Fiscal Dimensions of HIV/AIDS in SADC Member Countries

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The World Bank
1818 H Street, NW
Washington, DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org
E-mail: feedback@worldbank.org

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Acknowledgments

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[1] Contact details Elizabeth Lule: elule@worldbank.org, phone 1-202-473-3787.
[2] Contact details Markus Haacker: contact@devgro.com, http://mh.devgro.org, phone 44-753-5642332.

I. Introduction

The impact of and the response to HIV/AIDS (human immunodeficiency virus/acquired immunodeficiency syndrome) poses complex policy challenges across the Southern African Development Community (SADC) region, which includes many countries facing generalized HIV epidemics as well as some of the countries with the highest HIV prevalence rates worldwide. According to UNAIDS (2008a), there were 13.6 million people living with HIV/AIDS (PLHIV) in SADC member countries, corresponding to over 40 percent of the number of PLHIV globally, even though the region's overall population accounts for less than 4 percent of the world population. However, HIV prevalence ranges widely across SADC member countries, from 0.1 percent of the population aged 15–49 (Madagascar) to 26.1 percent (Swaziland) in 2007.

The objective of the World Bank's work program on fiscal dimensions of scaling up the HIV/AIDS response and this background paper is to highlight and assess fiscal policy challenges arising from the response to HIV/AIDS, and to assist countries in selecting HIV/AIDS-related policies and deciding on resource allocations in a sustainable manner. At the outset, it is important to acknowledge that SADC member countries are diverse in terms of the fiscal dimension of HIV/AIDS, not only because of differences in the levels of HIV prevalence, but also in terms of their economic context (with levels of gross domestic product [GDP] per capita between US$200 [Democratic Republic of Congo] and US$11,400 [Seychelles] in 2010 [IMF 2010]), the state of the response to HIV/AIDS, and the extent of external support. Indeed, some of the analysis in this paper builds on these country differences, although many of the fiscal aspects of HIV/AIDS can adequately be addressed only in country-specific studies.

Section III provides a cross-section of the response to HIV/AIDS across SADC countries from a fiscal perspective, focusing on spending and financing data that are available across countries. This yields some insights regarding the scale of the fiscal burden of HIV/AIDS across countries. However, this cross-sectional analysis does not capture crucial aspects of the fiscal dimension of HIV/AIDS (the role of the fiscal context, or the persistence of the fiscal costs of HIV/AIDS), and therefore encourages the use of country studies, which adopt a much richer epidemiological and fiscal framework.

Section IV introduces the three country studies (Botswana, South Africa, and Swaziland) that have been conducted so far. Among the countries with the highest HIV prevalence globally, these three countries finance a substantial proportion of their response to HIV/AIDS from domestic sources. Beyond these similarities, analysis shows substantial differences between these countries in terms of the fiscal dimension of HIV/AIDS. For example, although the early and comprehensive response to HIV/AIDS in Botswana (section V) translates into

high fiscal costs, the fiscal burden is already declining, as the costs incurred by the reduced number of new infections are much lower than current expenditures. In South Africa (section VI), the large role of social grants in the national budget implies that much of the fiscal repercussions of HIV/AIDS occur outside the country's HIV/AIDS program. And in Swaziland (section VII), the increase in the fiscal costs of HIV/AIDS coincides with a difficult outlook for government revenues (shrinking Southern African Customs Union [SACU] revenues).

Section VIII brings together the different strands of the analysis, addresses some of its limitations, and places the work in the context of the evolving policy response(s) to HIV/AIDS.

The work program on the fiscal dimension of HIV/AIDS is relevant for at least three types of actors involved in the international and national responses to HIV/AIDS:

- Individuals involved in planning the national responses to HIV/AIDS, by providing insights on the implications of the epidemic and HIV/AIDS programs, and by highlighting fiscal aspects on a range of policy choices.
- Individuals (located, for example, in a ministry of finance) in charge of developing and implementing the national policy and development agenda, by providing tools to analyze the interactions between the impact of and the response to HIV/AIDS on one hand, and the fiscal resource envelope on the other hand.
- Individuals planning or observing the international response to HIV/AIDS, by providing tools to analyze the links between external support and the fiscal burden of HIV/AIDS.

II. HIV/AIDS Spending and Financing across SADC Member Countries

The principal sources of data on HIV/AIDS-related spending and the financing of the HIV/AIDS program are the United Nations General Assembly Special Session (UNGASS) reports compiled by national authorities in collaboration with the Joint United Nations Programme on HIV/AIDS (UNAIDS), and made available on the UNAIDS Web site.[3] Table 1 summarizes the latest available information from these sources (augmented in a few cases where the spending data in the UNGASS reports were incomplete).[4] A word of caution is in order when interpreting these data—most data (for nine countries) relate to 2008, but there are also numerous observations for 2009 (four countries), and two countries for which data are only available for 2007 (Namibia) or 2006 (Swaziland). As HIV/AIDS-related spending has generally been increasing over the period 2006–9, the differences in years covered may introduce a distortion.

With this in mind, this analysis finds that total HIV/AIDS-related spending has for the years covered accounted for US$3.8 billion (0.8 percent of GDP) across SADC member countries, corresponding to US$15 per capita. External financing accounted for about half of total spending for the years shown. Regarding the cost burden of HIV/AIDS from a national perspective, the most appropriate measure is the cost relative to GDP. Data summarized in table 1 indicate how the scale of the epidemic plays an important role, as well as economic factors. For example, Lesotho has the high-

[3] http://www.unaids.org/en/KnowledgeCentre/HIVData/CountryProgress/ 2010CountryProgressAllCountries.asp.

[4] For Swaziland, data are also taken from NERCHA and UNAIDS (2008), and for Zambia, data are drawn from NAC Zambia (2010).

Table 1 SADC: HIV/AIDS Spending and Financing

Country	Year	HIV/AIDS spending			External financing (% of total)	GDP per capita (US$)
		Total (US$ millions)	% of GDP	Per capita (US$)		
Angola	2009	33.7	0.05	1.9	n.a.	3,972
Botswana	2008	348.1	2.6	194.4	32.1	7,552
Congo, Dem. Rep. of	2008	96.4	0.8	1.5	86.0	184
Lesotho	2008	56.4	3.6	22.9	53.1	645
Madagascar	2008	12.0	0.1	0.6	54.7	468
Malawi	2008	107.4	2.6	7.8	97.6	298
Mauritius	2008	n.a.	n.a.	n.a.	n.a.	7,330
Mozambique	2008	146.4	1.5	7.1	95.6	478
Namibia	2007	18.5	0.2	9.1	49.2	4,341
Seychelles	2009	0.6	0.1	6.8	19.4	8,973
South Africa	2009	2,088.0	0.7	42.3	27.3	5,824
Swaziland	2006	48.5	1.8	47.7	61.3	2,698
Tanzania	2008	465.0	2.3	11.7	98.1	519
Zambia	2008	279.3	2.6	23.5	97.1	901
Zimbabwe	2009	54.1	1.2	4.6	69.8	375
Total (latest years)[a]		3,745.5	0.8	14.7	49.9	1,782

Sources: UNGASS Country Reports 2010 for HIV spending, augmented by domestic sources for Swaziland and Zambia, IMF (2010) for GDP.
Note: n.a. = not available.
a. Excludes Mauritius.

est level of spending relative to GDP (3.6 percent, which is among the countries with the highest level of HIV prevalence along with Botswana and Swaziland) and a much lower level of GDP per capita. The next highest spending, at 2.6 percent of GDP, occurs in a group of countries including Botswana, Malawi, and Zambia. While the level of HIV prevalence in Malawi was only about half of the level for Botswana, and access to HIV/AIDS-related services was much lower,[5] the high level of spending reflects that GDP per capita in Malawi (in US$ terms) was only 4 percent of the level of GDP per capita in Botswana.

Significant differences in the role of external financing are also evident across SADC member countries. While external support accounted for about half of the costs of HIV/AIDS programs in the region, this share ranged from about 20 percent

[5] In 2008 (the year the spending data in table 1 relate to), the coverage rate of antiretroviral treatment in Malawi was 51 percent (Office of the President and Cabinet, 2010), whereas in Botswana it was 82 percent (NACA and UNAIDS 2010).

Table 2 SADC: Domestically Financed HIV/AIDS Spending

Country	Year	Total HIV/AIDS spending (% of GDP)	Domestically financed HIV/AIDS spending (% of GDP)	Domestically financed HIV/AIDS spending (% of government expenditure)
Angola	2009	0.05	n.a.	n.a.
Botswana	2008	2.6	1.7	4.4
Congo, Dem. Rep. of	2008	0.8	0.1	0.5
Lesotho	2008	3.6	1.7	2.6
Madagascar	2008	0.1	0.1	n.a.
Malawi	2008	2.6	0.1	0.2
Mauritius	2008	n.a.	n.a.	n.a.
Mozambique	2008	1.5	0.1	0.2
Namibia	2007	0.2	0.1	0.4
Seychelles	2009	0.1	0.1	0.2
South Africa	2009	0.7	0.5	1.6
Swaziland	2006	1.8	0.7	2.1
Tanzania	2008	2.3	0.0	0.2
Zambia	2008	2.6	0.0	0.2
Zimbabwe	2009	1.2	0.4	1.5

Sources: UNGASS Country Reports 2010 for HIV spending, augmented by domestic sources for Swaziland and Zambia, IMF (2010) for GDP. Various IMF country reports for government expenditures.

in South Africa to 98 percent in Malawi. The extent to which external support has enabled the response to HIV/AIDS in SADC member countries with relatively low levels of GDP per capita is illustrated in table 2. For example, out of total HIV/AIDS-related spending of between 1.5 percent of GDP and 2.6 percent of GDP in Malawi, Mozambique, and Zambia, high levels of external support (exceeding 95 percent of the costs of the HIV/AIDS program) have reduced the domestic financing needs to around 0.1 percent of GDP or less.

Another conclusion from the data presented in table 2 addresses the link between disease burden and domestically financed HIV/AIDS spending. The three countries facing the highest domestic financing burden, according to table 2, are the very same countries with the highest levels of HIV prevalence (Botswana, Lesotho, and Swaziland). Thus, the international response to HIV/AIDS has provided partial insurance to countries facing high levels of HIV prevalence—providing support to HIV/AIDS programs in countries like Botswana or South Africa that otherwise (in light of their relatively high income levels) receive limited grant funding. However, this insurance is partial because high-prevalence countries also cover substantial program costs from domestic resources.

As the fiscal costs of HIV/AIDS predominantly arise in a few sectors (notably, health, education, and

social spending), it is also instructive to relate the level of HIV/AIDS-related spending to such subsectors. Table 3 compares the level of HIV/AIDS-related spending with total or public health spending. Because HIV/AIDS-related spending transcends the health sector, these figures cannot be interpreted in terms of HIV/AIDS-related spending absorbing a certain share of health spending. However, the provision of health services is a significant aspect of public services—if the level of HIV/AIDS-related expenditure is large relative to health expenditure, this therefore serves as an indicator for the operational challenges of scaling up HIV/AIDS-related services.

Table 3 offers some illustration on the scale of the policy (and financing) challenges that the HIV/AIDS response poses in a number of SADC member countries. Total HIV/AIDS-related spending is equivalent to at least 40 percent of total health expenditure in four countries (Botswana, Lesotho, Tanzania, and Zambia), and exceeds the equivalent of 60 percent of public health expenditure in five countries (the four countries referred to above, plus the Democratic Republic of Congo). From a fiscal perspective, the most immediate financing challenges arise from domestically financed HIV/AIDS-related expenditure; this exceeded the equivalent of 40 percent of public health spending in two countries (Botswana and Lesotho). Looking further ahead, externally financed HIV/AIDS-related spending also poses considerable fiscal challenges, arising from the need to solicit the required external support or responding to shortfalls in anticipated external support.

Table 3 SADC: HIV/AIDS Spending and Health Spending

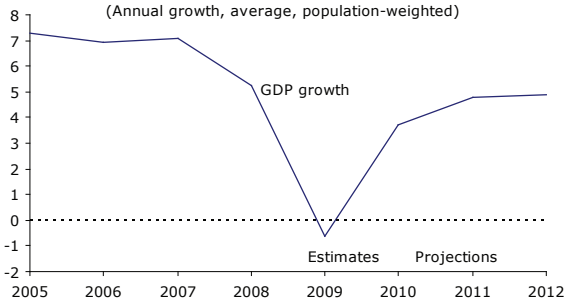
Country	Total HIV/AIDS spending (% of GDP)	Domestically financed HIV/AIDS spending (% of GDP)	Total health spending (% of GDP)	Public health spending (% of GDP)
Angola	0.05	n.a.	2.54	2.04
Botswana	2.57	1.75	5.71	4.26
Congo, Dem. Rep. of	0.83	0.12	5.75	1.20
Lesotho	3.55	1.67	6.22	3.63
Madagascar	0.13	0.06	4.13	2.74
Malawi	2.63	0.06	9.90	5.90
Mauritius	n.a.	n.a.	4.17	2.04
Mozambique	1.48	0.07	4.93	3.54
Namibia	0.21	0.11	7.63	3.21
Seychelles	0.08	0.06	5.13	3.60
South Africa	0.73	0.53	8.62	3.57
Swaziland	1.77	0.68	6.01	3.76
Tanzania	2.25	0.04	5.32	3.50
Zambia	2.61	0.08	6.16	3.56
Zimbabwe	1.23	0.37	8.95	4.14

Sources: UNGASS Country Reports 2010 for HIV spending, augmented by domestic sources for Swaziland and Zambia, IMF (2010) for GDP. Data on HIV/AIDS-related spending relate to years shown in table 1. Data on health spending are from 2008.

III. The Global Environment and the Financing of HIV/AIDS Programs

The global financial crisis affects fiscal space available for the financing of HIV/AIDS programs through two channels—its impact on SADC member countries, and its impact on main donor countries (and thus, the availability of external support). The role these different channels play

Figure1. SADC: GDP Growth, 2005–12



Source: IMF (2010).

for the financing of HIV/AIDS programs depends on the extent to which a country depends on external support.

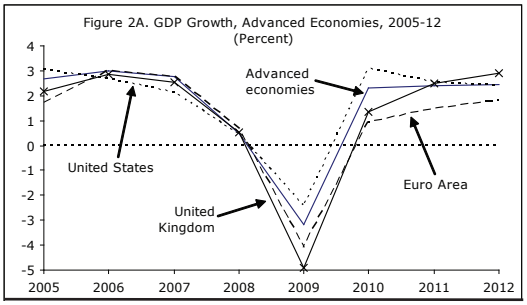
For SACU member countries overall, GDP growth has declined from an average of 7 percent through 2007 to -1 percent in 2009, followed by a gradual recovery (figure 1). This means that domestic resources expanded much slower than expected in 2008. Regarding the outlook for the financing of HIV/AIDS programs (and any other public policy objectives), this negative economic impact is compounded by the fiscal repercussions of the crisis.

While data for the budget turnouts for fiscal years 2009/10 are not yet available, budget data for Botswana and South Africa, two countries that finance their HIV/AIDS programs predominantly from domestic sources, can be used as an example. In Botswana, government finance depends largely on revenues from the mining sector, which has been severely hit by a slump in the demand for diamonds. As a consequence, the preliminary budget turnout for fiscal year 2009/10 is a deficit of 16 percent of GDP, projected to recover only gradually over the next couple of years. In South Africa, the fiscal balance has deteriorated from a surplus of 1.7 percent of GDP in 2007/8 to a deficit of 7.3 percent of GDP in 2009/10, and public debt is projected to rise from 28 percent of GDP in 2007/8 to 43 percent of GDP in 2012/13 (South Africa 2010).

Given that approximately half of HIV/AIDS-related spending across SADC member countries is financed through external support, the impact of the global crisis among the main donor countries is as important as the domestic impact. Moreover, external financing accounts for more than 90 percent of HIV/AIDS spending in four SADC member countries (Malawi, Mozambique, Tanzania, and Zambia), and at least for these countries, the changing global environment has immediate and significant implications for the financing of their HIV/AIDS programs.

Figure 2 summarizes estimates and projections for key macroeconomic variables (GDP growth and the fiscal balance) for advanced economies overall, the United States (a major contributor to HIV/AIDS programs through the U.S. President's Emergency Plan for AIDS Relief [PEPFAR]), the Euro area, and the United Kingdom (major contributors to the Global Fund). As for SADC member countries, advanced economies have experienced a steep drop in economic growth, although the decline is somewhat less pronounced than for SADC (about 5 percentage points, rather than 7 percentage points), and recovery is expected to occur more quickly. At the same time, the fiscal balance deteriorates steeply, and remains in deficit for the coming years. For the United States, the deterioration in the fiscal balance is extraordinary, and the fiscal deficit estimated for 2009 is the highest recorded since the end of World War II (Council of Economic Advisors 2010). As a result, the International Monetary Fund (IMF 2010) projects that the level of public debt in the United States will double relative to GDP between 2007 and 2015 (from 42 percent of GDP to 86 percent of GDP). In the United Kingdom, the economy contracted by 5 percent in 2009, and the deterioration in the fiscal balance is of a similar magnitude as for the United States: net debt is projected to increase

Figure 2. Macroeconomic Trends, Advanced Economies, 2005–12



Source: IMF (2010).

from 38 percent of GDP in 2007 to 82 percent of GDP in 2012. While fiscal deterioration has been less severe in the Euro area, the fiscal position was weaker in some countries at the outset, resulting in the "Greek crisis" and putting the treasury bonds of a number of countries under pressure.

Thus, the fiscal environment in advanced economies over the coming years will be much tighter than expected previously, and the fiscal repercussions of the global economic crisis will extend well into the economic recovery. Consequently, increasing demands for funding of HIV/AIDS programs face tighter competition. It is against this background that UNAIDS (2010) has shifted the emphasis from estimating international funding gaps to developing "smarter, faster, lower cost and more effective solutions." This particularly applies to a number of SADC member countries, as the combination of high costs of HIV/AIDS programs and high levels of external financing makes them particularly vulnerable to shortfalls in external support.

IV. Introduction to Country Studies

Many of the questions relevant to managing the fiscal dimensions and planning of HIV/AIDS programs cannot adequately be addressed through recourse of the fiscal and macroeconomic summary indicators available across countries discussed above. One important aspect of the HIV/AIDS response is the persistence of the fiscal commitments—current treatment and impact mitigation programs require long-term expenditures over the next decades. To understand the extent to which the response to HIV/AIDS absorbs the available fiscal space, it is necessary to rely on projections, based on country-specific data, of the state of the epidemic and parameters describing the response to HIV/AIDS.

Botswana, South Africa, and Swaziland face a high disease burden and corresponding high costs for their responses to HIV/AIDS (overall, and in terms of domestically financed spending). Summarized below are the findings from the studies conducted in these countries.

V. Fiscal Dimension of HIV/AIDS in Botswana

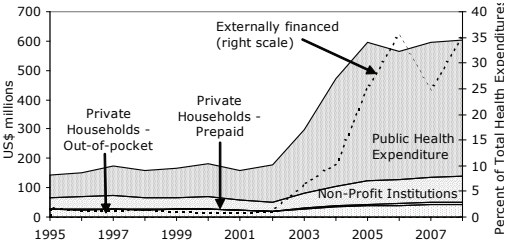
Botswana is among the countries with the highest level of HIV prevalence in the world; according to UNAIDS (2008a), prevalence among the population of ages 15–49 was 23.9 percent, and 300,000 people

were living with HIV. As a consequence of HIV/AIDS, key health indicators have deteriorated catastrophically—life expectancy at birth has declined from 64 years in 1990 to 51 years in 2000 (World Bank 2010), and the probability of reaching age 50 has dropped to 55 percent (compared to 88 percent without AIDS) for the 2005–10 period (United Nations Population Division 2009).

Numerous studies have addressed the macroeconomic consequences of HIV/AIDS. A recent comprehensive study by Jefferis, Siphambe, and Kinghorn (2006) estimates that annual GDP growth is reduced by about 1.2 percentage points, implying a moderate increase in the growth rate of GDP per capita of about 0.4 percentage points. However, the epidemic has resulted in a disconnect between economic development and human development. Life expectancy is about 20 years lower than in countries with a similar level of GDP per capita (such as Turkey, Romania, Malaysia, and Argentina), and at about the same level as in Kenya (GDP per capita one-ninth of Botswana's) and Ethiopia (GDP per capita one-sixteenth of Botswana's). Consequently, Botswana's ranking according to the United Nations Development Programme (UNDP) Human Development Index slipped from 71 in 1996, to 125 as of 2007; and whereas Botswana ranks 60th in terms of GDP per capita, it ranks 159th (among 181 countries covered) in terms of life expectancy.

Because of high mineral revenues (typically close to 20 percent of GDP through 2007), government spending is relatively high in Botswana. Botswana was hard hit by the global financial crisis, and followed an expansionary fiscal policy in response. The coming budget years will see an adjustment from the very high fiscal deficits, exceeding 10 percent of GDP. As the role of the mineral sector and the corresponding fiscal revenues are expected to decline over the coming years, longer-term fiscal projections need to consider this shrinking resource envelope.

Figure 3. Botswana: Health Expenditure by Source of Financing



Source: WHO 2010.

Between 2001 and 2005, public health expenditures accelerated rapidly relative to GDP, to about 5 percent, before falling back to a level of less than 4 percent. In absolute terms, expenditures increased from a level of about US$125 million in 2002 (US$110 per capita) to US$473 million in 2005 (US$388 per capita), and remained at about this level. External financing played a subordinate role (less than 1 percent of total health spending), at least until 2002, but increased to around 5 percent of total health spending by 2008.

Estimates of HIV/AIDS-related spending are available from two National AIDS Spending Assessments, the first one (NACA and UNAIDS 2007) covering 2003–5 and the second one covering 2006–8 (NACA and UNAIDS 2010). HIV/AIDS-related spending increased from 1.9 percent of GDP in 2003 to 2.6 percent of GDP in 2008, corresponding to a nominal increase from US$150 million to US$348 million. Much of the increase in HIV/AIDS-related spending was enabled by external support, increasing from 0.1 percent of GDP to 0.8 percent of GDP (and from US$12 million to US$112 million in absolute terms). Bilateral financing (largely from the United States) accounted for about two-thirds of external support in 2006–8. Notably, about 30 percent of external support came from other international sources, reflecting high levels of support from private international sources, largely through the African Comprehensive HIV/

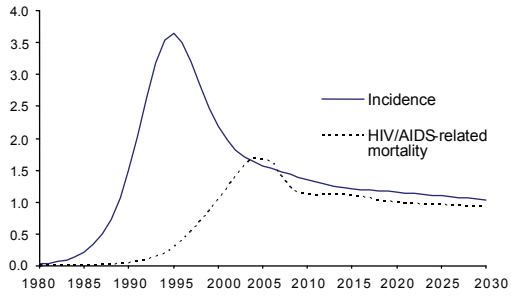
AIDS Partnership (ACHAP) funded by Melinda and Bill Gates Foundation and Merck, and the Clinton Foundation. Meanwhile, spending from domestic sources (dominated by public spending) has remained flat relative to GDP.

The analysis of the fiscal dimension of HIV/AIDS combines three elements: i) estimates and projections of the state of the epidemic; ii) estimates and projections of the fiscal costs of HIV/AIDS; and iii) a model and assumptions describing the macroeconomic and fiscal context. Assumptions regarding the state and course of the epidemic were taken from NACA (2008) and Stover (2008), and updated in a number of places (for example, to incorporate the latest estimates of access to treatment). Underlying estimates of the size and the structure of the population were taken from the United Nations Population Division (2009). Looking forward, certain assumptions (HIV incidence and coverage of a number of interventions directly affecting the course of the epidemic, such as treatment access and prevention of mother-to-child transmission) were calibrated in line with targets in the draft National Strategic Framework for HIV and AIDS 2010–16.

The projections envisage further gradual declines in HIV incidence rates (and—after a small rebound as the immediate effects of scaling up treatment wear off—declines in HIV/AIDS-related mortality, figure 4). HIV prevalence declines over the projection period, even though the absolute number of PLHIV continues to increase slowly over the projection period. While HIV prevalence (ages 15+, somewhat lower than prevalence for ages 15–49) decreases steadily from a peak of 24 percent in 2002 and 21 percent in 2010 to 18 percent in 2030, the number of people receiving treatment increases sharply, rising from close to zero in 2000 to 8.6 percent of the adult population (and 40 percent of PLHIV) and 9.6 percent of the adult population (52 percent of PLHIV) by 2030 (figure 5).

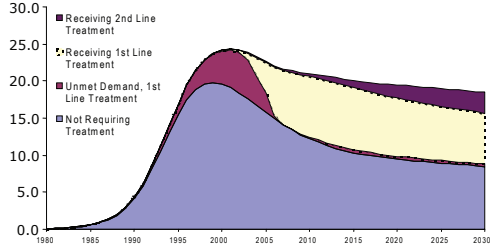
The fiscal costs of HIV/AIDS increase steadily over the projection horizon, almost doubling from

Figure 4. Botswana: HIV Incidence and HIV/AIDS-Related Mortality, 1980–2030 (% of population, age 15+)



Source: Author's estimates and projections.

Figure 5. Botswana: PLHIV, 1980–2030 (% of population, age 15+)



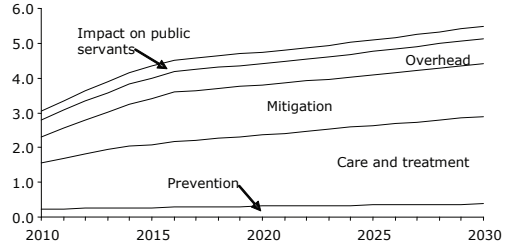
Source: Author's estimates and projections.

Pula (P) 3 billion to Pula 5.5 billion, but (at least from 2015) decline slowly in relation to GDP. The biggest component of the fiscal costs of HIV/AIDS, and the factor that dominates the increase in costs, is care and treatment, rising from P 1.3 billion to P 2.5 billion, reflecting the increasing number of people receiving treatment (rising from 119,000 in 2010 to 168,000 in 2030), as well as the increasing role of second-line treatment (about 30 percent of people receiving treatment in 2030). Another important factor is the increase in the costs of mitigation, which reflects the increase in the number of orphans through much of the projection period.

In terms of their long duration, the fiscal costs of HIV/AIDS resemble a liability that needs to be repaid over a long period of time. This means that instruments used to assess the sustainability of debt also yield insights regarding the size of the fiscal burden of HIV/AIDS. At a discount rate of 3 percent, the present discounted value of the fiscal costs of HIV/AIDS amounts to 192 percent of GDP, of which costs equivalent to a present discounted value of 73 percent of GDP are incurred by 2030.

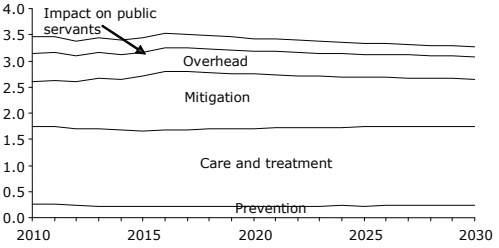
While the fiscal costs of HIV/AIDS are ultimately driven by infections, the costs at any point of time reflect infections that occurred many years before. Conversely, a change in HIV incidence affects the fiscal costs only very slowly. To clarify the link between HIV incidence and the fiscal costs of HIV/AIDS, first the costs incurred by one new infection are estimated. For example, for an infection occurring in 2010, overall costs incurred are estimated to be equivalent to P 92,000, corresponding to about two times GDP per capita. On the macroeconomic level, the estimated fis-

Figure 6. Botswana: Fiscal Costs of HIV/AIDS, 2010–30 (pula billions, 2009 prices)



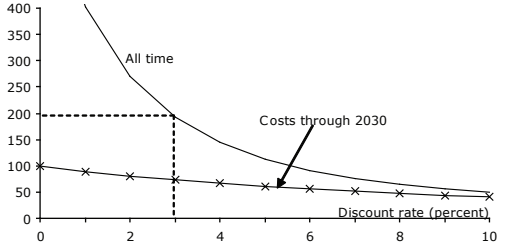
Source: Author's estimates and projections.

Figure 7. Botswana: Fiscal Costs of HIV/AIDS, 2010–30 (% of GDP)



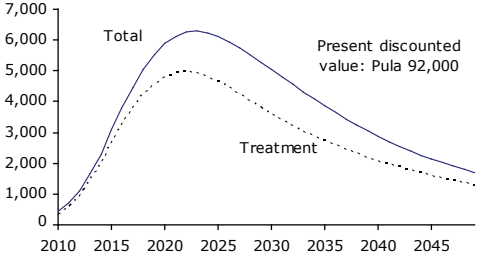
Source: Author's estimates and projections.

Figure 8. Botswana: Present Discounted Value of the Fiscal Costs of HIV/AIDS, as of 2010 (% of GDP)



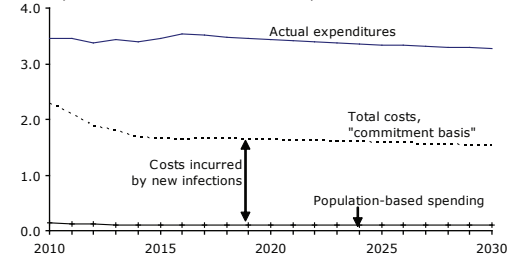
Source: Author's estimates and projections.

Figure 9. Botswana: Costs of One Additional HIV infestion (pula, 2009 prices)



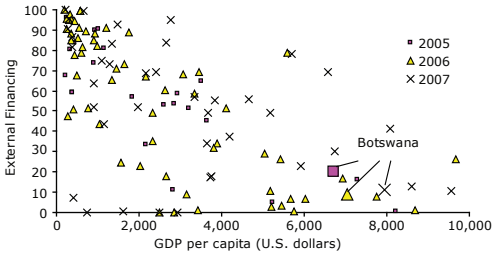
Source: Author's calculations.

Figure 10. Botswana: Fiscal Costs of HIV/AIDS, "Commitment Basis," 2010–30



Source: Author's estimates and projections.

Figure 11. External Financing of HIV/AIDS Progams across Countries (% of HIV/AIDS-related spending)



Source: Author's calculations, based on UNAIDS 2008 and IMF (2008).

cal costs incurred by new infections account for less than half of projected spending. This reflects that reduced and declining HIV incidence already result in lower new spending commitments, whereas the high current expenditures primarily address the large number of infections that have occurred in the past.

Botswana receives relatively high levels of international support for its HIV/AIDS program (for example, US$232 million, equivalent to US$130 per capita, from official sources in 2008). The high levels of external support to Botswana reflect the extraordinary burden of disease (and fiscal burden) the country is facing. External support normally accounts for less than 20 percent (or 30 percent if external support from private sources is included) of the total costs of the HIV/AIDS program, broadly in line with international practice considering Botswana's level of economic development.

VI. Fiscal Dimension of HIV/AIDS in South Africa

According to the Actuarial Society of South Africa (ASSA 2006),[6] HIV prevalence in South Africa exceeded 1 percent of the population aged 15–49 only from 1993. From that level, it escalated rapidly, reaching 10 percent only five years later in 1998, and increased further to just under 19 percent by 2006. UNAIDS (2008) estimates that 5.7 million people were living with HIV/AIDS in South Africa at end-2007. Data from antenatal clinics suggest that HIV prevalence has stabilized in recent years (South Africa 2009).[7] During 2005–10, mortality increased to a level last observed in the early 1960s. Life expectancy (52 years) decreased to the level observed in the mid-1960s, and currently is 20 years lower than in Brazil, although the level of GDP per capita is about the same.

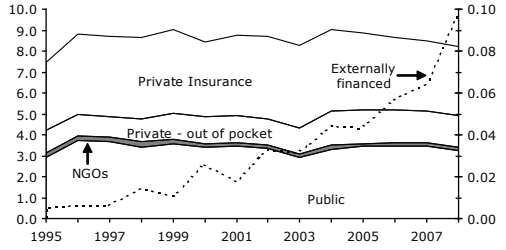
Unlike the impact of HIV/AIDS on key health outcomes, the most comprehensive studies available find that the macroeconomic impact of HIV/AIDS has been moderate so far. Ellis, Laubscher, and Smit (2006), adapting the macroeconomic model maintained by the Bureau for Economic Research at the University of Stellenbosch, estimate that HIV/AIDS is reducing GDP growth by 0.4 percent annually, and will continue to do so through 2020. In addition to aggregate impacts, HIV/AIDS also has distributional implications. For example, surveys typically show that HIV prevalence is higher and HIV awareness lower in population groups with lower education levels. Moreover, access to health insurance is very limited outside the top three income deciles.

In 2006/7 and 2007/8, government revenues accounted for about 30 percent of GDP, and the budget returned a surplus (1.2 percent and 1.7 percent of GDP, respectively). However, the impact of the global crisis has resulted in a deterioration of the fiscal situation and outlook. GDP growth declined from over 5 percent in 2006 and 2007 to -2 percent in

[6] The data included in ASSA (2006) are further discussed by Dorrington, Bradshaw, Johnson, and Budlender (2006). Johnson and Dorrington (2006) provide a discussion of some of the underlying assumptions and methods.

[7] HIV prevalence among pregnant women has remained broadly constant, at 29.1 percent in 2006 and 29.4 percent in 2007.

Figure 12. South Africa: Health Expenditure by Source, 1995–2008 (% of GDP)



Source: WHO (2010) for health spending, IMF (2010) for GDP.

Note: External financing refers to right scale, other categories to left scale.

2009, and is expected to recover only slowly. Meanwhile, government revenues have dropped by about 3 percent of GDP, and expenditures increased by over 5 percent of GDP, so that the fiscal balance deteriorated to -7 percent of GDP by 2009/10. For the financing of the national HIV/AIDS program—as for other categories of public spending—this means that the available fiscal resources are tighter than what might have been expected two years ago. The level of GDP is expected to recover only slowly, and may permanently remain lower than expected earlier, and the government expects that by 2012/13 it will have accumulated additional public debt (compared to 2008/9) equivalent to 15 percent of GDP (South Africa 2010).

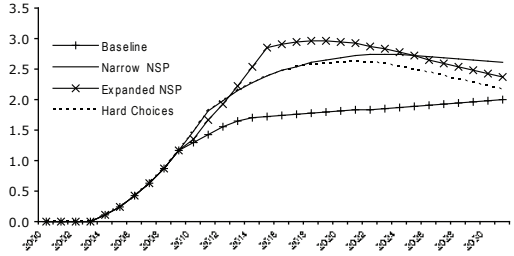
Public health expenditure has remained fairly constant relative to GDP since 1995 (at about 3 percent of GDP), even though the impact of HIV/AIDS has escalated. At first glance, this would suggest that the expansion of HIV/AIDS services has resulted in a reallocation from other types of health services. However, as GDP expanded rapidly over this period, it turns out that the costs of HIV/AIDS accounted for only about a quarter of the increase in health spending since 2000.

In the national budget, HIV/AIDS-related line items occur in the budgets of the Department of Health, the Department of Education, and the Department of Social Development. The largest item is the "HIV/AIDS and STDs" in the Department of Health, which, by 2008, was the largest item under the Department's Strategic Health Programmes. Expenditures increased from R181 million in 2000/01 to R4.8 billion in 2009/10 (or from US$25 million to US$473 million) and are expected to rise to R9.3 billion by 2012/2013. The structure of expenditure changed over this period. Health services are administered through the provincial budgets. As HIV/AIDS-related health services expanded, and increasing share of HIV/AIDS-related allocations under the Department of Health are accounted for by specific allocations to provinces (conditional grants).

The national response to HIV/AIDS is guided by the HIV & AIDS and STI Strategic Plan for South Africa, 2007–11 (SANAC 2007), organized around the aims of reducing the rate of new HIV infections by 50 percent by 2011 and reducing the impact of HIV and AIDS on individuals, families, communities and society by expanding access to appropriate treatment, care, and support to 80 percent of all HIV-positive people and their families by 2011.

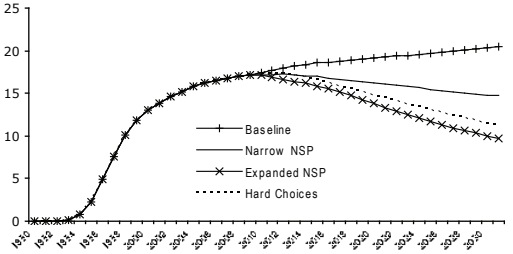
In addition to the costs of the national response to HIV/AIDS, an important aspect of the fiscal dimension of HIV/AIDS is the impact on social expenditures. South Africa has established a fairly extensive public social security system, accounting for 12 percent of total government expenditures (3.5 percent of GDP) in 2009/10 (South Africa 2010). HIV/AIDS affects the incidence of the conditions targeted by social grants, such as orphanhood or disability, and arguably has contributed to the increase in the number of recipients of foster care grants (from 276,000 in 2000/01 to 569,000 in 2009/10) and disability grants (from 613,000 in 2000/01 to 1,423,000 in 2006/7). On the other hand, certain categories of social grants (for example, old-age pensions or child support grants) are likely to decline as a consequence of HIV/AIDS.

Figure 13. South Africa: Adults Receiving ART, 2000–2031 (millions)



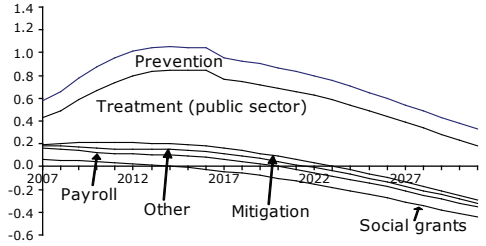
Source: Guthrie and others (2010).

Figure 14. South Africa: HIV Prevalence, 1990–2031 (% of population 15+)



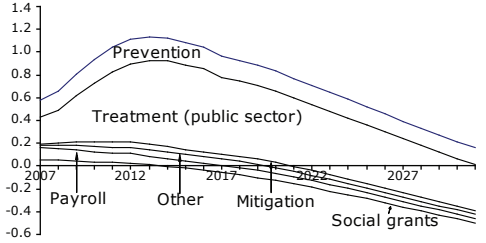
Source: Guthrie and others (2010).

Figure 15. South Africa: Fiscal Costs of HIV/AIDS, "Narrow NSP," 2007–31



Source: Guthrie and others (2010), and author's calculations.

Figure 16. South Africa: Fiscal Costs of HIV/AIDS, "Expanded NSP," 2007–31 (% of GDP)



Source: Guthrie and others (2010), and author's calculations.

This analysis has been conducted in tandem with the ongoing "2031" analysis of the long-run costs and financing of HIV/AIDS in South Africa (Guthrie and others 2010), builds on the costing developed in this context, and is organized along three scenarios: a "narrow NSP" scenario, which is based on the National Strategic Plan 2007–11, and applies 2011 coverage rates for projections; "hard choices," which builds on the narrow NSP scenario, but reallocated funds to prevention measures; and an "expanded NSP" scenario, envisaging enhanced eligibility for treatment and higher treatment coverage rates (attained by 2015), and a scaling up of certain interventions through 2021.

Under the narrow NSP, the fiscal costs of HIV/AIDS almost double from Rbn 19.0 in 2009 to Rbn 35.5 in 2016, but subsequently fall to Rbn 20.8 by the end of the projection period. Relative to GDP, the costs peak at over 1 percent of GDP in 2012–19, and decline to about 0.4 percent of GDP by 2031. Under the expanded NSP scenario, the build-up in costs is faster, but they decline faster over the last decade of the projection period (as a result of the more aggressive prevention measures early on), and by 2031—at Rbn 14.6—are considerably lower than in the narrow NSP scenario.

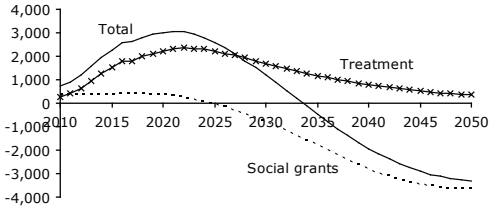
In some regards, these projections resemble estimates available for other countries—the costs of treatment are the most important driver of the fiscal costs over the next decade, and the enhanced prevention efforts in the "expanded NSP" scenario lower the fiscal costs later on. A unique feature of the fiscal

costs of HIV/AIDS in South Africa is the impact of HIV/AIDS on social grants. Notably, HIV/AIDS reduces the number of people reaching age 60 who could qualify for old-age grants (an income threshold also applies). For this reason, the impact of HIV/AIDS on the costs of social grants, which is positive initially (as increased costs of disability grants and foster care grants dominate), declines from about 2017 as cohorts highly affected by HIV/AIDS reach age 60. Thus, the thrust of the fiscal impact of HIV/AIDS in South Africa occurs through two channels: (i) an increase in the demand for public health services, and (ii) a slowdown of the rise in the costs of old-age grants (which would increase steeply otherwise, reflecting demographic and health factors).

These two main factors are also apparent in the microeconomic analysis of the expected cost incurred by one additional infection. These costs are estimated to dominate because of the increased need for treatment over the 20 years following an infection, and reduced costs of social (such as old-age) grants later on. Using a discount rate of 3 percent, the costs of an additional infection come out at R8,800 (about one-third of GDP per capita) for the narrow NSP (of which R33,300 can be attributed to treatment and R30,900 to the decline in the costs of social grants), and R7,800 for the expanded NSP (of which treatment accounts for R37,500).

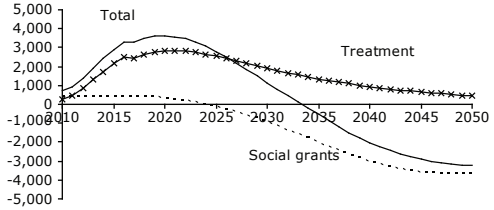
Among the factors complicating an assessment of the fiscal costs of HIV/AIDS are the long time

Figure 17. South Africa: Costs of Additional Infection, "Narrow NSP" Scenario (ZAR, 2009 prices)



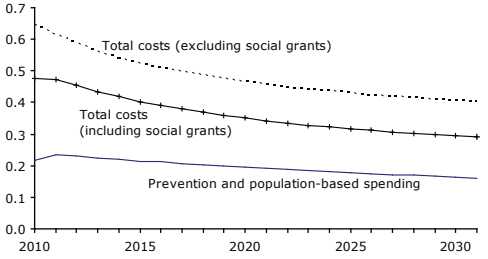
Source: Author's calculations.

Figure 18. South Africa: Costs of Additional Infection, "Expanded NSP" Scenario (ZAR, 2009 prices)



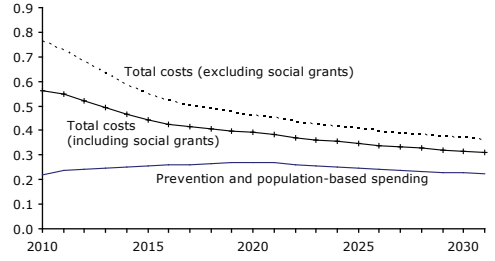
Source: Author's calculations.

Figure 19. South Africa: Fiscal Costs of HIV/AIDS, "Commitment Basis," "Narrow NSP," 2010–31 (% of GDP)



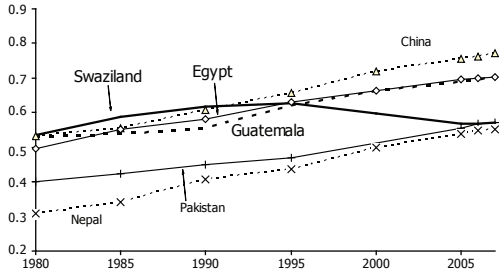
Source: Author's calculations.

Figure 20. South Africa: Fiscal Costs of HIV/AIDS, "Commitment Basis," "Expanded NSP," 2010–31 (% of GDP)



Source: Author's calculations.

Figure 21. Human Development Index, Selected Countries, 1980–2007



Source: UNDP (2009).

lags involved—between infection and treatment need and the long duration during which treatment is required. For this reason, prevention measures may affect the fiscal costs of HIV/AIDS only very slowly, and enhanced prevention efforts may increase the costs in the short run. To get a clearer measure of the extent to which HIV/AIDS affects fiscal space in the longer run, the estimation starts with the fact that most of the costs are ultimately incurred as a consequence of new infections, and current expenditures predominantly serve needs caused by past infections. To measure the evolving fiscal burden of HIV/AIDS, it is necessary to estimate the costs caused by new infections (based on estimates of the costs caused by one additional infection). From this perspective, the costs of HIV/AIDS on a "commitment basis" are estimated at just under 0.4 percent of GDP initially, and decline over the projection period. Thus, while expenditures continue to increase over the coming years (serving infections that have occurred in the past), the underlying fiscal burden (in terms of the amount needed to be put aside now to cover the future costs of HIV/AIDS) is already declining.

VII. Fiscal Dimension of HIV/AIDS in Swaziland

Swaziland is considered the country with the highest HIV prevalence in the world; an estimated 26 percent of the population is HIV positive (UNAIDS 2008a,2008b). As a consequence of HIV/AIDS, mortality in Swaziland has risen from 0.9 percent in 1990–95 to 1.6 percent in 2005–10 (United Nations Population Division 2009), and the probability of a newborn reaching age 50 has dropped from around 80 percent to just over 40 percent. CSO and Macro International (2008) report that 20 percent of young Swazis of ages 10–14 had lost at least one parent, and 7.5 percent had lost both parents.

Economic growth in Swaziland has been disappointing in recent years, with average GDP growth of just 2.2 percent from 2000–10, and GDP growth per capita of 1.9 percent over the same period. However, the extent to which the impact of HIV/AIDS has affected growth is difficult to establish. The slowdown in economic growth from its high levels in the 1980s (averaging 7 percent) occurred in the early 1990s, preceding the period in which HIV/AIDS could plausibly affect growth. Surprisingly few studies address the impact of HIV/AIDS on economic growth in Swaziland; the bulk of evidence points to a moderate impact of HIV/AIDS on economic growth so far.

However, as a result of the steep deterioration in health outcomes, Swaziland has lost considerable ground in terms of more comprehensive development indicators such as the UNDP's Human Development Index, where between 1990 and 2005, Swaziland dropped from a cluster including countries such as China, the Arab Republic of Egypt, and Guatemala, to the level of countries such as Nepal or Pakistan.

Even more so than in other countries, the response to HIV/AIDS in Swaziland takes place against the backdrop of tightening fiscal resources. Following a boom in revenues from SACU—increasing from about 12 to 13 percent of GDP before 2003/4 to 28 percent of GDP in 2006/7, largely on account of an economic boom in South Africa—SACU revenues have dropped to 7 percent of GDP in the 2010/11 budget, which envisages a fiscal deficit of 13.4 percent of GDP. Therefore projections assume that public expenditures will decline to just under 30 percent of GDP (compared to a peak of 40 percent in 2008/9), even though public debt is projected to increase from 15 percent to about 50 percent of GDP, and stabilize at this level.

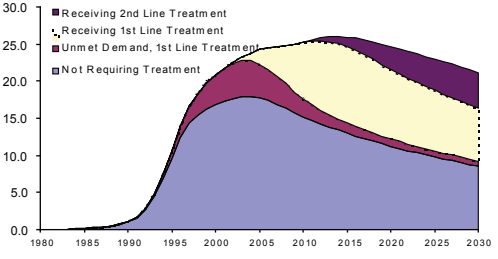
From 1995 to 2002, total health expenditures hovered at or just below 4 percent of GDP, and public health expenditures accounted for about half. Since 2002, public health spending accelerated from 2 percent of GDP in 2002 to 3.8 percent of GDP in 2008. Relative to government spending, the share of public health spending increased from 6.5 percent in 2002 to 8.5 percent in 2008. According to the latest budget figures for 2010/11 (Sithole 2010), the increase in public allocations for health continued through 2010/11, reaching 4.7 percent of GDP and 12.5 percent of government expenditures. External support increased from 2 percent of total health expenditures in 2002 to 10 percent in 2008 (and the equivalent of 18 percent of public health expenditures).

The national response is currently guided by the National Multisectoral Strategic Framework for HIV and AIDS 2009–14 (GoS 2009). Most HIV/AIDS-related services are delivered through the public sector. The objectives of the strategic framework can be grouped in three areas: prevention; treatment, care, and support; and impact mitigation (and response management, concerning the overall efficacy of the program). In the area of prevention, the government of Swaziland (GoS 2009) envisages a decline in adult HIV incidence from 2.9 percent to 2.3 percent by 2014. The provision of antiretroviral therapy (ART) through the public sector was launched in December 2003. The number people obtaining ART rose from about 6,000 people at end-2004 (out of estimated 45,000 in need of treatment) to 47,000 at end-2009 (WHO, UNAIDS, and UNICEF 2008; NERCHA and UNAIDS 2010). GoS (2009) envisages an increase in the coverage of ART to 85 percent of adults and 90 percent of children by 2014.

The latest complete data on HIV/AIDS-related spending and financing of the HIV/AIDS program are included in the National AIDS Spending Assessment (NERCHA and UNAIDS 2008). Over the two years covered, spending increased from US$40 million in 2005/6 to US$49 million in 2006/7. The most important program components over these two years were prevention (about 20 percent of total), treatment and care (about 25 percent of total), and orphans and vulnerable children (absorbing about 30 percent of the total). External financing accounted for about US$30 million in each year, about 60 percent of total spending, largely through a grant from the Global Fund.

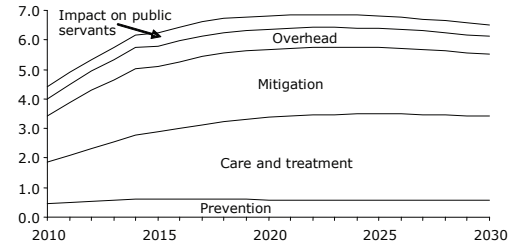
This analysis of the fiscal dimension of HIV/AIDS combines three elements: i) estimates and projections of the state of the epidemic; ii) estimates and projections of the fiscal costs of HIV/AIDS; and iii) a simple model and assumptions describing the

Figure 22. Swaziland: PLHIV, 1980–2030 (% of population, age 15+)



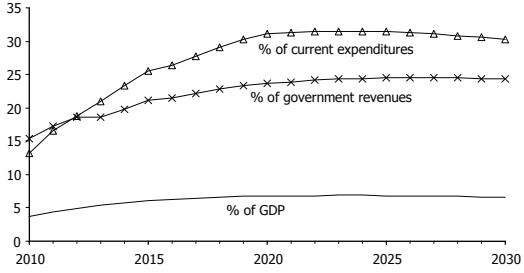
Soure: Author's estimates and projections.

Figure 23. Swaziland: Fiscal Costs of HIV/AIDS, 2010–30 (% of GDP)



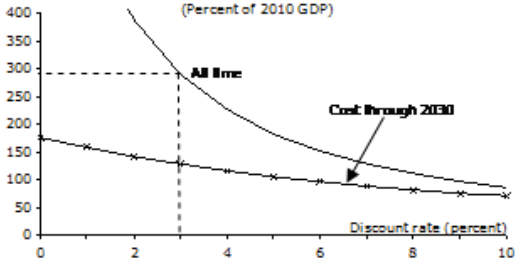
Source: Author's estimates and projections.

Figure 24. Fiscal Costs of HIV/AIDS



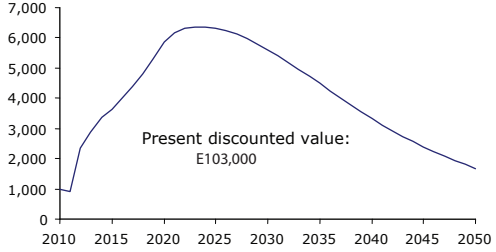
Source: Author's estimates and projections.

Figure 25. Swaziland: Present Discounted Value of the Fiscal Costs of HIV/AIDS, as of 2010



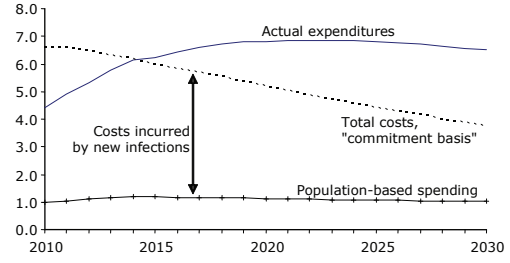
Source: Author's estimates and projections.

Figure 26. Swaziland: Costs of Additional Infection, 2010 (emalangeni, 2009 prices)



Source: Author's estimates and projections.

Figure 27. Swaziland: Fiscal Costs of HIV/AIDS, "Commitment Basis," 2010–31 (% of GDP)



Source: Author's estimates and projections.

macroeconomic and fiscal context. Underlying estimates of the size and the structure of the population were taken from United Nations Population Division (2009). Key parameters, such as treatment coverage rates, were set in line with the National Strategic Framework 2009–14. The estimates and projections of the fiscal costs of HIV/AIDS are based on the targets specified in the National Strategic Framework 2009–14 (GoS 2009).

Until about 2000, HIV prevalence increased sharply, driven by very high HIV incidence rates. Starting in 2003, increased access to treatment has become a critical factor underlying trends in HIV prevalence, while HIV incidence has been declining since about 1995. By 2010, estimates suggest that 7 percent of the population aged 15+ will be receiving treatment; this rate is projected to increase to 13 percent by 2020 and remain at about that level until 2030.

Based on the epidemiological projections, and the targets of the National Strategic Framework, the costs of HIV/AIDS and the HIV/AIDS program are estimated to be 4.4 percent of GDP in 2010, and that they will rise to 6.8 percent of GDP by 2020, slowly declining to 6.5 percent of GDP by 2030. The most important component of costs are those of care and treatment, doubling from 1.4 percent of GDP in 2010 to 2.8 percent of GDP in 2020. The second largest item, mitigation, stands at 1.6 percent of GDP initially, rising to 2.3 percent of GDP by 2020. These estimated costs are very large from a fiscal or macroeconomic perspective, especially as fiscal resources are shrinking. As a consequence, the fiscal costs of HIV/AIDS are projected to rise to over 30 percent of current expenditures.

In terms of their long duration, the fiscal costs of HIV/AIDS resemble a liability that needs to be repaid over a long period of time. This means that instruments used to assess the sustainability of debt also yield insights regarding the size of the fiscal burden of HIV/AIDS. At a discount rate of 3 percent (about the level of the real interest rate that applies to Swaziland's public debt), the present discounted value of the fiscal costs of HIV/AIDS amounts to about three times the level of annual GDP (290 percent), of which costs equivalent to a present discounted value of 127 percent of GDP are incurred by 2030. This means that the fiscal burden of HIV/AIDS is far above the levels that would be considered unsustainable if the costs represented debt service.

One of the reasons for the persistence of the fiscal costs of HIV/AIDS is the long period between infection and treatment need, and the long period of time in which patients receive treatment. To get a clearer understanding of the links between HIV incidence and the costs of HIV/AIDS, the costs of one additional infection over time are estimated, and these estimates are used to attribute the overall fiscal costs of HIV/AIDS to the years in which the infections occur. One infection is estimated to result in fiscal costs of E103,000 (about four times GDP per capita). As of 2010, the costs of new infections are higher than actual spending, but decline steadily in line with targeted reductions in HIV incidence. A 10 percent reduction in the number of new infections (relative to projected numbers) would result in savings in the costs of new infections equivalent to 0.6 percent of GDP.

External assistance has played a key role in financing the response to HIV/AIDS in Swaziland, accounting for about 60 percent of the costs (broadly in line with international practice). However, the fiscal burden of HIV/AIDS remains severe even after an allowance for anticipated external financing is made, and is highly sensitive to a slowdown in the rate of external financing. However, in light of the steep increase in the fiscal costs of HIV/AIDS projected over the coming years (and a tighter global economic environment), the level of external support enjoyed by Swaziland so far may not be sufficient in the future.

VIII. Concluding Remarks

In many SADC member countries, the impact of and the response to HIV/AIDS have attained a level that is significant from a macroeconomic and fiscal perspective. This paper analyzes the cost of HIV/AIDS from a fiscal angle, interpreting the response to HIV/AIDS as a long-term fiscal commitment, and broadening the scope of the analysis to identify fiscal costs of HIV/AIDS (such as certain social grants) that are not normally included in HIV/AIDS costing studies, but nevertheless contribute to the fiscal costs of HIV/AIDS. The analysis in this report should catalyze policy dialogue in the three countries in terms of long-term financial sustainability of national HIV/AIDS programs; exploration of innovative financing; program efficiency and effectiveness, including allocative efficiency between program components of prevention, treatment and care and support; and strengthening of private public partnerships.

References

ASSA (Actuarial Society of South Africa). 2006. "ASSA Select Model." Accessed May 2009, http://www.actuarialsociety.org.za.

Botswana. 2010. *UNGASS Country Progress Report, Reporting Period: January 2008–December 2009*. www.unaids.org/en/KnowledgeCentre/HIVData/CountryProgress/2010_UNGASS_Reporting.asp

CNCS (National AIDS Control Council), and UNAIDS. 2010. *UNGASS Progress Report, 2008–9, Mozambique*. CNCS, Maputo.

CNLS (Conseil National de Lutte contre le SIDA). 2010. Rapport de situation national a l´intention de l´UNG*ASS, Madagascar. Période considérée: Janvier 2008–Décembre 2009*. Antananarivo.

Council of Economic Advisors. 2010. "Economic Report of the President: 2010 Report Spreadsheet Tables." Washington, DC.

CSO (Central Statistical Office), and Macro International, Inc. 2008. *Swaziland Demographic and Health Survey 2006–7*. Mbabane: Central Statistics Office.

Dorrington, Rob E., Debbie Bradshaw, Leigh Johnson, and Debbie Budlender. 2006. "The Demographic Impact of HIV/AIDS in South Africa: National Indicators for 2006." Centre for Actuarial Research and South African Medical Research Council.

Ellis, Linette, Pieter Laubscher, and Ben Smit. 2006. *The Macroeconomic Impact of HIV/AIDS under Alternative Intervention Scenarios (with Specific Reference to ART) on the South African Economy*. Bureau for Economic Research, University of Stellenbosch, Stellenbosch, South Africa.

GoS (Government of the Kingdom of Swaziland). 2009. "The National Multisectoral Strategic Framework for HIV and AIDS 2009–14." Mbabane.

Guthrie, Teresa, Nhlanhla Ndlovu, Farzana Muhib, Robert Hecht, and Kelsey Case. 2010. "The Long-Run Costs and Financing of HIV/AIDS in South Africa." Centre for Economic Governance and AIDS in Africa, Cape Town.

IMF (International Monetary Fund). 2010. World Economic Outlook Database, April 2010 Edition. Washington, DC.

INLS (Instituto Nacional de Luta Contra a Sida, Angola), and UNAIDS (Joint United Nations Programme on HIV/AIDS). 2010. *Relatório sobre o Progresso do País para dar Seguimento aos Compromissos da Sessão Especial sobre VIH e SIDA da Assembleia Geral das Nações Unidas, 2008–09*. Luanda.

Jefferis, Keith, Happy Siphambe, and Anthony Kinghorn. 2006. *The Economic Impact of HIV/AIDS in Botswana*. Gaborone: Econsult.

Johnson, Leigh F., and Rob E. Dorrington. 2006. "Modelling the Demographic Impact of HIV/AIDS in South Africa and the Likely Impact of Interventions." *Demographic Research* 14 (art. 22) 541–74.

Malawi, Office of the President and Cabinet. 2010. *Malawi HIV and AIDS Monitoring and Evaluation Report: 2008–9, UNGASS Country Progress Report, Reporting Period: January 2008–December 2009*. Lilongwe.

NAC (National AIDS Commission). 2010. Lesotho, UNGASS Country Report, Status of the *National Response to the 2001 Declaration of Commitment on HIV and AIDS, January 2008–December 2009*. Maseru.

NACA (National AIDS Coordination Agency). 2008. *HIV/AIDS in Botswana—Estimated Trends and Implications Based on Surveillance and Modeling*. Gaborone: NACA.

NACA, and UNAIDS (Joint United Nations Programme on HIV/AIDS). 2007. Botswana National AIDS Spending Assessment 2003/04 – 2005/06. Gaborone.

———. 2010. *Progress Report of the National Response to the 2001 Declaration of Commitment on HIV and AIDS, 2008–9*. Gaborone.

Namibia, Ministry of Health and Social Services. 2010. *United Nations General Assembly Special Session (UNGASS), Country Report, Reporting Period 2008–9*. Windhoek.

National AIDS Council, Seychelles. 2010. *UNGASS Country Progress Report, Seychelles, Reporting for the Period: January 2008–December 2009*. Victoria.

National AIDS Council, Zimbabwe. 2010. *United Nations General Assembly Special Session Report on HIV and AIDS, Follow-up to the Declaration of Commitment on HIV and AIDS, Zimbabwe Country Report, Reporting Period: January 2008–December 2009*. Harare.

National AIDS Secretariat, Mauritius, Prime Minister's Office, and UNAIDS (Joint United Nations Programme on HIV/AIDS). 2010. *Republic of Mauritius, Country Progress Report 2010, United Nations General Assembly Special Session on HIV/AIDS Declaration of Commitment, Reporting Period: January 2008–December 2009*. Port Louis.

NAC (Zambia National HIV/AIDS/STI/TB Council). 2010. National AIDS Strategic Framework 2011–15, Draft 1. Lusaka.

NERCHA (National Emergency Response Council on HIV and AIDS), and UNAIDS (Joint United Nations Programme on HIV/AIDS). 2008. "The Kingdom of Swaziland National AIDS Spending Assessment 2005/06 and 2006/07." Mbabane.

———. 2010. *Monitoring the Declaration of the Commitment on HIV and AIDS (UNGASS), Swaziland Country Report, March 2010*. Mbabane.

PNMLS (Coordination Nationale du Programme National Multisectoriel de Lutte Contre le VIH/SIDA). 2010. *Rapport National UNGASS, République Démocratique du Congo, 2008–9*. Kinshasa.

SANAC (South African National AIDS Council). 2007. *HIV & AIDS and STI Strategic Plan for South Africa 2007–11*. Pretoria: SANAC.

Sithole, Majozi V. 2010. "Budget Speech 2010." Ministry of Finance, Mbabane.

South Africa National Department of Health. 2009. 2008 *National Antenatal Sentinel HIV and Syphilis Prevalence Survey: South Africa Report*. Pretoria.

South Africa National Department of Health, and SANAC (South African National AIDS Council). 2010. *Country Progress Report on the Declaration of Commitment on HIV/AIDS, Reporting Period: January 2008–December 2009*. Pretoria.

South Africa National Treasury. 2010. Budget Review. Pretoria.

Stover, John. 2008. "Estimated HIV Trends and Program Effects in Botswana." PLoS ONE 3 (11).

Tanzania, United Republic of. 2010. *UNGASS Reporting for 2010, Tanzania Mainland and Zanzibar*. Dodoma.

UNAIDS (Joint United Nations Programme on HIV/AIDS). 2008a. *2008 Report on the Global AIDS Epidemic.* Geneva.

———. 2008b. "Annual Estimates of HIV Prevalence, People Living with HIV/AIDS, and HIV/AIDS-Related Deaths, 1990–2007." Released in conjunction with UNAIDS (2008a), accessed at UNAIDS Web site in October 2008.

———. 2010. *UNAIDS Outlook Report 2010*. Geneva.

UNDP (United Nations Development Programme). 2009. *Human Development Report 2009*. New York: UNDP.

United Nations Population Division. 2009. *World Population Prospects: The 2008 Revision—Population Database*. New York: United Nations.

WHO (World Health Organization). 2010. National Health Accounts. Accessed April 25, http://www.who.int/nha/en/.

WHO, UNAIDS (Joint United Nations Programme on HIV/AIDS), and UNICEF (United Nations Fund for Children). 2008. "Epidemiological Fact Sheet on HIV and AIDS—Core Data on Epidemiology and Response: Swaziland (2008 Update)." Geneva: WHO.

World Bank. 2010. *World Development Indicators 2010*. Washington, DC: World Bank.

Zambia Ministry of Health, and National AIDS Council. 2010. *Zambia Country Report, Monitoring the Declaration of Commitment on HIV and AIDS and the Universal Access, Biennial Report, Reporting Period: January 2008–December 2009*. Lusaka.