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**The Private Sector and HIV/AIDS in Africa:
Taking Stock of Six Years of Applied Research**

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Abstract

Background: Until recently, little was known about the costs of the HIV/AIDS epidemic to businesses in Africa and business responses to the epidemic. This paper synthesizes the results of a set of studies conducted between 1999 and 2006 and draws conclusions about the role of the private sector in Africa's response to AIDS.

Methods: Detailed human resource, financial, and medical data were collected from 14 large private and parastatal companies in South Africa, Uganda, Kenya, Zambia, and Ethiopia. Surveys of small and medium-sized enterprises (SMEs) were conducted in South Africa, Kenya, and Zambia. Large companies' responses or potential responses to the epidemic were investigated in South Africa, Uganda, Kenya, Zambia, and Rwanda.

Results: Among the large companies, estimated workforce HIV prevalence ranged from 5%-37%. The average cost per employee lost to AIDS varied from 0.5-5.6 times the average annual compensation of the employee affected. Labor cost increases as a result of AIDS were estimated at anywhere from 0.6%-10.8% but exceeded 3% at only 2 of 14 companies. Treatment of eligible employees with ART at a cost of \$360/patient/year was shown to have positive financial returns for most but not all companies. Uptake of employer-provided testing and treatment services varied widely. Among SMEs, HIV prevalence in the workforce was estimated at 10%-26%. SME managers consistently reported low AIDS-related employee attrition, little concern about the impacts of AIDS on their companies, and relatively little interest in taking action, and fewer than half had ever discussed AIDS with their senior staff. AIDS was estimated to increase the average operating costs of small tourism companies in Zambia by less than 1%; labor cost increases in other sectors were probably smaller.

Conclusions: Although there was wide variation among the firms studied, clear patterns emerged that will permit some prediction of impacts and responses in the future.

Key words: Africa, HIV/AIDS, private sector

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1. Introduction

Over the past six years, the authors and their colleagues at the Center for International Health and Development (CIHD) at Boston University in Boston, Massachusetts have investigated the impact of HIV/AIDS on the private sector in sub-Saharan Africa and the private sector's response to the epidemic. Primary data have been collected in Ethiopia, Kenya, Rwanda, South Africa, Uganda, and Zambia small, medium-sized, and large companies and across most major industrial sectors, including mining, agriculture, manufacturing, and tourism.

From this experience, our continuing review of the published and unpublished literature, and ongoing discussions with business leaders, donor agencies, and service providers, we have reached certain conclusions about the impact of the epidemic on business and the role that the private sector can play in responding to HIV/AIDS in sub-Saharan Africa. We believe that as employers, private sector businesses can make an important contribution to fighting the epidemic. We are not convinced, however, that the private sector will, or even should, play a role as central as that suggested by the most vociferous advocates of corporate social responsibility.

In this paper, we summarize the evidence from our studies which leads to these conclusions. Based on our experience, we identify the determinants of impacts and suggest the limits of the private sector response. It should be noted that the studies we draw upon in this paper are not a comprehensive inventory of research on AIDS and business, nor are they representative of all countries or sectors. Our objective is to identify common factors in how the AIDS epidemic is affecting companies in Africa and their responses to it and propose some general conclusions from our own research experience. In so doing, we aim to help define the next phase of research and action.

2. Background

A vast literature exists on the extent of the HIV/AIDS epidemic in sub-Saharan Africa and its impact—real and potential—on various sectors of society.¹⁻³ For our purposes, it is sufficient to note that HIV prevalence exceeds 10 percent of working aged adults in several countries in southern Africa and ranges from 5 to 10 percent in most of eastern and central and some of west Africa. In the hardest hit countries, such as Botswana, South Africa, Swaziland, and Lesotho, more than 20 percent of working-aged adults are HIV-positive.¹ Mortality among 15-60 year olds has more than doubled,⁴ and life expectancy at birth has fallen to below 45 in several countries.⁵

Concern about the potential impact of AIDS-related morbidity and mortality on private sector labor productivity, production costs, and competitiveness arose in the mid-1990s.⁶ By the end of that decade, there were anecdotal reports of AIDS-induced shortages of skilled workers, rising absenteeism, and skyrocketing benefits costs.⁷ Most information came, however, from case studies of a few large and high-profile firms. Little rigorous analysis had been done to support the claims of major impacts or document the specific ways in which HIV/AIDS could affect a company.

As business leaders and policy analysts began to consider the financial implications of AIDS among formally employed workers, international and domestic advocacy organizations ramped up the pressure on multinational companies, in particular, to participate more actively in the global response to AIDS. Employers were exhorted, at a minimum, to provide care

and treatment for their own HIV-positive workers.^{8,9} Broader proposals included providing services for the communities in which the companies were located and requiring suppliers and distributors to have HIV/AIDS programs as well.¹⁰

External and internal pressure and a recognition of the costs of not taking action have motivated some private firms in Africa to invest in comprehensive HIV/AIDS prevention and treatment programs and pioneer innovative public-private partnerships. The vast majority of companies, however, have done little or nothing,¹¹ and many have tried to diminish the need for action by changing their levels and conditions of employment.¹² The appropriate role of the private sector in fighting the epidemic, moreover, remains an unaddressed question in most countries. Calls for businesses to invest more in HIV/AIDS programs for employees risk the possibility that companies will respond by relocating to lower-prevalence parts of the world, casualizing previously permanent workers, or substituting capital for labor. Few if any countries have sought or found a reasonable balance.

If the private sector is to take a broader role in addressing the HIV/AIDS epidemic, African business and government leaders will need answers to several questions: What is the cost of HIV/AIDS to private sector employers of different sizes and in different industrial sectors? Where does the epidemic rank as a management priority? What is the return on employer investments in prevention and treatment? Where do private companies fit in national responses to AIDS, particularly in light of the large sums of money now being invested by international donors?

In this paper, we draw together evidence from a wide range of countries and industrial sectors to offer our own answers to these questions. The studies we cite were conducted by researchers from the Center for International Health and Development at Boston University and our colleagues in African institutions between 1999 and 2006. The research is by no means exhaustive, and the results are specific to the times and places of data collection. Taken together, however, we believe that these studies offer the best information yet available on HIV/AIDS and the private sector in Africa.

3. Analytic Framework

The possible impacts of HIV/AIDS on an organization are wide-ranging and go well beyond those arising from HIV infection in the workforce itself. A private sector company may see changes in the prices of inputs or the preferences of consumers and face higher transactions costs in its interactions with government and labor. For some companies, illness and deaths among employees will be the most important consequences of the epidemic; for others, external (market-level) effects will dominate. Figure 1 illustrates the three levels at which HIV/AIDS can impose costs on a company and the types of costs arising at each level. In the diagram, increased expenses or “direct costs” (column a) are recurrent operating expenses, while lost productivity or “indirect costs” (column b) are reductions in productivity or revenues resulting from HIV/AIDS.

Figure 1: Costs of HIV/AIDS to a company

	a. Increased expenses (Direct costs)	b. Lost productivity (Indirect costs)
I. From one employee with HIV/AIDS (individual costs)	<ul style="list-style-type: none"> • Benefits payments • Medical care • Recruitment of a replacement worker • Training of a replacement worker 	<ul style="list-style-type: none"> • Increased leave and absenteeism • Reduced on-the-job productivity • Supervisor's time • Vacancy until replacement is hired • Poorer performance due to replacement's inexperience
II. From many employees with HIV/AIDS (organizational costs)	<ul style="list-style-type: none"> • Benefits premiums • Accidents due to sick or inexperienced employees • Litigation over benefits, dismissals, etc. • Consultants to provide relevant expertise 	<ul style="list-style-type: none"> • Production disruptions due to missing skills, accidents, vacant positions, etc. • Loss of institutional memory and experience • Breakdown of workforce morale and cohesion • Diversion of senior managers' time • Deteriorating labor relations
III. From high HIV prevalence in society (market or external costs)	<ul style="list-style-type: none"> • Higher cost of material inputs • More security needed due to breakdown in civil society • Higher wages due to shortage of skilled workers 	<ul style="list-style-type: none"> • Reduced demand for products • Higher risk premium on investment • Higher cost of capital • Higher cost of transactions with government and labor
Total Costs of HIV/AIDS		

Source: adapted from 13

The research discussed in this paper primarily concerns the internal costs of HIV/AIDS in the workforce (Levels I and II). To the extent that market or external costs (Level III) have been considered, it has mainly been by macroeconomic modelers working with aggregate, national-level data.² The impact of such potential problems as a breakdown in social cohesion leading to a greater need for physical security has not been estimated, to our knowledge.

Within the workforce (Levels I and II), direct costs that arise from individual employees with HIV/AIDS (Ia) are relatively predictable and easy to measure. Those that stem from multiple cases (IIa) can be less predictable or require data that few organizations have. Indirect costs arising from individual cases (Ib) are difficult to measure, since the productivity of an individual worker is difficult to observe and may depend on the performance of an entire team. Hardest of all to quantify are the productivity losses resulting from multiple cases of HIV/AIDS (IIb). These include such impacts as diminishing employee morale, the disruption of established work teams, the reduced efficiency of a workforce that has less experience and probably less skill, an increase in labor disputes as benefits and job security come under pressure, and the burden imposed on managers who must cope with worker illness and deaths. Most of these costs are hidden, and in some cases they will not become evident until the epidemic is well advanced.

The long lag time between infection with HIV and death from AIDS—9-10 years on average in the absence of antiretroviral therapy (ART)¹⁴—makes this disease different from almost any other health problem a company, or a society, might face. Figure 2 is a timeline that reflects the natural progression of the disease, when treatment is not available. Although the costs are incurred over a long period of time and usually do not begin until several years after infection, an employer in principle acquires the *liability* for that stream of future costs from the moment the employee is infected with HIV. As long as the employee remains in that company's workforce and does not have access to effective treatment, these costs are

inevitable. Companies in Africa are now bearing the costs of HIV infections that were acquired by employees as long as a decade ago.

Figure 2: Timing of cases and costs in the absence of effective treatment

Timeline (illustrative)	Progression of HIV/AIDS in the Workforce	Cost to Employer
Year 0	Employee becomes infected with HIV virus	No cost to employer at this stage
Year 0-8	Employee remains well and fully productive	No cost to employer at this stage
Year 7-9	Sickness begins (some early deaths, some long-term survivors)	Illness-related costs are incurred (absenteeism, productivity, management time, medical care)
Year 9-10	Employee leaves workforce due to death or retirement (some long-term survivors)	Termination-related costs are incurred (payouts from retirement fund, funeral expenses, loss of morale, experience, and cohesion)
Year 10-11	Company hires replacement employee (some employees not replaced)	Replacement-related costs are incurred (vacancy, recruiting, training, reduced productivity)

Source: adapted from 13

4. Data Sets

Three main types of data were used for this research. First, we collected detailed human resource, financial, and medical data from more than a dozen large private and parastatal companies in South Africa, Uganda, Kenya, Zambia, and Ethiopia. These data were used to generate quantitative estimates of the costs of HIV/AIDS to these companies, based on a previously described methodology.¹⁵ Second, we conducted surveys of small and medium-sized enterprises (SMEs) in various industrial sectors in South Africa, Kenya, and Zambia. The survey instrument elicited information about the current impact and costs of HIV/AIDS, managers' perceptions of that impact, and company responses.¹⁶ Finally, we examined large companies' responses, interventions, or potential interventions, focusing largely but not exclusively on treatment, in South Africa, Uganda, Kenya, Zambia, and Rwanda. Some of these studies have been published; most others are available as project reports. The studies used in this paper are listed in Table 1. Each study in Table 1 is given a study reference that will be used to identify individual studies in the remainder of this paper.

Table 1: Studies included in this paper

Study reference ^a	Country	Year ^b	Focus of study	Sector and location	Source ^c
<i>Studies of individual large companies</i>					
Co. 1	So. Afr.	2003	Cost of AIDS	Utility, many provinces	Unpublished
Co. 2	So. Afr.	1999	Cost of AIDS	Commercial agriculture, KwaZulu Natal Prov.	15
Co. 3	So. Afr.	2001	Cost of AIDS	Mining, many provinces	15
Co. 4	So. Afr.	2001	Cost of AIDS	Retail, KwaZulu Natal Province	15
Co. 5	So. Afr.	2001	Cost of AIDS	Media, many provinces	15
Co. 6	So. Afr.	2002	Cost of AIDS	Manufacturing, Gauteng Province	Unpublished
Co. 7	Botswana	2000	Cost of AIDS	Mining, northern Botswana	15
Co. 8	Uganda	2003	Cost of AIDS	Manufacturing, western Uganda	17
Co. 9	Uganda	2003	Cost of AIDS	Commercial agriculture, many locations	17
Co. 10	Zambia	2005	Cost of AIDS	Tourism, Livingstone District	18
Co. 11	Zambia	2005	Cost of AIDS	Commercial agriculture, Central Province	19
Co. 12	Kenya	2004	Cost of AIDS and impact on productivity	Commercial agriculture, Kericho District	20
Co. 13	Kenya	2002	Impact on productivity	Commercial agriculture, Kericho District	21
Co. 14	Rwanda	2005	VCT uptake	Manufacturing, Kigali and Gisenyi	22
Co.15	Ethiopia	2005	Cost of AIDS	Manufacturing, Addis Ababa	23
Co. 16	Ethiopia	2005	Cost of AIDS	Manufacturing, Addis Ababa	23
<i>Company surveys</i>					
Survey 1	So. Afr.	2004	SME ^d impacts and responses	Multiple sectors, Gauteng and KwaZulu Natal Provinces	16
Survey 2	So. Afr.	2005	SME impacts and responses	Multiple sectors, industrial area in Gauteng Province	24
Survey 3	So. Afr.	2005	Provision and uptake of treatment	Multiple sectors, nationwide	25
Survey 4	Uganda	2004	Company responses	Multiple sectors, nationwide	26
Survey 5	Zambia	2005	SME impacts and responses	Tourism, Livingstone District	18
Survey 6	Zambia	2006	SME impacts and responses	Commercial agriculture, Lusaka District	19
Survey 7	Kenya	2005	SME impacts and responses	Commercial agriculture, Kericho District	20

^aStudy references will be used to identify individual studies in the remainder of this paper.

^bYear in which data collection was completed.

^cMost project reports and some published papers are available from http://www.bu.edu/dbin/sph/research_centers/cih_impact_hiv.php.

^dSmall and medium-sized enterprises.

5. Cost of AIDS to Large Companies

Between 1999 and 2005, we made detailed estimates of the costs of HIV/AIDS in the workforce to the 14 large companies shown in Table 1 for which the focus of the study was the cost of AIDS. At these companies, we combined retrospective data on employee demographic characteristics, absenteeism, productivity, and medical care costs; employment contracts and benefits policies; managers' estimates or calculations of the costs of recruiting

and training replacement workers; and recent financial statements to estimate the cost of losing one employee to HIV/AIDS at each major job level. We then estimated AIDS-related mortality in the workforce and multiplied the nominal cost per death by the estimated number of deaths in the year of the study to obtain the aggregate costs of all AIDS-related losses per year. Results for some companies differ from those in previously published work because they are not discounted, are based on mortality rather than incidence, and are expressed in relation to total compensation (salary plus benefits), rather than base salary alone.

Table 2 summarizes our findings. It is organized by industrial sector, to illustrate differences and similarities across and within sectors. With the exception of Companies 10 and 11, all of the cost studies were conducted prior to the widespread availability of antiretroviral therapy. ART appears to have reduced the costs to Company 10 shown in Table 2 substantially, as we will discuss later in the paper.

Table 2: Estimated cost of HIV/AIDS to large companies in the base year of the study, in the absence of effective treatment

Sector, country, and study reference ^a	Approx. workforce size	Estimated workforce HIV prevalence in year of study ^b	Average cost per AIDS-related termination (multiple of average annual compensation) ^g	“AIDS Tax”: aggregate costs in base year (% of total annual compensation) ^g
<i>Commercial agriculture^c</i>				
South Africa (Co 2)	7,000	23.7%	1.1	0.7% ^e
Uganda (Co 9)	500	5.6%	1.9	1.2%
Kenya (Co 12)	22,000	10.0%	1.1	1.0% ^e
Zambia (Co 11)	1,200	28.5%	0.9	1.3% ^{de}
<i>Mining</i>				
Botswana (Co 7)	500	29.0%	4.4	8.4%
South Africa (Co 3)	600	23.6%	1.4	2.4%
<i>Manufacturing</i>				
South Africa (Co 6)	1,300	14.0%	1.2	1.1%
Uganda (Co 8)	300	14.4%	1.2	1.9%
Ethiopia (Co 15)	1,500	5.3%	0.9	0.6%
Ethiopia (Co 16)	1,300	6.2%	0.8	0.6%
<i>Other</i>				
So. Afr. (retail) (Co 4)	500	10.5%	0.7	0.5% ^e
So. Afr. (media) (Co 5)	3,600	10.2%	1.3	1.3%
So. Afr. (utility) (Co 1)	>25,000	11.7%	4.7	2.2% ^e
Zambia (tourism) (Co 10)	350	36.8%	3.6	10.8% ^f

^aStudy references are shown in Table 1.

^bPrevalence estimates were based on anonymous workplace HIV seroprevalence surveys, modeling from population data, modeling from observed mortality, or a combination of these methods, depending on available data.

^cCommercial agriculture includes producing, purchasing, processing, and/or marketing agricultural products; not all companies are engaged in all of these activities.

^dThis estimate is based on observed rather than estimated AIDS mortality; costs based on estimated mortality would be substantially higher than shown.

^eIncludes non-permanent workers, such as casual and seasonal workers.

^fTreatment of eligible employees with antiretroviral therapy appears to have reduced the cost of AIDS to Company 10 substantially below what is shown, as is discussed later in this paper.

^gCompensation includes base salary or wage plus benefits.

With the exception of the mining company in Botswana (Company 7) and the tourism company in Zambia (Company 10), in no company studied did the estimated annual costs of losing employees to HIV/AIDS, taken as a percentage of annual labor costs—what we have elsewhere dubbed the “AIDS tax,”¹⁵ exceed 3 percent. For most companies, HIV/AIDS

appears to be raising the cost of labor by 1-2 percent. This should be regarded as a conservative estimate of the true costs of AIDS in the workforce, as it omits many of the organizational (level II) costs in Figure 1. As is the case for Companies 7 and 10, however, there are also firms that are facing a much larger AIDS tax. In both of these cases, estimated HIV prevalence was very high. Since both Botswana and Zambia had relatively mature epidemics at the time of the studies, AIDS-related morbidity and mortality was thus also high. Finally, both companies provided generous employee benefits, leading to very high overall costs.

Direct costs such as benefits, recruitment, and training can be estimated relatively easily, and large companies can also usually predict the duration of vacancies and the time required for a new worker to become fully productive. Indirect costs associated with morbidity—losses of productivity due to absenteeism and diminished performance when at work (so-called “impaired presenteeism”)—are much harder to quantify, largely because productivity cannot usually be observed directly. Wherever possible, we used routinely-collected payroll data to compare the productivity and absenteeism of workers who died of AIDS-related causes to those of workers still present in the workforce. In the non-agriculture companies in South Africa, Uganda, and Zambia, we found that in their last two years of service, employees who ultimately died of AIDS or suspected AIDS were on leave or absent from work anywhere from 18 to 50 days more than other employees—the equivalent of roughly 1 to 3 months of lost working time over the 24 months of observation.

Perhaps the best data on productivity loss associated with AIDS come from two commercial agriculture firms in Kenya, Companies 12 and 13 in Table 1. Both are tea growers and processors whose workforces consist largely of tea pluckers. Because tea pluckers are paid on the basis of the quantity of tea plucked per day, these companies keep daily records of individual productivity. Since the companies also maintain their own on-site medical services, we were able to observe directly both health status and productivity for more than 20,000 tea pluckers over a multi-year period. The results are shown in Table 3.

Table 3: Indirect costs of AIDS at commercial agriculture companies in Kenya

Parameter	Company 12		Company 13	
	Last year	Second-to-last year	Last year	Second-to-last year
Diminished productivity when at work (% decrease in individual output)	22.6%	17.5%	17.4%	8.0%
Absenteeism (additional days absent or on leave)	17.0	4.7	31.0	35.5
Transfer to less strenuous duties (additional days assigned to "light duty")	n.a.	n.a.	21.8	19.1
Overall reduction in quantity of tea plucked/year	27.2%	18.9%	35.3%	28.6%

The findings in Table 3 suggest that manual workers, such as tea pluckers, with HIV/AIDS are roughly 25-30 percent less productive over their last two years of service than they otherwise would be.

6. Impact of HIV/AIDS on Small and Medium-Sized Companies

The vast majority of private, for-profit enterprises in sub-Saharan Africa are small or medium-sized, not large. Small and medium-sized enterprises (SMEs)—defined here as

having between 10 and 200 employees—account for a large share of formal sector employment in most countries and are often regarded as the best hope for sustainable job creation.^{27;28} (Note that we are not addressing micro-enterprises—those with fewer than 10 employees and often informally organized and reliant on family labor.)

To understand the impact of HIV/AIDS on SMEs and investigate the potential for SMEs to play a role in fighting the epidemic, we conducted 5 surveys of representative samples of SMEs in various industrial sectors in South Africa, Zambia, and Kenya, as listed in Table 1. Small and medium sized companies are less likely than large companies to have detailed cost data, accurate records of absenteeism, and other information needed to make quantitative estimates, making it harder to evaluate the impact of AIDS on these companies. The findings of the surveys—both quantitative and qualitative—about the epidemic’s impact are summarized in Table 4.

Table 4: Impact of AIDS on small and medium-sized companies

Study reference ^a	Survey 1	Survey 2	Survey 5	Survey 6	Survey 7
Sample description					
Country	So. Afr.	So. Afr.	Zambia	Zambia	Kenya
Sector or location	2 province	Industrial	Tourism	Agricult.	Agricult.
Sample size	80	34	30	29	19
Workforce characteristics					
Median workforce size	48	53	27	46	17
Estimated HIV prevalence in combined workforce ^b	13.7%	9.8%	24.3%	26.4%	10.0%
Unskilled workers as % of combined workforce	31%	31%	36%	63%	85%
Employee attrition (turnover)					
Total average annual attrition due to any cause (resignation, dismissal, retirement, death, etc.)	13.0%	9.3%	12.4%	13.8%	8.4%
Average annual attrition due to ill health or death	1.4%	0.9%	1.7%	1.2%	3.7%
Proportion of total attrition attributable to ill health or death	10.4%	10.1%	14.5%	8.2%	45.2%
Managers’ perceptions of current impact of AIDS on their companies					
None or little	n.a. ^c	85%	65%	63%	72%
Moderate	n.a. ^c	15%	28%	37%	22%
Severe	n.a. ^c	0%	7%	0%	6%
Managers’ ranking of HIV/AIDS as a business concern relative to other concerns facing companies	9	9	5	7	3
Companies that had ever discussed AIDS as a business issue	38%	26%	47%	41%	37%

^aStudy references are from Table 1.

^bPrevalence estimates made by adjusting published population prevalence data to age and sex structure of combined workforce.

^cQuestion was not asked in this survey.

Although the cost figures obtained in the SME surveys generally represented managers’ best guesses, rather than verified expenditures, we used them to make a rough estimate of the cost to small tourism companies in Zambia of losing an employee to AIDS. In Livingstone District, Zambia, where Survey 5 was conducted, skilled workers accounted for the majority of people employed in the tourism sector and suffered most of the deaths experienced in 2004. We estimated that losing a skilled worker to AIDS cost the surveyed companies an

average of at least \$1,430, equal to just over one year's annual compensation for a worker at that level. The largest components of this cost were training of a replacement worker (28% of the total), funeral and death benefits (23%), and paid sick leave (17%).¹⁸ The surveyed companies, however, lost an average of 0.6 employees/company to any health-related cause in the 12 months preceding the survey. If all of these losses had been caused by AIDS and were among skilled workers, the average annual cost per company would have been about \$858 per company per year. For the median company, this amount represented roughly a 2.4 percent increase in labor costs. Across the full sample, labor accounted for an average of 27 percent of operating expenses. AIDS-related losses were thus estimated to increase the average company's operating costs by just 0.6 percent. Tourism companies like those in Survey 5 have relatively skilled workforces and invest a significant amount in training; agriculture companies like those in Surveys 6 and 7 likely face even smaller cost increases.

The surveys thus produced a fairly consistent picture of small and medium-sized companies that have been only mildly affected by the AIDS epidemic so far and, as might therefore be expected, are not terribly concerned about it and have taken little action to address it. In the next section we review evidence on company responses.

7. Company Responses to AIDS

The studies described above also looked, to varying degrees, at the responses of large, medium-sized, and small companies to HIV/AIDS among employees. Our research on company responses can be divided into three categories: provision of services; uptake of services; and potential returns on investments in HIV/AIDS interventions.

a. Provision of HIV/AIDS Services

Information on the current provision of HIV/AIDS services by companies in Africa was collected in all seven of the surveys listed in Table 1. Results from surveys 1-2 and 4-7 are shown in Table 5. (Survey 3 will be discussed below.)

Table 5: Provision of HIV/AIDS services by surveyed companies

Survey number ^a	Country and year	Sector/sample	Proportion of companies that had ever undertaken HIV/AIDS-related activities			
			Educational activities, provision of information to employees	Any other workplace prevention activity ^c	Antiretroviral therapy for HIV-positive employees	Activities in the community
1	So. Afr. 2004	Multiple, 2 provinces	15%	18%	0% ^d	n.a. ^e
2	So. Afr. 2005	Industrial area	47%	15%	0% ^d	n.a. ^e
5	Zambia 2005	Tourism	47%	47%	17%	43%
6	Zambia 2006	Agriculture	55%	55%	28%	34%
7	Kenya 2005	Agriculture	32%	21%	0%	11%
4	Uganda 2004	Multiple, national ^b	54%	35%	27%	n.a. ^e

^aSurvey numbers refer to Table 1.

^bConvenience sample of 37 companies with 25-500+ employees, including multinationals (13), parastatals (2), and locally owned companies (22).

^cE.g. distribution of condoms or facilitation of VCT.

^dSome companies subsidized membership in a medical aid scheme that included coverage for antiretroviral therapy, but uptake among employees was generally low.

^eSurvey did not ask about activities in community.

Roughly half of the companies represented in Table 5 had provided information or education about HIV/AIDS to employees at the time of each survey. Somewhat fewer—ranging from 15 to 55 percent—had undertaken activities that usually require more time or effort on the part of the employer, such as facilitating access to VCT. For all of these prevention activities, many companies reported that the materials and/or service were provided to them at no cost by government or an NGO. In these instances, the company's contribution was likely limited to the time of employees who participated or assisted. No more than a quarter of the companies—and none of those sampled in South Africa or Kenya—were explicitly providing antiretroviral therapy at the time of the surveys. It is likely that this proportion has increased slightly since the surveys were conducted, particularly in South Africa. The advent of treatment in the public sector in all study countries beginning in 2004, however, has also clearly deterred some companies from spending their own funds on provision of treatment. By the end of 2005, employees of most of the companies surveyed in all four countries had some access to ART from public healthcare facilities, though waiting times at these facilities may be many months long.

Large companies are much more likely than small or medium sized companies to make antiretroviral therapy for AIDS available to their employees, either by providing it directly, contracting with an independent disease management programme, or including it in the benefits provided by the company's medical aid (health insurance) scheme. Survey 3 elicited information from 52 of South Africa's 64 private and parastatal companies with more than 6,000 permanent employees. As of late 2004, roughly half of the companies surveyed made ART available to all permanent employees, covering 63 percent of the combined workforces of all 52 companies. Access varied widely by industry, however: all financial services companies and three quarters of mining companies made ART available to all employees, but only 21 percent of retail firms and none of the construction or community, social and personal services companies did so.

b. Uptake of HIV/AIDS Services

Provision of workplace-based services is an effective way to respond to AIDS only if employees agree to utilize those services. We looked at uptake of services in two of our studies: Survey 3 and Company 14.

As described above, Survey 3 investigated provision and uptake of AIDS treatment services among South Africa's largest private sector employers. Although access to ART was widespread—some 63 percent of the nearly 1 million workers employed by the surveyed companies had access—uptake was low. Across the combined workforce, for which average HIV prevalence was estimated at 15 percent, roughly one quarter of suspected HIV-positive employees were enrolled in care and treatment programs, and only 4 percent were receiving ART, or less than 1 percent of the entire combined workforce. Access and uptake thus diverged in Survey 3: access to services was relatively high, but use of the services was quite low.

A different type of experience was documented in the study of Company 14, which looked at uptake of both testing and treatment. Over the four year period from 2001-2005, 73 percent of Company 14's workforce volunteered for an HIV test, and the testing campaign identified fully 87 percent of those employees believed to be HIV-positive, based on a 2003 anonymous seroprevalence survey. Of the 109 employees and dependents who tested positive, 42 (39%) were on ART as of early 2005, including 85 percent of those employees who were medically eligible for ART. Although the findings from Survey 3 and Company 3 are not strictly comparable—they were conducted in different countries using very different methodologies—they do illustrate the range of testing and treatment uptake outcomes that prevail among large employers.

c. Returns to Investments in Treatment Interventions

The benefits of workplace interventions to employers are largely unquantified. The effectiveness of HIV prevention efforts is notoriously difficult to measure, and to our knowledge no quantitative, outcomes-based evaluations of workplace prevention programs have ever been published. From an employer's perspective, the net benefits of preventing an HIV infection are of course the "avoided costs" of that infection, minus the cost of the prevention program itself. Since basic prevention interventions tend to be relatively inexpensive, the average cost of an AIDS-related termination shown in Table 2 can be taken as a rough estimate of the savings to a company for each incident infection prevented. These savings will only accrue, however, 8-9 years after the infection is prevented—the average latency period for HIV—and should thus be discounted accordingly. They will also only accrue if the employee in question is still in the workforce when HIV-related illness develops. The long time lag between prevention costs, which are incurred now, and prevention benefits, which accrue years later, makes it difficult for private sector employers to capture the financial benefits of investments in prevention.

The benefits of treatment are somewhat easier to estimate, both empirically and through modeling. Many of the companies listed in Table 1 now make HIV/AIDS care and treatment, including antiretroviral therapy, available to employees. We modeled the "returns to investment" in AIDS treatment for the companies using the cost results shown in Table 2 and a hypothetical treatment program with the following characteristics:

- Treatment begins 2 years before an HIV-positive employee would otherwise have been expected to die of AIDS-related causes, and employees who start treatment today will be able to remain in the workforce for an average of 5 years longer than would otherwise be expected. Treatment is thus required for a total of 7 years per eligible employee.
- After 5 years, treatment is assumed to fail, leading to a period of illness and then death similar to that experienced in the absence of treatment.
- There will be some additional absenteeism and reduced productivity associated with initiating and sustaining therapy, which we will assume to equal 25 percent of that associated with untreated HIV/AIDS.
- Once treatment fails, employees can be retired for medical reasons immediately, curtailing the rest of the high absenteeism and low productivity that characterizes AIDS-related deaths now. Upon medical retirement, no further benefits are provided, eliminating all death- and funeral-related benefits.
- Because company managers will have ample lead time to plan for AIDS-related attrition, the loss of productivity related to vacancies and to the inexperience of replacement employees will cost 25 percent of what they do in the absence of treatment. Direct costs of recruitment and training a replacement worker will remain the same.
- Future costs and benefits are not discounted. The appropriate discount rate to use for each company varies and can greatly affect the results, so a consistent rate of 0 percent was applied to all.
- Treatment costs \$360/patient/year (\$30/month). Exchange rates used were those prevailing in the year of the study.

Results of the modeling for selected companies are shown in Table 6.

Table 6: Net benefits of employer sponsored treatment for selected large companies

Study reference	Country and sector	Net benefit per employee treated			Net benefit for treatment of all eligible permanent employees ^a
		Manager	Skilled worker	Unskilled worker	
Co. 6	Manufacturing, S. Afr.	\$9,683	\$3,751	\$1,955	\$49,326
Co. 10	Tourism, Zambia	\$8,604	\$1,577	\$657	\$25,081
Co. 12	Agriculture, Kenya	\$17,999	-\$673	-\$2,278	-\$172,227

^aAssumes that 100% of eligible permanent employees are treated.

Table 6 suggests that for many businesses, such as Companies 6 and 10, providing ART under the (admittedly strict) conditions of our hypothetical program would result in net financial savings. For these companies, ensuring that employees have access to and utilize treatment services is beneficial to everyone involved. Company 12 represents a different outcome: treating managers is highly profitable, because they are both expensive to lose and difficult to replace, but treating unskilled and even skilled workers will not produce an immediate financial gain. Most labor intensive, relatively low-technology industries such as textiles, agribusiness, construction, and contract services like security and cleaning will face this situation. This is likely to be particularly true of those that are locally owned and lack both resources and pressure from an international head office. These companies often make treatment available to managers and selected skilled employees on an ad hoc basis but rely on the public sector to care for the majority of HIV-positive workers.

Company 10, a large tourism company in Zambia, presented an interesting development in the business response to AIDS. As Table 2 indicates, modeling from population data

suggests that HIV prevalence in Company 10's workforce was extremely high—more than one out of three employees—and that the resulting increase in labor costs should have approached 11 percent, by far the largest “AIDS tax” that we have seen. Observed AIDS-related mortality, however, was only about 25 percent of predicted mortality—and the company's actual AIDS tax was thus only 2-3 percent, in line with that of most other companies in Table 2. One explanation for the lower-than-expected mortality was the youthfulness of the workforce: the average age of Company 10's employees was just 32, and most of those with HIV were probably not yet symptomatic. A second explanation was that many employees were already on ART, provided by either the public program at the district hospital or a private doctor in the nearby town. The patient numbers reported by these two providers were sufficient to explain virtually all of the discrepancy between expected and observed mortality. Our study concluded that Company 10 may represent a new trend in African workforces: high HIV prevalence but low AIDS mortality, as a result of access to antiretroviral therapy.

There are several uncertainties that will influence the effect of ART on worker survival and productivity, and thus on the net benefits of a treatment intervention from a company's perspective. First, employees have to agree to be tested and, if positive, enroll in the treatment programme. Experience with uptake varies widely: Company 14 has enrolled nearly 90 percent of estimated HIV-positive employees in its care and treatment program, but in South Africa, Survey 3 found uptake of treatment to be very low at most very large companies. Second, high levels of ARV adherence will have to be sustained over the long term. In principal, individuals whose survival depends on remaining healthy enough to perform their jobs should be highly motivated to adhere, but there is bound to be some falling off of adherence over time. A treated but non-adherent workforce population is unlikely to be highly productive. Finally, some loss of productivity may result from treatment itself, due both to toxicities (side effects) from the ARVs and queuing time required to obtain services in the public sector. As noted above, queues at public clinics can last for many hours, and current ART guidelines typically require many clinic visits, especially in the first year.

8. Conclusions

Although the companies included in our studies do not approach a representative sample of all formal sector employers in Africa, clear patterns have emerged that we believe to be generalizable to many countries and industries. Based on the data reported above and our broader experience in conducting this research and reviewing the literature, we draw the ten following conclusions about HIV/AIDS and the private sector in Africa.

1. The impact of HIV/AIDS on firms' labor costs has so far been real but moderate.

In most, though not all, of the studies we have conducted, HIV/AIDS has been found to increase labor costs by less than 3 percent. Broadly speaking, companies that employ large numbers of unskilled or semi-skilled workers are likely to have a high prevalence of HIV infection in the workforce, but each employee who acquires HIV/AIDS costs the employer relatively little. Companies that rely primarily on skilled staff will face larger costs per HIV-positive employee, but the number of employees with HIV/AIDS is likely to be small, and the share of labor costs in overall operating expenses may also be relatively low. AIDS is affecting the private sector companies in Table 1 less severely than it is the government agencies we have studied.¹⁸ There are exceptions to this rule, however, as demonstrated by the mining company in Botswana and the tourism company in Zambia, to which untreated

AIDS is estimated to have increased labor costs by 6 percent and 11 percent, respectively. Most of the large companies we studied, moreover, were multinationals and/or exporters. Uncritical generalizations may therefore be risky. The magnitude and nature of the impact of AIDS on business is also liable to change over time, as local epidemics mature, access to treatment expands, and companies adapt in other ways.

2. A few variables explain most of the differences in costs among firms.

There is a good deal of variation across and within countries and sectors, but there is also some consistency in the drivers of costs. First, as one would expect, costs to employers vary with HIV prevalence in the workforce population. Estimated prevalence in the companies shown in Table 2 ranged from under 6 percent to more than 35 percent. Second, the job level of affected employees is important, as morbidity and mortality among more skilled (and higher paid) employees impose higher costs on employers than they do among less skilled employees. Third, the structure of employment also plays a role: contract and casual workers typically receive few or no employee benefits and can easily be dismissed and replaced when they fall ill. Fourth, company ownership matters: multinational companies, parastatals, and companies with a history of foreign or colonial ownership tend to provide more extensive employee benefits and invest more in training, and they thus face higher costs when employees become ill or die. Finally, costs vary to some extent by industrial sector: on average, mining and manufacturing firms face higher costs than service and agricultural firms, probably as a result of differences in capital intensity, labour productivity, and workforce demographics. Differences within sectors may equal or exceed differences between sectors, however.

3. Responses to AIDS are also associated with consistent company characteristics.

Just as there are common determinants of the cost of AIDS to employers, there are several factors consistently associated with a more active management response to the epidemic. Small companies that lack dedicated human resources staff and that tend to interact with individual employees on the basis of personal relationships, rather than company policies, are unlikely to have formal HIV/AIDS programs. Large firms with professional human resource departments, occupational health departments, and/or on-site medical expertise are more likely to establish a workplace AIDS policy, secure access to medical care, including ART, for HIV-positive employees, and provide other HIV-related services and benefits. Multinational and parastatal companies are also more likely to take action. Multinationals often follow the lead of their head offices, which sometimes provide expertise and assistance to local operations, as well as setting company policy. Even in these firms, however, individual champions may still be necessary for policy change. As with many collective actions, the personal experience and initiative of individuals—managers, union representatives, human resource officers—may be as important as institutional factors in determining a company's response to AIDS.

4. Treatment is a good investment for many employers.

Chronic illness in the workforce is expensive for most employers, particularly when it ends with the payment of large death benefits and replacement costs. As the price of effective treatment has fallen, the estimated net financial benefits to employers of making ART available (paying for and, in some cases, directly providing) to employees have turned positive for increasing numbers of companies. Even for those for which there is a net cost,

rather than net saving—such as Company 12, as shown in Table 6—the cost of treatment is partially offset by the benefits. There are also many other unmeasured and/or non-financial benefits of providing treatment to employees, including reducing the time managers must spend coping with employee deaths and turnover, mitigating the impact of AIDS on workforce morale, motivation, and discipline, stemming the loss of skill and experience from the workforce, and allowing a company to respond compassionately to the crisis facing its employees.

5. Businesses have other ways to respond to the cost of HIV/AIDS.

Most research and advocacy about the business response to AIDS have focused on HIV-specific programs and policies. Companies have other ways of averting the costs of AIDS, however.¹² The private sector has greater scope than other employers to shift the economic burden of AIDS onto government, nongovernmental organizations, households, and individuals. Common practices that shift the AIDS burden from businesses to others include pre-employment screening, reduced employee benefits, restructured employment contracts, outsourcing of less skilled jobs, selective retrenchments, and changes in production technologies. Contracting out of previously permanent jobs (“casualization”), for example, shields firms from benefits and turnover costs, effectively shifting to households, NGOs, and government the responsibility to care for affected workers and their families. These changes appear to be underway, to varying degrees, throughout the countries we have studied. Many of these changes are primarily responses to globalization and would have occurred in the absence of AIDS. The opportunity to minimize the costs of AIDS-related illness and death, however, may hasten or intensify trends outsourcing and benefits caps.

6. Employer provision of treatment can make sense even when public sector treatment is available.

A development that is related to, but separate from, the “burden shift” described above is that of large companies choosing to rely on the public sector or on individual employees to pay for treatment. Both companies we studied in Ethiopia (Companies 15 and 16), for example, originally paid for ART for employees but shifted them to public clinics once treatment fees were eliminated in the public sector. If a company does not pay for treatment, an employee with AIDS can either pay for private care himself or, where available, access a public sector treatment program. In these cases, the direct cost of treatment is transferred to the household or government, but the employer realizes the savings from the worker’s continued productivity. Serious drawbacks to this strategy remain, however. First, in many places, each visit to a public sector treatment clinic requires a full day of queuing, such that treatment itself increases work absenteeism. Second, without a structured program, a company has no way to encourage or evaluate uptake of treatment or adherence to ART. Treatment of employees with AIDS is thus hit or miss, and the company will continue to incur the costs of AIDS-related morbidity and mortality. As a result, many large companies in South Africa and elsewhere have concluded that continuing to pay for private disease management services is a worthwhile investment, despite rapidly expanding public sector programs.²⁵

7. For most small and medium-sized companies, HIV/AIDS is not a pressing issue.

The surveys of SMEs in South Africa, Zambia, Kenya, and Uganda consistently found that HIV/AIDS ranked well below several other business issues as a concern for senior managers. Few managers report ever having discussed AIDS as a business issue, and fewer still believe

that AIDS is having a serious impact on their companies. Most perceive little pressure to act from employees, shareholders, or other constituencies. While some managers may simply be misinformed, it seems unlikely that business leaders are systematically failing to notice sustained, major effects of the epidemic. A more likely explanation is that companies in Africa—and particular small and medium-sized companies—face myriad challenges to staying in business, ranging from power failures to high and unpredictable taxes to political instability. In such an environment, AIDS ranks low on the management agenda.

8. Small and medium sized companies do not have the resources to develop HIV/AIDS programs.

Most companies that have implemented an active HIV/AIDS program have relied on dedicated human resources staff to lead the effort. Small and medium-sized companies typically do not have human resources staff, and other managers do not see enough impact to justify the investment of their own time to understand the epidemic, research the response options, and put them in place. Other deterrents to investing in HIV/AIDS programs include relatively high employee turnover, lack of redundancy in the workforce that would allow individual workers to take time out to participate in HIV-related activities, individual rather than policy-driven relationships with employees, high discount rates, and a dearth of available cash. Smaller companies, moreover, cannot benefit from the economies of scale available to large companies. In a survey of HIV/AIDS service providers conducted in South Africa in 2004, we found that private service providers charged smaller companies—those with fewer than 250 employees—2-3 times more per employee than they charged larger companies.²⁹ Expectations that large numbers of SMEs can be persuaded to establish HIV/AIDS programs without support from business associations may therefore be unrealistic. Greater societal benefits may be obtained, moreover, by encouraging SMEs to focus on job creation, and relying on governments and NGOs to provide healthcare.

9. Almost nothing is known about the effectiveness of workplace HIV/AIDS interventions.

Many companies throughout sub-Saharan Africa have taken the advice of public health professionals over the past 15 years and implemented active HIV prevention programs, including education and awareness campaigns, training of peer educators, distribution of condoms, treatment and prevention of other STIs, and promotion of HIV testing. Despite more than a decade of experience, there is virtually no quantitative research to indicate whether these interventions have reduced HIV transmission substantially, marginally, or not at all. One reason for the lack of evidence is common to HIV prevention in general: it is notoriously difficult to measure HIV prevention outcomes outside of clinic trials. Workplace settings are even more problematic, due to workforce turnover, changes in management policies and approaches over time, and inability to control for the effects of external changes, such as rising HIV awareness and risk reduction in the general population. It is reasonable to assume that prevention strategies that appear to be effective in the general population, such as promotion of VCT, are also effective in employed populations. Even for these “hard” interventions, however, it is difficult to quantify the benefits of workplace prevention investments.

10. Little is known about the effect of ART on worker productivity or labor costs.

Highly active antiretroviral therapy has been shown to extend survival and reduce HIV/AIDS-related morbidity in the vast majority of patients.^{30,31} Although most research comes from U.S. and European populations, there is a growing body of evidence from Africa to suggest that treatment with ARVs is also effective in suppressing viral replication and restoring immune functions in African populations.³²⁻³⁴ What is less clear is the extent to which ART will restore the productivity of workers and diminish the costs of untreated AIDS. The modeling in Table 6 assumed, arbitrarily, that treated workers would be 75 percent as productive as HIV-negative workers, but there is so far no evidence to support this assumption. Preliminary findings by other researchers are promising: absenteeism among Anglo American mineworkers, for example, returned to pre-AIDS levels approximately 6 months after initiating ART.³⁵ We and others currently engaged in research to evaluate the effectiveness of ART in reducing the impact of AIDS on labor productivity and costs; results are likely to be available by 2007.

This paper has summarized six years of research on AIDS and the private sector in Africa. It has not been intended as a comprehensive literature review, but rather as a synthesis of a set of related studies. These studies have documented costs and impacts that are less damaging than many researchers and activists originally believed. On the other hand, the work has also strongly suggested that well-designed interventions can achieve the double benefit of reducing costs to employers while saving the lives and improving the welfare of individual employees. Rigorous evaluation of the outcomes and sustainability of interventions—including HIV prevention and care, as well as antiretroviral treatment—is now the highest priority on the AIDS and business research agenda.

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