

The Impact of and Responses to HIV/AIDS: What the Literature Tells Us

By

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Household Impacts

1. Increase in poverty

Household desolation and failure: At the aggregate level, BIDPA (2000) found that AIDS in Botswana will reduce household per capita income by 8% and increase the number living under poverty by 5%. They suggests that the negative impact of AIDS will be borne disproportionately by the poor; with per capita household from the poorest quarter of the economy falling by 13%. In Zambia, a 5 year retrospective study of 333 households (232 urban and 101 rural) found a rapid transition from relative wealth to poverty (Namposya - Serpell, 2000). Monthly disposable income of the 2/3 of households fell by more than 80%. In Zimbabwe, 65% of the 215 households in which an adult female died of AIDS were no longer in existence in both the urban and rural sites (Mutangadura, 2000, 11). Stillwagon (2001) suggests that high HIV prevalence rates are highly correlated with falling calorie and protein consumption, and the increased inequality in income distribution. Nankam (2003) found that poverty had significantly increased 70 to 90%.

2. Reduction in household income

Income down, expenses up: The illness causes reductions in household labor due to the illness itself (as the disease progresses periods of morbidity increase and become extended) and the need to divert labor to care giving. As income declines expenses increase first for medical care and finally for funerals. In Kagera, Tanzania households experiencing an adult death spent less during the persons illness, but that a greater percentage of their expenditure was on medical care. They spent 33 percent less on non-food items such as clothing, soap, and batteries and their food purchases decreased. Over all effected households spent 50% more on funeral cost that they did on medical expenses (World Bank, 1997).

Sale of household assets: o cover increased costs, households sell assets. Topouzis and Guemy (1999) note that households respond initially by disposal of insurance assets that are reversible, including liquidating savings, seeking remittances from the extended family and borrowing from informal or formal sources of credit. If necessary, the sale or disposal of productive assets typically follows. In Chang Mai Thailand 41% of households with a death sold land, 57% had some form of "disinvestment" and 24% borrowed money (World Bank, 1997). In Zimbabwe, 24% sold assets including cattle, goats, cloths, televisions, poultry and wardrobes (Mutangadura, 2000). Lundberg, Over and Mujina (2000) point out that even when the epidemic is in its early stages, the infected family is less able to avoid default and, hence, is less attractive to group-based liability schemes. Consequently, in the Kagera area private credit was described as the key distress response to adult death from HIV/AIDS.

Shifts in consumption: Households reduce their consumption of non-food items and increase expenditures on health and funeral related costs. In Kagera, HIV/AIDS infected households reduced spending on non-food items (soap, clothing, batteries, etc.) by 33% and smaller declined in food expenditures. Even in richer households 29% of non-orphaned children were stunted (had low height for their age) while 50% of the orphaned children were wasted. In poorer households, 39% of non-orphaned children were stunted while 51% of the orphaned children were wasted (World bank, 1997). In Cote d'Ivoire, however, infected households recovered consumption levels over time (Becker in Ainsworth et al, 1998). Reductions in consumption have implications for children. In the AIDS affected households 29% of the non-orphaned children were stunted (had low height for age) while 50% of orphaned children were wasted (low weight for age). In the poorest households 39% of non-orphaned children were stunted and 51% of orphaned children were wasted (World Bank, 1997).

Withdrawal of children from schools: Antidotal evidence suggests that children especially girls are withdrawn from school to care for sick parents and to reduce household expenses. In Kagera, enrollment rates for non-orphaned children between the age of 7 and 10 from better-off households was 44%, while enrollment rates for orphans from poorer houses was 28% (World Bank, 1997).

3. Degradation in physical and natural capital.

General: Housing and farm infrastructure become degraded in HIV/AIDS affected households due to labor shortages and priority shifts. Physical capital can also be sold to pay associated expenses. Natural capital is affected by changing and reduced land use due to household labor shortages. Natural resources close to home may be over-used; and land may be sold to cover medical expenses. It should be noted that research in this area is limited by occupation and enterprise. For example, most of the research conducted to date has focused on the effects of HIV/AIDS on rural livelihoods at the household level and its impact on agricultural production. Other groups such as pastoralists and the urban poor have not been examined. In addition, the impact on casual labor or small-scale income generation is not well understood.

Reductions in agricultural production and productivity: The result of analysis is ambiguous. Longitudinal analysis of Kenyan data suggests that impacts on agricultural production will depend on the sex, age and position of the person who has died and the household's pre-death level of wealth. Death of a male head-of-household in 1997 resulted in a 68% decline in the net value of agricultural output that was not recoverable. Deaths in 1998 and 1999 did show some recovery after one year (Yamano and Jayne 2003). By contrast, studies in Tanzania and Uganda indicate that households partially compensate for the death of a family member by bringing back to the farm another member residing off the farm. Consequently, there was little or no impact on labor devoted to agricultural activities (Ainsworth, Ghosh and Semali, 1995). Yamano and Jayne found that households suffering a death of head-of-household or spouse were largely unable to replace labor lost, whereas households suffering the death of another adult were able to at reduced. In addition Yamano and Jayne found that poorer households suffer disproportionately. They suggest that reductions in labor due to HIV/AIDS related deaths in these households cannot be compensated for because households do not have the cash to hire labor to replace lost family labor, they have less savings to spend down, and are more prone to selling productive assets to pay for immediate cash needs. However, Donovan *et al.* in his work found that households effected by an AIDS's death rely more heavily on neighbors and social networks to augment household labor, expand the size of the household to compensate for the death of an adult female, and to cut back on agricultural weeding and area cultivated.

Shifts in agricultural cultivation: Evidence regarding shifts in cultivation is mixed. Using data from Kagera District in Tanzania, Beegle (2003) found that households experiencing a death did not shift cultivation towards subsistence food farming. She concluded that afflicted households

were able to maintain their supply of labor by drawing back family members, or that the agricultural system in this area of the Lake Victoria Basin was not highly vulnerable to labor shocks. Yamano and Jayne (2004) on the other hand found distinctive shifts in cropping patterns among rural Kenyan households. Households suffering a male head-of-household death incurred a 0.86-acre decline in area cultivated to sugarcane, tea and horticultural crops, compared to non-afflicted households. Afflicted households slightly increase area in cereals (+0.25 acre), but this was not statistically significant. On the other hand, households suffering the prime-age death of a female spouse or head-of-household incurred a 1.2 acre decline in cereal crop production. There were no appreciable increases in tuber crop production. Donovan et al (2003), by contrast, found no distinct gender-based differences in the composition of crops grown after death of an adult, but did find increased sweet potato cultivation. They speculated that sweet potato may have become more attractive for households suffering a labor shock because of its more flexible planting and harvesting schedule compared with other crops.

Sale of household assets: To cover increased costs, households sell assets. In Chang Mai Thailand 41% of households with a death sold land, 57% had some form of "disinvestment" and 24% borrowed money (World Bank, 1997). In Zimbabwe, 24% sold assets including cattle, goats, cloths, televisions, poultry and wardrobes. (Mutangadura, 2000). Evidence indicates that rural farm households attempt to sell off small animals and other assets with the least impact on long-term production potential. Cattle and productive farm equipment are sold in response to severe cash requirements after incurring a death in the family (Yamano and Jayne 2003). While capital assets may be lost to the household, they may not be lost to the community. Capital assets lost to a specific household may be redistributed within a community, thus limiting the impact of overall community production but possibly enhancing inequity.

Changes in household members: What happens to household size is location specific. In Kagera, Tanzania most households that experiences deaths *added* at least one new member, a previously absent member or non-member (World Bank, 1997, 215). These adjustments meant that household sizes on average decreased by less than 1 from 6.0 to 5.7. White and Robinson (2000) believe the "importing" prime-age labor and "exporting" children via family or informal nonfamily networks actually cause an underestimate of the impact of HIV/AIDS and makes the estimated dependency ratios from villages where labor replacement occurs to be inconclusive. At the household level, research in Rakai, Uganda found that mean household size fell from 6.4 to 4.7 (Memon et al, 1997). This reduction was likely caused by the death of the individual in addition to the departure of children to live with neighbors or other extended family members. In Thailand the decline was from 4.1 people per household to 3.1, the reduction equivalent to the Over the past 20 years, orphaned headed households increase from 0.0 to 2.5% to 7.5 to 10.0% of all households in the surveyed villages and women headed households from 16.7 to 30% to 30 to 40% of surveyed households. He found that household size varied between 7 and 15 people: father, mother, children, and relatives. Polygamy (2 to 3 wives per household) and larger household sizes (each household had from 2 - 3 orphans) were promoted because of AIDS.

4. New forms of social capital

Formation of new types of households: The formation of elderly headed households with young children; grandparent headed households; large households with unrelated fostered or orphaned children attached; child headed households; cluster foster care - where a group of children is cared for formally or informally by neighboring adult households. It has been estimated that by 2005 just over 30% of Malawi's children will be orphans because of AIDS and other reasons, by 2010 that will have risen to 35% (Hunter and Fall, 1998, 7). A study of 152 households in southern Uganda found a total of 342 non-orphaned children and 384 orphaned children living in the household. The cost of rearing the children was shared equally with all children sharing reduction in per capita resources equally (Monk, 2000). Mutangadura (2000) in her study of 215 households in Manicaland, Zimbabwe found that 40 percent of the sample households had taken in orphans. She found that 65 percent of the households where a deceased female lived before her death were no longer in existence.

5. Child mortality increases

Increased infant mortality: Infected children die at the first sign of infection. In households where the female is infected there were lower birth rates and higher infant and child mortality rates. This means that household personnel are not replaced and neither are the life-ways and traditions. (Barnet and Whitehead in Cornia, 2002). Hamoudi and Birdsall (2002) suggest that reductions in life expectancy in countries like Zimbabwe, Botswana and Uganda will likely lower average schooling in young adults from 2-4 years to 1-3 years.

Mezo-level Adjustments

1. Affected and infected households

The extent of those affected: In Bukoba District, Tanzania (Rugalema, 1999) 32 percent of the study community were AIDS affected - they had experienced direct illness or death of one or more of their family members in the last 10 years. A further 29 percent were affected in the sense that they were fostering AIDS related orphans, provided labor or cash to help care for the sick, and provided for survivors in the afflicted households.

2. Community Responses

What communities are doing: Stokes (2003) found that some communities have provided a variety of support and mitigation activities. Some have organized community-based childcare, including cooperative day care and nutrition centers to permit women to work outside the home. Others have provided nutritional and educational support to orphans, home care and visitation programs for orphans and HIV/AIDS patients, apprenticeship projects in marketable skills for orphaned adolescents, and labor sharing arrangements and credit schemes for funeral benefits.

3. Loss of social capital

The impact of reductions in social capital: With the increased prevalence of HIV/AIDS in a community, Stokes (2003) poses the question as to how long even those communities with substantial social capital can continue to offer support to affected individuals, families and households. The scale of epidemic in some regions is such that even the strongest-knit communities may not have the human resources to continue such programs. Haddad and Gillespie (2001) at the International Food Research Institute (IFPRI) also believe social capital, or the strength of associational life, trust, and norms of reciprocity, is undermined by HIV/AIDS in several ways. First, social reproduction in terms of the role modeling of norms of trust and good citizenship is impaired. Second, the incentives for coordinated group action may be diminished due to heavy discounting of the future benefits of such action. Third, the formal institutions that also contribute to social capital formation, such as church groups, sports clubs, and weakened as members die. Fourth, social networks tend to be spatially concentrated. While the networks that are more heterogeneous should have a greater carrying capacity, those with members that are highly mobile or who live in urban areas may be more susceptible to HIV/AIDS. Fifth, social capital may be weakened through the increased exclusiveness of network membership. And sixth, social networks might be strengthened initially by the threat of large-scale epidemic. Collective action might be stimulated in the face of a community-wide threat before that threat begins to undermine the ability and incentive to act collectively. Rugalema (1999) underlines these losses when he suggests that HIV/AIDS related deaths have implications to other households because of their interdependence. Sugden and Bruni (Sugden, 2000a and Bruni and Sugden, 2000b) talk about the loss of 'relational goods', for example, the relationship between neighbors or between a foster parent and a child that formal markets do not provide. AIDS destroys or overburdens these relationships to the point where they begin to collapse.

The need for clear property and land use rights: Assets are only important if they can be accessed and they have an ability to support livelihoods when accessed. The rules governing access and value can be broadly labeled as "institutions". As individuals leave their dwellings to search for alternative livelihoods, or to help out friends and families outside of their community clear and defensible property rights are essential. This will be especially important to assure that property is transferred to surviving family members, especial widows and orphans and not confiscated by other family members for their own use and benefit.

Increased pressure on cooperative action: Haddad and Gillespie (2001) suggest that HIV/AIDS might undermine the ability of communities and user groups to pool risk and act collectively to sustainably manage common property included rangeland, cropland and river basins. Pre-HIV/AIDS cropping patterns become difficult to maintain unless the household has access to "replacement labor" or can afford hired help. Poorer families typically have to shift to less labor-intensive and often less nutritious (some tubers) crops.

Shift in asymmetrical power relations: Although HIV/AIDS is asexual affecting women and men, women are four times more susceptible to contracting HIV/AIDS than male counterparts. In addition, in many societies power asymmetries exist between men and women. The inability of women to exert more control over their choice of sexual partners and their ability to enforce HIV/AIDS prevention measures contribute to the spread of HIV. Villarreal (2002) discusses the affect of HIV/AIDS amongst the Luo people of Western Kenya indicating how social norms effect the vulnerable of women after loosing their spouse. Mazhangara (2003) describes how matrilineal and patrilineal inheritance rights in Malawi affect the distribution of property, land and children after the death of a husband or wife.

4. Loss of human capital

Beyond just labor: Haddad and Gellespie (2001) point out that the loss of human labor to HIV/AIDS is about much more than manual labor. It is also about knowledge. The striking down of adults in their prime severely abbreviates the ability of individuals and groups to transfer knowledge both within their generation and from their generation and the next. Ayieko (1997) in his study of rural Tanzania found that only one-tenth of orphan-headed households possessed adequate knowledge of agricultural production techniques.

The increased need for labor saving technologies: Researchers are ambiguous with regard to the need to develop new labor saving technology. Researchers at IFPRI believe as time becomes an even-scarcer commodity in HIV/AIDS areas, access to water and energy sources must be improved, particularly given the fact that these activities are socially determined to be the responsibility of women who often care for other family members (Haddad and Gillespie, 2001, 21). While this may be the case within the household, Yamano and Jayne (2004) suggest that labor saving technologies on the farm may not be the leading constraint, but that capital and knowledge may constrain production. For example, in rural areas with high landlessness (they site rural Kenya where 25% of smallholders households have less than 0.1 acres) households may face a land rather than a labor or capital constraint.

5. Increase number of orphans

Increased ability of the extended family to cope with the problem: Many believe that Africa's extended family system will be able to cope with the growing number of orphans. The response of these systems have been various, variable and often not working. Institutional care is not an option with the African cultural and resource context. In some area, institutional care has gotten a bad name in places where "orphan Farming" has developed as an income generating activity (Barnett and Blaikie, 1992). In others cost are prohibitive. In South Africa, statutory residential care costs \$316 per year while home based care costs \$38 per year (Desmond and Gow, 2000). A rapid assessment of orphans in Botswana paints a different picture with "orphan suicides, destitute children irking out a living out of garbage dumpsters, and a growing number of child-

headed households (Jacques, 1998, quoted in Rajaraman, 2001). These results have led to increased pressure to identify new forms of orphan care within families or communities.

Macro Impacts

1. National economies grow slower

Multiple impacts: Reduced growth is the result of two factors: reductions in labor productivity and increases in inefficiency. The former is associated with the reduction in the labor force that accompanies AIDS and the consequent reductions in income and the reallocation of savings from investment to consumptive (health costs) uses. The latter relates to the loss of human and social capital making private and public markets less efficient and transactions more costly.

Decline in economic growth: While macroeconomists accept the devastating implications of HIV/AIDS pandemic on individuals and families, there is some controversy about the magnitude of the macroeconomic impacts. The World Bank estimated that AIDS reduced African economic growth by 0.7% during the 1990s, a rate that was nearly twice the level of growth actually achieved - 0.4% (Bonnel 2000). Extensive analysis in Botswana suggests that AIDS will lower annual economic growth from 3.9% to between 2.0 to 3.1% during the 25-year period from 1995 to 2021. This means the economy will be 24% to 38% smaller at the end of the period (BIDPA, 2000). Using a basic cost accounting methodology, Anand, Pandav and Nath (1999) estimated that for India, where the percent of adults living with HIV/AIDS is estimated to be 0.7%, the costs of the disease are equivalent to 1% of GDP. New estimates for South Africa from Arndt and Lewis (2000) suggest that GDP per capita drops 8% by 2010 under a "business as usual" scenario. Bell, Devarajan and Gersbach (2003) cite a number of studies that estimate the impact of AIDS to be anywhere from -0.8 to -1.2% of GDP per year. They suggest that these estimates are low and suggest in their analysis of the South African economy that intergenerational losses in human capital will likely increase these estimates substantially and could even result in an institutional implosion in the country within three generations. The South African Bureau of Economic Research (2001) believes the difference levels of impact are an artifact of model structure. They suggest that "The impact of the disease cannot be treated as an 'exogenous' influence that can be tacked on to models derived on the presumption that the work force is HIV-free. HIV/AIDS has become an 'endogenous' influence on most African countries that has adversely affected their potential for growth and development."

2. Reduction in the labor force and an increase in wages

Conventional wisdom: Conventional wisdom suggests that AIDS attacks those in the most productive period in the lives. With increases in morbidity and mortality due to AIDS the work force will shrink and wages will increase. These shifts may be more pronounced for semi-skilled and skilled labor and less pronounced for unskilled labor. In regions such as Africa, that have relatively high unemployment rates for unskilled labor, migration between countries of low and high prevalence may occur thus mitigating wage rate increases.

Many fewer adults in the coming decades: The Food and Agricultural Organization (2002) estimate that seven million agricultural workers have already died of AIDS since 1985 and another 16 million are likely to die by 2020. In countries in East and Southern Africa where HIV/AIDS prevalence rates are over 10%, the US Census Bureau indicated that five countries in the region will be experiencing negative population growth rates by the year 2010 (US Census, 2002). Their analysis suggests the following growth rates: Botswana (-2.1% per year), Mozambique (-0.2%), Lesotho (-0.2%), Swaziland (-0.4%) and South Africa (-1.4%). By 2025, summing across the seven countries where HIV prevalence exceeds 20%, there will be 20 million working age men (20 to 59 years) as opposed to 31.5 million if AIDS didn't exist. By contrast, there will be only 18 million women in the same age group as opposed to 32 million in the "no-AIDS" case. And because of early death of so many adults, there will be fewer children

born. These projections suggest that the absolute number of persons alive in 2025 in these economies will be roughly similar to what it is today. Bureau of the Census demographic projections indicate that populations in the 7 most effected countries will differ by sex with a slight increase in working age men and no change in the number of working age women. These projections are consistent with those of the United Nations (2003). Their projections suggest that in countries with HIV/AIDS prevalence rates above 20% population growth will average +0.2 per year between 2000 and 2025. Countries with HIV prevalence between 10 and 20% (Cameroon, Central African Republic, Kenya, Malawi, and Mozambique) will have population growth rate of +1.33% per year.

Rise in daily adjusted life years: At the global level, HIV/AIDS was twenty-eight in terms of causes of disability-adjusted life years (DALYs) and is projected to be the tenth in 2020. In Sub-Saharan Africa HIV/AIDS is projected to be the third leading cause of DALYs in 2020 (from seventh in 1990) and for India, the disease is also projected to be the third leading cause in 2020 (from very low down the list in 1990) (Murray and Lopez, 1996).

3. Shifts in government spending

More spending on health: Work in South Africa suggests that HIV/AIDS will shift government spending toward health, which will increase the budget deficit and reduce total investment and reduce growth (Arndt and Lewis, 2000). In Botswanan analysis suggests that the government will need to spend 7% to 18% more by 2010 because of AIDS, just to maintain the current level of individual services (Quattek, 2000).

4. Reduced government revenue

Shrinking tax base: Just as demand for health services increase, government revenues are likely to decline. In Botswana, the reduction in government revenues because of HIV/AIDS is estimated to run 9.6% per year. In South Africa, analysts are expecting an annual decline of 0.7% by 2000 and 4.1% decline by 2010 (Quattek, 2000). With declining revenues and rising AIDS related expenditures deficit government spending are predicted. Arndt and Lewis (2000) suggest that this deficit spending will crowd out "investment" and lower aggregate capital formation. They estimate that 46% of the annual decline in Gross Domestic Product, predicted to be 2.6% per year could be attributed to the deficit. Other contributing factors include declines in total factor productivity - 32%; reduction in the size of the labor force - 14%; and reduced factor productivity 8%.

5. Reduced domestic savings

Lower savings rates: Between 2000 and 2015, Freire (2002) predicts a 5% per annum difference in the South African savings rate between the with and without AIDS scenarios. Nicholls et. Al. (2000) suggests that per capita savings could decline as much as 23.5% as household expenditures due to HIV/AIDS rise.

6. Reduced market efficiency

Increased friction costs to transactions: With AIDS social reproduction, the efforts that goes into the reproduction of social and economic infrastructure declines. For example, market systems at a purely economic level are systems whereby goods and services are exchanged through a process of price setting. At a social level, these systems depend on a wide variety of components to work effectively: physical infrastructure, beliefs about trust, rituals of bargaining and price setting, mechanism for regulating weights and measures, means of resolving disputes, and repeated activities which assure that all these things continue to exist. These are not solely economic activities, but include the development of institutions, the reinforcement of systems of belief and the continuation of physical infrastructure and channels of communication. Death or

illness, and the extent of the AIDS pandemic, means that some of these activities will no longer be possible or will be done less effectively (Barnett and Whitehead in Cornia, 2002).

7. Destruction of educational infrastructure

Quality of education declines: AIDS leads to the reduction of resources both human and financial available to a nation's educational system. The typically poor quality educational systems found in developing country get worse, teacher absenteeism and death increase and replacement are harder to find as staffs in universities and teacher training colleagues die. Illness is a particular problem with classes untaught for lengthy periods of time and school systems unable to hire new teachers, if they were available, to fill the unvacated slot. Hamoudi and Birdsall (2002) suggest that reductions in life expectancy in countries like Zimbabwe, Botswana and Uganda can be expected to lower schooling in young adults from 2-4 years to 1-3 years. In addition, loss of a large share of the skilled labor force in a country could reduce the social returns to skill among educated people who survive, reducing the contribution of education to overall growth. To the extent that a "critical mass" of skilled workers is necessary with higher levels education to be realized, the epidemic will reverse the accumulation. UNICEF (2000) estimates that 860,000 children in Africa have already lost their teachers to HIV/AIDS. In Botswana, death rates among primary school teachers rose from 0.7 per 1,000 in 1994 to 7.1 in 1999.

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