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The Impact of HIV/AIDS on Poverty, Inequality and Economic Growth

Health Economics and HIV/AIDS Research Division (HEARD)
University of KwaZulu Natal, South Africa

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The Impact of HIV/AIDS on Poverty, Inequality and Economic Growth

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Abstract:

This working paper includes a literature review prepared by Marisa Casale and a study of research gaps and priorities by Marisa Casale and Alan Whiteside, prepared to inform an IDRC consultation on HIV/AIDS, Economic Growth and Poverty held in October 2005 in Ottawa. Although there is now more available evidence than ever on the social and economic impact of the AIDS pandemic, many unexplored or under-explored areas still remain. This is highlighted in the 2004 UNAIDS Report on the Global AIDS Pandemic, which points out that more than 40% of countries with a generalized epidemic have yet to evaluate its impact. This paper, first reviews the literature on the socio-economic consequences of the HIV/AIDS pandemic, looking specifically at the interaction of HIV/AIDS with poverty and inequality at a household or micro level, and with economic growth at a macro level, highlighting findings from the most important studies, as well as recent original research. Its second part identifies important gaps in existing research and suggests how future research agendas may be developed. It argues that future work should be focused on areas where research is most lacking and most urgently needed to inform policy, with an emphasis on building on existing work and using multidisciplinary and innovative tools. In particular, the need for broader and deeper micro and sectoral level work, and the interlinkages between micro and macro impacts as well as the specific impacts on government expenditures is highlighted

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This working paper includes a Literature Review written by Marisa Casale and a scoping study of Research gaps written by Marisa Casale and Alan Whiteside, prepared to inform an IDRC consultation on HIV/AIDS, Economic Growth and Poverty held in October 2005 at IDRC, Ottawa.

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Part 1: The Impact of HIV/AIDS on Poverty, Inequality and Economic Growth: A Literature Review

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Introduction

This literature review was prepared for the International Development Research Centre (IDRC), Canada, to provide a basis for a meeting on the links between poverty, economic policies and HIV/AIDS in October 2005. The review concentrates on the socio-economic consequences of the HIV/AIDS pandemic, looking specifically at its interaction with poverty and inequality at a household or micro level, and with economic growth at a macro level. The aim is to review the available literature and highlight findings from key studies, especially recent original research and thinking. While the focus of this work is on the economic impacts of the epidemic, we do not disregard the overwhelming human aspects – prolonged emotional and physical suffering, grief and bereavement - which cannot be quantified.

The UNAIDS 2004 *Report on the Global AIDS Pandemic* opens: “AIDS is an extraordinary kind of crisis; it is both an emergency *and* a long-term development issue”. This takes us directly beyond the epidemiological aspects of the disease to the social and economic dimension. HIV/AIDS is not simply a biomedical or demographic problem. It is a development issue, and so incorporates economic wellbeing and human growth.

The pandemic is the biggest obstacle to the achievement of the development goals agreed to at the UN Millennium Summit in 2000 (UNDP, 2001). It works against the objectives of equity, gender equality and poverty eradication. AIDS is probably the greatest constraint to human and economic development in Africa, a continent that desperately needs to provide its people with the promise of a better life – higher living standards, access to basic services and greater opportunities to live a self-fulfilling life. 25 to 28 million of the 34 to 46 million people globally infected live in Africa (UNAIDS, 2004). But the epidemic is not limited to Africa. Ten million infected people currently live in China and there is evidence that the epidemic is accelerating in Asia and Eastern Europe,¹.

¹ The most recent UNAIDS report warns of serious epidemics in Brazil, Russia, India and China and rising prevalence rates in these countries.

The global spread of HIV/AIDS has brought with it the realization that the disease is more complex and extensive than imagined (Veenstra and Whiteside, 2005). Its wide-ranging repercussions will unfold over the generations to come, inevitably transforming society as we know it. The epidemic's alarming infection rate combined with the fact that we have not found a cure, has considerable social and economic implications.

HIV/AIDS impacts various interconnected levels of the economy. Whereas the greatest impact, in terms of human and social costs, is felt at household level, there is increasing evidence and recognition of macro level effects. After all, phenomena at micro and macro levels are closely related, since macroeconomic aggregates represent the outcome of economic decisions and behaviour of actors at a micro level (Veenstra and Whiteside, 2005).

Part of the complexity of dealing with the relationship between HIV/AIDS and socio-economic variables is that the latter can be both determinants and consequences of the epidemic. This dual relationship gives rise to complex causal patterns and feedback loops, which make single cause-effect relationships more difficult to isolate (SSRC, 2004). For example, increased poverty and income inequality fuel the spread of the epidemic. The epidemic, in turn, worsens the economic situation of the household, often leading to increased poverty and inequality. A similar relationship exists between HIV/AIDS and economic growth. At a macroeconomic level, while HIV/AIDS is believed to slow economic growth, growth is closely related to poverty and availability of resources, variables that, in turn, contribute to shaping the epidemic and determining a country's ability to respond to it.

Research on the impact of HIV and AIDS has increased significantly over the past five years. Studies concerned with socio-economic impacts have been carried out at many different levels (individual, household, firm, institutional, government and macroeconomic), employing various methodologies. While, in the past, model-based studies projecting future impact have dominated, there is now a greater focus on empirical analysis, as measurable evidence of the epidemic's impact increases.

Much of the research conducted, especially regarding effects on the household economy, has been country or sector specific. Thus, limited availability and “fragmentation” of relevant data – in terms of type of information collected and geographical area covered – has led researchers to integrate findings. Recent studies support models with empirical data, consider information from a number of source surveys and combine quantitative and qualitative data. Literature reviews, which seek to present a theoretical framework, draw on similar findings of primary research within different contexts to explain causal patterns between variables. While some findings appear to be applicable to the broader discourse, others are too heterogeneous to allow generalization. In sum, researchers and analysts are slowly putting together pieces of a fragmented changing puzzle.

The Micro Level: HIV/AIDS, poverty and inequality

The greatest impact of the epidemic is felt at a household level, where socio-economic factors combine with socio-cultural and epidemiological variables to influence prevalence (SSRC, 2004). It is the household unit that carries the greatest burden. Since socio-economic indicators, such as poverty and inequality, are both consequences and determinants of HIV/AIDS, they can interact with the epidemic at a household level to perpetuate a vicious downward cycle towards greater indigence.

Socio-economic determinants and impacts

Poverty increases susceptibility to contracting HIV/AIDS through several channels including: increased migration to urban areas; limited access to health care, nutrition and other basic services; limited access to education and information, sexual exploitation and gender inequality. Little recent research explores the influence of socio-economic variables on the risk of contracting HIV. Bloom’s (2002) analysis of Cambodian and Vietnamese households is an exception. This study suggests that there are strong correlations between wealth and

education on the one hand, and reduced risk for HIV on the other. Wealth and education both appear positively correlated with increased knowledge and behaviour.

Several International Food Policy Research Institute (IFPRI) publications investigate the causal relationship between good nutrition and HIV prevalence. For example, Gillespie and Kadiyala (2005) affirm that food insecurity and malnutrition may accelerate the spread of HIV, both by increasing people's exposure to the virus and by increasing the risk of infection following exposure. They draw on a number of previous studies to support this theory, including work carried out by Stillwaggon (2002), which finds falling calorie and protein consumption and increasing inequality to be strongly correlated with HIV prevalence in 44 Sub-Saharan African countries. Moreover, the authors cite a number of medical studies suggesting that improved maternal micronutrient status may reduce vertical transmission of HIV; concluding that one of the main factors determining the risk of mother-to-child transmission of HIV is the health and nutritional status of the mother.

Significant research has concentrated on the role of socio-economic variables as consequences. The epidemic's influence on household living conditions derives in great part from the virus's specific demographic effects. HIV/AIDS changes the structure of the population; it is distinct from other diseases because it strikes prime-aged adults, the most productive segment of the economy (Barnett and Whiteside, 2002). Thus the breadwinners are falling ill and dying, destroying much-needed skills and depriving children of their parents. Barnett and Clement (2005) point out that the key to the social and economic impact of HIV/AIDS is that it is a slow moving virus: as a result it can affect three human generations.

The principal economic impacts experienced by affected households are: loss of available income, as working adults falling ill or dying or having to stop work to look after children and/or the ill; additional expenditure on health care and funerals (UNAIDS, 2004). Other effects include depletion of household assets (due to increased health expenditure, consumption needs and labour losses), lower productivity of subsistence labour and

reduced availability of food. School enrolment may also decrease, as children are forced to dedicate time to labour and care-giving.

In a survey of 771 AIDS-affected households throughout South Africa, Steinberg et al (2002) document the impoverishment and burden of care for family members. They find that poor people in South Africa are the most adversely affected by HIV/AIDS, and that those households worst hit by the epidemic are also those underserved by basic public services such as sanitation and piped water. Furthermore, the epidemic deepens poverty among the already poor through loss of income and medical care costs, which absorb up to 1/3 of household income. Children's schooling is also disrupted, especially among girls, and increasing early childhood malnutrition can be observed. This study also reveals a growing strain on extended family networks: more than 12% of households have sent their children to live elsewhere, most often with relatives.

Similar dynamics are described in Bachmann and Booyesen's (2002/2004) 18-month longitudinal study of rural and urban households in South Africa's Free State Province. The baseline study (2001-2002) finds that affected households are poorer than non-affected households, regardless of the poverty measure used. Compared to unaffected households, affected households had lower monthly incomes (mean \$130 vs \$215) and expenditures (\$90 vs \$119) and lower proportions of members in employment (11% vs 20%). The incidence, depth and severity of poverty were worse among affected households, particularly among those who experienced illness or death. Some new findings of the follow-up studies are the insignificant differences in the impact on rural and urban households (even though the income and expenditure levels of rural households are lower) and the decline in income of unaffected households. The latter phenomenon suggests that the effects of the epidemic are not limited to "infected" households, but are giving rise to deepening poverty in the wider community.

Another survey carried out in South Africa (Oni et al, 2002) – in the Limpopo Province - provides further evidence of how HIV/AIDS worsens poverty among households already living below the poverty line. One empirical result is that income received by affected

households during the year 2000 was approximately 35 per cent lower than that received by unaffected households; per capita monthly income for the average affected household was about 31% lower than that of unaffected households. The study brings to light changes in household expenditure patterns: health and medical care, transportation and funeral expenditure increased among affected households interviewed, while spending on education, housing and remittances was reduced. For example, affected households increased their transportation costs by 4.7% and reduced expenditure on education by 7.3% and housing by 11.5%.

In a paper published in 2004, Wyss et al attempt to ascribe a value to the household level economic costs of HIV/AIDS described above. Their fieldwork in Chad, one of the poorest countries in the world, confirms that “for most households, especially in the low-income settings, the consequences of AIDS are disastrous.” Costs attributable to the epidemic during the period of illness up to death represent more than four times the annual GNP per head in Chad. Productivity losses make up 28% of total costs, while 56% of costs are on health related expenditure and 16% on funeral expenses.

Long-term household costs of HIV/AIDS

There are also more indirect and long-term repercussions of the epidemic on households, that are not immediately apparent. Some go beyond the economic sphere, such as grief and increasing stress, which can negatively influence the psycho-social state of children. But there are also potential long-term economic costs. One intergenerational effect is that of diverting household resources from long-term assets to meet short term needs; this influences household savings and investment decisions (Greener, 2004; ILO, 2004). Another loss is that of human capital, as fewer household resources – time, money, care etc – are directed to children’s mental and emotional development.

In a study carried out in rural Malawi², Mtika (2003) explores a slightly different but related concept to human capital, denoted “embodied capital investment”. Embodied capital

² The study uses quantitative and qualitative data from the Malawi Family Transfers research (survey questionnaire administered to 1257 respondents in 3 rural areas among 3 main ethnic groups)

investment is described as the allocation of resources to “current and future biological, social and economic reproduction, for purposes of ensuring dynastic fitness and continuity”. This refers to the channelling of time, money, general assistance and other resources to activities such as reproduction, growth, skill development, health and security, in a way that sustains lineages. It includes investment in children (‘offspring-embodied capital’) to ensure the continuity and future welfare of families. Mtika concludes that prime-age adults are central to resource exchanges or transfers, be they vertical (between parents and offspring) or generational (between siblings). Moreover, through reciprocal transfers among themselves, young adults are better able to support their children and the elderly. The health status of adults is an important factor in their involvement in these exchanges. Since AIDS mostly strikes young adults, it is therefore striking the core of the resource flow system in subsistence economies. The inability of these adults to fulfil their role in embodied capital investment, will lead to a huge demand for public intervention to sustain social and economic reproductive activities.

Mtika’s study thus also touches the issue of dependency. In the developed world people generally are able to save and social welfare and public assistance programmes support the needy (children, poor and the elderly). This is not the case in subsistence economies of the developing world, where children and the elderly are heavily dependent on the ‘productive middle generation’ and their transfers (Mtika, 2003; Barnett and Clement, 2005). By striking the middle generation, the HIV/AIDS epidemic is disrupting and eroding intergenerational dependency structures. Once again the poor are disproportionately affected, in that they are less likely to have alternative sources of income, accumulated wealth (assets to sell) and access to health and other welfare services (e.g. pension funds). When young adults fall ill and die, the children and the elderly – who are the most vulnerable household members - have no choice but to find ways of taking care of themselves.

Household coping strategies

When households that already live on the margins of survival are forced to absorb the ‘shock’ of HIV/AIDS, there is little else they can do but struggle to go on with whatever means possible. Coping strategies of affected households include utilizing household

savings, risk pooling and selling household goods. In some cases, families have no alternative but to sell productive assets (e.g. livestock, tools), thus further frustrating income generation potential and the possibility of recovering some of the losses incurred (Jayne et al, 2003, 2004). In this way the situation of poverty is intensified and there is little opportunity for upward socio-economic mobility. Families rarely recuperate their initial level of economic well-being.

Robalino et al (2002) report that, in Middle Eastern and North African countries, informal solutions to manage risks are diverse – ranging from family support and kinship ties to religious charitable organizations – but research has shown that they are usually insufficient to hedge against adverse shocks. Wyss et al (2004) find that AIDS cases in Chad rely more often on borrowing and selling of household assets for treatment, compared to non affected households. Across all households, income and savings are the most important sources for covering treatment costs. Nampanya-Serpell's research among urban and rural households in Zambia (2002) finds that, in the urban sample, the worst affected families are those in which the major breadwinner was the first parent to die. These families have experienced a sharp drop in income and in most cases been forced to move out of their original home. Those who own a home and rent out part of it, those with an adult female educated and employed in the formal sector and those with wealthier relatives who can take in orphans are most protected from hardship.

Orphans and vulnerable children

One of the most tragic impacts of the HIV/AIDS epidemic is the millions of orphans it is generating. In Sub-Saharan Africa alone, an estimated 12 million children under the age of 18 have lost one or both parents to AIDS (USAID, 2004). The orphaning of children is a lagged effect of the epidemic: even if countries are successful in reducing prevalence, the number of orphans will continue to increase over the coming decades. But the rise in the number of AIDS orphans is more than a demographic and social problem; it is also an economic issue.

Orphans have fewer opportunities and present greater challenges to the accumulation of human capital. On illness or death of a parent, children's time is allocated away from schooling towards care-giving, house chores and work to supplement the family income (Corrigan et al, 2005). Furthermore, the presence of AIDS in a household means a greater amount of time and financial resources channelled towards medical care, leaving fewer resources available for schooling and other investments. Corrigan et al (2005) point out that the two main inputs in future human capital are time and parental human capital.

A substantial amount of research – mainly country specific – investigates the psycho-social and socio-economic well-being of orphans and vulnerable children, in relation to children who have not been 'affected' by the epidemic. An ongoing study undertaken by the Community Reach Programme in Zambia and Rwanda (2005) has interviewed over 3000 people, including caregivers, children and adolescents. The objective of the project is to compare differences in measures of educational, socioeconomic, health, nutritional and psychological well-being among three groups of children: 1) orphans 2) children who are not orphans but have a chronically ill parent or caregiver and 3) other children. The results of the first round of data collection show some findings applicable to both countries. Firstly, no differences in school enrolment among the three categories of children (aged 6 to 19) are suggested. Secondly, at the individual level, orphans and children with chronically ill caregivers appear to be worse off compared to other children with regard to socio-economic status, in this case measured simply by the possession of a blanket, shoes, and an extra set of clothes. Thirdly, health and nutrition indicators reveal that orphans and children with chronically ill caregivers are worse off.

An analysis of data, collected between 1992 and 2000 from 19 Demographic and Health Surveys in ten Sub-Saharan African countries (Case et al, 2002), also reports a negative relationship between orphan status and both socio-economic conditions and educational opportunities. Orphans in Africa, on average, live in poorer households than non-orphans and are significantly less likely to be enrolled in school. However, it is stressed that this is not only a result of lower living standards, but also of the children's relationship with the caregiver, i.e. the degree of relatedness between orphans and their adult caregivers is

highly predictive of children's outcomes. There do not appear to be gender differences in household circumstances and educational opportunities faced.

Education is a key issue related to human capital, and the need to ensure its continuity. Birdsall et al (2004) emphasize that human capital acquired via formal education is an economic asset that, once obtained, cannot be appropriated. Ensuring access to adequate education for all children is central in the pursuit of greater equality and poverty reduction.

A number of authors have undertaken comparative studies to expose potential differences in well-being and school attendance between orphans and non-orphans. For example Nampanya-Serpell (2000) explores the effects of adult mortality on households and school enrolments in Zambia, with a particular focus on the differences between urban and rural areas³. The findings suggest that socio-economic status is a key determinant for educational outcome in urban, but not in rural areas. For rural based orphans, the most critical factor is age and not socio-economic status. The older they are, the more likely the children are to be withdrawn from school to help maintain levels of food production. Age is the principal factor predictive of nutritional and health status in AIDS affected families, with younger children the most vulnerable (malnutrition was found among youngest children).

Yamano and Jayne (2004) investigate the impact of working-age adult mortality on child primary school attendance in Kenya. They find household wealth to be a key factor: children's school attendance is adversely affected by the death of working age adults among less wealthy households⁴, but no significant effects are detected among wealthier households. Gender differences are also significant. In relatively poor households, girls are less likely to be in school prior to adult death, compared to unafflicted households, whilst boys' school enrolment is most affected after an adult's death. This implies that girls are bearing the brunt of care-giving when parents are ill, while boys are more likely to have to compensate for lost labour after death.

³ This study uses data from households in which one or both parents died of AIDS between 1991 and 1995. Structured interviews were conducted with 223 urban and 101 rural families in low-income neighborhoods.

⁴ That is, the bottom half of the sample households, ranked by initial asset levels in 1997.

A cross-country analysis, published by the World Bank Development Research Group (Ainsworth and Filmer, 2002), was unable to find similarities across countries regarding the relationship of poverty, AIDS and children's schooling. This study uses data collected in the 1990s from 28 countries in Sub-Saharan Africa, Latin America and Southeast Asia in an attempt to determine the relationship between orphan status, household wealth and child school enrolment. But the results are diverse across countries and generalizations are not possible. One trend that is highlighted, however, is that in the group of countries with moderate overall enrolment rates, there is a strong relationship between socio-economic status and access to schooling. There are often large gaps between enrolment of poor – including poor orphans - and non-poor children.

Impact of HIV/AIDS on food security and the rural economy

In recent years, much research has focused on the impact of the HIV/AIDS epidemic on food security and the rural household economy. In developing countries where HIV/AIDS epidemics are well-established in the general population, subsistence agriculture is an important source of livelihood for the majority of the population and a significant economic sector. Over the past decade, development economists and other actors have shifted from seeing urbanization as a solution to rural unemployment and poverty, to a concern with improving the sustainability of the integrated rural economy (Clark, 2004). In the agricultural sector, AIDS is often one more factor that aggravates an already difficult situation. Mather, Donovan et al (2004) warn: "In Southern Africa, HIV/AIDS is considered to be a critical factor conditioning rural economic development, exacerbating already difficult problems with climatic variability and poverty". In particular, female-headed households are more adversely affected and encounter greater difficulty in maintaining agricultural production levels.

The International Labour Organisation's 2004 Economic Security Report states that we are witnessing a systematic erosion of the productive capacity of whole communities stemming from the HIV/AIDS pandemic. In 2002-2003 at least 14 million people were deemed food insecure and in need of food assistance. HIV/AIDS is a significant factor contributing to Southern Africa's food crisis, which, when combined with poverty can be devastating

(UNAIDS, 2004). Increased morbidity and mortality of the prime-age adult population may lead to fewer agricultural workers and a reduced amount of food produced and made available, as well as a smaller variety of crops grown. At the same time, those living with the epidemic have a more acute need for good nutrition.

In the available literature, various researchers have conjectured a range of effects of adult mortality due to HIV/AIDS on agriculture, including loss of agricultural labour and skills. Recently, studies that attempt to measure effective impact on rural households have begun to emerge. Yamano, Jayne et al, linked to the Food and Agriculture Organisation (FAO), have produced a number of papers based on surveys conducted in various African countries. In a paper that aims to measure the impact of prime-age adult death on rural households in Kenya, using a two-year panel of 1,422 Kenyan households surveyed in 1997 and 2000, the authors find that the death of an adult causes Kenyan households' non-farm income to decline. The effects of adult mortality are highly sensitive to the gender and position of the deceased family member in the household. When a female head-of-household or spouse dies, the cereal area cultivated tends to decline considerably, while cash crops are most adversely affected by the mortality of a prime-age male member. Off-farm income is substantially affected by the death of the male head of household, but not that of other adult members. The loss of income from the cultivation of traditional cash crops, mainly as a result of death of males, is a major source of hardship for these households.

Using household level survey data from Rwanda, Baylie et al (2003) find that households with a chronically ill adult tend to be poorer than other households, with 46% of these households falling into the lowest income group. There are, however no significant differences in total land area or cultivated area.

Rural household coping strategies

Once again, rural families have to resort to the coping strategies available to them to absorb the shock of HIV/AIDS to the household. Yamano, Jayne et al (2003) recount how households cope with prime-age adult mortality mainly by selling small livestock. They also

draw attention to evidence of a shift to less labour-intensive crops in rural Eastern and Southern Africa. These may be less nutritious, with obvious implications for food security and nutritional requirements. Other coping strategies may include borrowing money and risk pooling with other households in the area.

Donovan, Baylie et al (2003) show that affected households in rural Rwanda strive to maintain their agricultural production, and work to avoid selling the few items they possess. Nevertheless, some households appear to be in a downward spiral, losing assets and income earning potential. The endeavour to maintain production levels at all costs is also highlighted in a qualitative study (Mothibi, 2003) conducted in one rural and one peri-urban village in Lesotho. Although results of this study should be interpreted with caution because of the small sample size⁵, most rural households interviewed appear to be maintaining agricultural production levels in spite of sickness and deaths, through additional labour of healthy family members and sharecropping arrangements. These papers reveal that affected households rely heavily on social networks for labour and skills. Clearly these networks could be stretched beyond their means in any continuing epidemics. Donovan, Baylie et al (2003) describe how female-headed households, in particular, struggle to find neighbours who can provide them with additional labour and are often forced to work more themselves.

The sale of (often productive) assets, withdrawal of children from school, utilization of household savings and increased borrowing are some of the survival mechanisms also identified in two qualitative studies carried out respectively in Swaziland and the Limpopo Province of South Africa (Oni et al, 2002, Swaziland Regional VAC, 2004). In particular, the Swazi study provides evidence of a qualitative shift by which affected households are moving from income derived from agricultural production, remittances and sale of natural resources to casual income and livestock sales. Given strategies that include selling productive assets, leaving land fallow and cultivating less land, household income will probably be further reduced. As a result, the likelihood of greater poverty and dissolution of households will increase. Referring to “the new variant famine hypothesis”, De Waal and

⁵ The methodology consisted of interviews with 29 people in the 2 villages, of which 9 key informants.

Whiteside (2003) suggest that HIV/AIDS is the cause of the more widespread nature of the food crisis in Southern Africa, and that the epidemic is also behind the more severe effects on household poverty (rapid impoverishment and difficult recovery) compared to previous food shortages. The authors suggest that the epidemic accentuates existing difficulties and disparities and can render the usual coping strategies – such as relying on networks, increased labour, lower food consumption of adults - impossible, dangerous or ineffective.

In one of the few cross-country studies conducted⁶, Jayne, Villareal et al (2005) challenge the conventional wisdom that, due to the HIV/AIDS epidemic, labour availability will be the largest constraint to agricultural production throughout Eastern and Southern Africa. The authors argue that the prioritisation of labour-saving technologies or crops has been over-generalised, since these are not necessarily the only or best solutions for all households and areas. Contrary to the predominant position of AIDS-agriculture literature, this paper argues that the epidemic could result in capital and knowledge constraints becoming more severe impediments than labour in maintaining agricultural output and productivity. This hypothesis is motivated by predicted reverse urban-rural and cross-border migration dynamics⁷ as well as the depletion of productive assets among poor households and a reduction in the availability and competitiveness of knowledge.⁸

It must be emphasized that the available research focuses predominantly on the short-run effects of adult deaths on selected aspects of rural household welfare. The full long-run effects of adult deaths on households remain unknown and still need to be better investigated and understood. Authors warn that that the full impacts of HIV/AIDS on the agricultural sector in Southern and Eastern Africa are only just starting to manifest, and will

⁶ This study draws upon a number of instruments - development economics theory, demographic projections, and empirical evidence - to consider the likely consequences of the HIV/AIDS pandemic for the agricultural sector of the hardest-hit countries of Eastern and Southern Africa.

⁷ The authors cite empirical studies documenting this trend. These include: Ainsworth, Ghosh, and Semali's (1995) study of Kagera District in Tanzania, Menon et al.'s (1998) study of Rakai District in Uganda and the national study of Zambia by Chapoto et al., 2005.

⁸ The costs of skilled labour in the (mostly non-agricultural) formal sector are likely to rise, rendering knowledge-intensive activities less competitive. At the same time, the availability of knowledge will be worsened by decreasing returns to investment in human capital development, given the risks of premature death due to HIV/AIDS.

escalate over the next several decades (Jayne et al, 2005). Moreover, another related aspect, which is highly under-researched, is the impact of HIV/AIDS on rural communities already strained from bearing the brunt of the disease (Barnett and Whiteside, 2002). When this weight will no longer be sustainable, and whether this tension will lead to the collapse of extended families and communities, are questions that we simply do not know much about.

Definition of an ‘affected’ household

One of the difficulties of both urban and rural household level impact studies, increasingly emphasized, is the definition of what an ‘affected’, as opposed to ‘unaffected’, household actually is. Researchers may, in fact, be underestimating the differences between cases and control groups (and therefore the costs of the HIV/AIDS epidemic to households), by considering as ‘unaffected households’ families that have not suffered morbidity or mortality as a result of HIV/AIDS but have, nevertheless, been indirectly affected by the epidemic.

Freire (2003) develops an interesting theoretical framework, which questions the conventional definitions of impacts of the AIDS epidemic and of affected households. Firstly, the author proposes a reclassification of known impacts on the basis of their ‘status’ (the extent to which they change the status both of the members living with HIV/AIDS and the other members of the household) and ‘temporal’ (the extent to which they correspond to permanent, as opposed to short-run, dynamic shocks in the economy) characteristics⁹. Freire goes on to identify three profiles of households that sustain some of these costs and should therefore be considered ‘affected’ by HIV/AIDS (only the first type of household currently is): 1) those that experience illness or death due to HIV/AIDS; 2) those that intervene in the life of the affected households and 3) those that experience the pressure of HIV/AIDS on their economic behaviour even though they are not involved in the life of an affected household. The main theoretical result of this paper is that, due to the multiplicity of impacts, the definition of what is traditionally considered an ‘affected household’ is not valid

⁹ The following are some types of costs identified, on the basis of their status impact and temporal impact: A: high status impact, low temporal impact: health expenditures, funeral expenses, loss of productivity; B: low status and temporal impact: care of children, spouse or orphans; C: high status and temporal impact: anticipation of losses; pressure on life expectancy; D: low status impact, high temporal impact: anticipation of losses, trauma of children and adults.

any more. The restrictive definition generally utilised by researchers could be resulting in underestimation of the cost of HIV/AIDS and inappropriate policies.

Impact of HIV/AIDS on the public sector

Although it is not the purpose of this paper to explore the effects of the HIV/AIDS epidemic on the public sector, these impacts above influence the ability of the public sector to deal with poverty and inequality. By depleting human resource capacity of public sector bodies and negatively influencing availability of government resources, the epidemic has the potential to undermine the effectiveness of social services, which are in effect redistributive mechanisms (UNAIDS, 2004). One of the sectors affected is the very one that has to deal directly with the epidemic: the health sector. Simultaneously, the epidemic will cause demand for health services to increase, and supply – both in terms of quantity and quality of health care – to diminish. In African countries, studies estimate that AIDS causes between 19% and 53% of all government health employee deaths, just when the need for health-care services is increasing rapidly (UNAIDS, 2004).

HIV/AIDS and Macroeconomic Growth

Since the 1990s, many economists have been concerned with assessing the impact of AIDS on economic performance and, more specifically, on national GDP growth. One may question why so much attention has been afforded to this aggregate, representing the annual rate of increase in the total output of a country. The answer is that high and sustained growth – although not in itself sufficient - is associated with job creation and higher living standards, as well as a greater amount of resources that could be utilised for government spending. Economic growth can therefore influence the capacity of countries to deal with social injustice and to respond effectively to the epidemic itself. In the developing

world, it is part of a promise of improved living standards, human development¹⁰ and quality of life.

There are many channels through which HIV/AIDS can influence macroeconomic growth. The most obvious and direct is the effect on productivity and size of the labour force, as a result of prime age adult illness and death (Greener, 2004). One of the things that distinguish the HIV/AIDS pandemic from other global diseases is that it predominantly affects young adults, stripping families, communities and nations of those who are also the main contributors to income-generating activities (Barnett and Whiteside, 2002).

The epidemic can also influence macroeconomic growth by changing resource allocation between consumption and savings. Increased costs (such as health expenditure and funerals) shortened life expectancy and less available disposable income are all potential contributors to higher consumption/savings ratios of households. However, despite increasing evidence at a household level, the information available does not allow us to generalize to the national level. As pointed out originally by ING Barings (2000) and repeated by Nattrass (2002), these dynamics at the level of affected households do not give us a full enough picture to determine the aggregate affect on macroeconomic variables, in that they are also a function of the allocation of income between households¹¹.

Furthermore, the large number of children orphaned as a result of HIV/AIDS may also have significant economic implications (Corrigan et al, 2005). This may be through a government response to higher demand for social services (and thus public spending) and/or the greater challenges that orphans pose in terms of human capital accumulation.

HIV/AIDS influences macroeconomic aggregates through 'second-order effects' (Nattrass, 2002) or rather through the impacts of the way firms and governments respond to the first-order impacts of AIDS. For example, potentially large public health costs could divert

¹⁰ Development implies a tangible improvement in individual or national circumstances (Barnett and Whiteside, 2002). The 1999 UNDP Human Development Report states: 'The purpose of development is to create an enabling environment for people to enjoy long, healthy and creative lives.'

¹¹ A greater share of income allocated to richer households could increase the demand for durable goods.

government resources from other productivity enhancing expenditure (e.g. education and infrastructure investments). Firms may be reluctant to invest in the economy in general and, more specifically, in training of workers, as a result of larger production costs and a higher likelihood of workers dying because of AIDS. Second-order effects depend on the specific decisions taken by private and public sector economic actors, and are therefore very difficult to predict and assess. The foreseeable danger here is that this chain of causal effects may transform itself into a downward economic spiral: lower growth could discourage investment, which could, in turn, hinder economic growth potential by reducing the availability of capital as a production factor (Barnett and Whiteside, 2002). This dire possibility has been one of the rationales behind the development of scenarios, such as those published by UNAIDS¹², which explore how the HIV/AIDS epidemic and our responses to it may shape the future.

Literature on the Impact of HIV/AIDS on GDP growth

Most studies attempting to estimate the impact of HIV/AIDS on macroeconomic growth have focused – as expected – on the most affected regions, namely Southern and Eastern Africa. A relatively large amount of work has been done using the South African economy as a case study, because of greater data availability and capacity to carry out such analyses.

Despite their utility, these studies have limitations that also explain their often-diverging results. Macroeconomic modelling necessitates using a theoretical framework to project forward in time. Methodologies are inevitably dependent on underlying assumptions and forecasts regarding factors such as the evolution of the epidemic and the behaviour of various economic actors. This explains the frequent lack of consensus among authors regarding some of the mechanisms through which the epidemic will impact on the macro economy, as well as the relative weight of these mechanisms. Another constraint, especially for earlier studies, has been the limited availability of empirical data, since the epidemic has still not peaked in many affected areas, and countries in which prevalence is highest often do not have reliable data. To complicate matters further, the comparison of models with actual economic performance means overcoming what Booysen (2003) describes as the “difficulty of entangling the simultaneous effect of HIV/AIDS and a myriad of other economic

¹² UNAIDS (2005): “AIDS in Africa: Three Scenarios to 2025”, UNAIDS: Geneva.

forces on these macroeconomic parameters.” Lastly, models are, in the end, a simplification of reality and will never be able to fully reflect the complexity of a ‘real’ economy.

Earlier quantitative economic analysis on the macroeconomic impact of the HIV/AIDS epidemic came to the conclusion that the epidemic would have an insignificant effect on GDP growth rates (authors include: Bloom and Mahal, 1997, World Bank, 2000). These studies focused on the way in which HIV/AIDS influences investment and productivity, through a reduction in the size and productivity of the labour force. On the other hand, theoretical studies that considered the potential cumulative long-run impact predicted larger macroeconomic costs (e.g. Cuddington and Hancock, 1994, Arndt and Lewis, 2000, 2001). Nevertheless, projected differences in annual GDP growth rates in relation to the no-AIDS scenario were generally low. The epidemic was treated, in a conventional economic framework, as an exogenous influence, which would not shift long-run equilibrium growth levels. For example, various simulations carried out in 2000 and 2001¹³, using South Africa as a case study, estimated reductions in annual GDP growth rates as a result of the epidemic in the order of 0.1% to 2.6%.

More recent studies have, instead, moved beyond this focus on the immediate effects on investment and labour productivity, to take into account other factors relating to social development and social welfare, as well as the indirect and intergenerational effects of the epidemic on these indicators. In particular, such studies analyze welfare and human development indicators such as human capital formation to obtain a fuller picture of the impact on affected households and communities (Barnett and Clement, 2005).

Some criticisms of the use of traditional macroeconomic analysis to measure impact are advanced by MacPherson (2000), and later by Drouhin et al (2003). While the former did not develop a complete or alternative model, his conclusions were innovative for the time at which they were published and served as an incentive for the development of subsequent models. MacPherson argues that previous studies underestimate the complexity and impact of HIV and AIDS on the economy and questions their assumptions with regard to labour

¹³ Bureau of Economic Research, 2001; ING Barings, 2000; Arndt and Lewis, 2001

productivity, demographic shifts and prediction of trends in HIV prevalence. He concludes that the epidemic can no longer be considered an 'exogenous' influence, which presumes that the workforce is HIV-free, but that rather we must take into account the endogeneity of the social and economic impact of HIV/AIDS. Three years later Drouhin et al (2003) published a paper with the results of a model constructed to synthesise the different approaches of macroeconomic impact studies, in an attempt to compare the means of forecasting the impact of AIDS in a developing economy. This work shows that endogenous growth models produce more valuable and precise assessments of an epidemiological crisis such as AIDS in developing countries, by considering a multiplicity of productivity variables as potential engines of development (such as human capital, public spending, etc). Economic behaviour, incorporating the shift of the long-term equilibrium, is already altered by the crisis.

Arguably the most significant modelling work produced over the past two years, at least from a theoretical perspective, is contained in a paper published by the World Bank in 2003 (Bell et al). The authors develop an endogenous Overlapping Generations Model (OLG) and apply it to the South African economy. The result is that the projected long-run economic costs of AIDS are much higher than predicted in previous studies. In the extreme case - in the absence of appropriate and efficient measures - the authors maintain that we could witness economic collapse. An element that distinguishes the model used from previous work, is that it incorporates the long-run human capital loss caused by HIV and AIDS. According to Bell et al, human capital is destroyed in a number of ways: through sickness and death of young adults, by weakening or destroying the mechanisms that generate human capital (i.e. the transmission of knowledge and potential productive capacity from parents to children, lower school attendance and less investment in children's education) and by continuing the vicious cycle across generations, as children with less education and knowledge received from their parents will, in turn, be less able to raise their own children and invest in their education. The authors conclude that economic disaster can be averted, but only with an aggressive set of policies to protect these mechanisms of human capital transmission between generations (e.g. prevention, support and education of children, prolonging the life of the sick). There has been much controversy around the results of this

paper, including criticism of the assumptions' appropriateness to South Africa. It can, however, be useful to identify dynamics and cause-effect relationships, if not as a forecast.

In recent years, other authors have explored the concepts of human capital accumulation and intergenerational effects to estimate macroeconomic impact. Corrigan, Glomm and Mendez (2003) construct and fully study an OLG model that predicts the effects of HIV/AIDS on growth, mainly through the detrimental impact of lower life expectancy on investment combined with a sizable number of orphans created by the pandemic. They study how intra-family allocations regarding school and work time of children are adjusted within affected families and how, in turn, these adjustments influence accumulation of physical and human capital. Their conclusion – substantial negative growth effects - confirms findings of prior general equilibrium models and simulation exercises.

Also with a focus on human capital development, Ferreira and Pessoa (2003) propose an OLG model in which AIDS impacts negatively on income by affecting the incentives for school attainment due to shorter expected longevity. They predict that the most affected countries in Sub-Saharan Africa will, in the long run, become 25% poorer than they would be without AIDS, due only to the direct (human capital reduction) and indirect (decline in savings and investment) effects of life expectancy reductions.

Hamoudi & Birdsall (2004) use human capital to describe the links between health, education and growth. This paper outlines the likely effects of the AIDS pandemic on the African continent's ability to produce education – one of the greatest challenges to development - and use it effectively for growth and poverty reduction. It explores four channels by which HIV/AIDS impacts education (through supply and demand side factors) and ultimately on human capital accumulation and growth. These are: 1) supply effect: death of millions of adults will increase the difficulty of finding and retaining enough teachers 2) demand effect: reduction in lifetime private returns to education 3) factor productivity: the loss of a large share of the skilled work force may reduce the social returns to skill among educated people who survive, reducing the contribution of education to overall growth (related to positive externalities associated with a larger stock of human capital) and 4)

factor complementary effect: the loss of physical capital assets may reduce the ability of skilled workers to contribute to overall economic production, to the extent that physical and human capital are complementary inputs. These channels add up to the qualitative conclusion that, without offsetting policies and programmes, Africa's dearth of human capital – and thus its capacity for growth and redistribution - will deteriorate.

Furthermore, various studies that draw conclusions from the analysis of empirical data have also been produced over the last few years, as this data becomes more readily available. One such study, which uses cross-country empirical evidence and panel data methods, is that of McDonald and Roberts (2004). Results point to alarming past and potential future macroeconomic effects of the epidemic. This is especially true for Africa, where the average marginal negative impact on income per capita of a one percent increase in HIV prevalence is estimated to be 0.59 %. The authors believe that in African countries where HIV and malaria are health problems on a large scale, apparently poor economic performance over the past 10 to 20 years is, to a large degree, attributable to the epidemic. Moreover, the marginal effects appear sufficient to threaten macroeconomic stability, which is generally more fragile in poorer countries most prone to escalation of the epidemic. This paper uses a model that recognizes that human capital is not only education and productive skills, but also a complex input that includes health capital.

The originality of the empirical analysis conducted by Papageorgiou and Stoytcheva (2005) is that it investigates the impact of AIDS on cross-country income levels, as opposed to GDP growth. Using data for 89 countries spanning the period 1979 to 2000, the authors find that AIDS has a negative and significant effect on income per worker. This relationship appears to be valid only for the 16 – 34 age group and only for non-OECD countries. The main quantitative result is that an increase in AIDS incidence by 1 in 100,000 people is associated with a 0.003% - 0.004% reduction in income per worker (across both full and non OECD samples). What the results also show, however, is that the impact of AIDS can differ considerably across countries. The authors conclude that the epidemic can have “devastating effects” especially in countries with high incidence and low per capita income.

Referring to historical data for the period 1992 – 2002, the International Labour Organisation's 2004 report (*HIV/AIDS and Work: Global Estimates, Impact and Response 2004*) presents a table illustrating the economic impact of HIV/AIDS – in terms of GDP growth and per capita GDP growth - in 12 Southern African countries, for the period 1992 - 2002. The estimated average annual rate of GDP growth loss attributable to HIV/AIDS ranges from 0.6% in Angola to 2.8% in Botswana and Swaziland. As far as per capita GDP growth is concerned, losses range from 0.4% in Angola to 1.4% in Zimbabwe. We cannot but reflect that, in the context of acute poverty and AIDS, the amounts these percentages translate into could contribute to a family's ability to pay for food, medicines or other basic needs, or to a governments' ability to provide social services.

Most macroeconomic studies have focused on SSA, with the exception of a few that have concerned the possible impact of AIDS in other developing countries where prevalence is rising. Robalino et al (2002), for example, develop a model of optimal growth to assess the risks of an HIV/AIDS epidemic and quantify expected economic impacts in nine countries in the Middle East and North Africa region¹⁴. They conclude that GDP losses over the next 25 years could equate to 35% of today's GDP. Interventions that expand condom use and access to clean needles could act as insurance policies, reducing GDP losses across the nine countries by an average of 19% of today's GDP. On the other hand, delaying action for five years could cost, on average, the equivalent of six percentage points of today's GDP.

In a recent IMF Health and Development Report, Bloom et al (2004) present evidence from various studies that suggest sizeable economic returns to better health: an extra year of life expectancy is estimated to raise a country's per capita GDP by about 4%, for example. This paper also highlights the shortcomings of GDP and GDP per capita as a measure of national economic wellbeing. Measures of full income – that capture the value of changes in life expectancy by including them in the assessment of economic welfare – are deemed to convey a more accurate picture of the economic effect of AIDS. This suggests that a focus on national and per capita GDP may have underestimated the impact AIDS is having on economies in Africa.

¹⁴ Algeria, Djibouti, Egypt, Iran, Jordan, Lebanon, Morocco, Tunisia and Yemen

The impact of HIV/AIDS on per capita GDP

Most of the studies cited until now focus specifically on the effect of the AIDS epidemic on GDP growth. However, the predicted trend of this macroeconomic indicator does not, in itself, tell us what will happen to per capita GDP. Average wealth per head is an outcome not only of the level of aggregate national output growth, but also of population trends. Some authors predict that the HIV/AIDS epidemic will cause per capita GDP to increase as a result of greater productivity of capital (decreasing population and increasing capital/labour ratio).

In their study on the effect of AIDS on the Cote d'Ivoire economy, Grimm and Cogneau (2004) illustrate that a reduction in the size of the economy as a result of HIV/AIDS does not necessarily lead to lower per capita income and worsened poverty and inequality. The authors develop a "micro-simulation" model able to simulate, over a fifteen-year period, the impact of AIDS on household and individual incomes.¹⁵ This approach allows the authors to take into account individual heterogeneity (which is not possible with most macro models), in particular with regard to the risk of AIDS infection and income earning capacity. Unlike aggregated models, it allows for the analysis of policy outcomes in terms of inequality and poverty, and not only in terms of growth. When focusing on the labour supply effects of mortality, the main outcome is a shrinking of the size of the economy by around 6% after 15 years, leaving average income per capita, income inequality, and poverty roughly unchanged.

Young (2004) comes to similar conclusions in his simulation of the impact of the AIDS epidemic on future living standards in South Africa. The model utilized considers two competing effects, that is 1) the detrimental impact on the human capital accumulation of orphaned children and 2) lower fertility, resulting from a reduction in willingness to engage in unprotected sexual activity and an increase in the value of a woman's time (scarcity of labour). The author finds that, even under the most pessimistic assumptions concerning reductions in educational attainment, the fertility effect dominates. Thus the net effect of the

¹⁵ The first survey of this kind was conducted in South Africa (HSRC, 2002).

AIDS epidemic is that of enhancing the future per capita consumption possibilities of the South African economy, in fact, endowing it with additional resources which can be channelled to care-giving and to providing higher living standards for future generations.

As unsettling as these findings may be, it would not be the first time that a global epidemic with such severe demographic, social and human effects actually 'improves' per capita economic indicators. Young (2004) reminds us that Europe's Great Plague, which practically halved Britain's population and brought about immense human suffering, actually caused real wages to rise rapidly, in the face of a declining labour force. In a purely economic sense, the Black Death allowed the generations that succeeded it to experience higher living standards. Of course, what these observations also show us is that per capita averages, such as wages or GDP per head, are both heartless and limited indicators of 'welfare' that do not account for the dead or unborn or about the suffering of those affected. Furthermore, they tell us nothing about how wealth is distributed within the population. But the cold reality is that one of the outcomes of the disease could be an increase in the "average" economic well-being of those that survive it. These considerations lead Young to conclude: "The AIDS epidemic is a humanitarian disaster of millennial proportions, one that cries for assistance. It is not, however, an economic disaster". While there can be little debate that AIDS is a humanitarian disaster, the affirmation that the epidemic is not an economic disaster is in direct contrast with the dire predictions contained in some of the papers reviewed above. However, as difficult as they may be for us to accept in human terms, the findings of studies such as that of Young and Grimm and Cogneau demonstrate that there is still much uncertainty as to how HIV/AIDS will shape the economic future of affected countries.

Meso Level: Effects on For-Profit Enterprises

The sectoral analysis of the effects of HIV/AIDS on business, as well as business responses, links micro level behaviour and outcomes to macro aggregates. One example of this is how responses at a household level can affect the labour supply, which influences the

response of firms, which, in turn, produces macro level consequences (SSRC, 2004). Decisions at a firm level can filter through to the macro economy, translating into changes in national investment, demand for goods and services, employment and economic structure.

The key link between business and macroeconomic growth is investment, both in production and in knowledge building (ILO, 2004). Increasing operating costs can make investment less attractive in the long run. The International Monetary Fund's Regional Economic Outlook for Sub-Saharan Africa report (2005) warns that the HIV/AIDS epidemic is jeopardizing the sustainability of growth in several Sub-Saharan African countries, by taking a serious toll on societies and economies in the region. An important concern of business communities is that an uncertain and deteriorating outlook could deter domestic and foreign investment. In addition, in the longer term, HIV/AIDS could discourage individuals and companies from investing in human capital, given significantly lower expected returns.

The epidemic can affect individual firms both on the supply side (efficiency losses and subsequent higher production costs) and on the demand side (change in the demand for goods and services produced). There are both direct costs – provident fund contributions, absenteeism, additional recruitment and training costs, death and funeral benefits, in-firm medical services – as well as indirect costs, which are more difficult to quantify, such as lower productivity of ill workers, disruptions and lower staff morale (Simon, Rosen et al, 2003; Natrass, 2002). The degree to which AIDS increases costs for companies depends on the type of benefits provided as well as the status of employees. Often semiskilled or unskilled workers are not employed with permanent or long-term contracts and therefore do not receive benefits and training, nor a commitment to continuity in their employment (Natrass, 2002).

Despite the acknowledgement that AIDS will impact businesses in the developing countries affected by the epidemic, research on the subject is not extensive. An interesting study carried out in Kenya (Fox, Rosen et al, 2004) aims to measure the impact of HIV/AIDS on labour productivity by focusing on piece-work, an economic activity in which output is more easily measurable, since workers are paid on the basis of their performance. The authors

monitor individual output and work attendance during disease progression of HIV positive tea estate workers in Western Kenya. They find that as much as three years before death, farm workers with HIV/AIDS are absent more often, produce less and are more often given less strenuous tasks. From three years before death, productivity suffers (daily output is on average 91% that of controls), declining sharply and steadily during the last year, until death (on average daily output is 82% of controls' in the last year and 77% in the last 3 months).

Moving from a country specific to a regional outlook, in a paper published in 2004, Rosen et al estimate the cost of HIV/AIDS to businesses in Africa¹⁶. The main quantitative finding is that HIV/AIDS adds 0.4 – 5.9% to the companies' annual salaries and wage bills; the present value of an incident HIV infection ranges from 0.5 to 3.6 times the annual salary of the affected worker. Moreover, the authors specify that these results should be regarded as conservative since some costs are not considered due to unavailability of data. The implication is that AIDS is causing labour costs for businesses in Southern Africa to rise and further threaten the global competitiveness of African industry, jeopardizing its ability to attract investment and expand.

A 2004 survey conducted for SABCOHA (South African Business Coalition on HIV and AIDS), in which 1008 companies participated¹⁷, constitutes the largest survey on the impact of HIV/AIDS on business in South Africa. One of the main findings is that the epidemic is lessening profits of all firms, particularly those in specific sectors (between 40% and 50% of firms in the financial services and manufacturing sectors and between 25% and 35% of other respondents indicate that company profits have been negatively affected). Furthermore, all sectors expect the impact of HIV/AIDS on their operations to escalate. What also emerges from the survey is that labour productivity and worker absenteeism have been most affected, followed by employee benefit costs. Some companies are, however, experiencing higher labour turnover rates, lost experience and skills and higher training and

¹⁶ The authors use company specific data on employees, costs and HIV prevalence from six formal sector enterprises in South Africa and Botswana, and consider both direct and indirect costs.

¹⁷ Participants include companies from the following sectors: mining, manufacturing, retail, wholesale, motor trade, building and construction and financial services.

recruitment costs. Thus far the impact on the demand side (i.e. sales) appears to have been much lower than that on the production side.

In general, the dimension of losses to firms and its effect on national production also depends on how the private sector deals with the epidemic. In many cases firms have realized that, it is in their economic interest to provide testing, counselling and treatment, rather than bear the cost of morbidity and mortality in the workforce. If HIV/AIDS policies are effectively put into place and antiretroviral drugs (ARVs) distributed, the impact of HIV/AIDS on a business's activities can be significantly lowered. Rosen et al (2003) argue that if the companies studied in South Africa and Botswana had provided ARVs at no cost to HIV positive employees, they would have earned positive returns on their investment and reduced the additional costs due to HIV/AIDS by as much as 40%.

As far as responses are concerned, results of the SABCOHA survey show that larger companies and the financial, manufacturing and mining sectors seem to be taking the lead in implementing HIV/AIDS work policies¹⁸. However, very few companies have attempted to quantify the impact of the epidemic on their operations. Some coping strategies revealed in the survey are the appointment of extra employees (larger companies) and shifting to more capital-intensive operations (with obvious implications for employment). The epidemic already appears to be affecting investment decisions: 10% or less of respondents in all sectors indicated that HIV/AIDS has had a negative effect on their decision to invest in South Africa.

Lastly, employment status may worsen inequality. Since formally employed and skilled workers will have greater access to health care and ARVs through their firms, the divide between formal and informal, skilled and unskilled employment could dictate availability of treatment and job security, exacerbating the disparities which they may already reflect. Antiretroviral drugs, for example, are currently out of reach of the average household in the developing world, and will only be available to the small minority that can afford them

¹⁸ These include 77% of companies surveyed in the mining sector and more than 50% of those surveyed in the financial and manufacturing sectors, but less than 1/3 (33%) of retailers, wholesalers, vehicle dealers and building and construction companies.

(Barnett and Whiteside, 2002). A UNAIDS report (2005) estimates that treatment is available to only 8%, or 310,000 of the 4 million Africans estimated to require it.

Nattrass (2002) looks at the impact of AIDS on distribution in South Africa and expresses the concern that skilled workers will benefit at the expense of the unskilled. This could be partly the outcome of firms continuing to decrease their reliance on unskilled labour (a trend started before the AIDS pandemic). On the other hand, relatively skilled workers could benefit from greater employment opportunities (as production becomes more skill and capital intensive), higher wages (as the relative demand for skilled labour increases), and the opportunity to live longer and more productive lives (through greater access to ARVs). Tragically, this divide between the employed and the unemployed will mean the difference between life and death: “Over the next couple of decades, inequality will probably rise as AIDS lowers growth and slices its way through the poor and disadvantaged in South Africa” (Nattrass, 2002).

Conclusion

Though consensus may be lacking regarding the exact nature and dimensions of the effects of HIV/AIDS, and although the information at our disposal may be incomplete, we cannot deny the growing evidence of the epidemic’s economic and social consequences. The disease is devastating households, communities and society, taking us back decades in terms of human development and intensifying existing inequality. There is an evident need for responses, in the form of individual and coordinated action on the part of governments, private sector, civil society and development organisations.

Many social and economic issues around the epidemic are still clouded by uncertainty and described on the basis of assumptions and hypotheses. There is much scope for further investigation, to enrich the breadth and depth of existing work. We may have no unanimous answer to the exact impact of the disease on national growth and other macroeconomic indicators, nor do we fully understand how the epidemic will affect average household wealth and living standards. We do not know precisely how the epidemic will evolve, when

(if ever) biomedical progress will result in a “magic bullet” cure or how many generations will have to pass before families and communities no longer bear the burden of the disease. However, there is no escaping the fact that the economic, social and human costs of the epidemic are real and will not be insignificant. We cannot prevent the premature death of millions of people already infected, nor the orphaning of the children that they will leave behind. And we cannot escape the reality that the HIV/AIDS epidemic is undermining and destroying the most valuable and vulnerable asset of many developing countries – the people.

***Part 2: The Impact of HIV/AIDS on
Poverty, Inequality and Economic
Growth: Research Gaps Identified and
Priorities for Future Research***

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Introduction

This concept paper was prepared for the International Development Research Centre (IDRC), Canada for a meeting to be held on 11th and 12th October 2005. It should be read in conjunction with the literature review on the impact of HIV/AIDS on poverty, inequality and economic growth. This paper begins identifying important gaps in existing research and goes on to look at how future research agendas may be developed.

Although there is now more available evidence than ever on the social and economic impact of the AIDS pandemic, many unexplored or under-explored areas still remain. This is highlighted in the 2004 UNAIDS *Report on the Global AIDS Pandemic*, which points out that more than 40% of countries with a generalized epidemic have yet to evaluate its impact.

This paper is divided into two sections. The first comprises a review of research gaps identified in the recent literature reviewed, as well as the suggestions made by various authors for future research. The second part outlines what we believe to be the priority areas for future analysis, considering present needs and practical implications.

Research Gaps Identified in Recent Literature

Overarching issues in research

Quality and representativeness of data

A number of authors (e.g. Lehutso-Phooko and Naidoo, 2003; HEARD, 2003; CADRE, 2002) identify the limited availability of data as a common analytical difficulty encountered by researchers. The information available is often inadequate or (if micro level) too context-specific to allow for generalisation. Since the validity of research depends on the quality of the information used, there is a need to develop and utilise more comprehensive data.

Produce information appropriate for policy development

Information and research must be appropriate – in content and form – for policy development at all levels (policy makers, private sector and community action). CADRE (2002) observes that the scope of much of the existing research is too narrow to inform policy. In this regard, Lehutso-Phooko and Naidoo (2003) believe that further information is needed on the actual and likely impact of HIV/AIDS on socio-economic development in specific sectors.

Extend focus beyond Africa and the rural economy

Recent literature (e.g. Barnett and Clement, 2005) shows the need for studies on HIV/AIDS to expand their geographical focus. Research on the socio-economic impact of the epidemic should move beyond Africa to those Asian, Latin American and Eastern European countries which are experiencing growing epidemics. Barnett and Clement (2005) also emphasise the need to extend focus within Africa; the authors call for research that moves “beyond rural Africa to the cities, to displaced persons...and to the complex processes and issues associated with international and rural migration.”

Interdisciplinary, multidisciplinary approach

A repeated recommendation is to adopt an interdisciplinary and multidisciplinary approach to HIV/AIDS research design and implementation (e.g. SSRC, 2004; CADRE, 2002; Gillespie and Kadiyala, 2005). This involves broadening critical dialogue between various actors. For instance, the participation of those people and organisations bearing the brunt of the epidemic or directly involved in prevention and care should be encouraged, e.g: communities and community organisations, people living with HIV/AIDS, NGOs, activists and researchers. Their involvement should improve our knowledge base and the dissemination of ‘best practices’ (SSRC, 2004). An interdisciplinary approach would also entail mobilising collaboration, or “building bridges”, between experts such as social scientists, epidemiologists, nutritionists and agricultural economists (Gillespie and Kadiyala, 2005). This is essential if research is to take into account cross-cutting developmental issues.

Methodological innovation

Various studies highlight the need for methodological innovation. Traditional analytical tools appear inadequate, given the scarcity of reliable data and the wide-ranging effects of the epidemic. Barnett and Clement (2005), for example, propose the return to a more integrated social science as a response to the limitations of formal modelling; this is linked to suggestions for an interdisciplinary approach. The authors give the example of cost-benefit analysis: new instruments are needed to address the inadequacy of traditional analysis when evaluating actions and investment decisions related to HIV/AIDS. This is because the nature of the epidemic poses a number of analytical difficulties regarding our choice, for example, of the time period to refer and the kind of costs or 'values' to include¹⁹.

Gillespie and Kadiyala (2005) emphasise the need for collaborative research between different disciplines and experimentation in general, be it linking or reconciling data, or including qualitative information and intangible concepts (e.g. affection). Methodological innovation would invariably include making the best of available information by integrating various sources and types of data.²⁰

Be prepared for the unexpected

One of the realities of research is that sometimes the results we get are not what we expect or want. This is illustrated by the economic modelling that finds economically the survivors are better off. There is some evidence that the private sector is acting to reduce the costs of HIV which may mean outsourcing or moving towards more capital intensive production. Such results must be given.

Better dissemination of information

Finally the information produced needs better dissemination. The SSRC (2004) emphasises that literature about programme and project implementation is often written for donor organizations rather than practitioners and scholars. As a result, the terminology used is

¹⁹ The authors question whether, for example, we should be looking for alternative units to money, such as measures of 'happiness'.

²⁰ An example of integration of sources is the use of verbal autopsies and hospital records to support other available data when measuring AIDS mortality.

often inappropriate and the content appears to have little relevance for communities (who are being researched). It is important also that research go beyond academic journals and reaches policy makers.

Areas for further research

The authors of the studies covered in the literature review (Part 1 of this working paper) identify issues that should be afforded further attention. More focused studies, which deal with the socio-economic impact of the epidemic at a specific level of analysis (e.g. household; macroeconomic), generally highlight potential future research agendas related to the specific subjects addressed. In some cases, this consists of an explanation of how their (or existing) work could be further developed, either by going into greater depth or by looking into related issues. In the paragraphs that follow, suggestions made for future analytical work have been considered on the basis of the level(s) of analysis they refer to, that is: macro, micro, and sectoral (meso).

Macro level: HIV/AIDS and Economic Growth

There is a need for further research on how the HIV/AIDS epidemic impacts on economic relationships and the mechanisms through which this impact comes about. Such information is essential to direct policymakers' attention to the economic implications of AIDS (McDonald and Roberts, 2004). According to CADRE (2002), the concern of macro economic studies has been overly limited to projecting the difference in growth rates between With-AIDS and No-AIDS scenarios. Instead, studies should also be looking at "specific issues in the growth path of the economy, and a dynamic analysis of this growth relative to the AIDS epidemic as a major internal shock." The authors further qualify this observation, by explaining that we need models able to project how fast the economy will adjust, what the level of output will be at each stage of adjustment, when most of the change will take place and what shape the path of change will take on.

Further research on Overlapping Generations Models

The development of overlapping generations (OLG) models to predict the long-term consequences of the HIV/AIDS epidemic on macro economic growth is recent. A paper

published by the World Bank in 2003 (Bell et al) is the most significant example of this type of theoretical work²¹. OLG models are useful because of their ability to project intergenerational effects of the HIV/AIDS epidemic – such as those on human capital transmission and accumulation across generations - and the impact of these on the macro economy. This model is new and needs further development, refinement²² and to be better adapted to the specific contexts to which it is applied.

Various authors call for further research on the effects of the epidemic on human capital (Lehutso-Phooko and Naidoo, 2003; CADRE, 2002; to name but a few). More specifically, McDonald and Roberts (2004) highlight the need for the development of forward looking models that provide insight into the impact of the large number of orphans on the accumulation of education capital. CADRE (2002) would welcome more investigation into the impact of lower life expectancy on investment in human capital, and how this, in turn, affects labour and productivity.

One adaptation of their OLG model which Corrigan et al (2005) would have liked to explore, but were not able to in their 2005 macroeconomic impact study,²³ is allowing for heterogeneity among individuals. This would imply being able to differentiate populations by socio-economic status, so as to consider the different ways in which HIV/AIDS may influence diverse types of households. For example: AIDS incidence may differ by socioeconomic class; the effect of changing prices of AIDS medications may vary greatly depending on household income and wealth.

Greater linkages between micro and macro analysis

A number of authors identify the need for greater links between levels of analysis. Firstly, this entails producing more reliable micro or sectoral data to feed into macroeconomic impact studies. Some of the information gaps identified by CADRE (2002) are: sectoral level

²¹ Bell, D., Devarajan, S. and Gersbach, H (2003): "The Long-run Economic Costs of AIDS: Theory and an Application to South Africa".

²² Bell et al indicate that their conclusions are preliminary and various aspects of the calibration process in particular need further work and refinement.

²³ The authors investigate an OLG economy where AIDS epidemic influences human capital accumulation and growth through a large number of orphans.

data such as additional costs for companies, changing household consumption and expenditure patterns and estimated government spending. Secondly, it calls for the development of more appropriate instruments to allow for the incorporation of results derived from one level in another. Lehutso-Phooko and Naidoo (2003) propose further work on micro-macro linkages between outcomes at a household level and overall aggregate production function and demand side factors.

Freire (2003) raises the concern that macro-models may be underestimating the impact of HIV/AIDS. Inevitably, these models have limitations and may not allow all the impacts described in depth at the micro or sectoral levels to be aggregated effectively. According to Freire, this is especially true for the long-term and/or psychological impacts of the epidemic.²⁴ The author goes on to point out that research on the economics of HIV/AIDS has failed to use recent economic tools to assess impact. For example, the literature on rational expectations could help improve the analysis of how access to information (e.g. on life expectancy, serostatus, availability of treatment) may change individuals' behaviour and decisions²⁵; this impact would then have to be 'transported' to a macro level.

Some authors suggest that macroeconomic modellers should make more use of micro-simulation approaches to study the impacts of HIV/AIDS on the economy. This innovative technique combines micro and macro level data with macro model approaches in modelling macroeconomic outcomes. Grimm and Cogneau (2004), for example, experiment with a micro-simulation model to project the impact, over a 15-year period, of AIDS on household and individual incomes²⁶. The particularity of this approach is that, unlike most macroeconomic models, it allows for heterogeneity (e.g. in socio-economic status) among individuals; projections can therefore be made for micro indicators such as poverty and inequality, over and above macro variables such as economic growth. The authors (Grimm and Cogneau) specify: "To our knowledge, this analysis is the first attempt to link the

²⁴ One example given is that of the consequences on future growth of orphans not receiving appropriate care.

²⁵ For example, individuals who know their serostatus will not behave in the same way as individuals who do not. Similarly, individuals who know they can be treated are likely to make different economic decisions from individuals who are unaware of treatment or who have been refused access to treatment (Freire, 2003).

²⁶ "AIDS and Income Distribution in Africa. A Micro-simulation Study for Cote d'Ivoire": this study was carried out in Cote D'Ivoire, with the aim of projecting the impact of HIV/AIDS on the country's economy.

distribution of the AIDS epidemic over an African population and the distribution of income. It reveals the complexity of the interaction between demographic behaviour and the income generating process.”

The Value of Statistical Life as an alternative indicator to GDP

Several authors (e.g. Crafts and Haacker, 2004; Bloom et al, 2004) question the appropriateness of economic growth and per capita GDP as the focal variables of macro impact studies. They maintain that another indicator – Value of Statistical Life or VSL - is a more appropriate proxy of welfare than per capita GDP. VSL is a measure of “full income” (Bloom et al, 2004) that attempts to capture the value of changes in life expectancy by including an assessment of economic welfare, and thus conveys a more accurate picture of the economic effect of AIDS.

Haacker (2004) points out that few empirical studies on the VSL are available for lower-income countries, and none are available for Sub-Saharan Africa. As a result, predictions would have to be made on the basis of studies carried out in other countries, possibly with very different characteristics (e.g. higher per capita income, greater life expectancy, different structure of labour markets). Yet the use of VSL (as opposed to indicators such as per capita GDP) in cost-benefit analyses of development strategy would increase estimates of net benefits or rates of return²⁷, by taking into account broader welfare effects of HIV/AIDS. Future studies could consider this measure.

Evaluation and impact of responses

A suggestion repeated a number of times in the literature is that greater attention be afforded to the costs, benefits and impacts of responses to the epidemic – both with regard to government and private sector interventions. Assessing the impact of responses equates to measuring the indirect or secondary effects of the epidemic. Assessments should be carried out both to support the choice of which policy to adopt, as well as to evaluate the effectiveness of those already in place (HEARD, 2003; CADRE, 2002). CADRE (2002) says

²⁷ A key finding of the study carried out by Crafts and Haacker is that direct welfare costs through increased mortality substantially outweigh even the worst projections of GDP per capita.

existing studies generally focus on public and private sector costs related to the AIDS phase (e.g. treatment and benefits), while little emphasis has been placed on the asymptomatic phase and on assessing the costs and benefits of preventative measures.

The choice of intervention should involve a comparative analysis of alternative programmes (CADRE, 2002). It should take into account: their costs (including opportunity costs e.g. family's time, productivity losses), predicted benefits, how resources are going to be raised to finance them and how the burden is going to be shared among various actors (e.g. government, individuals, private sector, community agencies, donor agencies etc).

An important issue with regard to the distribution of costs (CADRE, 2002) is the capacity to bear the burden of specific measures. Should this capacity be insufficient, alternative sources of finance (e.g. external aid) may be necessary. Costs borne by affected households bring issues of inequality to the fore (for example, wealthier households may be able to access private sector services where poorer households probably will not). For performance evaluation Gillespie and Kadiyala (2005) remind us that indicators and monitoring systems are needed to track effectiveness of policies²⁸.

With regard to impact of responses, current or future prevention and treatment interventions and their predicted impact need to be incorporated to a greater extent in macroeconomic impact studies. Greener (2004) highlights that most macro studies attempted to estimate the impact of HIV/AIDS while assuming that the epidemic will continue in the absence of effective cures and preventive treatment. Yet some countries (e.g. Brazil, Botswana) have begun to introduce antiretroviral treatment with the intention of scaling up outreach significantly. Over and above their impact on morbidity and mortality (with economic consequences), these treatment programmes could also give rise to the emergence of resistant strains or behavioural change. This needs to be considered and included in macro analyses.

²⁸ Although the authors refer specifically to programmes aimed at responding to the interaction of HIV/AIDS with food and nutrition insecurity, their views are valid for policies aimed at mitigating the epidemic in general.

Taking into account the macro impact of responses also means projecting the way in which the epidemic will affect public sector resource availability and allocation. With specific reference to South Africa, Theunissen (article in *Finance Week*, June 2005) expresses the concern that the HIV/AIDS epidemic could place a heavy burden on the public sector and working populations, as a result of increasing resources channelled towards pension funds and social grants. Limited public resources would then have to be diverted from other uses. The author indicates that a parallel could possibly be drawn with certain industrialized countries that face “looming crises” due to an aging population and consequent decreasing worker to retiree ratios (e.g. the U.S. and Western Europe). However, the net effects of HIV/AIDS on available resources are not that simple to predict, since a number of factors come into play. While a high prevalence rate indicates that a portion of the workforce may be too sick to work, fewer people living to old age would lessen the State burden of old age grants where they exist. Furthermore, the effects of lower fertility rates also need to be taken into account. However complex these issues might be, more work has to be done to understand their possible bearing on government and society more broadly.

Household level: AIDS, poverty and inequality

Socio-economic determinants

Numerous research gaps are identified at a household level. There is a dearth of analysis on socio-economic factors as determinants. That is: how do living conditions, education levels and access to services affect the vulnerability and susceptibility of households to HIV/AIDS? CADRE (2002) points out that the issues are complex and many studies have not been able to provide convincing evidence of the precise causal relationship between economic factors and the spread of the disease.

One research priority identified by CADRE (2002) is how lack of access to services may impact on the spread of the epidemic. If the spread of HIV/AIDS and other opportunistic diseases is more difficult to control - and therefore more acute - in under-serviced areas, this will have implications for longer-term developmental goals. Looking specifically at the relationship between food insecurity and malnutrition and the risks of HIV exposure and infection, Gillespie and Kadiyala (2005) maintain there are important knowledge gaps: we

need to better understand how agricultural and other livelihood systems, policies and practices – in urban as well as rural areas – contribute to the spread of HIV.

Household livelihoods

There needs to be further investigation on the impact on household livelihoods. How does or will the HIV/AIDS epidemic affect the socio-economic status of households? Booysen (2004) believes that further evidence of interactions between HIV/AIDS and poverty in Africa is clearly needed. Greener (2004) reiterates this calling for more quantitative work aimed at improving our understanding of the impact of HIV/AIDS on household poverty: 'well-founded empirical studies' are a necessary input both for macroeconomic impact studies and the development of effective policy interventions.

Some authors (e.g. Lehutso-Phooko and Naidoo) suggest further investigation of the mechanisms through which HIV/AIDS could drive or worsen income inequality. Wyss et al (2004) propose further work on evaluating productivity losses amongst households. This type of analysis could be explored through more detailed and regular surveys and could take into consideration a number of factors such as: the length of absence from work, the degree to which activities are reduced and the importance of home production. A specific issue on which CADRE would welcome future research is the interaction between the epidemic and phenomena such as migration and urbanization.

Household level studies give rise, however, to a particular analytical difficulty (CADRE, 2002; HEARD, 2003): the 'unnatural occurrence' of illness and death among young adults is assumed to be a result of the HIV/AIDS epidemic, in the absence of alternative explanations. We need to develop and utilize methods to isolate effects of other factors (e.g. other diseases, poverty etc) on mortality and morbidity, to be able to predict, more accurately, the extent to which observed phenomena are actually determined by HIV and AIDS.

Impact on Rural Households

What will be the effect of rural households' coping strategies? For example, how will the sale of productive assets affect agricultural production and family livelihoods? And how will

these influence future socio-economic conditions? Similar questions are posed by Donovan, Baylie et al,²⁹ who suggest that more specific work is needed to understand and mitigate the negative effects of coping strategies. The authors stress that, in order to understand what is happening to agricultural production and to rural households, policymaking organizations and others need to know how rural households are dealing with mortality and morbidity.

Various authors call for further analysis of impact and response dynamics among rural households. Gillespie and Kadiyala (2005) highlight the need for more longitudinal studies “that capture the local dynamics of impact and response in different situations, particularly among households and communities who are actively strengthening their own resistance and resilience through innovative responses.” According to Jayne (2005), there is a need for further research on vulnerability (i.e. which households are most likely to be affected) and on the role of remittances in urban areas for livelihoods in rural areas (i.e. the impact of family members employed in urban areas that return to rural areas to help out).

Mather et al (2004)³⁰ recommend greater emphasis on agricultural and rural economic development policies, in order to redress constraints to pro-poor and gender-sensitive economic growth in the presence of HIV/AIDS. The authors highlight the policy implications of emerging evidence that the poorer households in rural areas are likely to suffer the most severe welfare losses resulting from adult mortality. Thus “research to develop more effective technologies and policies that can foster broad-based rural income growth” will allow communities and households to respond to those worst affected by AIDS-related adult mortality. In particular, an important area for future research is to study how time is allocated by adults and children. Such studies would provide information vital for the assessment of potential costs and benefits of labour-saving technologies.

The impact of HIV/AIDS on children

Two important implications for future research, which emerge from the literature review are:

²⁹ Their work, carried out in Rwanda, was based on a set of surveys that provide a range of information necessary for multi-sectoral household analysis.

³⁰ This cross-country study assesses the impact of adult mortality and morbidity on rural households in Sub-Saharan Africa.

1) the need to better determine the effective requirements of orphans and vulnerable children and 2) the need to extend our concern to the wider impact of the epidemic on children. This research should address gaps in the policy debate, by informing strategies that aim to mitigate the impact of HIV/AIDS on children.

On the first point, a study carried out for the Community REACH Programme (Chatterji et al) stresses that - despite awareness of the significant economic, social and psychological consequences of orphans and children living with chronically ill parents - there are very few evidence-based answers to basic questions such as: Which children are in the greatest need of assistance? Which interventions are most effective? Which approaches are most appropriate in the different settings in which AIDS epidemics are seen?

Namposya Nampanya-Serpell (2000) points out that household level studies on HIV/AIDS affected families and life outcomes for orphaned children are very limited in many parts of Sub-Saharan Africa. She identifies a need for further research to determine whether the impact of AIDS differs significantly for rural and urban families and in different geographical contexts. Doctor (2004) proposes the use of census data and surveys existing in African countries to further analyse the socio-economic status of orphans (e.g. income, school enrolment, well-being) as opposed to non-orphans. Although a number of country or area-specific studies have been done, there is a need to determine whether findings hold in other settings or in general.

A study carried out by UNICEF's Innocenti Research Centre (2000)³¹ highlights the scarcity of relevant documentation and analysis. While there has been much focus on the short-term consequences of adult prevalence and mortality, there are, according to the author, knowledge gaps regarding the wider impact of HIV/AIDS on children's lives, through phenomena such as lower school enrolment, increased malnutrition and rising poverty. Also, studies and programmes tend to concentrate on those directly affected by AIDS (i.e. AIDS orphans, HIV positive children and children of families with an infected adult), while research

³¹ "AIDS, public policy and child well-being": this cross-country study examines the damage caused by HIV/AIDS on the well-being of children and families and to the smooth functioning of the societies in which they live.

shows that the pandemic devastates every part of society. As a result, all children –and not just those living in ‘directly affected’ households – are ultimately touched by the disease. This study calls for public policies that are wider in scope.

Orphans’ schooling

A 2002 World Bank paper (Ainsworth and Filmer)³² identifies two key shortcomings of research on school attainment of orphans and vulnerable children. Firstly, this study questions the appropriateness of indicators commonly used in the literature to measure actual school attainment among orphans. School enrolment, for example, is a necessary but insufficient condition for learning, and could be integrated with completion rates, for instance. It should also be a high priority for research to investigate the determinants of learning outcomes for orphans, the poor and poor orphans. Research should focus more on trying to explain the reasons for the differences in school attainment among orphans and non-orphans and on developing pilot field tests of possible mitigation measures, so that appropriate policies can be developed to deal with the situation.

Secondly, the majority of existing studies concentrates on the impact of adult mortality on education, while the effects of the period preceding parental death are neglected. During this period of illness household income, costs, time and other resources are affected and have to be allocated differently. The authors state: “By focusing exclusively on orphans after a parental death, researchers may be neglecting the largest impacts, and those that may be amenable through short-term support for households with terminally ill adults.” The effects of AIDS-related adult morbidity on children’s schooling should be high priority for research.

Relationship between households and communities/ extended networks

More research is needed on the dynamic interactions between households, the extended family and the community. A 2004 review prepared by the Social Science Research

³² This cross-country analysis, published by the World Bank Development Research Group, uses data collected in the 1990s from 28 countries in Sub-Saharan Africa, Latin America and South-East Asia to determine the relationship between orphan status, household wealth and child school enrolment.

Council³³ (SSRC) emphasizes this neglect: “The vigorous and sustained response of households and communities that care for the ill and those that survive them has remained largely out of the purview of most academic research.” This is because the methodologies currently used (e.g. household surveys) do not lend themselves to capturing the complex social relations between households and communities. However, a number of authors stress the need to dedicate greater attention to these linkages (Mather et al, 2004; Jayne, 2004; SSRC, 2004; CADRE, 2002; HEARD, 2003).

A bi-directional relationship exists between households and social network linkages on the one hand and the HIV/AIDS epidemic on the other: family or community networks may mitigate the epidemic’s impact, but they could also be altered as a result of the disease. Mather et al (2004) allude to this dual relationship, while underlining the importance that social networks can have for households in times of stress. The authors state: “...there is a need to better understand how people rely on each other, and how HIV/AIDS may affect the ability of such social networks to function well and equitably. Targeting of affected households may help to support such networks, but it also may undermine them.”

With particular reference to agricultural communities, Jayne (2004) stresses that we may be underestimating certain impacts of HIV and AIDS because of not taking into account relationships between household impacts and community resilience, which then have feedback effects on households. If stretched beyond a given limit, this resilience may break down dramatically, leading to a rapid collapse of social structures. “Once the number of deaths reaches a critical mass, this may unravel the substance of the community, which may lead to accelerating impacts” (Jayne, 2004). This needs to be seen in the context of the CIDA meeting in Ottawa in February 2005 on ‘HIV as a Social Systems Challenge’ which looked at HIV/AIDS as complex societal system.³⁴

A key related question which needs to be answered is: what determines community resilience? What enables some communities to weather the impacts better than others? One

³³ Social Science Research Council Working Group on HIV/AIDS (2004): “The Social Science of HIV/AIDS: A Critical Review and Priorities for Action”, Working Draft, October 2004

³⁴ A small exploratory meeting was held at CIDA, Gatineau..

hypothesis is that local traditions and institutions have an important effect on community resilience (Jayne, 2004). This observation is related to the concepts of social capital and social cohesion, referred to by Barnett and Whiteside (2002) who put forward a hypothesis based on two key variables: overall level of wealth and the degree of social cohesion in society. This hypothesis has yet to be adequately tested.

Issues regarding the relationship between social networks and the HIV/AIDS epidemic – i.e. the impact of the epidemic on these networks - are advanced in the SSRC review (2004). The authors ask: what has epidemic's impact on communities been in the face of the orphan crisis? How resilient are they? These questions remain largely unanswered.

There is a research gap in examining the extent to which the response to HIV/AIDS has had a broader and more sustained social impact (SSRC, 2004). We need to produce further information on the potential longer-term effects of HIV/AIDS responses on social relations, culture, politics and economies. For example, could prevention strategies give rise to behaviour change that is sustained over time? Will treatment programmes and other interventions stigmatise beneficiaries? Could these programmes actually increase social cohesion? An interesting possibility considered is the emergence of a new political activism within communities (SSRC, 2004). Going back to the issue of social capital described above, CADRE (2002) identifies the potential loss of social capital due to HIV/AIDS as a critical issue. Social capital represents a valuable investment; its effects need to be studied, and quantified for economic value and impact (CADRE, 2002). Interventions aimed at alleviating the epidemic's impact require a greater understanding of social transformations and their interaction with broader social and developmental issues. The CIDA meeting is relevant here.

On social networks, CADRE (2002) refers to the role of civil society organisations and their impact on household livelihoods. The authors believe that future research should take into account the involvement of NGOs and CBOs in alleviating HIV/AIDS impact on socio-economic factors, such as: health, poverty, employment, migration, income distribution, human capital, education, gender inequality and sustainable development in general. Specific issues that need greater attention are: the long term impact of civil society

organisations on the quality of the labour force; the role of CBOs in orphan and community health care; the potential contribution of CBOs to improving land and credit access of vulnerable groups.

People's perceptions

A final question is whether research has been so concerned with observing and analysing data and phenomena that it has not adequately considered those directly affected. Have researchers spent enough time asking people to share their opinions, feelings and experiences? Barnett and Clement (2005) refer to a growing realisation that effective programmes cannot be developed unless the target population's perceptions are considered. Yet very little work has focused on how the disease is perceived by affected communities. This could represent an opportunity for the future development of qualitative research.

Sectoral analysis: impact on companies

Much work has been done by and on the private sector but often it is kept confidential. Recent literature suggests we need to find better ways of assessing the economic burden of HIV/AIDS on companies. This is especially true with regard to the long run costs of the epidemic and indirect or less tangible costs. In a 2004 report, the International Labour Organisation (ILO) emphasizes the need to find more effective ways of assessing loss of skills, experience, entrepreneurship and leadership. The ILO also calls attention to the fact that many macro economic impact studies ignore the cost of replacing skills and/or overlook the effects of the epidemic on networks, organizations and institutions. The loss of skilled employees threatens to undermine the transfer of information, expertise and institutional memory. Failure to take these factors into account may be underestimating current costs as well as long-term future effects of the disease on organisations (ILO, 2004).

The increase in both direct and indirect costs to companies may depress production as well as impede savings and investment in the long run (ILO, 2004). This is of particular concern for the informal sector, the main source of livelihood for many in the developing world. The consequences of HIV/AIDS on informal income-generating activities can be especially harsh since they depend greatly on the individual, are often labour intensive, and usually have no

social protection (ILO, 2004). Future research should pay more attention to small and medium sized enterprises and to the informal sector in particular (Booyesen, 2003; ILO, 2004; CADRE, 2002). CADRE (2002) points out that estimates of the epidemic's effect on informal sector savings and growth are unlikely to significantly affect projections of macro economic variables, yet they could help to better understand the impact on income inequality.

Some South African authors propose further investigation of the epidemic's impact on sectoral demand and supply factors. Nattrass (2002) points out that much research is still needed on the impact of AIDS on the investment, production, pricing and hiring decisions of firms. CADRE (2002) suggests that greater attention be dedicated to changes in the relative employment of factors of production. This implies a greater focus on: companies' costs of and ability to replace skilled and unskilled labour as well as the effect of absenteeism on returns to capital and how this may result in the choice of more capital-intensive production processes. Booyesen (2003) reminds us of the next step: once good sectoral data is obtained, it must be taken to a macro level to assess the macroeconomic impact of the phenomena described, and we need to explore more effective instruments to do so.

Lastly, with regard to AIDS policies adopted by firms, some authors indicate the need for improved information in a form that renders it useful to similar agents or sectors (Rosen et al, 2003; CADRE, 2002). Better information on the effectiveness of innovative prevention, care and treatment programmes could support cost-benefit analysis and make a stronger case for more, and more efficient, investment by businesses in these interventions. Data could also lend itself to benchmarking and comparability. Furthermore, key indicators should be developed, both for cost benefit analysis and monitoring and evaluation of impact (CADRE, 2002). The practical benefits of basing HIV/AIDS workplace policies on sound information are confirmed by the 2004 South African SABCOHA Survey:³⁵ those companies that have based their strategies on best practice, informed by current information – and not on myths and misinformation – have, according to this survey, achieved remarkable results.

³⁵ South African Business Coalition on HIV and AIDS (2004): "The Impact of HIV/AIDS on Selected Business Sectors in South Africa." A survey conducted by the Bureau for Economic Research, Stellenbosch University, South Africa.

Conclusion: priority areas and ways forward

On the basis of this paper and the literature review, we have identified a number of priority areas for future investigation. We believe that these issues should be given ample consideration within the focal sphere of future analysis.

At a **micro level**, more attention should be dedicated to:

- The **relationship between households and social networks** (e.g. communities, extended families): this should include both how these networks affect the impact of and responses to the epidemic and how they, in turn, are affected; it embraces concepts such as social cohesion and social capital. This type of research would take into account the impact on households not traditionally considered as ‘affected’, whose lives are, nevertheless, indirectly influenced by the epidemic.
- Increasing **empirical evidence on the epidemic’s impact on inequality**: a number of studies have been concerned with evidence of the epidemic’s effect on poverty, and it is generally accepted that HIV and AIDS affect the poor disproportionately, exacerbating the disparity that already exists. Yet there is a dearth of concrete data on the effects of the epidemic on inequality among households within communities and societies.
- Greater focus on the **informal economy** and possible support mechanisms: most economic activity in the developing world is carried out in the informal sector, yet research has been primarily concerned with impact on the formal sector, probably because of greater availability of information. More work could also be done to explore the feasibility of possible mechanisms aimed at supporting informal income generating activities in the context of high HIV prevalence (such as credit, microfinance, technical support etc), as well as the potential role of these in mitigating the epidemic’s impact. The possible integration of HIV/AIDS-related interventions (e.g. information, care, support) and income-generating support mechanisms is relatively new territory for further experimentation and analysis.

At a **sectoral level**, there should be a greater focus on:

- The **effectiveness of workplace policies**: this would allow for identification of ‘best practices’ and serve as a point of reference for companies or sectors wishing to implement HIV/AIDS programmes.
- How the epidemic could affect the **nature and sustainability of businesses in the long run**: this involves assessing the impact of the epidemic on demand and supply factors, and how these will influence the economic decisions of businesses (e.g. choice of products and technology, investment decisions). The next step would be further research on how the long-term effects on business will influence the structure of the economy, as well as macroeconomic variables such as employment and economic growth.
- In terms of government we need to think about **impact on health, education and the welfare sector**. The education sector is well studied but there is little information on the impact of AIDS on the health or welfare sectors.

At a **macro level** there is a need for:

- **Macroeconomic impact studies beyond Sub Saharan Africa**: more research should be carried out, and specifically in developing countries witnessing a ‘new’ yet escalating epidemic. Analysis should take into account both empirical evidence of the current situation and projections of future impact.
- Further work on how the epidemic impacts on **government expenditure and revenue**: there is little doubt that the HIV/AIDS epidemic will influence public sector finances. Yet few have delved into projections of the exact nature and extent of the impact on government spending (e.g. increased health and social service expenditure) and income (possible effects on taxes), and the implications of this.
- Assessment of the possible impact of **financial flows to the government and on the economy more broadly**: what are the possible effects of donor aid and AIDS-related investment/expenditure? We are aware of only one paper that looked at this in Uganda.

In **general**, further analysis should be carried out on:

- The **impact of responses**: this implies assessing the possible secondary effects of the epidemic, or rather the impact of interventions, policies and programmes implemented by government, private sector and community actors.

- The **linkages between micro and macro data**: more attention should be allocated and better instruments developed to assess how micro level phenomena (e.g. household impact, decisions and behaviour) translate into macro issues, in order to improve macro impact studies. Also more needs to be known about feedback loops. CIDA made a start on trying to grasp complexity in their February 2005 meeting but it needs to be revisited.
- The **time dimension**: data is retrospective while policy is prospective. It is crucial that researchers understand the mechanics of the disease. Essentially people working in the field of HIV/AIDS need to understand some basic virology, medicine and epidemiology. They also need to appreciate the long wave nature of the epidemic.

In conclusion, the question that remains to be asked is: where to from here? How should this discourse be taken forward? From a broader perspective, we believe that, over and above the specific issues identified above, the trajectory of future research should be guided by the following three principles:

Firstly, future work should be focused on priority areas where research **is most lacking and, at the same time, most urgently needed to inform policy**. The HIV/AIDS epidemic is both an international crisis and a national emergency for many developing countries. There is, therefore, a critical need to prioritise those areas with most needed practical applications, which can contribute to allowing decision makers to respond more effectively to the disease. Research should also be appropriate in form and content for the objectives it wishes to serve and the end-users it intends to target.

Secondly, future research should, where possible, **build on existing work, to increase the breadth or depth of analyses carried out**. Although there are still relatively unexplored issues or sectors in need of research, in many areas a foundation already exists, on which further knowledge can be built. In some cases expanding or deepening existing research could mean capitalising on resources allocated and making the best use of work already done.

Thirdly, given the complexity of the epidemic and the consequent analytical difficulties encountered, future research on HIV/AIDS should be **multidisciplinary and innovative, both in approach and with regard to instruments used**. The HIV/AIDS epidemic touches all facets of society; it is therefore not possible to fully comprehend its impact nor develop effective responses through a narrow focus on specific areas and on traditional methodologies. We have to adopt a broader outlook that cuts across disciplines and levels of analysis. This encompasses the needs to explore and experiment with innovative instruments, reinforce analyses with data from different levels and integrate various methods and information, in order to make the best of the resources available to us.

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