sample of countries that have experienced debt repayment problems as the simple average of the observed  $x_k$ 's (see also Appendix 1).

The case-by-case adjustment requires first the estimation of the following growth regressions:

$$y_{it} = \alpha_0 + \alpha_1 x_{k,it} + \beta_1 w_{1it} + \dots + \beta_m w_{mit} + \varepsilon_{it}$$

where  $y$  is the debt crises propensity,  $x_k$  is the indicator of debt sustainability,  $w$ s are control variables (from  $w_1$  to  $w_m$ ),  $\alpha$ s and  $\beta$ s are parameters to be estimated,  $i$  denotes a generic country in the sample and  $t$  a generic time, and  $\varepsilon$  is a random disturbance. The model can be estimated as a panel or as a cross-section. The appropriate estimator will depend on the assumptions concerning the residual term in the regression model.

The next step is to take actual values of the controls  $w_1 \dots w_m$  for the country under investigation. The marginal effect of these actual values on the propensity of a debt crises is computed using the estimated  $\beta$  parameters. Denote with  $W$  the sum of the marginal effects thus computed. Then, the factor of adjustment is equal to  $W$  divided by the estimated  $\alpha_1$  from the regression model. This is subtracted from the empirically determined critical value to obtain the adjusted critical value  $X_k^* = (x_k)^* - (W/\alpha_1)$ . Note that while the estimated  $\beta$  parameters and  $\alpha_1$  are identical for any country, the actual values of the controls will differ and hence  $W$  will differ across countries. This in turn ensures that  $X_k^*$  will be country-specific.

As an example, consider the following regression results:

$$y_{it} = -2.1 + 0.6 \frac{debt}{GDP} + 0.2 Inflation - 0.25 growth - 0.005 \frac{GDP}{Population} + 0.1 pol.instab$$

where  $debt/GDP$  is the relevant debt indicator,  $inflation$  is the inflation rate,  $growth$  is the growth rate of real per-capita GDP,  $GDP/Population$  is the level of real per-capita GDP (in USD) and  $pol.instab$  is an index of political instability. Of course, different specifications of the right-

hand-side of the growth model can be designed. The econometric literature on the determinants of debt crises will provide guidelines on the selection of control variables.

Now suppose to observe the following actual values for country  $i$ :  $inflation = 15\%$ ,  $growth = 4\%$ ,  $GDP/Population = 800$ ,  $pol.instab = 0.6$ . From this actual values, given the estimated parameters (0.2 for inflation, -0.25 for growth, -0.005 for per-capita GDP and 0.1 for political instability), it is possible to compute marginal effects.<sup>10</sup> Let these be 3 for inflation, -1 for growth, -4 for per-capita GDP and 6 for political instability. The sum ( $W$ ) is equal to 3. Then the factor of adjustment is equal to 3 divided by the estimated coefficient on  $debt/GDP$ , 0.6. The result is 5. That is, the country-specific threshold will be equal to the empirically determined critical value  $(x_k)^*$  minus 5 percentage points.

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<sup>10</sup> The procedure for the computation of marginal effects will depend on how the dependent variable  $y$  is defined. If  $y$  is a continuous variable, then the marginal effect is simply equal to the observed actual value times the estimated coefficient. If instead  $y$  is a limited dependent variable (i.e. a dummy) a correction to the simple product of estimated coefficient by observed actual value must be introduced.

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## Statistical Annex

**TABLE 1: Trends in Gross Official Flows and Grants to Developing Country Groups, 1981-2001 1/**  
(Billions of US dollars, unless otherwise indicated)

	1981-85 3/	1986-90 3/	1991-95 3/	1996	1997	1998	1999	2000	2001
<b>TOTAL GROSS OFFICIAL FLOWS</b>									
<b>Bilateral Gross Official Flows from DAC Member Countries</b>									
Developing Countries 2/	27.8	46.9	69.2	65.8	60.3	65.9	73.0	51.6	52.4
Africa, South of Sahara	6.3	12.4	13.9	12.0	11.0	10.6	10.3	9.5	9.2
HIPCs	6.0	10.8	13.5	12.5	11.1	11.1	11.4	10.6	10.2
Low-income Countries	10.6	20.7	27.7	26.8	24.8	27.8	29.0	22.4	22.1
Middle-income Countries	11.1	17.2	29.1	24.5	24.0	24.3	26.6	18.1	20.7
<b>Multilateral Gross Official Flows</b>									
Developing Countries 2/	18.2	29.4	38.7	39.5	44.5	69.4	58.5	49.9	71.5
Africa, South of Sahara	3.4	6.6	9.1	8.0	6.7	7.1	7.1	6.3	7.0
HIPCs	3.5	6.2	8.7	8.0	6.5	7.3	7.6	6.7	7.8
Low-income Countries	7.7	14.4	19.6	19.4	17.7	25.0	21.7	18.6	18.9
Middle-income Countries	8.4	12.6	16.4	18.1	19.5	29.8	33.1	29.2	50.4
<b>All Donors, Gross Official Flows 4/</b>									
Developing Countries 2/	51.8	80.3	109.9	107.0	106.3	136.6	132.5	103.3	125.9
Africa, South of Sahara	10.7	19.5	23.1	20.1	17.9	17.9	17.6	16.0	16.5
HIPCs	10.2	17.4	22.3	20.7	17.9	18.6	19.2	17.5	18.2
Low-income Countries	19.8	35.8	47.9	46.8	43.0	53.2	51.1	41.6	41.7
Middle-income Countries	22.5	31.8	46.9	43.6	44.3	54.8	60.3	48.4	72.3
<b>ODA GRANTS</b>									
<b>Bilateral ODA Grants from DAC Member Countries</b>									
Developing Countries 2/	13.9	25.0	35.2	36.5	31.3	32.5	33.9	33.0	33.4
Africa, South of Sahara	4.0	7.8	10.0	9.3	8.5	8.7	8.2	8.4	8.4
HIPCs	3.7	7.3	9.9	9.6	8.5	8.8	8.5	8.7	9.1
Low-income Countries	5.9	10.9	14.7	14.0	12.4	13.0	13.4	13.3	14.4
Middle-income Countries	3.5	6.1	10.1	9.9	9.0	9.0	9.6	8.9	9.5
<b>Multilateral ODA Grants</b>									
Developing Countries 2/	4.0	5.9	9.5	8.2	7.5	7.5	8.2	7.8	8.5
Africa, South of Sahara	1.4	2.3	3.7	3.0	2.6	2.6	3.0	2.3	2.7
HIPCs	1.3	2.3	3.6	2.5	2.1	2.4	2.9	2.1	2.5
Low-income Countries	2.3	3.4	5.0	3.8	3.3	3.5	3.8	3.3	3.7
Middle-income Countries	0.7	1.0	2.6	2.7	2.3	2.5	2.7	2.8	2.9
<b>All Donors, ODA Grants 4/</b>									
Developing Countries 2/	21.0	34.1	46.0	45.3	39.3	40.5	42.6	41.4	42.5
Africa, South of Sahara	5.6	10.4	13.8	12.3	11.1	11.3	11.3	10.8	11.2
HIPCs	5.3	9.8	13.5	12.1	10.6	11.2	11.5	10.9	11.7
Low-income Countries	8.6	14.6	19.9	17.8	15.8	16.6	17.3	16.7	18.3
Middle-income Countries	6.0	8.7	13.6	13.1	11.7	11.9	12.5	12.0	12.8
<b>ODA GRANTS, AS PERCENT OF TOTAL NET OFFICIAL FLOWS</b>									
<b>Bilateral ODA Grants as percent of Bilateral Total Gross Official Flows</b>									
Developing Countries 2/	50.2	53.3	50.9	55.5	51.9	49.3	46.4	64.0	63.7
Africa, South of Sahara	63.2	63.0	72.0	77.8	77.0	81.5	79.5	89.3	91.2
HIPCs	62.2	67.6	73.5	76.5	76.2	78.7	75.0	82.0	88.8
Low-income Countries	55.4	52.5	53.0	52.2	50.1	46.7	46.0	59.5	65.0
Middle-income Countries	31.3	35.7	34.8	40.6	37.5	37.2	36.2	49.2	45.7
<b>Multilateral ODA Grants as percent of Multilateral Total Gross Official Flows</b>									
Developing Countries 2/	21.9	20.1	24.6	20.6	16.8	10.9	14.1	15.6	11.9
Africa, South of Sahara	39.9	35.4	40.9	37.2	38.4	36.9	42.7	36.0	38.5
HIPCs	38.8	37.0	41.2	30.9	32.1	32.7	37.7	31.8	32.6
Low-income Countries	29.5	23.8	25.4	19.5	18.8	14.1	17.7	17.5	19.8
Middle-income Countries	8.0	8.1	15.9	14.6	12.0	8.5	8.1	9.5	5.8
<b>All Donors: ODA Grants as percent of All Official Gross Flows from All Donors 4/</b>									
Developing Countries 2/	40.5	42.4	41.8	42.3	37.0	29.7	32.1	40.1	33.7
Africa, South of Sahara	52.7	53.3	59.5	61.2	61.9	63.4	64.2	67.7	68.1
HIPCs	51.5	56.1	60.7	58.2	59.4	60.1	59.9	62.2	64.2
Low-income Countries	43.5	40.9	41.6	38.1	36.8	31.2	33.9	40.3	43.8
Middle-income Countries	26.8	27.4	29.0	29.9	26.3	21.7	20.8	24.8	17.7

Source: OECD/DAC's *International Development Statistics* (online, August 2003)

1/ The gross official flows comprise grants, ODA loans and also OOF (Other Official Finance) loans.

2/ Developing countries exclude those classified as Part II countries, i.e. countries in transition (former communist and other high-income economies).

3/ Annual average.

4/ "All donors" refers to the multilateral, DAC member bilateral as well as non-DAC member donors.

**TABLE 2: Trends in Gross Concessional (ODA) and Non-Concessional (OOF) Loans to Developing Country Groups, 1981-2001 <sup>1/</sup>**  
(Billions of US dollars, unless otherwise indicated)

	1981-85 <sup>3/</sup>	1986-90 <sup>3/</sup>	1991-95 <sup>3/</sup>	1996	1997	1998	1999	2000
<b>ODA (OR CONCESSIONAL) LOAN DISBURSEMENTS</b>								
<b>Bilateral ODA Gross Loans from DAC Member Countries</b>								
Developing Countries <sup>2/</sup>	6.4	10.3	14.6	10.4	8.4	9.3	10.6	9.2
Africa, South of Sahara	1.1	2.1	2.0	1.4	1.1	0.8	0.7	0.5
HIPCs	1.2	2.2	2.2	1.4	1.2	1.1	1.2	1.4
Low-income Countries	3.0	5.9	7.3	5.8	4.6	5.7	6.5	5.2
Middle-income Countries	2.9	3.9	6.8	4.3	3.6	3.5	4.0	3.9
<b>Multilateral ODA Loan Disbursements</b>								
Developing Countries <sup>2/</sup>	4.2	6.5	9.3	10.8	9.4	10.4	9.7	9.0
Africa, South of Sahara	1.2	2.7	4.0	4.2	3.4	3.8	3.3	3.4
HIPCs	1.4	2.9	4.3	5.1	4.0	4.6	4.5	4.2
Low-income Countries	3.2	5.5	7.9	9.0	7.4	8.3	8.0	7.5
Middle-income Countries	0.9	0.9	1.4	1.7	1.8	2.0	1.6	1.4
<b>All Donors, Gross ODA Loan Disbursements <sup>4/</sup></b>								
Developing Countries <sup>2/</sup>	12.4	17.4	24.5	21.9	18.5	20.2	20.8	18.8
Africa, South of Sahara	2.7	5.1	6.1	5.7	4.6	4.7	4.1	4.0
HIPCs	3.0	5.4	6.6	6.7	5.4	5.8	5.8	5.7
Low-income Countries	6.9	11.7	15.4	15.0	12.3	14.3	14.7	13.0
Middle-income Countries	4.4	5.1	8.5	6.4	5.8	5.8	6.0	5.7
<b>GROSS LOANS IN "NON-CONCESSIONAL" OR OTHER OFFICIAL FINANCE (OOF) FORM <sup>2/</sup></b>								
<b>Bilateral OOF Gross Loans from DAC Member Countries</b>								
Developing Countries <sup>2/</sup>	7.4	11.6	19.4	18.9	20.6	24.2	28.5	9.4
Africa, South of Sahara	1.3	2.5	1.9	1.3	1.4	1.1	1.5	0.5
HIPCs	1.0	1.3	1.4	1.5	1.4	1.2	1.6	0.5
Low-income Countries	1.7	4.0	5.7	7.1	7.8	9.1	9.2	3.8
Middle-income Countries	4.7	7.2	12.2	10.3	11.4	11.8	13.0	5.3
<b>Multilateral OOF Loan Disbursements</b>								
Developing Countries <sup>2/</sup>	10.0	17.0	19.9	20.6	27.6	51.4	40.6	33.1
Africa, South of Sahara	0.9	1.6	1.4	0.8	0.8	0.7	0.7	0.6
HIPCs	0.7	1.0	0.8	0.4	0.4	0.3	0.3	0.4
Low-income Countries	2.2	5.4	6.8	6.7	6.9	13.1	9.9	7.8
Middle-income Countries	6.8	10.6	12.5	13.8	15.4	25.2	28.8	25.0
<b>All "Donors", OOF Gross Loans <sup>4/</sup></b>								
Developing Countries <sup>2/</sup>	18.4	28.8	39.5	39.8	48.6	75.8	69.2	43.1
Africa, South of Sahara	2.4	4.1	3.3	2.1	2.2	1.8	2.2	1.1
HIPCs	1.9	2.3	2.2	2.0	1.9	1.6	1.9	0.9
Low-income Countries	4.2	9.4	12.6	13.9	14.9	22.4	19.1	11.8
Middle-income Countries	12.1	18.0	24.8	24.2	26.8	37.1	41.7	30.8
<b>ODA GROSS LOANS, AS PERCENT OF TOTAL (ODA PLUS OOF) GROSS LOANS</b>								
<b>Bilateral Concessional (or ODA) Gross Loans as percent of Bilateral Total (ODA plus OOF) Gross Loans</b>								
Developing Countries <sup>2/</sup>	46.2	46.8	43.0	35.4	28.8	27.7	27.0	49.3
Africa, South of Sahara	45.6	46.4	50.9	51.2	43.7	43.0	31.0	50.7
HIPCs	54.3	63.6	60.8	47.8	46.0	47.4	42.9	71.5
Low-income Countries	64.2	59.5	56.4	44.9	37.2	38.5	41.2	57.6
Middle-income Countries	38.1	35.2	35.7	29.3	24.0	22.7	23.7	42.3
<b>Multilateral Concessional (or ODA) Gross Loans as percent of Multilateral Total (ODA plus OOF) Gross Loans</b>								
Developing Countries <sup>2/</sup>	29.4	27.7	31.9	34.3	25.4	16.8	19.2	21.4
Africa, South of Sahara	56.2	63.3	74.5	83.6	81.5	84.3	82.2	84.3
HIPCs	65.1	74.8	84.1	92.1	90.6	92.9	93.8	91.9
Low-income Countries	59.3	50.4	53.7	57.4	51.9	38.8	44.7	49.0
Middle-income Countries	11.8	8.1	9.9	11.0	10.4	7.4	5.4	5.3
<b>All "Donors": Concessional (or ODA) Gross Loans as percent of Total (ODA plus OOF) Gross Loans from All Donors <sup>4/</sup></b>								
Developing Countries <sup>2/</sup>	40.3	37.6	38.3	35.5	27.5	21.1	23.1	30.4
Africa, South of Sahara	52.8	55.5	65.0	72.9	67.9	72.2	65.3	78.1
HIPCs	61.2	70.3	74.7	76.9	74.3	78.1	75.0	85.7
Low-income Countries	62.1	55.5	55.1	51.9	45.3	39.0	43.4	52.3
Middle-income Countries	26.8	22.0	25.4	20.9	17.8	13.6	12.6	15.6

Source: OECD/DAC's *International Development Statistics* (online, August 2003)

<sup>1/</sup> The OOF term, as used in the data source, stands for Other Official Financing. This can be loans or grants that do not qualify as ODA (e.g., by not being deemed to be granted for a major objective of recipient countries' development) or, in most cases, loans that are not concessional enough to be adjudged as ODA. We have purged the data from the small non-ODA grant component, leaving only gross loans (gross because re-payments have not been netted out).

<sup>2/</sup> Developing countries exclude those classified as Part II countries, i.e. countries in transition (former communist and other high-income economies).

<sup>3/</sup> Annual average.

**TABLE 5: Enhanced HIPC Initiative: Committed Debt Relief and Outlook**  
(Status as of August 2003)  
(In millions of US dollars) <sup>1/</sup>

	Date of Reaching:		Nominal Debt Service Relief			Assistance Levels: Reduction in NPV Terms <sup>5/</sup>						
	Decision	Completion	Original	Enhanced	Total	Original	Enhanced	Total	of which:		of which: IMF World Bank	
	Point	Point	HIPC Initiative	HIPC Initiative		HIPC Initiative	HIPC Initiative		Bilateral	Multilateral		
<b>Countries that have reached their Completion Points (8)</b>												
<b>TOTAL</b>			<b>5730</b>	<b>8965</b>	<b>14695</b>	<b>2861</b>	<b>5470</b>	<b>8331</b>	<b>3474</b>	<b>4857</b>	<b>695</b>	<b>2451</b>
Benin	Jul-00	Apr-03	0	460	460	0	265	265	77	189	24	84
Bolivia	Feb-00	Jun-01	760	1300	2060	448	854	1302	425	876	84	194
Burkina Faso	Jul-00	Apr-02	400	530	930	229	324	553	83	469	58	231
Mali	Sep-00	Feb-03	220	675	895	121	417	538	169	369	59	187
Mauritania	Feb-00	Jun-02	0	1100	1100	0	622	622	261	361	47	100
Mozambique	Apr-00	Sep-01	3700	600	4300	1716	306	2022	1270	753	143	443
Tanzania	Apr-00	Nov-01	0	3000	3000	...	2026	2026	1006	1020	120	695
Uganda	Feb-00	May-00	650	1300	1950	347	656	1003	183	820	160	517
<b>Countries that have reached their Decision Points (19)</b>												
<b>TOTAL</b>			<b>440</b>	<b>35610</b>	<b>36050</b>	<b>256</b>	<b>22485</b>	<b>22741</b>	<b>12941</b>	<b>9768</b>	<b>1798</b>	<b>4888</b>
Cameroon	Oct-00	Floating	0	2000	2000	0	1260	1260	874	324	37	179
Chad	May-01	Floating	0	260	260	0	170	170	35	134	18	68
Congo, Dem. Rep. of <sup>4/</sup>	Jul-03	Floating	0	10000	10000	0	6300	6300	4897	1503	472	1031
Ethiopia	Nov-01	Floating	0	1930	1930	0	1275	1275	482	763	34	463
Gambia	Dec-00	Floating	0	90	90	0	67	67	17	49	2	22
Ghana	Feb-02	Floating	0	3700	3700	...	2186	2186	1084	1102	112	781
Guinea	Dec-00	Floating	0	800	800	0	545	545	215	328	31	152
Guinea-Bissau	Dec-00	Floating	0	790	790	0	416	416	212	204	12	93
Guyana	Nov-00	Floating	440	590	1030	256	329	585	220	365	74	68
Honduras	Jul-00	Floating	0	900	900	0	556	556	215	340	30	98
Madagascar	Dec-00	Floating	0	1500	1500	0	814	814	457	357	22	252
Malawi	Dec-00	Floating	0	1000	1000	0	643	643	163	480	30	331
Nicaragua	Dec-00	Floating	0	4500	4500	0	3267	3267	2145	1123	82	189
Niger	Dec-00	Floating	0	900	900	0	521	521	211	309	28	170
Rwanda	Dec-00	Floating	0	800	800	0	452	452	56	397	44	228
Sao Tome & Principe	Dec-00	Floating	0	200	200	0	97	97	29	68	0	24
Senegal	Jun-00	Floating	0	850	850	0	488	488	193	259	45	124
Sierra Leone	Mar-02	Floating	0	950	950	0	600	600	268	332	123	122
Zambia	Dec-00	Floating	0	3850	3850	0	2499	2499	1168	1331	602	493
<b>Countries still to be considered (11)</b>												
Cote d'Ivoire <sup>2/</sup>	Not applicable yet		800	...	800	345	...	345	163	182	23	91
Burundi	Not applicable yet		...	...	...	...	...	...	...	...	...	...
Central Afr. Rep.	Not applicable yet		...	...	...	...	...	...	...	...	...	...
Comoros	Not applicable yet		...	...	...	...	...	...	...	...	...	...
Congo, Rep. of	Not applicable yet		...	...	...	...	...	...	...	...	...	...
Lao, PDR	Not applicable yet		...	...	...	...	...	...	...	...	...	...
Liberia	Not applicable yet		...	...	...	...	...	...	...	...	...	...
Myanmar	Not applicable yet		...	...	...	...	...	...	...	...	...	...
Somalia	Not applicable yet		...	...	...	...	...	...	...	...	...	...
Sudan	Not applicable yet		...	...	...	...	...	...	...	...	...	...
Togo	Not applicable yet		...	...	...	...	...	...	...	...	...	...
<b>Memorandum item:</b>												
Debt relief committed under original & enhanced framework <sup>3/</sup>			<b>6970</b>	<b>44575</b>	<b>51545</b>	<b>3462</b>	<b>27955</b>	<b>31417</b>	<b>16578</b>	<b>14807</b>	<b>2516</b>	<b>7430</b>

Source: IMF and World Bank websites (2003).

<sup>1/</sup> In net present value (NPV) terms of the decision point year.

<sup>2/</sup> Approved debt relief under the original framework.

<sup>3/</sup> Countries that have reached their decision points under the enhanced HIPC framework through July 2003 and Cote d'Ivoire, which had reached the decision point under the original framework earlier.

<sup>4/</sup> For Democratic Republic of Congo, we assume multilateral HIPC assistance would come from only the IMF and World Bank, while still awaiting further details on this.

<sup>5/</sup> Assistance levels are at countries respective decision or completion points, as applicable.