



The POLICY Project

The Economic Impact of AIDS in Cote d'Ivoire

by
Lori Bollinger
John Stover
Benjamin Zanou

September 1999

The Futures Group International
in collaboration with:
Research Triangle Institute (RTI)
The Centre for Population and Development
Activities (CEDPA)

POLICY is a five-year project funded by the U.S. Agency for International Development under Contract No. CCP-C-00-95-00023-04, beginning September 1, 1995. The project is implemented by The Futures Group International in collaboration with Research Triangle Institute (RTI) and The Centre for Development and Population Activities (CEDPA).

AIDS has the potential to create severe economic impacts in many African countries. It is different from most other diseases because it strikes people in the most productive age groups and is essentially 100 percent fatal. The effects will vary according to the severity of the AIDS epidemic and the structure of the national economies. The two major economic effects are a reduction in the labor supply and increased costs:

Labor Supply

- The loss of young adults in their most productive years will affect overall economic output
- If AIDS is more prevalent among the economic elite, then the impact may be much larger than the absolute number of AIDS deaths indicates

Costs

- The direct costs of AIDS include expenditures for medical care, drugs, and funeral expenses
- Indirect costs include lost time due to illness, recruitment and training costs to replace workers, and care of orphans
- If costs are financed out of savings, then the reduction in investment could lead to a significant reduction in economic growth

LABOR FORCE STATISTICS				
Sector	Economically Active Labor Force: 1994 ^a		Employment by Industry: 1989 ^b	
	'000s	%	'000s	%
AGRICULTURE	2,877	51.1		
Agriculture, hunting, forestry and fishing			53.3	13.8
INDUSTRY	647	11.5		
Mining and quarrying industries			n/a	n/a
Manufacturing industries			60.0	19.81
SERVICES	2,106	37.4		
Electricity, gas and water			N/a	N/a
Construction			17.4	4.5
Trade, restaurants and hotels			25.9	6.7
Transport, storage and communications			53.3	13.9
Finance, insurance, real estate and business services			N/a	N/a
Community, social and personal services			174.9	45.4
TOTAL	5,631	100.0	385	100.0
Source: a – Europa World Year Book, 1998; b - United Nations, Statistical Yearbook, 1995, table 29				

Although the agriculture sector accounted for only 14% of employment in 1989, the UN estimates that the 53% of the economically active population were engaged in agricultural activities in 1997. The main cash crops are cocoa, which accounted for 33% of total export earnings,

and coffee. Subsistence crops are maize, yams, cassava, and plantains. Manufacturing consists mainly of agro-industrial activities, including processing of cocoa, coffee, cotton,

palm kernels, pineapples, and fish. Cote d'Ivoire serves as a regional financial center, operating a regional stock market in Abidjan, and a center for trade and communications.¹

The economic effects of AIDS will be felt first by individuals and their families, then ripple outwards to firms and businesses and the macro-economy. This paper will consider each of these levels in turn and provide examples from Cote d'Ivoire to illustrate these impacts.

Economic Impact of AIDS on Households

The household impacts begin as soon as a member of the household starts to suffer from HIV-related illnesses:

- Loss of income of the patient (who is frequently the main breadwinner)
 - Household expenditures for medical expenses may increase substantially
 - Other members of the household, usually daughters and wives, may miss school or work less in order to care for the sick person
 - Death results in: a permanent loss of income, from less labor on the farm or from lower remittances; funeral and mourning costs; and the removal of children from school in order to save on educational expenses and increase household labor, resulting in a severe loss of future earning potential.
- By 1995, AIDS had become the leading cause of death for adult men, and the second leading cause of death for adult women.² In 1995, it was estimated that there were 80,000 children who had lost either one or both parents to AIDS; by 1998, the NACP estimates that the number will rise to 282,000 orphans.³
 - According to a World Bank study, households with an HIV/AIDS patient spent twice as much on medical expenses as other households. Furthermore, 80 percent of the expenditures went to the AIDS patient, rather than to other household members who are ill. When the person with AIDS died or moved away, average consumption fell by as much as 44 percent during the following year.¹
 - A study conducted by the Food and Agricultural Organisation (FAO) during 1996-97 found that average expenditure to care for male AIDS patients in the north was 75,000 CFA francs (about US\$150), or about 25% of the annual net income of small farms in the area. In the mid-west, the expenditure for male AIDS patients was, on average, 150,000 CFA francs, or about 50% of annual net farm income. Sometimes land assets had to be sold in order to meet the expenses.⁴

¹ Europa World Year Book 1999, Volume 1 (1999) Europa Publications Limited (London).

² Williams, G, A D Blibolo, D Kerouedan. (1995) "Filling the Gaps: Care and Support for People with HIV/AIDS in Cote d'Ivoire" Strategies for Hope: No. 10, ACTIONAIDS, London, UK.

³ "HIV/AIDS country profile: Cote d'Ivoire" (1997) AIDS Analysis Africa; 7(2) 12-14.

⁴ Food and Agricultural Organisation, "The Rural People of Africa Confronted with AIDS: A Challenge to Development," Rome, December 1997, p. 2, 6.

- Household income was found to be negatively affected when a “crop-sharing” system was instituted to cope with labor shortages. Overall food production remained the same, but was split between more households.⁵
- Children were withdrawn from school, both because of the lack of finances to pay schooling expenses, and because the children were needed as farm laborers. If children had been orphaned by AIDS, they would be withdrawn from school immediately.⁶ One study estimates that by 2003, using the low prevalence scenario, Cote d’Ivoire will have close to 375,000 orphans.⁷
- Households with an HIV/AIDS patient spent twice as much on medical expenses as other households. Furthermore, 80 percent of the expenditures went to the AIDS patient, rather than to other household members who are ill. When the person with AIDS died or moved away, average consumption fell by as much as 44 percent during the following year.²

Economic Impact of AIDS on Agriculture

Agriculture is the largest sector in most African economies accounting for a large portion of production and a majority of employment. Studies done in Tanzania and other countries have shown that AIDS will have adverse effects on agriculture, including loss of labor supply and remittance income. The loss of a few workers at the crucial periods of planting and harvesting can significantly reduce the size of the harvest. In countries where food security has been a continuous issue because of drought, any declines in household production can have serious consequences. Additionally, a loss of agricultural labor is likely to cause farmers to switch to less-labor-intensive crops. In many cases this may mean switching from export crops to food crops. Thus, AIDS could affect the production of cash crops as well as food crops.

- The FAO study found that there was a significant reduction in the amount of cash crops produced due to HIV/AIDS, such as cotton in the north, and coffee and cocoa in the mid-west. Food production has not been affected in the north as much as in other areas, because land previously used for growing labor-intensive cotton was switched over to food.⁸

⁵ Food and Agricultural Organisation, “The Rural People of Africa Confronted with AIDS: A Challenge to Development,” Rome, December 1997, p. 6

⁶ Food and Agricultural Organisation, “The Rural People of Africa Confronted with AIDS: A Challenge to Development,” Rome, December 1997, p. 7

⁷ Ministère de la Santé Publique et des Affaires Sociales (1995) “Les orphelins du SIDA en Cote d’Ivoire: Questions d’intégration sociale,” Programme National de lutte contre le SIDA/MST/TUBERCULOSE, Novembre 1995.

⁸ Food and Agricultural Organisation, “The Rural People of Africa Confronted with AIDS: A Challenge to Development,” Rome, December 1997, p. 5

- A socio-economic impact study found that one of the mechanisms used in rural Cote d’Ivoire to cope with the effects of HIV/AIDS was to reduce the amount of land under cultivation. This was due to the labor shortages experienced from increased morbidity and mortality. The “crop-sharing” method, described above, is another mechanism utilized to cope with labor shortages; although the amount of land under cultivation remains the same, the owners of the land receives only two-thirds of the production they had produced previously.⁹

Economic Impact of AIDS on Firms

AIDS may have a significant impact on some firms. AIDS-related illnesses and deaths to employees affect a firm by both increasing expenditures and reducing revenues. Expenditures are increased for health care costs, burial fees and training and recruitment of replacement employees. Revenues may be decreased because of absenteeism due to illness or attendance at funerals and time spent on training. Labor turnover can lead to a less experienced labor force that is less productive.

Factors Leading to Increased Expenditure	Factors Leading to Decreased Revenue
Health care costs	Absenteeism due to illness
Burial fees	Time off to attend funerals
Training and recruitment	Time spent on training
	Labor turnover

Annual cost of HIV infection, 1994 (US\$)				
	Total cost	Average annual cost	Annual cost per employee	% of wage bill
Firm 1: Food processing	232,454	33,207	120	1.3
Firm 2: Textile	53,900	32,667	29	0.8
Firm 3: Packaging	51,990	10,398	125	3.2

- A recent study quantified the costs to three firms in Abidjan related to HIV, including medical care, prevention, screening, sick leave, funeral attendance and costs, and lost productivity. The largest costs were for medical care, lost productivity, and funeral costs, although the share each component takes varies between

firms. Total costs are shown in the table above; average annual cost per employee ranged between US\$29 and US125 among the three companies. Indirect costs, although not quantifiable, were also found to be significant; teamwork efforts were interrupted and productivity suffered when employees refused to eat or work with fellow workers who were suspected of being HIV-positive. Workers were also suspicious of whether medical confidentiality was being respected, and whether employees were being unfairly dismissed. Work structures were also being re-

⁹ Black (1997) “Impact du VIH/SIDA sur les systemes d’exploitation agricoles en Afrique de l’Ouest,” FAO, Rome.

organized, as key personnel died, or as managers prepared for possible deaths by forming flexible work teams.¹⁰

- A survey of four businesses in Abidjan in 1993 found that the average medical care expenses for AIDS patients varied between 300,000 and 350,000 FCFA per patient per year. Combining this information with two different assumptions about prevalence rates, it was estimated that the four businesses had spent between 34 and 58 million FCFA in 1993. By 1998, the projected expenditure varied between 146 and 298 million FCFA for the four companies. The low scenario assumed a prevalence rate of 10%, while the high scenario assumed a prevalence rate of 15%.¹¹

For some smaller firms the loss of one or more key employees could be catastrophic, leading to the collapse of the firm. In others, the impact may be small. Firms in some key sectors, such as transportation and mining, are likely to suffer larger impacts than firms in other sectors. In poorly managed situations the HIV-related costs to companies can be high. However, with proactive management these costs can be mitigated through effective prevention and management strategies.

Impacts on Other Economic Sectors

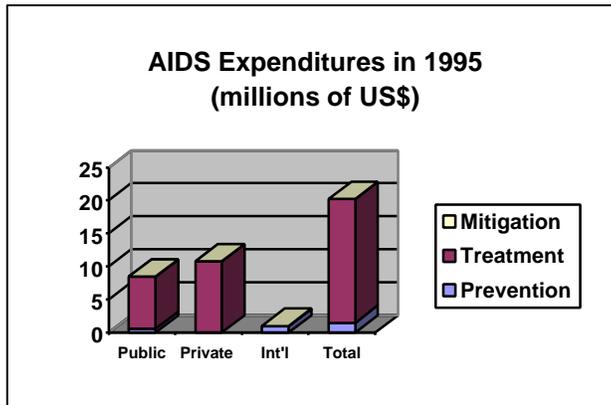
AIDS will also have significant effects in other key sectors. Among them are health, transport, mining, education and water.

- **Health.** AIDS will affect the health sector for two reasons: (1) it will increase the number of people seeking services and (2) health care for AIDS patients is more expensive than for most other conditions. Governments will face trade-offs along at least three dimensions: treating AIDS versus preventing HIV infection; treating AIDS versus treating other illnesses; and spending for health versus spending for other objectives. Maintaining a healthy population is an important goal in its own right and is crucial to the development of a productive workforce essential for economic development.
- The cost for treating one AIDS patient in the central university hospital in Abidjan was about US\$600 in 1997, while the cost in San-Pedro was US\$150. These costs are similar to costs for treating other illnesses, due to the limited ability of families to pay for treatment. Still, AIDS patients are taking up an increasing amount of public health resources; in the university hospital, 25 percent of the hospital's operating budget is related to AIDS patients, while and 6 percent of the operating budget of the hospital in San-Pedro. Overall, AIDS-related costs are estimated to absorb about 11 percent of the country's public

¹⁰ Aventin, L and P Huard (1997) "HIV/AIDS and manufacturing in Abidjan," AIDS Analysis Africa; 7(3): 2-4, June 1997.

¹¹ Kone, T, BT N'GUESSAN, A Siloue-Toure, N Kouamee, N Gnaore (1994) "L'impact économique du SIDA dans les entreprises privées à Abidjan," Février 1994.

health system budget.¹² One study reports that 41% of all hospital beds in Abidjan were taken by AIDS patients.¹³



- A total of US\$20.3 million was estimated to have been spent in Cote d'Ivoire on AIDS in 1995. Of this money, 92 percent, or US\$18.7 million, was spent on treatment. The total expenditure was about 6.8% of total health expenditures in the country. The per capita expenditure on AIDS was approximately US\$1.45.¹⁴

- **Transport.** The transport sector is especially vulnerable to AIDS and important to AIDS prevention. Building and maintaining transport infrastructure often involves sending teams of men away from their families for extended periods of time, increasing the likelihood of multiple sexual partners. The people who operate transport services (truck drivers, train crews, sailors) spend many days and nights away from their families. Most transport managers are highly trained professionals who are hard to replace if they die. Governments face the dilemma of improving transport as an essential element of national development while protecting the health of the workers and their families.

- **Mining.** The mining sector is a key source of foreign exchange for many countries. Most mining is conducted at sites far from population centers forcing workers to live apart from their families for extended periods of time. They often resort to commercial sex. Many become infected with HIV and spread that infection to their spouses and communities when they return home. Highly trained mining engineers can be very difficult to replace. As a result, a severe AIDS epidemic can seriously threaten mine production.
- **Education.** AIDS affects the education sector in at least three ways: the supply of experienced teachers will be reduced by AIDS-related illness and death; children may be kept out of school if they are needed at home to care for sick family members or to work in the fields; and children may drop out of school if their families can not afford school fees due to reduced household income as a result of an AIDS death. Another problem is that teenage children are especially susceptible to HIV infection.

¹² Centre International de l'Enfance et de la Famille (1997) "SIDA et Secteur de Sante: Analyse des consequences et strategies de reponse," Ministere de la Sante Publique et des Affaires Sociales de la Cote d'Ivoire, Octobre 1997; "Cote d'Ivoire: a case study on the impact of HIV/AIDS on health services and households," (1998) AIDS Analysis Africa; 8(1): 2-4.

¹³ Cited in "HIV/AIDS country profile: Cote d'Ivoire" (1997) AIDS Analysis Africa; 7(2) 12-14.

¹⁴ Shepard, DS (1996) "Impact of AIDS on health expenditures: Overview," Institute for Health Policy, Heller School, Brandeis University, Waltham, MA, June 1996.

Therefore, the education system also faces a special challenge to educate students about AIDS and equip them to protect themselves.

- **Water.** Developing water resources in arid areas and controlling excess water during rainy periods requires highly skilled water engineers and constant maintenance of wells, dams, embankments, etc. The loss of even a small number of highly trained engineers can place entire water systems and significant investment at risk. These engineers may be especially susceptible to HIV because of the need to spend many nights away from their families.

Macroeconomic Impact of AIDS

The macroeconomic impact of AIDS is difficult to assess. Most studies have found that estimates of the macroeconomic impacts are sensitive to assumptions about how AIDS affects savings and investment rates and whether AIDS affects the best-educated employees more than others. Few studies have been able to incorporate the impacts at the household and firm level in macroeconomic projections. Some studies have found that the impacts may be small, especially if there is a plentiful supply of excess labor and worker benefits are small.

There are several mechanisms by which AIDS affects macroeconomic performance.

- AIDS deaths lead directly to a reduction in the number of workers available. These deaths occur to workers in their most productive years. As younger, less experienced workers replace these experienced workers, worker productivity is reduced.
- A shortage of workers leads to higher wages, which leads to higher domestic production costs. Higher production costs lead to a loss of international competitiveness which can cause foreign exchange shortages.
- Lower government revenues and reduced private savings (because of greater health care expenditures and a loss of worker income) can cause a significant drop in savings and capital accumulation. This leads to slower employment creation in the formal sector, which is particularly capital intensive.
- Reduced worker productivity and investment leads to fewer jobs in the formal sector. As a result some workers will be pushed from high paying jobs in the formal sector to lower paying jobs in the informal sector.
- The overall impact of AIDS on the macro-economy is small at first but increases significantly over time.
- In 1995, it was estimated that the cost of HIV/AIDS activities in Cote d'Ivoire, including prevention, training, and epidemiological surveys, was about US\$7 million;

this was expected to reach nearly US\$14 million by 1997.¹⁵ By 2008, the annual number of deaths due to AIDS will be well over 100,000; this will make AIDS the leading cause of death.¹⁶

What Can Be Done?

AIDS has the potential to cause severe deterioration in the economic conditions of many countries. However, this is not inevitable. There is much that can be done now to keep the epidemic from getting worse and to mitigate the negative effects. Among the responses that are necessary are:

- **Prevent new infections.** The most effective response will be to support programs to reduce the number of new infections in the future. After more than a decade of research and pilot programs, we now know how to prevent most new infections. An effective national response should include information, education and communications; voluntary counseling and testing; condom promotion and availability; expanded and improved services to prevent and treat sexually transmitted diseases; and efforts to protect human rights and reduce stigma and discrimination. Governments, NGOs and the commercial sector, working together in a multi-sectoral effort can make a difference. Workplace-based programs can prevent new infections among experienced workers.
 - Prevention programs aimed at commercial sex workers appear to be making an impact on condom use in Cote d'Ivoire. One study reports that condom usage increased from 20 percent in 1992 to 58 percent in 1997 among commercial sex workers.¹⁷
- **Design major development projects appropriately.** Some major development activities may inadvertently facilitate the spread of HIV. Major construction projects often require large numbers of male workers to live apart from their families for extended periods of time, leading to increased opportunities for commercial sex. A World Bank-funded pipeline construction project in Cameroon was redesigned to avoid this problem by creating special villages where workers could live with their families. Special prevention programs can be put in place from the very beginning in projects such as mines or new ports where commercial sex might be expected to flourish.
- **Programs to address specific problems.** Special programs can mitigate the impact of AIDS by addressing some of the most severe problems. Reduced school fees can help children from poor families and AIDS orphans stay in school longer and avoid

¹⁵ "Cote d'Ivoire: a case study on the impact of HIV/AIDS on health services and households," (1998) *AIDS Analysis Africa*; 8(1): 2-4.

¹⁶ Institut National de la Statistique Annee (1994) "Evaluation de l'impact socio-economique du SIDA en Cote d'Ivoire," December 1994.

¹⁷ Bunce, M (1997) "AIDS Eats Away at Africa's Economies," Reuters (12/04/97)

deterioration in the education level of the workforce. Tax benefits or other incentives for training can encourage firms to maintain worker productivity in spite of the loss of experienced workers.

- **Mitigate the effects of AIDS on poverty.** The impacts of AIDS on households can be reduced to some extent by publicly funded programs to address the most severe problems. Such programs have included home care for people with HIV/AIDS, support for the basic needs of the households coping with AIDS, foster care for AIDS orphans, food programs for children and support for educational expenses. Such programs can help families and particularly children survive some of the consequences of an adult AIDS death that occur when families are poor or become poor as a result of the costs of AIDS.

A strong political commitment to the fight against AIDS is crucial. Countries that have shown the most success, such as Uganda, Thailand and Senegal, all have strong support from the top political leaders. This support is critical for several reasons. First, it sets the stage for an open approach to AIDS that helps to reduce the stigma and discrimination that often hamper prevention efforts. Second, it facilitates a multi-sectoral approach by making it clear that the fight against AIDS is a national priority. Third, it signals to individuals and community organizations involved in the AIDS programs that their efforts are appreciated and valued. Finally, it ensures that the program will receive an appropriate share of national and international donor resources to fund important programs.

Perhaps the most important role for the government in the fight against AIDS is to ensure an open and supportive environment for effective programs. Governments need to make AIDS a national priority, not a problem to be avoided. By stimulating and supporting a broad multi-sectoral approach that includes all segments of society, governments can create the conditions in which prevention, care and mitigation programs can succeed and protect the country's future development prospects.

¹ Bechu, N. 1998. The impact of AIDS on the economy of families in Cote d'Ivoire: Changes in consumption among AIDS-affected households. In M Ainsworth, L Fransen, and M Over, eds., *Confronting AIDS: Evidence from the developing world: Selected background papers for the World Bank Policy Research Report*. European Commission: United Kingdom; and AIDS Analysis Africa; 8(1): 2-3

² Bechu, N. 1998. The impact of AIDS on the economy of families in Cote d'Ivoire: Changes in consumption among AIDS-affected households. In M Ainsworth, L Fransen, and M Over, eds., *Confronting AIDS: Evidence from the developing world: Selected background papers for the World Bank Policy Research Report*. European Commission: United Kingdom; and AIDS Analysis Africa; 8(1): 2-3