



The POLICY Project

The Economic Impact of AIDS in Rwanda

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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		
	Economically Active Labor Force: 1989	
Sector	Aged 14 years & over	%
AGRICULTURE		
Agriculture, hunting, forestry and fishing	2,832,558	90.1
INDUSTRY		
Mining and quarrying industries	4,692	0.15
Manufacturing industries	45,088	1.4
SERVICES		
Electricity, gas and water	2,561	0.08
Construction	38,237	1.2
Trade, restaurants and hotels	80,026	2.5
Transport, storage and communications	7,332	0.23
Finance, insurance, real estate and business services	3,128	0.1
Community, social and personal services	12,021	0.4
Activities not adequately defined	9,413	0.3
TOTAL EMPLOYED	3,143,056	100.0

Rwanda's economy is heavily reliant on agriculture, with over 90% of the population employed in that sector, mostly at the subsistence level. The main food crops are plantains, sweet potatoes, cassava, and dry beans. The main export crop is coffee, which accounted for 75% of total export earnings in 1995. Although only 1.4% of the population is employed in manufacturing, this sector accounted for

15.2% of GDP in 1995, producing beverages and tobacco, food products, and basic consumer products. The country has suffered from ethnic tensions, its landlocked geographic position, and its vulnerability to droughts and a drop in world coffee prices.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 Rwanda 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.
- An early study examining the needs of HIV-positive women in Kigali found that very little support existed for them. Assistance was needed for housing and employment, and once AIDS developed, for childcare, food, and funeral services. Over two-thirds of the women did not expect their partners to take care of them when AIDS developed, and three-quarters of them did not expect help from their extended family. The authors predict that the childcare needs necessary once AIDS developed would not be met by the extended family.²
 - Refugee camps became an oasis for Rwandans in Tanzania and Zaire in 1994. Women in particular were found to be vulnerable to high risk behavior in these camps, as many became single heads of households, and had no one to turn to for advice.³

Economic Impact of AIDS on Agriculture

¹ Europa World Year Book 1998, Volume 2 (1998) Europa Publications Limited (1998).

² Keogh, P, C Almedal, S Allen, C Muhawenimana, J Tice, S Hulley (1989) "Evaluation of the social services needs of HIV+ women enrolled in a cohort study in Kigali, Rwanda," Int Conf AIDS; 5:822 (abstract no. T.E.O.3).

³ Wondergem, P, C Vogel, B Brady, (1995) "Rwandan refugee women – their life, health and sexuality." HIV Infect Women Conf P68 (abstract AIDS/95921973); and Mabasi, M, GL Wenbo, and N Nzila (1996) "Evaluation of HIV infection progression risk in area refugees at north-east region of Zaire." Int Conf AIDS; 11(1):381 (abstract no. Tu.C.2674).

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.

- An early, prospective study for Rwanda classified the agricultural systems there into five different types, according to how vulnerable each is to labor supply interruptions. The most vulnerable system was found to be in the Volcanic Highlands, because seasonal demand for labor varied tremendously. Small nuclear families were also found to be more vulnerable than extended families in all of the systems. By the year 2000, it was anticipated that as many as 25% of households would be affected.⁴

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

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.

⁴ Gillespie, S (1989) Potential impact of AIDS on farming systems: a case-study from Rwanda. Land Use Policy 6:301-12.

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.
 - In 1990, the average hospitalization costs for an AIDS-related episode was US\$196. The average hospital stay for AIDS patients was twice that of non-AIDS patients, or 25 days compared to 12 days. On average, lifetime costs consisted of 1.66 hospitalizations and a total cost of US\$358. Total costs paid for AIDS patients in 1990 were US\$0.6 million, or 4.6% of the public sector health budget. It was anticipated that, in 1994, these costs would increase to consume 11.4% of the public sector health budget.⁵
- **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

⁵ Shepard, DS, RN Bail, A Bucyendore. (1992) "Costs of AIDS Care in Rwanda." Inf Conf AIDS; 8(2):D471 (abstract no. PoD 5505).

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. 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.
- **Military.** Military personnel are particularly vulnerable to HIV/AIDS as they spend most of their time away from their families. Many use commercial sex workers on a regular basis. When they return to their families, the virus is spread.
 - In Rwanda in 1994, it was estimated that as many as 65% of the soldiers in the military were HIV positive.⁶

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.

⁶ “Did HIV Contribute to the Breakdown of Society in Rwanda?” AIDS Analysis Africa, 1994.

- 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.

The incidence of HIV in Rwanda increases with income levels. In 1987, a study found that women whose partners had higher income levels and worked in higher-skilled occupations, were more likely to be HIV-positive than women whose partners were not as successful. Women whose partners were farmers had an HIV prevalence rate of 9 percent, while the rate for those whose partners were in the private sector of the government was over 30 percent. The impact on the macroeconomy will be more pronounced as the lack of skilled people becomes more and more prevalent.⁷

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.
- **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.

⁷ IFPRI (1996) "Study Shows AIDS Slowing Economic Growth in Africa," <http://www.cgiar.org/IFPRI/pressrel/061796.htm>.

- **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 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.
- In 1994, the AIDS Control and Prevention Project worked with CARE International to establish an HIV prevention program in refugee camps, after genocidal civil war began in Rwanda. Refugees are particularly vulnerable to the spread of HIV, due to the difficult economic conditions in the camps. Over 1.5 million condoms were distributed in the first 12 months of the project.⁸
- A joint program between the Ministry of Social Affairs and Caritas Rwanda has placed children who have been orphaned or whose parents can no longer care for them. Although the first choice for placement is family members, sometimes foster families or group homes are provided. These efforts are financed by the program, with an annual cost of approximately US\$392 per child. These costs include payments to the caretakers and school fees for each child.⁹
- A program to train Rwandans to provide care at home was instituted by the Red Cross. Volunteers were trained by the Red Cross in simple nursing care skills, and then returned to the villages to visit and train families there. Interviews with 24 of the families six months later found the volunteers to be effective in transferring these skills, and in providing psychological support to the families.¹⁰
- **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

⁸ Benjamin, JA. (1996) "AIDS Prevention for Refugees: The Case of Rwandans in Tanzania," AIDSCAP Electronic Library (Family Health International/The AIDS Control and Prevention Project, Durham, North Carolina).

⁹ UNICEF. 1994. "Action for Children Affected by AIDS: Programme profiles and lessons learned." Joint WHO/UNICEF document. New York, NY: December 1994.

¹⁰ Schietinger, H, C Almedal, BN Marianne, RK Jacqueline, BL Ravn. (1993) "Teaching Rwandan families to care for people with AIDS at home," Hosp Journal; 9(1):33-53.

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.