



**The POLICY Project**

# **The Economic Impact of AIDS in Ethiopia**

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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				
Sector	Economically Active Labor Force: 1995 <sup>a</sup>		Employment by Industry: 1986 <sup>b</sup>	
	'000s	%	'000s	%
<b>AGRICULTURE</b>				
Agriculture, hunting, forestry and fishing	21,605.32	88.56	99.9	14.63
<b>INDUSTRY</b>				
Mining and quarrying industries	16.54	0.07	0.5	0.07
Manufacturing industries	385.00	1.58	135.3	19.81
<b>SERVICES</b>				
Electricity, gas and water	17.07	0.07	21.8	3.19
Construction	61.23	0.25	27.6	4.04
Trade, restaurants and hotels	935.94	3.84	30.3	4.44
Transport, storage and communications	103.15	0.42	28.1	7.34
Finance, insurance, real estate and business services	19.45	0.08	21.6	3.16
Community, social and personal services	1,252.22	5.13	318.1	46.58
<b>TOTAL</b>	<b>24,395.92</b>	<b>100.0</b>	<b>682.9</b>	<b>100.0</b>
Source: a – Europa World Year Book, 1999; b - United Nations, Statistical Yearbook, 1995, table 29				

The economy of Ethiopia is primarily based on agriculture, which in 1997 accounted for 56% of GDP. Its main crops are teff, wheat, barley, sorghum, millet and maize. Its main exports are coffee, which accounted for 67% of its export earnings, raw hides and skins.

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 Ethiopia 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 Ethiopia, a study of 25 AIDS-afflicted rural families found that the average cost of treatment, funeral and mourning expenses amounted to several times the average household income. Net farm income varies from 270 to 620 birr, depending on the region. Many times these expenses were paid for by selling productive assets, especially livestock.<sup>1</sup>

Avg Household Expenditures for AIDS Deaths (Birr)					
Cost Item	Obs	Mean	Std. Dev	Min.	Max
Treatment	24	1132	1930	0	9100
Funeral	17	574	327	100	1000
Teskar	13	786	674	0	2000

Families Reporting Having Extended Support to Others	
No support	105
Labor support	7
Material support	9
Both	1
Total	122

support.<sup>2</sup>

- Unlike other countries, where cooperation among households assists families with AIDS patients in coping with its impact, the vast majority of households in this survey, over 86%, reported not extending any support to other households. This probably reflects the fact that the households are too poor to be able to extend any material

- Due to the status of women in Ethiopia, women who are widowed as a result of AIDS may often have to resort to commercial sex work in order to support their families, further increasing their risk of HIV infection, if they are not already infected.<sup>3</sup>

<sup>1</sup> Demeke, M. 1993. The Potential Impact of HIV/AIDS on the Rural Sector of Ethiopia. Unpublished manuscript, January 1993.

<sup>2</sup> Demeke, M. 1993. The Potential Impact of HIV/AIDS on the Rural Sector of Ethiopia. Unpublished manuscript, January 1993.

<sup>3</sup> Baryoh, A. "Socio-Economic Impact of HIV/AIDS on Women and Children in Ethiopia" Unpublished manuscript. UNDP. Addis Ababa.

- It is estimated that by the year 2000, the number of children orphaned as a result of AIDS will be 156,150.<sup>4</sup>

Mean hours spent per week by women belonging to various types of households					
Activity	Afflicted	Affected	Afflicted & Affected	Not afflicted/affected	Mean hours for all
Agriculture	16.4	15.0	11.6	33.6	18.5
Nursing afflicted at home	62.3	69.0	54.9	-	50.2
Nursing afflicted outside	48.6	29.0	33.7	-	30.0
Child care	1.9	13.1	6.9	25.7	11.0
TOTAL	129.2	126.1	107.1	59.3	

- A survey of 100 households throughout Ethiopia was performed in 1994 to assess the impact of HIV/AIDS on women and children. As shown in the table at the left, the workload of women who either had HIV/AIDS or lived in a household that was affected by HIV/AIDS, or both, were significantly different

than the workload of women who lived in households that were not either afflicted or affected. The mean hours spent in agricultural tasks varied between 11.6 and 16.4 hours for households with HIV/AIDS, while women in non-AIDS households were able to spend 33.6 hours in the fields every week. The most significant difference can be seen in child care duties; women in non-AIDS households spent 25.7 hours per week caring for their children, while women in AIDS households spent between 1.9 and 13.1 hours per week. Clearly the difference in workload was due to the amount of time the women spent nursing the afflicted at home and outside the home.<sup>5</sup>

### 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.

<sup>4</sup> Baryoh, A. "Socio-Economic Impact of HIV/AIDS on Women and Children in Ethiopia" Unpublished manuscript. UNDP. Addis Ababa.

<sup>5</sup> Baryoh, A. "Socio-Economic Impact of HIV/AIDS on Women and Children in Ethiopia" Unpublished manuscript. UNDP. Addis Ababa.

- In Ethiopia, the male head of the household is responsible for special tasks, such as oxen cultivation, harvesting, threshing and farm management. One study found that the effect of an AIDS death varied by region: it would have the most severe effect on harvesting teff in Nazareth, on digging holes for transplanting enset plants in Atat, on ploughing millet fields in Baherdar, and on picking coffee in Yirgalem. Women are generally responsible for other tasks: leveling, weeding, harvesting minor crops, transporting produce, and household duties. The death of the wife to AIDS can make it difficult for other household members to carry out these tasks, in addition to caring for children. The death of a family member because of AIDS also leads to a reduction in savings and investment. The stock of food grain can be depleted to provide food for mourners. When families cannot afford oxen, crop choices are limited.<sup>6</sup>

- In some areas, land can be leased when the family cannot use all of its land in a productive way, which then contributes to the financial resources of the household. This varies by region, however, where in some areas, this tenure system is not legal.<sup>7</sup>

Families reporting leased-in land by region					
Leased-in	Nazareth	Atat	Bahir Dar	Yirgalem	Total
Yes	11	2	10	4	27
No	17	23	19	26	85
Total	28	25	29	30	112

- Both yields and areas under cultivation decreased when a death occurred, or when a household was headed by a female. Over 83% of female-headed households report teff yields of less than 6 quintals/hectare, while only 66% of male-headed households report such low yields. When a death occurs, only 5.6% of households reached over 9 quintals of teff per hectare, while nearly 22% of households not experiencing a death reached production levels of that magnitude.<sup>8</sup>

### 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.

<sup>6</sup> Demeke, M. 1993. The Potential Impact of HIV/AIDS on the Rural Sector of Ethiopia. Unpublished manuscript, January 1993.

<sup>7</sup> Demeke, M. 1993. The Potential Impact of HIV/AIDS on the Rural Sector of Ethiopia. Unpublished manuscript, January 1993.

<sup>8</sup> Demeke, M. 1993. The Potential Impact of HIV/AIDS on the Rural Sector of Ethiopia. Unpublished manuscript, January 1993.

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

Occupation	Manu- factur- ing	Transport & Communi- -cation	Service	Total
Professional & Technical	3	2	0	5
Managerial & Administrative	7	2	0	9
Clerical	8	2	0	10
Service	17	4	0	21
Technicians, Production	68	28	2	98
Transport Equip. Operator	8	70	0	78
Laborers	11	1	0	12
TOTAL	122	109	2	233

- A recent study evaluated the economic impact of HIV/AIDS in 15 different establishments. The HIV incidence was 0.58% of the workforce, and was concentrated mainly in manufacturing, and transport and communication industries. It was not possible to quantify the effects of HIV/AIDS on productivity, but firms were experiencing a certain amount of absenteeism. To date, the estimated cost of AIDS-related medical treatment was fairly low, between birr43,179 (US\$5,5553) and birr34,7072 (US\$44,639). In

the future, however, these costs, as well as the costs of funeral and death benefits, which are provided by all of the companies surveyed, are expected to have a greater impact on costs. The number of AIDS-related illnesses was 53% of all reported illnesses, totaling 15,363 incidents over a five-year period. Out of 19 individuals interviewed in detail, 11 lost 30 days over one year due to HIV/AIDS-related illnesses, 7 lost on average 60 days, while one person said he was absent for 240 days because of HIV/AIDS.<sup>9</sup>

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.

<sup>9</sup> Bersufekad, A. "A Study on the Socio-Economic Impact of HIV/AIDS on the Industrial Labour Force in Ethiopia". Second Draft. Addis Ababa. January, 1994.

- **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.
- A 1994 study estimated the health care costs in Ethiopia due to AIDS for the period of 1994 under two scenarios, low and high. Under the low cost scenario, total outpatient treatment would equal US\$34 million, at a cost of \$42.80 per patient, per year, and inpatient treatment would equal US\$79 million, at a cost of \$42.45 per patient, per year. The total preventive cost was estimated to be US\$70 million, and the total direct discounted cost during this time would be US\$184 million. Under the high cost scenario, for the same time period, total cost for outpatient treatment was estimated to be US\$206 million, at a cost of US\$258.10 per patient, per year, while inpatient costs would be \$369.44 per patient, per year. The total year cost of treatment per patient was estimated to be US\$627.50, which is more than five times greater than the per capita income of US\$120. Under the high cost scenario, the preventive cost would be the same as under the low cost scenario.<sup>10</sup>
- By 2005, it is predicted that hospital bed occupancy will increase to about 28% as a result of the AIDS epidemic, or else the health care system of Ethiopia will need US\$3.4 million in order to increase their bed capacity. Furthermore, the required increase in outpatient facilities will cost US\$1million, as a result of the estimated 140 million outpatient visits. The costs of drug treatment will vary between US\$53 and US\$270 per patient. The total cost for meeting the needs of all AIDS patients in 1994 would have been US\$29 million.<sup>11</sup>
- A further problem in health care in Ethiopia is that universal precautions are not always taken by medical personnel, which has led to a great deal of fear among staff. The concern is that the health care system may lose many of its employees as a result of this.<sup>12</sup>
- **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

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<sup>10</sup> Kello, A.B. "Economic Impact of AIDS and its Impact on the Health Care Service System". January, 1994.

<sup>11</sup> Kello, A.B. "Economic Impact of AIDS and its Impact on the Health Care Service System". January, 1994.

<sup>12</sup> Kello, A.B. "Economic Impact of AIDS and its Impact on the Health Care Service System". January, 1994.

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.

- Of the 233 AIDS cases in one 1994 study, 109 (46.78%) were in the transportation sector. Of those 109 cases, 70 (64.22%) were transport equipment operators. In the same study, 80.73% of AIDS cases employed in the transportation and communication sector came from one coordination station of the Ethiopian Freight Transport Enterprise, which required long distance travel and a significant amount of time away from home.<sup>13</sup>
- **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 Ethiopia, however, the country is heavily dependent on agriculture, with very little of the GDP coming from mining activities.
- **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.
- **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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<sup>13</sup> Bersufekad, A. "A Study on the Socio-Economic Impact of HIV/AIDS on the Industrial Labour Force in Ethiopia". Second Draft. Addis Ababa. January, 1994.

## 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 of the Ethiopian economy found that, although there would be a significant demographic impact from HIV/AIDS in Ethiopia, there would be very little overall macroeconomic impact. Instead of growing at around 2.95 percent per year, which was the rate in the base year, the population growth rate will be about 1.6 percent by the year 2000, and may even be negative by the year 2010. The model does not, however, indicate an effect on overall GDP, per capita GDP, or government revenue. The only macroeconomic impact was found to be a negative effect on savings

and thus capital formation, reducing the capital-labor ratio from about 2.14 in 1995 to 1.64 in 2010 in the low variant of the simulation model.<sup>14</sup>

- In a 1994 study, 49.12% of those with HIV/AIDS were between the ages of 20 and 39. Unlike many Sub-Saharan African countries, where AIDS patients can have higher incomes, in Ethiopia, 93.54% of AIDS patients made less than birr499 per month (US\$64.18). Therefore, the effect of AIDS on the labor force will not be dramatic in the near future, as those dying will be able to be replaced by the unemployed. Only after the prevalence rate increases will the more highly skilled workers be affected.<sup>15</sup>
- As of October 1993, the highest prevalence rate by occupation was 14.2% for government employees; the second highest rate was found in the military, at 13.8%. Both of these sectors employ skilled and trained workers, who will be difficult to replace. After the military was disbanded in 1991, most soldiers returned home to the rural areas, bringing the HIV virus with them.<sup>16</sup>

### 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

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<sup>14</sup> Kidane, A (1994) "Demographic-Macroeconomic Impact of AIDS in Ethiopia," Addis Ababa, March 1994.

<sup>15</sup> Bersufekad, A. "A Study on the Socio-Economic Impact of HIV/AIDS on the Industrial Labour Force in Ethiopia". Second Draft. Addis Ababa. January, 1994.

<sup>16</sup> Demeke, M. 1993. The Potential Impact of HIV/AIDS on the Rural Sector of Ethiopia. Unpublished manuscript, January 1993.

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.
- **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.*