The Impact and Investment Implications of HIV/Aids on Human Capital in Sub-Saharan Africa

Abstract

This paper addresses an aspect of the HIV/Aids crisis which, despite its importance, has not been adequately addressed: the impact of HIV/Aids on investment in human capital in sub-Saharan Africa. To compete in world markets African countries have to invest heavily in education and training. In the past, natural resources alone may have been sufficient, but in today's world the most important factor is technological know-how, or human capital. HIV/Aids makes investment in human capital both more crucial and more difficult. HIV/Aids is undermining earlier achievements from investment in education and training and at the same time making new investment more problematic.Human capital in Africa is being heavily impacted by the HIV/Aids epidemic. While other resources are only affected indirectly by HIV/Aids, human capital is the entry point of the epidemic into the production system. Thus, as the International Labour Organisation (ILO) argues, Africa's prospects for development are endangered more than anything else by the annihilation of its labour force by HIV/Aids and the associated deterioration of education and training (Katsigeorgis 2002). This paper first discusses the effects of HIV/Aids on human capital in sub-Saharan Africa and then argues that the current strategies to mitigate these effects are not sufficient. Finally a research agenda to address the impact of HIV/Aids on human capital in sub-Saharan Africa is outlined.

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Impact of HIV/Aids on Human Capital

The impact that HIV/Aids has had and continues to have on the sub-Saharan African countries is indisputable. By the beginning of the new millennium more than thirty-six million people were estimated to be living with HIV/Aids worldwide. However 95 percent of them lived in the developing world, mostly in sub-Saharan Africa. In the year 2000 alone, there were about 5.3 million new infections worldwide. Almost four million of these were in sub-Saharan Africa. By the end of 2001 it was estimated that forty million people were living with HIV/Aids, 71 percent of them in sub-Saharan Africa. Sub-Saharan Africa accounted for about 70 percent of all adults living with the virus, including 81 percent of women and 87 percent of children. Moreover 78 percent of the children orphaned by HIV/Aids were in sub-Saharan Africa. With regard to Aids deaths in 2001, 73 percent of the global total was in sub-Saharan Africa. Clearly the distribution of the HIV/Aids epidemic in the world is highly skewed towards sub-Saharan Africa. While all the percentages of HIV/Aids-affected sectors in sub-Saharan Africa are above 70 percent, this part of the world accounts for only 10 percent of the global population.

For those who come from sub-Saharan Africa the temptation to question or deny the HIV/Aids figures can be immense. However, even when low-estimate scenarios are examined, the region still accounts for over 70 percent of the epidemic. What is also clear are the socio-economic impacts of HIV/Aids in sub-Saharan Africa, which have been very well documented. At the household level families affected by the epidemic are pushed into poverty through loss of income, reduced ability of caregivers to work, medical expenses and funeral expenses (UNAIDS 2002). Households use up their savings and in many cases have to sell off their assets such as livestock and land. As less labour is available, less land cultivated and less crops grown, food insecurity has become common in households that were once secure.

At a sectoral level a lot of literature exists on the impact of the epidemic on the education, health and business sectors as well as the agricultural sector. In Zambia, for instance, 1,300 teachers died of HIV/Aids in 1998. This was equivalent to two-thirds of the country's annual production of teachers. Assuming the loss remains constant Zambia will have to more than treble its output of teachers every year just to replace those lost to Aids. Even if this were possible it would still not cover the loss adequately, as it takes time for new teachers to gain the experience that has been lost through the death of their seniors. In the health sector more resources are being diverted towards HIV/Aids care and more and more beds occupied by Aids patients. In other words already-scarce health care resources are increasingly being diverted to the care of HIV/Aids patients at the expense of other health-care needs. In agriculture production is declining as labour and other inputs decline, and as extension workers are also impacted by the scourge. In the business sector absenteeism has increased, as have employee turnovers, training costs and health care costs. All these have led to a decline in productivity. Barks-Ruggles *et al.* (2001) refer to these HIV/Aids-related expenses as direct and indirect payroll taxes. Direct taxes consist of the direct costs for treatment of sick employees and for more expensive health and insurance benefits. Indirect taxes include the costs of absenteeism, increased recruitment and training costs and lower productivity. According to a UNAIDS (2000) assessment of one sugar company in Kenya, employee illness resulted in 8,000 days of lost labour over a period of two years, a 50 percent decline in output, a 500 percent increase in workers' spending on funerals and a more than 1,000 percent increase in medical costs. A case study of the Debswana mining company in Botswana (Barks-Ruggles *et al*. 2001) revealed similar impacts.

Clearly the HIV/Aids epidemic is devastating economic growth and development in sub-Saharan Africa. It has affected individuals and households, companies and whole economies. Research indicates that when a country has a prevalence rate of 20 percent, annual GDP growth drops by an average of 2.6 percent per year. In sub-Saharan Africa as a whole the rate of economic

growth has dropped by an estimated two to four percent due to HIV/Aids. According to the World Bank, countries with high prevalence rates have lost between one-half and one percent of per capita gross domestic product per year (World Bank 1993: 20). Life expectancy has declined as the HIV/Aids death toll has increased. In Zambia, for example, average life expectancy at birth has declined to thirty-seven years. Other countries in the region have been only slightly less devastated. In Tanzania overall life expectancy has been cut by eight years, in Rwanda by seven years and in the Central African Republic by six years. In Zimbabwe, Burundi, Malawi, Kenya and Uganda the reduction has ranged from three to five years (Okonmah 2003).

However an analysis of individual countries shows some marked differences. While prevalence rates have generally been on the increase, Uganda and Zambia show some marked declines. Within sub-Saharan Africa there are also some marked differences between regions. Prevalence rates are extremely high in southern Africa, but comparatively low in West Africa. One major difference between the two regions is that one is mainly Christian while the other is mainly Muslim. Could this be an explanatory factor, or could the explanation lie in the nature and levels of response to the HIV/Aids scourge in the two regions? Whatever the differences between countries and regions, HIV/Aids is a national disaster across sub-Saharan Africa. The development impact of HIV/Aids is well summarised by Nelson Mandela when he states that 'Aids kills those on whom society relies to grow the crops, work in the mines and factories, run the schools and hospitals and govern countries.' It seriously erodes human capacity and adversely affects what Barkes-Ruggles *et al*. (2001) call 'capacity deepening' – building on existing skills in order to increase future productivity.

Importance of Human Capital

Human capital is defined by Ray (1998: 100) as 'labour that is skilled in production, labour that can operate sophisticated machinery, labour that creates new ideas and new methods in economic activity'. Broadly human capital 'is commonly taken to include peoples' knowledge and skills, acquired partly through education, but can also include their strength and vitality' (Appleton and Teal 1998). According to Lall (1990) industrial performance is explained by the interaction of some key variables. Among these are physical capital, human capital, technological strategies, policies related to trade and industry and the macroeconomic environment. Lall studied different countries in relation to their respective economic performance. One of his conclusions was that human capital development is a critical element whose importance grows as technology becomes more advanced. In order to compete efficiently in world markets, all industries need skills. But deeper industrial structures, which are inevitable in sub-Saharan Africa, require a larger complement of highly trained people in a variety of disciplines. There is also a very close relationship between educational investment and technological performance. The human capital theory (Becker 1964, 1967; Ben-Porath 1967; Mincer 1974) states that an increase in a person's stock of knowledge raises his or her productivity both in the market sector of the economy and in the non-market or household sector (Grossman 2000: 349).

Lindauer and Velenchik (1994) also point out the existence of an extensive theoretical and empirical literature on the relationship between human capital and productivity. School enrolment rates and adult literacy rates are sometimes used as proxies for human capital. A comparison of African and Asian countries shows that African countries have accumulated less human capital. African workers therefore tend to be less productive than Asian workers. Sall (2000) calls human capital the 'ultimate resource' and argues that productivity gains in sub-Saharan Africa will remain illusive without an improvement in the quality of the workforce. Kane (2000) puts forward a theory of endogenous growth in which he stresses the impact of human capital on increased labour productivity via training. He further links human capital to direct foreign investment. A country with a highly educated and qualified labour force will attract more foreign direct investment. As Soludo (2000) points out there is a growing literature which identifies human capital as the key element in growth and development. The Economic Commission for Africa (ECA) makes this point very clearly:

> there is a solid professional consensus that human capital plays an equal, if not a greater, role in the development process. It is almost invariably the case that countries that have achieved the fastest rates of growth are those that invested most in their people, especially in health, nutrition and education. The link between these factors and productivity, which is the basis for growth, has been sufficiently demonstrated. Human development contributes directly to the well-being of people; ensures a more equitable distribution of the benefits of growth; maximizes the linkages between various types of investment in development; and permits a more efficient exploitation of physical capital and other resources (ECA 1995: 9-10).

The biggest tragedy in sub-Saharan Africa today is the negative impact of HIV/Aids on the development of human resources. HIV/Aids both reduces the human capital stock and the ability to create more human capital. When the infected become ill, the value of their human capital is reduced and so is their capacity to produce more human capital by passing on knowledge and skills to others. Teachers provide the clearest example. Illness and deaths from Aids decrease the number of teachers available and lead to a fall in the number of school graduates. Where this is avoided through larger classes, the quality of education suffers and the value of the human capital produced by the education system falls. The result is either reduced output or lower-quality products.

Current Interventions

In order to avert or soften some of the impacts of HIV/Aids, governments and NGOs in the region and elsewhere have developed three main groups of interventions: prevention, treatment and care and support. However these interventions fail to adequately address the issue of declining human capital. If sub-Saharan African countries are to achieve the goals of development and poverty reduction, they have to design interventions that reduce the impact of HIV/Aids on human capital and create more human capital. While prevention, treatment and care and support go some way to ensuring that some level of human capital is maintained, they still fall short in creating capacities that will produce enough human capital to replace the lost capital. As we have seen, for example, Zambia needs to train twice as many teachers as previously to make up for the effects of HIV/Aids. This raises a number of questions. Has the country got enough resources

(infrastructural, human and financial) to double its output of teachers? Are there enough secondary school graduates to enrol in colleges and universities? These questions can be posed at every level and type of education or training in every sub-Saharan country. Unfortunately almost no research exists indicating losses in human capital-building institutions.

Research Agendas

It is not yet clear how much human capital and human capital-building capacity the countries in sub-Saharan Africa are losing. It is not yet clear how the human capital in the main capacity-building institutions – primary and secondary schools, colleges, universities and other research institutions – is being impacted. However it is essential that the capacities of these institutions are strengthened so that they can be in a position both to replace human capital lost to Aids and produce more human capital for growth. It is vital therefore to include studies of the impacts of HIV/Aids on human capital in research agendas. The basic aim of these studies should be to determine the actual impacts of HIV/Aids on human capital in a number of countries in the region, particularly in the human capital-building institutions, and to develop appropriate responses to sustain human capital, particularly in terms of the necessary investment levels to maintain human capital and ensure adequate technological transfer.

Other important research questions include the extent to which human capital-building capacities have been impacted by HIV/Aids and the different coping strategies that have been developed in different countries. We also need to study the impact on affected human capital, and their coping strategies. We need to ask whether sub-Saharan African countries have the capacity to cope with and overcome the effects of HIV/Aids, and, if not, what needs to be done to build the required capacity. How can productivity in these economies be maintained? What systems should be put in place to ensure better tracking of morbidity, mortality, productivity and so on? What are the emotional impacts of HIV/Aids, and what are the effects of low morale, stress and isolation on productivity? Given the current prevalence rates, what are the projections for human capital? What implications do these projections have for human capital planning and development? How can the stock of human capital be maintained given the impact of HIV/Aids on capacity in the education sector in particular? Are education and training systems making adequate provision to replace the loss of skills in the workforce?

As indicated earlier this paper proposes that such studies encompass both Anglophone and Francophone countries, as well as countries with both high and low HIV prevalence rates. The importance of studies along these lines is clear. Experiences can be shared between countries, and resource mobilization efforts can be embarked upon with clear targets. Different costing and spreadsheet methodologies can be utilised depending on available data. However the methodologies will have to be similar in all countries to ensure comparability of results. Both longitudinal and cross section, qualitative and quantitative studies should be carried out. For better results study teams should be multidisciplinary even though such studies are expensive. These studies are vitally important if sub-Saharan Africa is to improve competitiveness. While the fight to convince the North to open its markets must continue, the South should also put appropriate measures in place to build the necessary capacities. While brain drain has impacted heavily on sub-Saharan Africa, the impact of HIV/Aids is likely to be more than we can currently imagine. A research agenda such as the one proposed in this paper would be invaluable to research funding organisations, national governments and international organisations as they plan and implement programmes to address the specific needs of African countries. Studies of this nature can also lead to the development of simple methodologies to assess the impact of HIV/Aids on human capital. They can also lead to a better analysis and understanding of the shifting burdens of human capital development.

References

African Development Bank, 1998, *African Development Report 1998: Human Capital Development,* Oxford: Oxford University Press.

Appleton, S. and Teal, F., 1998, *Human Capital and Economic Development, Economic Research Paper No. 39,* Abidjan: Africa Development Bank.

Barks-Ruggles, E., Fantan, T., McPherson, M., and Whiteside, A., 2001, '*The Economic Impact of HIV/Aids in Southern Africa*', Paper Presented at the Conference on Measuring the Costs of HIV/Aids, The Brookings Institute, The Council on Foreign Relations, and the U. S. Agent for International Development (USAID), June.

Becker, G. S., 1964, *Human Capital*, New York: Columbia University Press.

Becker, G. S., 1967, *Human Capital and the Personal Distribution of Income: An Analyical Approach,* Ann Arbor: University of Michigan.

Ben-Porath, Y., 1967, 'The Production of Human Capital and the Life Cycle of Earnings', *Journal of Political Economy*, Vol. 75, pp. 353-367

ECA, 1995, *Human Development in Africa: 1995 Report,* Addis Ababa: Economic Commission for Africa.

Grossman, M., 2000, 'The Human Capital Model', in Culyer A. J. and Newhouse, J. P., eds., *Handbook of Health Economics*, Volume 1A, Amsterdam: Elsevier, pp. 348 – 408.

Kane, O., 2000, 'Technological Innovation and Competitiveness of Basic Products in the African Agro-Food Sector: Problems and Elements of a Strategy', Sall, A., ed., 2000, *The Future Competitiveness of African Economies – Proceedings of the Dakar Forum, March 1999*, pp. 267-295.

Katsigeorgis, J., 2002, 'Impact of HIV/Aids on African Development Underestimated', in United Nations Chronicle Online Edition, (*http://www.un.org/Pubs/chronicle/2002/issue3/071602_impact_of_hiv.html)*.

Lindauer L. and Roemer M., 1994, *Africa and Asia: Legacies and Opportunities in Development,* San Francisco: Institute for Contemporary Studies.

Mincer, J., 1964, *Schooling, Experience and Earnings,* New York: Columbia University Press.

Okonmah, A. D., 2003, *Social and Economic Impact of HIV/Aids in Africa*, The Foundation for Democracy in Africa, *(http://democracy-africa.org/hivaids.htm)*

Ray, D., 1998, *Development Economics,* Princeton: Princeton University Press.

Sall, A., ed., 2000, *The Future Competitiveness of African Economies – Proceedings of the Dakar Forum, March 1999*..

Schultz, T. P., 1998), *The Formation of Human Capital and the Economic Development of Africa: Returns to Health and Schooling Investments, Economic Research Paper No. 37*, Abidjan: Africa Development Bank.

Lall, S., 1990, *Building Industrial Competitive in Developing Countries, Place?*: Publisher?.

Soludo, C., 2000, 'Human Capital Development and Endogenisation of Geography as a Framework for Africa's Competitiveness', Sall, A., ed., 2000, *The Future Competitiveness of*