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## HIV/AIDS in South Africa

MARK HORTON

The emergence of the HIV/AIDS epidemic, and its substantial human and economic repercussions, is one of the most significant developments of South Africa's post-apartheid period. Two thousand South Africans contract the disease each day, and recent official estimates of the National Department of Health placed the number of HIV-positive people at the end of 2002 at 5.4 million, or over 12 percent of the total population. Nearly one-fourth of adults aged 15–49 are estimated to be infected.<sup>1</sup> Some 400,000 to 500,000 South Africans have AIDS, the most severe stage of HIV infection. The disease claims 800–1,300 lives each day, accounting for 30 percent of all deaths nationally and 40 percent of deaths of adults aged 15–49. The accumulated number of AIDS deaths up to 2004 has been estimated by Statistics South Africa at nearly 1.5 million. Average life expectancy has fallen sharply, from 64 years in 1994 to 49 years in 2001. The growing number of AIDS orphans, estimated by the United Nations at nearly 700,000 in 2001, is placing strains on extended families, communities, and public services, and demographic models suggest that the number of orphans is increasing at an accelerating pace, with an estimated 120,000 new orphans in 2002 and 150,000 in 2003.

HIV/AIDS is also having a wide range of direct and indirect economic costs on households, businesses, and the state. These costs include health care and funeral expenses, lower productivity and absenteeism, and addi-

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<sup>1</sup>Population estimates of Statistics South Africa, released in July 2004 and based on a separate set of demographic assumptions, placed the number of South Africans with HIV at 3.8 million, corresponding to 15.2 percent of the adult population.

tional recruitment and training expenditures. Tentative estimates indicate that one-fourth of public health spending is related to HIV/AIDS treatment. In late 2003, the government approved a complex program to provide anti-retroviral drug treatments (ARVs) to the population through the public health system.

The severe impact of HIV/AIDS is likely to continue, and the total number of deaths related to the disease could reach 5–7 million by 2010, or 10–15 percent of today's population. Studies of the potential economic impact indicate negative prospects for output, inflation, and income distribution, and some researchers project catastrophic consequences. While the provision of ARVs through the public health system will be a very significant administrative challenge in the period ahead, these treatments offer prospects to mitigate some of the most severe effects of the disease.

This chapter reviews the status and potential impacts of HIV/AIDS in South Africa, draws on demographic projections and economic studies, and summarizes the official policy response and actions taken by the non-governmental and business communities.

## **HIV/AIDS Prevalence, Incidence, and Risk**

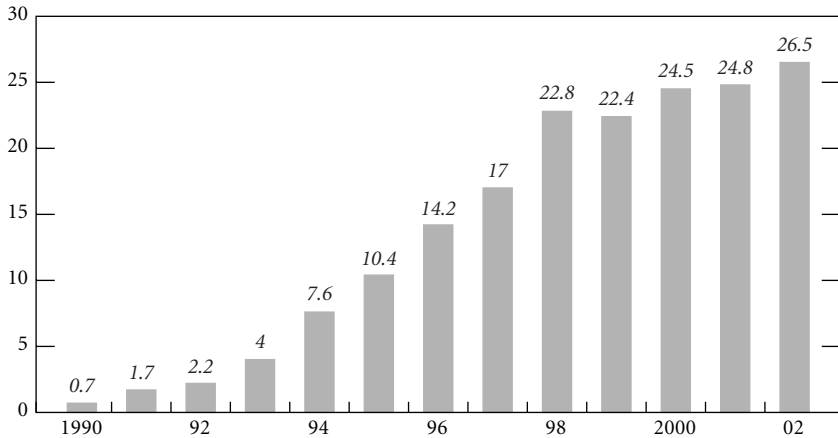
HIV prevalence rates increased sharply in South Africa during the 1990s and have continued to increase in recent years (Figure 7.1). National prevalence estimates are based on annual Department of Health surveys of pregnant women attending public health clinics, with extrapolation to other population groups, including men.<sup>2</sup> The most recent survey, conducted in October 2002, found that 26.5 percent of pregnant women were HIV positive, compared with 24.8 percent in 2001. Prevalence rates continue to rise for most age groups, although rates among 15–19 year-old women appear to have declined slightly in recent years (Table 7.1).<sup>3</sup> While lower prevalence rates among young women may reflect increased HIV/AIDS awareness and changing patterns of behavior, researchers have noted that the stabilizing rate may also reflect other factors, including increased AIDS mortality, declining pregnancy rates among HIV-infected women, and saturation of infection among high-risk individuals. Researchers have also

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<sup>2</sup>Other surveys are conducted, for example, in the armed forces and among the prison population. Compulsory testing is not permitted under South African law, and some wider population surveys have suffered from sample bias problems.

<sup>3</sup>Prevalence among young women may have increased, if confidence bands (95 percent level) are taken into account.

**Figure 7.1. HIV Prevalence Rates Among Antenatal Clinic Attendees**  
(In percent)



Sources: Department of Health (2002 and 2003).

expressed concern that growing HIV prevalence rates among older age cohorts suggest very high rates of new infection, given increasing AIDS mortality rates. It appears that the number of new infections may have peaked in 1998–99 at 900,000 new cases a year, although prevalence is expected to increase until 2006, when the number of new HIV infections is eclipsed by the number of AIDS deaths.

Demographers and public health specialists have suggested that the rapid spread of HIV/AIDS in South Africa has reflected behavioral and socioeconomic conditions, as well as an exceptionally high degree of population mobility. Key factors include mass population resettlement to homelands and urban townships during apartheid, travel along major trade routes made easy by South Africa's excellent infrastructure, the arrival of refugees from other parts of Africa, and the return after 1990 of exiles and combatants from liberation armies.<sup>4</sup> Migrant labor and living arrangements, which are common in urban areas and mining districts in South Africa, are also thought to have contributed to the rapid spread of HIV/AIDS.

<sup>4</sup>Demographers believe that the epidemic may have started later in South Africa than in neighboring countries, where prevalence rates are considerably higher or have stabilized or decreased in recent years, reflecting higher AIDS mortality. In Botswana and Swaziland, prevalence rates among pregnant women attending public clinics were nearly 40 percent in 2002, and prevalence rates in Lesotho exceeded 30 percent.

**Table 7.1. Prevalence of HIV Among Antenatal Clinic Attendees, by Age Group (with 95 Percent Confidence Intervals)**

Age Group	2000	2001	2002
Under 20	16.1 (14.5 – 17.7)	15.4 (13.8 – 16.9)	14.8 (13.4 – 16.1)
20–24	29.1 (27.4 – 30.8)	28.4 (26.5 – 30.2)	29.1 (27.5 – 30.6)
25–29	30.6 (28.8 – 32.4)	31.4 (29.5 – 33.3)	34.5 (32.6 – 36.4)
30–34	23.3 (21.5 – 25.1)	25.6 (23.5 – 27.7)	29.5 (27.4 – 31.6)
35–39	15.8 (13.9 – 17.7)	19.3 (17.0 – 21.5)	19.8 (17.5 – 22.0)
40+	11.0 (7.9 – 14.2)	9.8 (7.0 – 12.6)	17.2 (13.5 – 20.9)
All groups	24.5 (23.4 – 25.6)	24.8 (23.6 – 26.1)	26.5 (25.5 – 27.6)

Sources: Department of Health (2002 and 2003).

HIV prevalence rates in South Africa are strongly correlated with race, gender, employment, income, and education. Prevalence rates are lowest among whites and Asians, slightly higher among Coloreds, and highest among blacks, including when controlling for socioeconomic differences.<sup>5, 6</sup> Women have higher prevalence than men, due to biological and socioeconomic factors (income, employment, education), and they tend to become infected at an earlier age. Lower socioeconomic status is linked to lower levels of HIV/AIDS awareness, higher-risk sexual behavior, a greater prevalence of sexual violence, and a greater likelihood of economic distress and migration. A further factor is greater prevalence of other sexually transmitted diseases (STDs), which increase the likelihood of HIV infection.

HIV prevalence rates also vary geographically in South Africa and are generally lower in rural areas, reflecting social norms and greater isolation. However, HIV awareness, condom use, and treatment of STDs are also lower in rural areas, suggesting vulnerability to spread of the disease. Prevalence rates also vary considerably among the nine provinces, with exceptionally high rates in KwaZulu-Natal and Gauteng and low rates in Western Cape, Northern Cape, and Limpopo (Table 7.2). Researchers are uncertain as to whether provincial differences reflect demographic variation (e.g., provincial racial composition, degree of urbanization, extent of

<sup>5</sup>Johnson and Budlender (2002) present data indicating that the odds of HIV infection are 4.3 times higher for black South Africans than for South Africans of Asian descent with similar levels of education, and 5.9 times higher than for Coloreds. Blacks are 7.7 times more likely to be infected than whites with the same educational background, and semiskilled black workers are five times more likely than semiskilled whites to have HIV. Among skilled workers, the ratio is 7:1, and among lower-level management, 3:1.

<sup>6</sup>Johnson and Budlender (2002) report that the HIV epidemic among Asians and whites may be limited largely to cases of homosexual transmission.

**Table 7.2. Prevalence of HIV Among Antenatal Clinic Attendees, by Province (with 95 Percent Confidence Intervals)**

Province	2000	2001	2002
KwaZulu-Natal	36.2 (33.4 – 39.0)	33.5 (30.6 – 36.4)	36.5 (33.8 – 39.2)
Gauteng	29.4 (27.2 – 31.5)	29.8 (27.5 – 32.1)	31.6 (29.7 – 33.6)
Free State	27.9 (24.6 – 31.3)	30.1 (26.5 – 33.7)	28.8 (26.3 – 31.2)
Mpumalanga	29.7 (25.9 – 33.6)	29.2 (25.6 – 32.8)	28.6 (25.3 – 31.8)
Northwest	22.9 (20.1 – 25.7)	25.2 (21.9 – 28.6)	26.2 (23.1 – 29.4)
Eastern Cape	20.2 (17.2 – 23.1)	21.7 (19.0 – 24.4)	23.6 (21.1 – 26.1)
Limpopo	13.2 (11.7 – 14.8)	14.5 (12.2 – 16.9)	15.6 (13.2 – 17.9)
Northern Cape	11.2 (8.5 – 13.8)	15.9 (10.1 – 21.6)	15.1 (11.7 – 18.6)
Western Cape	8.7 (6.0 – 11.4)	8.6 (5.8 – 11.5)	12.4 (8.8 – 15.9)
National	24.5 (23.4 – 25.6)	24.8 (23.6 – 26.1)	26.5 (25.5 – 27.6)

Sources: National Department of Health (2002 and 2003).

rural poverty), or other specific factors, such as the location of key trucking routes or ports, which may lead to more severe epidemics in some provinces. Alternatively, differences in provincial prevalence rates may reflect different relative stages of exposure and progression of HIV/AIDS. Researchers have estimated that the HIV/AIDS epidemic is eight months ahead of the national progression of the epidemic in KwaZulu-Natal, where the main port of Durban is located and through which major north-south trucking routes pass. The progression of the epidemic in Northern Cape and Western Cape provinces may be as much as three years behind that in KwaZulu-Natal.

Prevalence rates also vary substantially among skill levels, occupations, and industries. Rates are highest among the unemployed and low-skilled workers and lowest among white-collar employees. According to some estimates, semiskilled black employees are 50 percent more likely to have HIV than skilled black workers and 3.3 times more likely than black managers; semiskilled white employees are twice as likely to have HIV than skilled white workers or white managers.<sup>7</sup> Prevalence rates are high among professions that typically involve long separations from families and greater proximity to commercial sex workers, such as migrant mine workers, truck drivers, and soldiers. Rates are lowest in sectors such as finance, telecommunications, and technology. The investment bank, ING Barings (see Quattek, 1999), presented an assessment of sectoral risk exposure, ranking South African industries according to infection risk and potential costs due

<sup>7</sup>Johnson and Budlender (2002). While having low overall levels of HIV prevalence, white senior managers have been found to have a higher prevalence than skilled white workers or white lower-level managers.

to dependence on skilled employees. The transportation and storage industry and the catering and accommodations sector were found to be the most exposed to AIDS, given high prevalence rates and reliance on relatively skilled staff. Companies in these two sectors would face relatively high recruitment and training expenses as the disease progresses.

## Demographic Projections

Demographic projections suggest potentially devastating impacts from AIDS over the next two decades, in terms of mortality, life expectancy, and the generation of a sizable population of orphans. These effects may be mitigated to some extent by the provision of ARV drug treatments. Projections of demographic impacts are generally based on two models, one prepared by the Actuarial Society of South Africa (ASSA) and a second maintained by the Metropolitan Life Insurance company.<sup>8</sup> Both models project progression of the epidemic through an interaction of four population risk groups and assumptions about sexual behavior, rates of infection, fertility, and mother-to-child transmission, and the median duration to mortality of those with HIV/AIDS. The ASSA model also makes provisions for migration and for separate modeling of racial and provincial population groups and allows for greater disaggregation of assumptions on sexual behavior and treatments.

Current ASSA projections incorporate a baseline and an alternative scenario, the latter involving lower mother-to-child HIV transmission due to provision of drug treatments at the time of birth and during nursing, enhanced treatment of STDs, and lower-risk behavioral patterns. Neither scenario incorporates the provision of ARVs. In the baseline scenario, HIV prevalence peaks at 16.2 percent of the population in 2006, compared with 12 percent in 2002. AIDS deaths overtake all other causes of death in 2004, and peak in 2011 at 800,000, or 1,650 deaths per 100,000, compared with 600 per 100,000 in 2002. The number of total AIDS and non-AIDS deaths is projected to exceed births during 2007–25, causing South Africa's population to decline by 0.2 percent a year. By 2015, AIDS would have claimed 9 million lives and, accounting for potential offspring, the population would be 10 million less than in the absence of AIDS. Average life expectancy at birth would have declined from 49 years in 2001 to 41 years

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<sup>8</sup>The ASSA model is available to researchers at <http://www.assa.org.za>, while the Metropolitan Life model is proprietary.

by 2015. By 2025, 15 million South Africans would have died from AIDS. The ASSA model projects the number of AIDS maternal orphans to grow continuously, reaching 1.85 million in 2015, or 15 percent of children under the age of 15.<sup>9</sup> Johnson and Dorrington (2001) argue that South Africa faces complex social costs from the sharp rise in the orphan population, ranging from strains on extended families and social services to low rates of school participation and increased crime.

The modest policy and behavioral changes assumed in the second ASSA scenario would lead HIV prevalence in the population to peak earlier and at a lower rate, 14.9 percent in 2004–05. The number of AIDS deaths would peak in 2010 at 713,000, or approximately 1,500 per 100,000, and the number of AIDS deaths would be reduced by 800,000 to 8.2 million through 2015. Life expectancy at birth would decline by somewhat less, to 43 years by 2010 and increase to 46 years by 2015. The number of AIDS orphans would be lower than in the baseline scenario by 160,000 in 2015.

The impact of the government's November 2003 plan for the universal provision of ARVs on demographic developments may be significant. A joint task team of the National Department of Health and the Treasury used the ASSA model to estimate the impact of extending the life of AIDS patients by up to 4½ years with ARVs. They found that ARVs could result in 1.7 million AIDS deaths being deferred until after 2010, with the number of children becoming orphans during 2003–10 reduced by 860,000 or nearly half.<sup>10</sup> There may be other benefits in combating the spread of HIV/AIDS from the public provision of ARVs, including heightened public awareness and increased interest in counseling and testing. These may, in turn, contribute to less risky sexual behavior and a reduction in HIV incidence.

## The Economic Impact

The South African economy has been affected by HIV/AIDS through a variety of channels. In addition to increased spending on health care, which is discussed in more detail in the next section, the major effects relate to lower labor productivity and higher absenteeism, loss of semi-

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<sup>9</sup>Johnson and Dorrington (2001) compare the ASSA model projections for orphans with projections from the Metropolitan Life model and two other AIDS models. The ASSA projections are the most cautious, estimating 1.53 million orphans in 2010, compared with 1.82 million in a U.S. Census Bureau model, 1.94 million in the Metropolitan-Doyle model, and 2.21 million in the Spectrum AIDS model.

<sup>10</sup>Department of Health and National Treasury (2003b, p. 19).

skilled and skilled labor, and increased costs of recruitment, training, and occupational health. These costs have an adverse impact on investment that is difficult to quantify. A survey of over 1,000 companies conducted in October–November 2003 by the Bureau for Economic Research at Stellenbosch University (BER) for the South African Business Coalition on HIV and AIDS (SABCOHA) found that while just 9 percent of South African companies reported experiencing a significant, adverse impact from HIV/AIDS at present, 43 percent expect such an impact in the next five years. One-third of the companies surveyed indicated that HIV/AIDS has reduced labor productivity, increased absenteeism, raised the cost of employee benefits, and adversely affected profitability. Thirty percent of companies reported higher labor turnover rates, while one-fourth have experienced increased recruitment and training costs.<sup>11</sup> Just 8 percent of the companies expected to be able to pass on higher, HIV/AIDS-related costs to customers.

With increasing rates of HIV prevalence and growing AIDS mortality, these effects are expected to intensify in the coming years, although analysts have predicted a wide range of potential outcomes. Initial studies incorporated demographic projections and considered various impacts of the disease in macroeconomic models. Inputs included assumptions about lower labor productivity and diminished labor force growth, shortages of semi-skilled and highly skilled workers, and negative effects on total factor productivity (TFP) growth. The models also incorporated the effects of increased spending on health care, funerals, and death benefits, higher fiscal deficits, lower household savings, and lower corporate profitability. These, in turn, contributed to lower rates of public and private investment. The studies also considered effects on the growth of exports and imports, foreign investment, inflation, and interest rates.

As the disease falls disproportionately on the unemployed and low skilled and the unemployment rate in South Africa is high, several studies have predicted relatively modest effects of HIV/AIDS (Table 7.3). In addition, health care expenditures make up a relatively small share of household, corporate, and public spending. As a result, these studies project that GDP growth is lower, but still positive, and in several cases, GDP per capita would increase in the presence of AIDS.

One of the first studies, by Quatteck (1999) for the investment bank ING Barings, found that lower household demand and lower public and private

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<sup>11</sup>Among companies with more than 500 employees, 75 percent reported lower productivity and higher absenteeism, increased employee turnover, and higher benefit costs.



**Table 7.3. Assumptions and Results from Selected Macroeconomic Studies of HIV/AIDS in South Africa**

	2006–10			2011–15	
	ING (1999)	BER (2001)	Arndt and Lewis (2000)	ING (1999)	BER (2001)
Labor force <sup>1</sup>	-12.8	-12.2	-12.8	-18.1	-20.9
Labor productivity <sup>2</sup>	-33.3	-40	-50	-33.3	-40
Total factor productivity <sup>3</sup>	Not considered	-21	-50	Not considered	-21
Domestic savings <sup>4</sup>	-2.1	-1.9	—	-2.2	2.0
Household disposable income <sup>1,5</sup>	-4.4	-0.1	—	-5.8	-0.5
Household consumption <sup>1</sup>	-0.8	0	—	-0.8	-0.7
Gross domestic fixed investment <sup>4</sup>	-0.1	-1.6	—	0	-2.1
Fiscal deficit <sup>4</sup>	-0.8	-0.1	—	-0.9	-0.4
Export growth <sup>6</sup>	0.1	0.2	—	0	0
Import growth <sup>6</sup>	-0.3	0.4	—	-0.5	0.2
Current account deficit <sup>4</sup>	-2.4	0.2	—	-2.4	0.6
Inflation (CPI) <sup>6</sup>	0.4	2.6	—	-0.1	3.3
Nominal interest rates <sup>1</sup>	0.3	2.9	—	0.6	4.1
Unemployment rate <sup>1</sup>	-0.9	-4.5	—	-1.2	-9.0
GDP growth <sup>6</sup>	-0.4	-0.4	-2.0 to -2.6	-0.3	-0.9

<sup>1</sup>Difference in levels, in percent relative to non-AIDS scenario. For labor force, figures are for 2010 and 2015. For unemployment, percentage point difference in rates.

<sup>2</sup>Loss of working hours for those with AIDS, in percent.

<sup>3</sup>Reduction of TFP growth, relative to non-AIDS scenario, in percent.

<sup>4</sup>Percentage point decline of ratio to GDP.

<sup>5</sup>BER figures are percentage point decline in annual growth, relative to non-AIDS scenario.

<sup>6</sup>Percentage point change in annual growth, relative to non-AIDS scenario.

savings would contribute to reduced GDP growth of 0.3–0.4 percentage points a year over the next 15 years. The study incorporated demographic forecasts made with the ASSA model, including high HIV prevalence and AIDS mortality among skilled and highly skilled workers to exacerbate South Africa's skills shortage, increase labor costs, and promote greater capital intensity. The study concluded that the unemployment rate would decline slightly, as population dynamics offset increasing capital intensity. With lower corporate and household savings, domestic savings would be 2 percentage points lower than in a non-AIDS scenario, pushing up interest rates and straining investment. The ING Barings study forecasted a growing demand for foreign savings, precisely when the worsening epidemic would deter investors, leading to a higher share of foreign loans and a wider current account deficit. The trade balance would improve modestly as the epidemic would lead South African companies to search for export markets, while lower aggregate demand would reduce imports.

Arndt and Lewis (2000) took a similar approach, using the same population and labor force projections as the ING Barings study, but assuming that labor productivity would be more adversely affected by the epidemic, that government investment would be crowded out to a greater extent, and that TFP growth would be lower by 50 percent, in comparison with a non-AIDS scenario.<sup>12</sup> With these assumptions, Arndt and Lewis projected significantly worse effects of the epidemic, with the annual rate of GDP growth 2½ percentage points lower than in a non-AIDS scenario at the end of a 10-year projection period. Notably, the study still projected GDP growth as remaining positive, with growth in the worst affected years at around 1 percent.

A 2001 study by the Bureau for Economic Research (BER) forecasted that a decline of TFP growth would have increasing economic effects.<sup>13</sup> The study suggested that AIDS would lead to a decline in skilled and unskilled unemployment rates, putting pressure on wages and encouraging capital-intensive production. Investment and household expenditures, sustained by insurance payouts and asset liquidation, would support GDP and contribute to an increase in GDP per capita. The study assumed that tax increases and cuts in other current spending would offset health spending and lower corporate tax collections.<sup>14</sup> With lower financing from abroad, this would contribute to an improvement of the current account balance, in contrast to the worsening projected by ING Barings. The BER also assumed a greater degree of pass-through of HIV/AIDS costs and greater price pressures from skills shortages.

The findings of relatively modest effects and increased GDP per capita in the presence of HIV/AIDS generated criticism in view of the catastrophic social impact of the disease. More recent studies have asserted that the initial work failed to account adequately for welfare effects or for complex transmission channels of the disease from households, small and medium enterprises and communities to the macroeconomy.<sup>15</sup> McPherson (2003) suggested that the early models of HIV/AIDS effects did not account for the erosion of networks needed for labor specialization and the development and maintenance of human and social capital. Crafts and

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<sup>12</sup>The ING Barings study did not consider TFP effects.

<sup>13</sup>The study based the reduction of TFP growth on the reduction of labor force growth of a similar magnitude in the AIDS scenario.

<sup>14</sup>In alternative scenarios, the BER assumed that higher HIV/AIDS-related spending would add to the deficit by up to 3 percentage points of GDP with higher inflation and interest rates and lower GDP growth.

<sup>15</sup>See, for example, Whiteside (2002).

Haacker (2003) argued that the earlier studies provided an incomplete picture of the welfare impacts of the disease. They used a value of statistical life approach to calculate the impact of HIV/AIDS on welfare through increased mortality and lower life expectancy. They found an aggregate welfare loss in South Africa of 60 percent of GDP in 2003 and projected a loss of 75–80 percent of GDP by 2010.<sup>16</sup>

Bell, Devarajan, and Gersbach (2003) asserted that the long-run costs of AIDS may be far greater than previously estimated, even catastrophic, as the disease may destroy existing human capital and weaken the transmission of knowledge and abilities from one generation to the next. They presented an overlapping generations model, in which premature mortality from AIDS feeds back through the exploding population of AIDS orphans to sharply lower education participation and severely weaken human capital formation. In addition, they suggest that the higher likelihood of contracting the disease provides disincentives for education, while lower education reduces AIDS awareness. These interactions are reinforced in successive generations. Without early policy intervention, productivity would collapse, and society would descend into poverty. By 2050, real incomes would fall to one-half of 1990 levels and to one-quarter of levels under a non-AIDS scenario.

Bell, Devarajan, and Gersbach suggested that the dire outcome could be forestalled by substantial additional health and social spending to head off the increase of premature mortality and AIDS orphans, and to maintain and further educational attainment. Given the dynamics of their model, a delay in policy response may simply postpone collapse by one generation.<sup>17</sup> The government criticized the study as both flawed and extreme, arguing that it did not account for the possibility of dynamic changes in technology or interventions, while the behavioral assumptions are not well supported by either theory or empirical findings. Leading AIDS researchers also ques-

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<sup>16</sup>Crafts and Haacker use a value of statistical life of 136.7 times GDP per capita, based on findings of earlier studies. For South Africa, this implies a value of statistical life (VSL) of \$350,000–400,000. Welfare losses are weighted by mortality for different age groups. Crafts and Haacker note that the VSL ratio is based on countries with higher GDP per capita and much smaller changes in mortality than in countries severely affected by AIDS. In addition, the use of per capita income in the calculation may pose complications, as the prevalence of the disease is overwhelmingly among low-income segments of the population.

<sup>17</sup>The additional social spending is not costed out on a program-by-program basis by the authors, but instead is derived mathematically as the optimal amount needed to achieve universal schooling and to eliminate the impact of the disease. In contrast to the approach of the earlier studies, the authors do not assess the sustainability of higher deficits and debts or the impact of offsetting revenue and expenditures.

tioned the model's assumptions regarding individual and family responses to heightened mortality risk.

## Policy Response

The official response to the AIDS epidemic began in 1992, when a national coordinating committee was established to develop an HIV/AIDS strategy. The Reconstruction and Development Program, issued by the African National Congress in advance of the April 1994 elections, pledged to combat the disease by improving public awareness, particularly in rural areas and among women, and to treat AIDS and STDs at public health facilities. The first HIV/AIDS national strategy was adopted in 1994 and reviewed in 1997. The review identified problems of limited human and financial resources at all levels of government and recommended increased resources, improved capacity, and greater political commitment. Current policy is guided by a May 2000 strategic plan for 2000–05, updated by several subsequent Cabinet statements. The plan involves four priority areas: public awareness and prevention, treatment and support, research and monitoring, and legal and human rights.

Direct public spending on HIV/AIDS increased from R 30 million in 1994/95 to over R 1 billion (0.1 percent of GDP) in 2002/03, and doubled in 2003/04 to over R 2 billion (0.2 percent of GDP). Total HIV/AIDS-related spending, direct and indirect, is considerably higher, as the authorities estimate that up to one-quarter of public health spending (0.8 percent of GDP) is connected with HIV/AIDS-related treatment, while nutrition support programs (0.1 percent of GDP) and targeted income support (0.5 percent of GDP) are considered key elements in the broad response to the disease.

There has been considerable controversy in recent years over government provision of ARV therapies through the public health system. A landmark decision to provide ARVs was taken in August 2003, and a comprehensive plan for the roll-out of the drugs was issued in November.<sup>18</sup> The plan helps address the authorities' long-standing concerns with weaknesses in health and laboratory infrastructure, high drug and testing costs, complex treatment regimes, and potential toxicity of the drugs. The approval of ARV provision came after public protests, a series of court decisions mandating drug provision to pregnant women and victims of sexual assault, and a drastic reduction of drug costs, from R 50,000 a

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<sup>18</sup>Provincial authorities, particularly in KwaZulu-Natal and Western Cape, have occasionally taken the lead in providing drug treatments, including in advance of national decisions.

patient a year in 2000 to R 4,000–10,000 at present. The decision also provided the basis for negotiations with manufacturers that led to a further reduction of drug and testing costs.<sup>19</sup>

The provision of ARVs to as many as 400,000–500,000 AIDS patients at present and 1.2 million in five years is unprecedented in scope and complexity worldwide. The largest program to provide ARVs at present involves 130,000 people receiving treatment in Brazil. Less than 20,000 South Africans receive ARVs at present, mostly through private health plans. Implementation will require major improvements to staffing and training, particularly in rural areas, to treatment facilities, to counseling and testing centers, to patient information systems to permit monitoring and follow-up, and to pharmaceutical distribution and laboratory infrastructures.

ARV program costs are projected to reach 0.3 percent of GDP a year by 2007/08.<sup>20</sup> A key provision of the plan is full national access, with at least one service point to be opened in each of 53 health districts during the first 12 months of the program. Additional sites will be opened in some urban health districts where substantial demand pressure is expected. The plan assumes that 95,000 patients, 20 percent of those with AIDS and without other medical coverage, will seek treatment in the first months, although actual demand, and therefore costs, may be considerably higher. Half of the recipients are expected to be in KwaZulu-Natal (30 percent) and Gauteng (23 percent). The plan states that South Africans covered by private medical insurance should receive ARVs through their plans, rather than through the public health system.<sup>21</sup> The total number of ARV recipients is projected to grow sharply as administrative capacity is put in place, reaching 85 percent coverage in five years and 1 million AIDS patients. Drug and laboratory testing costs are expected to be reduced by a further 25–50 percent over the next five years through economies of scale, importation of generic drugs, and issuance of licenses for generic production in South Africa.

Bilateral and multilateral donors have assisted the government with capacity building, training, health economics, and support for organizations

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<sup>19</sup>Costs were reduced by a further 40 percent for some drug treatments and as much as 85 percent for others during August–November 2003. Laboratory testing costs were cut by an additional 20–35 percent.

<sup>20</sup>With significantly higher drug costs, a 2000 report by Abt Associates placed the costs of ARV provision in the public sector at R 70 billion or 4 percent of GDP in 2010.

<sup>21</sup>Sixteen percent of South Africans are covered by private medical insurance. According to Connelly (2002), the insurance company, Old Mutual, has estimated that 7.5 percent of South Africans covered by private insurance are HIV positive, suggesting that 35,000–80,000 privately insured South Africans have AIDS, compared with 475,000 AIDS patients without private medical coverage.

providing home-based care.<sup>22</sup> South Africa has also received assistance from the Global Fund to Fight AIDS, Tuberculosis and Malaria, including \$41 million over 2003/04 to support drug provision, awareness efforts, health sector training initiatives, and expansion of laboratory services.<sup>23</sup>

## **Response of the Nongovernmental and Business Communities**

In recent years, nongovernmental organizations (NGOs), private insurance providers, and South African companies have stepped up their response to HIV/AIDS. The response has taken a number of forms, such as the introduction of sophisticated awareness programs, prevention efforts, voluntary counseling, and testing programs and, in some cases, provision of ARVs to infected employees. The recent BER-SABCOHA study suggested that awareness and prevention programs offer opportunities for cost savings, and with the dramatic decline of drug and testing costs, provision of ARVs also offers prospects for corporate savings, particularly in respect of payments of death benefits to survivors.

South African and international NGOs have played a significant role in the response to HIV/AIDS. The trade unions launched HIV/AIDS awareness initiatives in the late 1980s and urged adoption of equitable HIV/AIDS policies, including through preparation of codes of good practice. Other NGOs, notably the Treatment Action Campaign and Médecins Sans Frontières (MSF), have been instrumental in securing access to drug treatments, including by court decision and by operating township treatment facilities. Several international charitable foundations have been active in South Africa, supporting AIDS awareness and research programs and assisting the government in preparing the plan for the roll-out of ARVs and in negotiations with suppliers of drugs and laboratory tests.

The response of South African companies, however, has been uneven and incomplete, with significant efforts coming mainly from large corporations and foreign investors that have substantial human and financial resources to manage complex response programs. The Second Report of the King Committee on Corporate Governance (2002) warned of the

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<sup>22</sup>Agencies that provide support include the Joint United Nations Program on HIV/AIDS (UNAIDS), the European Union (EU), and aid agencies of EU member countries, Canada, Japan, Norway, and the United States.

<sup>23</sup>These programs represent initial work under two multiyear grants totaling \$165 million. Applications have been made for two additional grants worth \$90 million.

growing threat of HIV/AIDS to the South African economy and South African businesses. The report noted that the business community had done little to respond to HIV/AIDS and urged companies to improve their understanding of the potential social and business impact of the disease, to adopt and implement policies to manage these effects, and to regularly monitor performance and report to stakeholders.

Leading HIV/AIDS researchers in South Africa have expressed particular concern with the weak response of small and medium-sized companies to acknowledge HIV/AIDS risks and implement disease management programs. The recent BER-SABCOHA survey highlighted these concerns, finding that just 13 percent of small companies have implemented a formal AIDS policy, compared with 90 percent of large employers. While 69 percent of large companies surveyed have a voluntary counseling and testing program, just 9 percent of small companies have such a program in place. Few companies, large or small, have conducted research to assess the impact of HIV/AIDS on their employees, their production costs, or their consumer base. The survey suggested that the stepped-up response of the government through the provision of ARVs may help focus corporate efforts.

## Conclusions

HIV/AIDS has had significant social and economic repercussions in the post-apartheid period in South Africa. Critical effects have included increased mortality, a sharp reduction in life expectancy, lower labor productivity, and creation of a sizable population of AIDS orphans. These repercussions have undermined the effectiveness of a host of efforts and programs to improve social conditions by improving education, health, access to water, sanitation, electricity, and other public services. Direct and indirect spending by the state to mitigate the impact of HIV/AIDS amounts to 1½ percent of GDP, while companies have begun to cope with such effects as lower productivity, greater absenteeism, higher health expenses and insurance premiums, and loss of staff.

Given the nature and progression of the disease, these social and economic costs are expected to worsen, as the percentage of South Africans with HIV increases and the number of lives claimed by AIDS grows. The continuing increase of HIV prevalence rates is a significant cause of concern, suggesting that AIDS awareness and prevention efforts are not as effective as hoped. Some researchers have suggested that the ultimate impact of the disease may be catastrophic. However, recent developments, including the reduction of the costs of AIDS drugs and laboratory testing

costs and the decision by the government to provide these drugs through the public health system, give hope that the worst consequences of the disease may be mitigated.

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