The Economic Impact of AIDS in Tanzania

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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

<table>
<thead>
<tr>
<th>LABOR FORCE STATISTICS</th>
<th>Economically Active Labor Force: 1967</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sector</td>
<td>'000s</td>
</tr>
<tr>
<td>AGRICULTURE</td>
<td></td>
</tr>
<tr>
<td>Agriculture, hunting, forestry and fishing</td>
<td>5,216</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td></td>
</tr>
<tr>
<td>Mining and quarrying industries</td>
<td>5.0</td>
</tr>
<tr>
<td>Manufacturing industries</td>
<td>98.9</td>
</tr>
<tr>
<td>SERVICES</td>
<td></td>
</tr>
<tr>
<td>Electricity, gas and water</td>
<td>5.7</td>
</tr>
<tr>
<td>Construction</td>
<td>33.1</td>
</tr>
<tr>
<td>Transport, storage and communications</td>
<td>46.8</td>
</tr>
<tr>
<td>Commerce</td>
<td>78.8</td>
</tr>
<tr>
<td>Other services</td>
<td>208.5</td>
</tr>
<tr>
<td>Activities not adequately defined</td>
<td>53.7</td>
</tr>
<tr>
<td>TOTAL EMPLOYED</td>
<td>5,747</td>
</tr>
</tbody>
</table>

Source: Europa World Year Book 1998

The economy of Tanzania is heavily based on agriculture, particularly subsistence farming. By 1996, 83% of the labor force was still employed in agriculture, with the sector contributing 52% of GDP. The main cash crops are coffee, cotton, cashew nuts, and cloves. Food crops include cassava and maize, along with cattle rearing. Very little mining activity exists, while the small amount of manufacturing activity consists mostly of food processing and textiles. The services sector was the second largest US$170 in 1996.¹

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 Tanzania 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.

- In Tanzania, a study of adult mortality found that 8 percent of total household expenditure went to medical care and funerals in households that had an adult death in the preceding 12 months. In households with no adult death the figure was only 0.8 percent. On average, households with an AIDS death spent nearly 50 percent more on funerals than they did on medical care. In addition to increased expenditures, many households experienced a reduction in remittances if the adult member worked outside the home. In partial compensation for these financial setbacks, many households were forced to remove children from school in order to reduce education-related expenditures and have the children help with household chores.

- When husbands die from AIDS, their widows suffer from a lack of cash, since men are the main cash income earners in Tanzania. Thus one study found that the most pressing need for widows was for credit to begin new cash-generating projects that could supplement farm work.

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• In Tanzania, an adult death is mourned for about seven days, and a child’s death up to three days. During this time, no one in the village does any agricultural work. The recent Kagera Demographic and Health Survey (KDHS) found that, in the week prior to the survey, over one quarter of both men and women spent some time either caring for an ill person or attending funerals. The average amount households reported spending on deaths was US$104, of which US$40 was spent on medical costs, and US$64 on the funeral itself. This expenditure was unequally distributed, with some households reporting zero expenditure, while in other households, expenditures were more than US$1000.4

• Data from the Kagera region of Tanzania show that new methods of coping with the financial demands of caring for AIDS patients are being developed. New savings, credit, and mutual aid societies have been created to meet the needs of households that are insuring against future death. Interestingly, the associations are mostly set up and run by women.5

• A World Bank study estimated that someone infected with HIV has an increase in morbidity of 170-340%. On average, clinicians in Tanzania estimate that an adult experiences 17 different episodes of illness prior to dying from AIDS, while a child experiences 6.5 episodes.6

• A recent study found that households in Tanzania were using a variety of mechanisms to cope with HIV/AIDS. Some households cut back on meals, some sold agricultural produce to raise money to pay health costs, some sold off assets such as cattle, some used child labor extensively to perform domestic and agricultural activities, which was associated with reduced school attendance.7

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.

- In the Kagera region of Tanzania, although short-term impacts on agricultural production have not been felt yet, medium- and long-term impacts will occur. Soil fertility is being affected because labor is not available to mulch bananas or clear new areas, resulting in decreasing yields and overcropping. This can only increase pressure on the subsistence agriculture system that exists.⁸

- An earlier study of three communities in different districts in Tanzania found that there had been little effect of HIV/AIDS on agricultural output. The authors hypothesized that this was because prevalence was highest in those agricultural systems that are least vulnerable to labor supply interruptions. In addition to this, oxen are used extensively in Tanzania, so that they can be used as substitutes for labor during an interruption, thus cushioning the shock. The final results of this, however, may be a widening in the disparity between ox-owning and non-ox-owning households.⁹

- In Kagabiro village, Tanzania, when a household contained an AIDS patient, the household labor supply was severely affected: on average, 29% of household labor was spent on AIDS-related matters, including care of the patient and funeral duties. If two people were devoted to nursing duties, as occurred in 66% of the cases, the total labor loss was 43%, on average.¹⁰

- The orphan population continues to grow in rural Tanzania, where over one-third of children have at least one parent who is dead, and over one-tenth of children have both parents who have died. The study states that at least 40 percent of these deaths are due to AIDS.¹¹

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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 decrease 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.

<table>
<thead>
<tr>
<th>Factors Leading to Increased Expenditure</th>
<th>Factors Leading to Decreased Revenue</th>
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<tbody>
<tr>
<td>Health care costs</td>
<td>Absenteeism due to illness</td>
</tr>
<tr>
<td>Burial fees</td>
<td>Time off to attend funerals</td>
</tr>
<tr>
<td>Training and recruitment</td>
<td>Time spent on training</td>
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<tr>
<td></td>
<td>Labor turnover</td>
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- A study completed by the ILO in 1995 examined the economic impact of HIV/AIDS by interviewing the leadership of eight organizations in Tanzania. Some of the findings from this study were:
  - Medical costs for the Tanzania-Zambia Railway Authority workers associated with AID-related diseases increased over a one-year timeframe from Tsh2.8 million in January to Tsh4.6 million in December, a 63% increase.
  - Overall, the study estimated that the organizations were losing employees at the rate of 0.5-1.5 percent per year due to AIDS-related deaths.
  - The age at death for the employees ranged between 31 and 38.7 years old. If the retirement age is assumed to be 55 years, then years of lost productivity per worker per AIDS death ranges between 16.3 to 24 years.
  - At the University of Dar es Salaam, funeral costs increased from Tshs 1,323 in 1988/89 to Tshs5.8 million in 1992/93, implying that costs in 1988/89 were only two percent of what the costs were in 1992/93. The study assumes that at least 50 percent of the deaths were due to AIDS.\(^\text{12}\)

- Another more recent study collected information on the economic impact of AIDS for a variety of businesses in Dar es Salaam, including annual medical costs per employee per year, and annual burial costs per employee per year. The unweighted average across six companies over five years for these two variables are shown below. The trend for both variables is increasing substantially from year to year, particularly for burial costs. Firms in Tanzania usually pay for burial costs for the employee, spouse, children, and sometimes employee’s parents, if they live with the employee. Note that the burial costs do not vary much between companies; medical costs, however, range from Tsh11,470 to Tsh287,500 in 1997. One company in particular experienced very large increases over time: from Tsh58,900 annual costs.

per employee in 1993 to Tsh287,500 in 1997. This firm has since instituted a cap on annual medical costs per employee of Tsh240,000.13

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.

- An early study using 1987-88 US dollars as a numeraire found that the direct cost of treating an adult in Tanzania varied between US$104 and US$631. The lower cost was relevant if the person was using village or relative care, while the higher cost was calculated based on utilization of the higher-priced private health care system. These costs are total costs, that is, they include costs paid by households,

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government, and charitable health systems. The annual GNP per capita figure at that time was US$290.14. A total of US$23.1 million was estimated to have been spent in Tanzania on AIDS/STDs in 1993. Of this money, 86 percent, or US$19.9 million, was spent on treatment. Note that no monies were spent on mitigation, although that was one of the expenditure categories. The total expenditure on AIDS/STDs was about 13.5% of total health expenditures in the country. The per capita expenditure on AIDS was approximately US$0.82.15

- A 1996 study found that at the major referral hospital in the country, Muhimbili Medical Center in Dar es Salaam, the hospital could no longer afford to provide medicines and food freely to AIDS patients, who occupied half of the hospital beds at that time. Instead, women began to bring food to the hospital for their family members, and to pay for medicines separately.16

- **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.

- One of the main conduits of HIV transmission in Tanzania was determined to be along major highway routes. In 1993, a national intervention program was implemented to use peer educators to address the behavior patterns of long-distance truck drivers. Elements included condom promotion and distribution, distribution of educational materials, and small group discussions. Attempts were

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made to integrate the interventions in other areas such as village health committees, women’s health groups, and AIDS advisory committees, so that activities could continue even after external funding ceased.\(^{17}\)

**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.

- In Tanzania, mining is a very small part of the economy, so the impact of HIV/AIDS will not be pronounced.

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

- One study estimates that it will cost the country US$40 million to replace the 15,000 teachers who will have died from AIDS through the year 2010. Furthermore, if the household of a student has lost an adult female member in the previous year, school attendance of those aged 15-20 is cut in half\(^{18}\)

**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.

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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.

  - A macroeconomic simulation model estimated that the impact of AIDS on the growth path of the Tanzanian economy would be to reduce GDP by between 15-25% by the year 2010, and to reduce per capita income by between 0-10%. The levels of per capita income are not affected as much as GDP because the population will be less due to deaths from AIDS. The model includes consideration of increasing morbidity and mortality from AIDS, which in turn affect labor productivity, higher health care spending, and lower savings rates leading to lower investment levels.19

  - One study by the ILO suggests that the size of the labor force will decrease by 20% by 2010 due to the impact of HIV/AIDS, and there will be a decrease in

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production as younger, less experienced workers replace those who have died.\textsuperscript{20}

- The total cost to care for an HIV-infected adult in 1987-88 in Tanzania when both direct and indirect costs are included for low-cost sources was estimated to be US$2462, while the cost for using private sources was US$5316. Indirect costs include appropriately discounted years of healthy life lost, based on wage rates available at the time.\textsuperscript{21}

- Providing triple combination antiretroviral therapy to HIV-positive adults in Tanzania would cost 51\% of the GDP, according to one recent estimate.\textsuperscript{22}

**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.

- An intervention in the Mwanza district of Tanzania found that establishing an STD clinic resulted in a reduction of 42\% in newly acquired HIV infections. This


is a promising area to pursue in order to prevent new infections, although new research from Uganda shows no effect of STD clinics on new HIV infections.23

- **HIV/AIDS education programs** were incorporated into agricultural and rural development projects by GTZ. The cooperative efforts of GTZ and the nine projects involved made this effort possible; individually, the projects could not have each developed and carried out their own education programs.24

- The risk of HIV transmission is very high in refugee camps; in some of the camps in Tanzania, the prevalence rate is 33% for sexually active adults.25 Programs to address this issue are vital.

- **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 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.

- Some communities have set up programs on their own to cope with the impact of HIV/AIDS on families. Women in some villages have set up associations specifically to help families who have experienced an AIDS death.26

- **Mitigate the effects of AIDS on poverty.** The impacts of

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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. The costs of these programs can vary widely.27

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.