



Joint Learning Initiative on Children and HIV/AIDS JLICA

Learning Group 1 – Strengthening Families

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**FAMILIES AND CRISIS IN THE DEVELOPING
WORLD:
IMPLICATIONS FOR RESPONDING TO
CHILDREN AFFECTED BY HIV/AIDS**

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Preface - Learning Group 1: Strengthening Families

The work conducted in Learning Group 1 was based on the fact that families, in all their many forms, are everywhere the primary providers of protection, support and socialization of children and youth, and families exert a very strong influence on children's survival, health, adjustment and educational achievement. This influence tends to be greater under conditions of severe strain, such as is caused by HIV and AIDS, particularly in the context of poverty.

In general, functional families love, rear and protect children and buffer them from negative effects. Functional families are those that have sufficient material and social resources to care for children, the motivation to ensure that children are nurtured and protected, and are part of a community of people who provide one another with mutual assistance. Family environments are especially important for young children. It is well established that multiple risks affect the cognitive, motor and social-emotional development of children and that the quality of parenting, assisted by intervention when needed, can ameliorate such impacts.

From the start of the epidemic, families have absorbed, in better or worse ways, children and other dependents left vulnerable by AIDS-induced deaths, illness, household and livelihood changes, and migration. Similarly, families have contributed, more or less successfully, to the protection of young people from HIV infection. Under the devastating effects of the epidemic, families need to be strengthened – economically, socially and with improved access to services – to enable them to continue, and to improve, their protection and support of children and youth. Families that neglect and abuse children need to be identified and social welfare services must be provided to them.

Families, extended kin, clan and near community are the mainstay of children's protection in the face of the AIDS epidemic - as they have been in poor countries under other severely debilitating social conditions, including war, famine and natural disaster. Only a very small proportion of AIDS-affected children are currently reached by any assistance additional to support they receive from kith and kin. The most scalable

strategy for children is to strengthen the capacity of families to provide better care for more children.

The co-chairs, secretariat, lead authors and stakeholders of Learning Group 1 were guided in the work undertaken in the Learning Group by the following key questions. By and large, these are the critical research, policy and programme questions currently being debated in the field.

1. On which children and families should we focus?
2. What evidence is available on which children are vulnerable and what can be done to help them, and how good is the research?
3. What aspects of the HIV/AIDS epidemic impact on children, how and why?
4. How are families changing as a result of adult illness and death associated with HIV and AIDS?
5. In what ways are children's health, education and development affected by the HIV/AIDS epidemic?
6. What does knowledge and experience of other crises teach us about the AIDS response for children and families?
7. What can we learn from carefully evaluated family strengthening efforts in fields other than HIV and AIDS that can be usefully applied in hard hit countries in southern Africa?
8. What programmatic experience has been gained in strengthening families in the HIV/AIDS field?
9. What promising directions are there for the future and what do they suggest?
10. What mistakes have been made and what now needs to be done?

These questions form the structure of the integrated report. As indicated in the Preface, detailed data and references are to be found in the respective LG1 papers.

Twelve detailed review papers constitute the primary evidence base for the conclusions drawn and the recommendations made by Learning Group 1. The papers, their authors in alphabetical order, and their affiliations are listed below.

List of authors, affiliations and paper titles

Authors	Affiliation	Title
Adato, M Bassett, L	International Food Policy Research Institute (IFPRI) – United States of America	What is the potential of cash transfers to strengthen families affected by HIV and AIDS? A review of the evidence on impacts and key policy debates
Belsey, M	Consultant – United States of America	The family as the locus of action to protect and support children affected by or vulnerable to the effects of HIV/AIDS: A conundrum at many levels
Chandan, U Richter, L	Human Sciences Research Council (HSRC) – South Africa	Programmes to strengthen families: Reviewing the evidence from high income countries
Desmond, C	Human Sciences Research Council (HSRC) – South Africa	The costs of inaction
Drimie, S Casale, M	International Food Policy Research Institute (IFPRI), Regional Network on AIDS, Food Security and Livelihoods (RENEWAL), Health Economics and AIDS Research Division (HEARD – South Africa	Families' efforts to secure the future of their children in the context of multiple stresses, including HIV and AIDS

Haour-Knipe, M	Consultant – Switzerland	Dreams and disappointments: Migration and families in the context of HIV and AIDS
Hosegood, V	London School of Hygiene and Tropical Medicine (LSHTM), Human Sciences Research Council (HSRC) – South Africa	Demographic evidence of family and household changes in response to the effects of HIV/AIDS in southern Africa: Implications for efforts to strengthen families
Kimou, J Kouakou, C Assi, P	Ivorian Centre for Economic and Social Research (CIRES), Family Health International (FHI) - Côte d'Ivoire	A review of the socioeconomic impact of antiretroviral therapy on family wellbeing
Madhavan, S DeRose, L	University of Maryland – United States of America	Families and crisis in the developing world: Implications for responding to children affected by HIV/AIDS
Mathambo, V Gibbs, A	Human Sciences Research Council (HSRC) – South Africa	Qualitative accounts of family and household changes in response to the effects of HIV and AIDS: A review with pointers to action
Sherr, L	Royal Free and University College Medical School – United Kingdom	Strengthening families through HIV/AIDS prevention, treatment, care and support
Wakhweya, A Dirks, R Yeboah, K	Family Health International (FHI) – United States of America	Children thrive in families: Family-centred models of care and support for orphans and other vulnerable children affected by HIV and AIDS

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Introduction/Rationale

It is now well established that HIV affects not just individuals but families, households and communities. Indeed, families have been the mainstay of support, care and financing of the impact of the epidemic on individuals in developing countries. The illness and death of those infected with the virus has raised a specific and important question: can families cope with these demands in areas with high HIV prevalence? Children who lose one or both parents as a result of HIV and AIDS have been a particular focus. Numerous governmental and non-governmental organizations have responded to this crisis with interventions aimed at strengthening the capacity of families and communities to cope with the consequences of HIV/AIDS particularly for children. This response is based on an underlying assumption that HIV/AIDS is a new and unique crisis for which families lack the capacity to handle on their own without some sort of external support. The question remains – how unique is HIV/AIDS, and what relevance does the answer to this question have for AIDS response policy and programming for children and families?

Families have always dealt with crises of various types, so to what extent does HIV present new challenges? This literature review is an attempt to provide some answers by examining how families in the developing world have been affected by and coped with crises in the past. Through the analysis of the conceptual and methodological aspects of the scholarly work on the topic, we compare and contrast the effects of HIV on families with the effects of other crises. There are important lessons to be learned about families and crises by locating HIV/AIDS both historically and within global social change that has affected family life.

Furthermore, the insights gained from this review will enable us to determine how best to assist families and children affected by HIV. Indeed there have been concerns about HIV intervention efforts undermining existing social structures. Additionally, lessons learned from this review can help identify pitfalls associated with particular intervention efforts and more importantly stop us from “reinventing the wheel.”

This literature review has three broad objectives:

- 1) examine the available literature on how crises (see definition issues below) have affected families in the developing world in the 20th century
- 2) assess the applicability of this body of knowledge to understanding how HIV/AIDS affects families
- 3) draw some conclusions that inform approaches to supporting children and families affected by HIV/AIDS

Methodology

Criteria for selection of crises

Our criteria for the selection of crises are that they:

- 1) be processual in nature
- 2) occurred no earlier than the 20th century
- 3) are well documented
- 4) are academic publications

By processual, we mean crises that unravel over an extended period of time rather than instantaneously as in the case of natural disasters. We, therefore, exclude crises such as the Asian Tsunami or the Pakistan earthquake because these events tend to engender unique responses brought on by the magnitude and urgency of the situation at hand. While HIV/AIDS is clearly a crisis of great magnitude and urgency, we do not seek to compare it to crises that unfolded instantaneously.

To further maximize comparability to HIV/AIDS, we limited the review to crises in the 20th century. Inclusion of earlier crises would have complicated the analysis because the economic, social and environmental context was so different. For example, a comparison of HIV effects with the effects of the Black Plague may not be very useful because overall mortality was much higher during the time of the Plague due to the absence of public health knowledge and medical advances.

Not surprisingly, documentation of crises tends to be greatest for those crises that have been severe, lasted a long time, have had multifaceted impacts, and garnered much news

attention. Thus when we garner the best evidence, the crises we include tend to share these characteristics. While the review is not limited to southern Africa, it is intended to throw light on how best to respond to the epidemic in southern Africa.

While we recognize the enormous value of the “grey literature” and NGO publications, we have chosen to limit this review to the academic literature because 1) our own background is better suited to analyzing the academic work and 2) it facilitates easier comparison of sources.

Our criteria resulted in our focusing on three types of crises arising in the 20th century. First, we review classic and contemporary works on famine and disease, particularly in Africa. Second, we survey work on economic reversals in Africa, Asia and Latin America. And finally, we include work on well-known crisis such as the Khmer Rouge rule in Cambodia, civil wars in Africa, the breakdown of the Soviet Union, and apartheid South Africa. The following table provides a list of the crises that we use in this analysis.

Table 1. Characteristics of Crises Used in Analysis

Crisis	Date	Type	Major References
Epidemics in Early Colonial Somaliland	1900-1940	Disease	Mohamed 1999
Agricultural volatility in Tanzania	1916-1961	Famine	Maddox 1996
Smallpox in the Sudan	1927-1931 & 1951/52-1956/57	Disease	Hartwig 1981
Famine in Malawi	1949	Famine	Ogbu 1973; Vaughn 1987
Famine in China	1958-1961	Famine	Ashton et al. 1984; Peng 1987
Civil War in Angola	c1961-c2002	Political	Agadjanian & Prata 2001; Agadjanian 2002
Drought in Chad	1968-70 (study period)	Famine	Reyna 1975
Drought in Sahel	1968-1972	Famine	Garcia & Spitz 1981; Hill 1989

Drought in Niger	1969-74 (study period)	Famine	Faulkingham & Thorbahn 1975; Faulkingham 1977
Drought in Nigeria	1970-1974	Famine	Caldwell 1977; Ogbu 1973; Watts 1993
Crisis in Ethiopia	1974-1991	Economic, famine, political	Lindstrom & Berhanu 1999
Recession in the United States	1975 (study period)	Economic	Moen 1979
Seasonal fluctuations in rural income in India	1975-1978 (study period)	Economic, famine	Jacoby & Skoufias 1997
Khmer Rouge	1975-1979	Political, famine	Heuveline & Poch 2007
Economic decline in sub-Saharan Africa	Starting in late 1970s	Economic	National Research Council 1993
Recession in Brazil	1980s	Economic	Martine 1996
Recession in Bolivia	1980s	Economic	Medina & Escobar 1989
Recession in Ecuador	1980s	Economic	Moser 1989; Pitkin & Bedoya 1997
Recession in Honduras	1980s	Economic	Zúñiga & Hernández 1989
Recession in Peru	1980s	Economic	Jacoby 1994; Schady 2004
Fuel scarcity in Nigeria	1980s & continuing	Economic	Aina & Odebiyi 1998
Recession in Latin America	1980s & beyond	Economic	González de al Rocha 1988, 1995; Guzmán 1994; Palloni et al. 1996
Economic crisis in Mexico	1980-1985	Economic	Arizpe et al. 1989
Recession in Costa Rica	1981-1983	Economic	Funkhouser 1999

Economic shocks in Brazil	1982-1999 (study period)	Economic	Duryea et al. 2007
Drought in Botswana	1982/83 to 1987/88	Famine	Valentine 1993
Kariba Dam in Zambia	1955-1959	Environmental	Colson 1979; Scudder and Colson 1982
Recession in Argentina	1983-2002	Economic	Feijoó & Jelin 1989
Second Sudanese Civil War	1983-2005	Political, famine	Bush 1988; de Waal 1989; El-Farouk 1996; Locke & Ahmadi-Esfahani 1993
Agricultural volatility in Côte d'Ivoire	1985-1988 (study period)	Economic, famine	Jensen 2000
Economic crisis in Cameroon	1987-1995	Economic	Eloundou-Enyegue et al. 2000; Tanga et al. 2002
Excess adult mortality in Tanzania	1991-1994 (Study period)	Disease	Ainsworth et al. 2005
Agricultural shocks in Tanzania	1991-1994 (Study period)	Famine	Beegle et al. 2006
Excess mortality in the former Soviet Union	1991-2006	Political	Billingsley 2007; Chen et al. 1996; Prokofieva & Terskikh 1998
East Asian financial crisis	1997-1998	Economic	Thomas et al. 2004
Border dispute between Ethiopia and Eritrea	1998-2000	Political	Blanc 2004

We have not drawn a sharp line between acute crises and chronic hardship situations in seeking to draw lessons relevant to families and HIV/AIDS because the epidemic shares

attributes of both. In the 1980s, AIDS mortality seemed to strike somewhat unpredictably like what Ilifee (1987) has termed conjunctural causes of poverty—those that arise from ephemeral combinations of events. In low prevalence areas, even today, AIDS mortality resembles a shock to ordinary life more than a structural feature. However, HIV/AIDS has clearly become a chronic condition in many higher prevalence areas. As such, it could easily become a structural cause of poverty—one that is long and enduring.

Families likely respond to structural changes differently than to conjunctural causes, but in either case the impact on livelihoods may be extreme. We discuss family livelihood strategies throughout our analysis of the literature, with particular attention to how HIV/AIDS may have exacerbated the enduring effects of poverty on livelihoods.

We also conduct our review with attention to how the epidemic may induce behavior change relevant to family composition and functioning at a wide variety of community HIV prevalence levels.

Literature search mechanisms

Literature on famine and disease was identified through a systematic search of JSTOR, MEDLINE, and Social Sciences Citation Index. Key search terms/phrases include family and crisis in developing world; demographic effects of famine, war and fertility; political conflict and migration; epidemic and marriage; disease and age structure of mortality; crisis and child fosterage; crisis and education; crisis and child labor.

There are two key works that we relied upon to begin the analysis: 1) the National Academy of Sciences volume on the demographic effects of economic reversals (National Research Council 1993) and 2) Ron Lesthaeghe's 1989 essay on the possibility of crisis-led fertility transition in sub-Saharan Africa. Both have been used cited widely in most discussions of the demographic effects of crisis particularly in Africa (explained in detail later in the paper). We also used the program from the 2007 Population Association of America Annual Meeting to identify authors writing on household responses to crisis.

Because the task of our paper is to assess the applicability of the body of knowledge from other crises to understand how HIV/AIDS affects families, we also include recent

literature on effect of the epidemic. The proposals for the other papers commissioned by JLICA provided a starting set of references. We also contacted program officers at the National Institutes of Health in both AIDS research and the Demographic and Behavioral Sciences branch for help in identifying relevant current work.

Analytic plan

Families are affected by crisis in a multitude of ways, and this literature review focuses on the effects most directly related to family composition, livelihoods, and functioning. We identify the following 6 dimensions as the key intermediate variables/processes that determine the impact of crises on families.

- mortality—which age and sex groups are particularly vulnerable to death
- nuptiality—union formation is either accelerated or delayed as a result of crises; union stability may also be affected
- fertility—onset of childbearing, spacing of children, and number of children could be changed as a result of crises
- migration—family members move elsewhere in search of work or in response to health conditions
- child fosterage—children are either fostered in or out of families as a response to changing economic, social, or family circumstances
- child labor and schooling—crises often entail an increase in child labor and/or a decrease in schooling, both of which affect children’s well-being and prospects for future generations

Figure 1 outlines the conceptual framework for how crisis works through these intermediate variables to impact families.

We break down family outcomes into three components: composition, livelihoods and functioning. Composition refers to changes in the age structure of the household through birth, death and mobility. Livelihoods pertains to economic security defined broadly to include food, clothing, shelter, education and health care. Functioning refers to the division of labor and decision making within the household. The diagram in Figure 1 is obviously a simplification of how crises affect families. Nonetheless, it highlights that if crises are to have an impact on families, the impact will likely be indirect: operating through one of the four basic demographic processes (mortality, nuptiality, fertility, and migration), or through how children relate to families (whether as natural or foster children as well as what occupies most of their time). Because of our desire to have our literature review inform approaches to supporting children and families affected by HIV/AIDS, including fosterage and labor/schooling is particularly appropriate.

Not every type of crisis will always affect all six of the intermediate variables we identify. For instance, famine is more likely to have a greater impact on mortality than are economic reversals. Similarly, economic reversals may delay marriage more than a disease outbreak would. Even so, our simple diagram is useful in pointing out potential pathways for effects, regardless of whether all of them are realized.

Our review is organized according to these six intermediate variables, with a section for each. Within each section, we examine coping mechanisms to various crises. This type of organization enables us to assess the applicability of this literature to understanding HIV/AIDS and families more systematically. This also makes it possible to identify key areas for potential intervention, design appropriate evaluation studies, and make recommendations for approaches, policies and programmes.

We examine the sources of data (cross sectional, longitudinal, qualitative) and methodologies used by various authors in assessing the effects of the different crises. Particular attention is given to the limitations and advantages of various sources and methods. This is important because we need to know what type of data and analytical techniques are best suited to gauge the effects of HIV/AIDS on families. A substantial portion of the literature on the effects of HIV/AIDS is based on non-representative samples, limited data on “pre-conditions” and anecdotal evidence, all of which undermine the value of findings. Therefore, our analysis will attempt to identify the ideal

types of data and methods that are needed to produce robust measurements of effects on families.

Mortality analysis

Our mortality analysis is divided into three sections:

- A) similarities and differences between HIV and other crisis mortality on levels, age structure and gender dimensions of mortality
- B) effects of mortality on livelihoods
- C) application of lessons learned about mortality effects to supporting families and children affected with HIV/AIDS.

A) Similarities and differences of HIV mortality with other crises

1) High levels of mortality

As a disease with no known cure, it might seem at first blush that HIV is unique in its high levels of mortality and therefore different from other crises. However, HIV/AIDS has not created an unprecedented level of mortality. Although it is the leading cause of death in sub-Saharan Africa, other crises have claimed a greater proportion of lives. To choose an extreme example, about 25% of the Cambodian population died during the Khmer Rouge regime that lasted less than four years (Heuveline and Poch 2007). Extreme mortality was also observed in more localized populations where early in the 20th century where about 25% of individuals infected with smallpox died (Hartwig 1981). This was much lower than during the 19th century when smallpox claimed the lives of about 70% of its victims (Hartwig 1981), but it nonetheless remained a major killer until the development of a freeze-dried vaccine in the 1960s made eradication plausible for the first time. Moreover, Lee's (1990) review of demographic responses to economic crises revealed appreciable mortality increases in response to much less severe conditions. For example, he showed across time in seven different countries, that increases in grain prices of just 10% were correlated with mortality increases of about 3%.

2) Age structure of mortality

The fact that HIV mortality is disproportionately distributed among the reproductive and productive age groups is certainly a cause for great concern. However, HIV is not the first crisis to selectively affect particular population groups. Hill (1989) has documented how the Sahelian famines affected the weakest members of society, namely children and the elderly. Excess mortality following the collapse of the Soviet Union was primarily among working-aged adults, in part (but only in part) because of upsurges in injury mortality and other alcohol-related deaths (Chen, Wittgenstein et al. 1996; Billingsley 2007). Mortality during the most violent periods of apartheid South Africa was concentrated among older age adolescents and working age men (Duflou, 1988). As of 2003, homicide was the leading manner of non-natural death in the age group 15-45 in South Africa and men were at greater risk of death by homicide (Matzopoulos 2005). Further, it is not always the very young and old who succumb to infectious disease. To again use smallpox as an example, infected adults were about 60% more likely to die than infected children (Hartwig 1981). The probability of being infected during a smallpox epidemic was fairly uniform by age—and this contrasts significantly with HIV infection—but the distribution of smallpox deaths is more similar to the distribution of HIV-related deaths.

3) Gender dimensions of mortality

Disproportionate risk of death due to HIV/AIDS has shifted from men to women with the progress of the epidemic. Men's greater exposure to risk factors mattered more in the early stages, but with generalized epidemics, women's physiological and economic vulnerability has translated into higher HIV prevalence rates. Although women's life expectancy in severely affected countries is not yet shorter than men's, it is expected to be in the very near future (United Nations Population Division 2007). This has parallels with other crises in that women were more socially vulnerable to smallpox: in Sudan in the first half of the 20th Century, women were reluctant to participate in vaccination programs (Hartwig 1981). Cultural expectations for women's isolation have likely affected participation in public health interventions elsewhere as well. However, in some crisis situations, it is men that are more vulnerable. After the breakup of the Soviet Union, about half of the excess mortality was among men aged 25-59 with the rest

distributed among women, children, and the elderly (Chen, Wittgenstein et al. 1996). War and other forms of violence also disproportionately kill men. Women have an advantage in accessing HIV-related services through maternal and child health clinics and particularly through antenatal programs.

Thus, while we recognize that excess mortality due to the HIV/AIDS epidemic represents a serious challenge to the viability of families and children because it kills large numbers of reproductive age people, particularly women, and leaves people of less productive ages behind, these challenges are not new. However, having to cope with this kind of mortality pattern in the long-run is new as explained in the next section.

B) Effects of crisis mortality on livelihood

There are some important ways in which coping responses to HIV/AIDS mortality differs from other crises. The effects of crisis mortality on livelihoods depend on several key factors as explained below.

1) Duration

Smallpox epidemics were relatively localized, short-term outbreaks that devastated populations, but these populations then had intervals during which to recover. Only less deadly strains of smallpox than variola major became endemic, constant threats—but then a sizable immune population was possible because people had been exposed without dying. Obviously there is no direct parallel with HIV/AIDS because to date surviving infection does not confer immunity. The progression from HIV infection to death is gradual and incremental, and this sets it apart from crises such as drought or war (Barnett and Blaikie 1992). Belsey (2005: p. 51) explained: “Under such circumstances the different forms of family capital are constantly eroded. Relationships are strained, resources are consumed, and family resiliency is challenged.”

However, the spread of affordable antiretroviral treatment (Kimou, Kouakou et al. 2007) could create a situation where HIV infection is less deadly. Therefore mortality patterns from HIV infection could theoretically come to resemble those of other diseases in a foreseeable future, but there are significant socioeconomic and other obstacles to moving

from the current situation of a large volume of excess adult mortality to one where productivity is better preserved.

Family stress theory suggests that the *duration* of the stressor is an important determinant of the strain placed on families (Moen 1979), and therefore it seems obvious that an ongoing epidemic over vast geographic spaces is different from one that has punctuated outbreaks in local areas. Family stress theory also informs our discussion in another way in that it distinguishes two components of *reaction* to stressors: vulnerability and regenerative ability (Moen 1979). Here in the mortality section we discuss differential vulnerability by socioeconomic status and gender—variation in the ability to prevent a crisis from disrupting the family system, including the provision of livelihoods. Later in our review—particularly in the nuptiality and education sections—we take up the issue of regenerative power, the ability of a family to recover from a crisis.

2) Multiple crises and multiple deaths

The literature on crisis mortality frequently emphasizes how multiple crises produce mortality much more efficiently than do single insults. For example, smallpox epidemics frequently followed famines and warfare, with movement of displaced peoples as a main cause (Mohamed 1999). Although part of the explanation for this derives from the synergy between under nutrition and disease in producing death, it also reflects the social disruption caused by famine and war. The spread of HIV/AIDS is also more likely where there are large-scale population movements due to causes such as famine and war. Extended duration from onset of HIV infection and death means that households can experience multiple deaths. Death clustering within households is particularly likely given the modes of transmission of HIV especially sexual and mother to child (Baylies 2002). Also, households are particularly likely to experience multiple events of HIV-related mortality over time in high prevalence communities (Hosegood, Preston-Whyte et al. 2007). Support from neighbors goes down and social judgment goes up as deaths within the household increase (Hosegood, Preston-Whyte et al. 2007). Households with multiple deaths—particularly poor households with multiple deaths—are more likely to dissolve (Hosegood, Herbst et al. 2004). Estimates of the effect of adult mortality on households using repeated cross sectional data underestimate total effects because they miss dissolved households that drop out of the sampling frame because of mortality

(Yamano and Jayne 2004). Households with the greatest vulnerability and the least regenerative ability are the ones most likely to be dissolved in response to HIV mortality.

3) Gender effects

In addition to being more likely to become infected with HIV, women in sub-Saharan Africa also become infected at younger ages than men. While this has a multitude of negative implications, it does mean that households may well be better able to cope with HIV-related death than if it were the male head of household and prime wage-earner who was most likely to die. Using large surveys representative of rural households in five East African countries (Kenya, Malawi, Mozambique, Rwanda, and Zambia), Mather and his colleagues (Mather, Donovan et al. 2004) compared effects of prime-age adult mortality. The impact on livelihoods was less than anticipated in part because of low household dissolution rates (shown through panel data in three countries): households experiencing adult death were not particularly vulnerable to dissolution. Further, household productivity did not fall as dramatically as anticipated with adult death.

One of the key ways that Mather and colleagues explain the limited impact on household livelihoods was that in four out of five countries (all but Malawi), the majority of prime-aged adult deaths were neither to the head of household nor the head's spouse. Even in Malawi, only 53% of deaths were among heads or spouses of heads, and in Zambia it was 16% (Mather, Donovan et al. 2004).

The high proportion of deaths to other adults in the household is explained in part by the fact that households experiencing prime-aged mortality were generally larger *before* the adult death occurred. These households included more adult single women. Their data could not demonstrate whether HIV-positive single women had lived in large households continuously or had moved in because of illness. In either case, the fact that mortality was not concentrated among the most productive members makes preservation of households and livelihoods more likely.

4) Mortality and poverty

Many causes of excess mortality including epidemic disease and famine are thought to disproportionately affect poorer families. In particular, Amartya Sen's classic work

Poverty and Famines (1981) highlighted that hunger was more a product of individuals and households being unable to command access to food (entitlement failure) than of food shortage. Because HIV/AIDS is distributed across the economic spectrum (Belsey 2005), it might at first seem dissimilar from these other crises on this basis.

However, because of the interrelationships between disease and famine, famine mortality is not always concentrated among those who experience the greatest entitlement failure, and therefore the literature on these crises is more applicable than might otherwise be apparent. The pattern of deaths in Sudan associated with the 1984-85 famine provided support for what de Waal has termed a 'health crisis model' of mortality. If under nutrition was the driver of famine mortality, deaths would be concentrated at the lower end of the socioeconomic spectrum because destitution would predict under nutrition and hence vulnerability. De Waal instead showed that mortality differentials by *place* were strong, whereas those by socioeconomic status were weak: the rich and the poor shared similar disease environments, even though the rich had better access to food. People in the same area were affected by migration and other social disruptions associated with famine that spread disease, and therefore mortality was not a great respecter of socioeconomic status. It should be noted that the survey which de Waal used to estimate mortality levels had many shortcomings brought on by the challenges of working in such difficult conditions: lack of a proper sampling frame, under representation of particular groups, recall errors, lack of adequate baseline statistics. It is important to consider these problems when assessing the validity of his results. Nonetheless, de Waal's model draws attention to disease that does not require undernutrition to be lethal and therefore provides a useful means of thinking about an epidemic like HIV/AIDS where place is certainly a key factor influencing vulnerability.

Similarly, even though chronic under nutrition is a respecter of wealth, famine caused by acute food availability decline appears to be less discriminating. Locke and Ahmad-Esfahani (1993) showed this using econometric models which distinguished between food availability and food entitlement. Using the same population that de Waal studied, they showed that while entitlements to food still surely matter, vulnerability to famine cannot always be averted by wealth. Therefore, it is like HIV/AIDS in presenting a real threat to rich and poor alike. However, de Waal's New Famine Variant Theory posits that the depletion of assets from multiple shocks over time has made families far less resilient

over time (de Waal and Whiteside 2003).

Early in the course of the HIV/AIDS epidemic, economic disadvantage did not increase the risk of HIV-related death. In fact, poverty was initially somewhat protective because wealth increased mobility and therefore exposure to infection. However, as the epidemic has spread, the better educated and the wealthier have been better able to implement protective behaviors than their less advantaged counterparts. The virus has also become more prevalent in poor areas that were previously relatively isolated (Lee and Susser 2006).

Current literature on vulnerability to HIV infection routinely emphasizes how financial dependency interferes with each of the ABC's of HIV prevention. First, with regard to the ability to abstain from sex, those in dependent positions may be less able to refuse sex that confers material benefit whether cash or gifts. Second, with regard to the ability to be faithful, poorer women may be less able to gain enough from sexual exchange with a single partner to practice fidelity. Finally, with respect to condom use, asking for or insisting on condoms may jeopardize economically necessary partnerships. Therefore, we find the literature that focuses on economic vulnerability to death increasingly relevant with the progress of the epidemic. In this respect, the HIV/AIDS crisis is more like economic crisis than like famine in that the poor are more vulnerable (see discussion of job loss, falling wages, and excess mortality in the former Soviet Union, that Billingsley (2007) analyzed using a cross-sectional pooled time-series model which revealed that macro-level changes in the post-Soviet economy disproportionately hurt the poor.

C. Lessons learned

In sum, there are no individual aspects of HIV/AIDS mortality that are unprecedented. Large-scale mortality derives from war and epidemic disease, prime-age adult mortality derives from political transitions and certain other infections, excess female mortality derives from social vulnerability, the duration of crises can be great in environments with periodic droughts and chronic seasonal food shortages, and multiple shocks are nothing new either. Whereas some aspects of this combination of mortality conditions make family survival somewhat more practical than simple multiplicative effects would

predict (e.g., young women's mortality affecting households less than would mortality of the household head), overall the strain on households from this combination of mortality conditions does seem to be historically unique (see De Waal's New Famine Variant Theory for more detail). There are, therefore, important implications for designing interventions to assist families and children affected by HIV/AIDS mortality. We discuss three of these below:

- 1) Extended duration of illness for infected individuals mean that support to families and/or children needs to be given over an extended period of time. For example, a variety of social protection measures (cash transfers, food aid, health care) would need to be made in varying amounts at different points in the process depending on the intensity of need.
- 2) The extended duration of the epidemic itself as well as typical modes of transmission mean that households may experience multiple mortality insults. Interventions targeted toward households having experienced death should try to supplement regenerative ability. For example, increasing the ability of the household to recruit adult labor could be an effective way to offset the negative financial effects. Additional labor could come from community assistance programs that are often run by churches and schools.
- 3) Even though HIV mortality affects all socioeconomic strata, it is clear that pre-existing conditions of poverty intensify the effects of mortality (felt through an unbalanced dependency ratio) and make it more difficult to cope with the stress. Therefore, more effort needs to be made to channel social protection programmes to poor families who have also experienced HIV related mortality.

Nuptiality

In this section, we:

- A) review some across the board effects common to crises,
- B) explore how crisis interacts with social position to produce different types of marriage effects with more protracted crises, and
- C) offer some concluding thoughts on the implications for the design of intervention programs for HIV affected children and families.

A) Crises effects on marriage

1) Marriage delay

It is quite common for marriage to be delayed in cases of conflict or hardship. Marriage has even been shown to be delayed in response to regular seasonal fluctuations in food supply that do not represent crisis conditions. Among the Ochina Ibo of Eastern Nigeria In the mid-20th century, marriages were not contracted during the pre-harvest hunger period when feasting could not occur and men feared their new wives would return to their parents if they were hungry (Ogbu 1973). Postponing marriage is also one of the most reversible early coping strategies identified by Shipton (1990) in his excellent review of African famines and food security. Marriage then speeds up again as more prosperous conditions free up resources for bridewealth (Faulkingham 1977). Reyna (1975) has even argued that bridewealth serves as a mechanism to adapt marriage to food supply: his work in Chad suggested that in times of scarcity, not all women are married because of calories being consumed rather than converted to bridewealth, but that in times of plenty, female marriage became universal.

More generally, economic constraints can prolong the transition from cohabitation to marriage (Eloundou-Enyegue, Stokes et al. 2000). Marriage rates and grain prices have been negatively related historically (Lee 1990). There is also evidence of marriage postponement with political instability, for example with the 1998-2000 border conflict between Eritrea and Ethiopia (Blanc 2004). More severe conflicts have temporarily precluded the contracting of marriages in a wide variety of settings. Similar to the findings of this body of work, qualitative work from South Africa reveals people's uncertainty about the future of marriage where HIV-induced impoverishment threatens the ability to pay bridewealth and marry (Carton 2006). Labor shortage in households experiencing adult death may also delay marriage (Beegle and Krutikova 2007). But the HIV/AIDS epidemic has additional impacts on marriage discussed below in this section. We return to the related question of onset of childbearing in the fertility section.

2) Men's migration

Crisis tend to accelerate men's migration out of rural areas (Faulkingham and Thorbahn 1975). Again, violent conflict is an obvious force drawing men away from home, but other hardships drive the process as well. Households may rely on migrant remittances, and individual men save their earnings toward bridewealth. Marriage may then again be delayed by crisis because of the absence of men and the time needed to accumulate bridewealth. Moreover, men's migration also has effects on existing marriages because of spousal separation. Marriage without cohabitation became more common with the economic crisis starting in 1987 in Cameroon as having one spouse in a rural area reduced living expenses and spread out family risk (Eloundou-Enyegue, Stokes et al. 2000).

Unfortunately, long periods of separation have been shown to lead to unstable marriages as has been clearly shown for apartheid South Africa (Ramphela 1993). Indeed, much has been written about the destructive effects of labor migration on black families during apartheid (Murray 1981). Single motherhood became more common in Sudan during the second Sudanese civil war through short-term relationships, repudiation, and divorce (El-Farouk 1996). Husbands migrating because of crisis sometimes completely fail to return home, a point poignantly driven home by the fact that matrilineal Malawians called 1949, the famine year many husbands left home, the year of 'many divorces' (Vaughan 1987). Desertification has also contributed to wives being abandoned in rural areas (El-Farouk 1996).

3) HIV and marriage dissolution

Evidence of increased divorce as a result of HIV is appearing. Reniers (2005) has shown that although women are not as able as men to penalize suspected adultery with divorce, the likelihood of divorce in cases of suspected adultery has increased for both men and women as the HIV/AIDS epidemic spread in rural Malawi. He cautions, however, that although divorcing an adulterous spouse is protective against HIV, being back on the marriage market in a high HIV context reintroduces risk from multiple partnerships. Reniers' (2005) work also highlights another factor introduced by the epidemic that affects family systems and is far different from other crises: fear of marrying widows.

Widow inheritance is practiced by many cultures, but becomes dangerous if widowhood was created by HIV-related death. Therefore, widows fare less well on marriage markets and are more likely to remain unmarried. Widowers have also become less likely to remarry as a result of the epidemic (Mukiza-Gapere and Ntozi 1995). Therefore, although qualitative evidence from Malawi suggests that the epidemic can strengthen marriage through encouraging couples to dialogue about and practice fidelity (Zulu and Chepngeno 2003), it also makes marriage more vulnerable to dissolution through both divorce and death.

B) Differential effects across socioeconomic strata

1) Constraints to delaying marriage

Although delayed marriage and increased migration are common responses to crises of various sorts, the effects of crisis on marriage are not uniform across social groups. Social destabilization may delay customary marriage with appropriate bridewealth arrangements, but it can also speed marriage for the most impoverished. El-Farouk (1996) noted both earlier marriage and later marriage in response to increased migration in Sudan in the late 20th century: young men who migrated away to earn brideprice married later, but some families married off pubescent girls to married men to decrease household expenses and bring in bridewealth. Polygyny increased from modest levels as a result of these earlier marriages since many of the older men involved were already married (El-Farouk 1996). Agadjanian and Prata (2001) also noted age at first birth decreasing with successive cohorts in war-torn Angola from 1960-2000, a period where the secular trend observable in similar data from other African countries was toward older age at first birth. They said that the war may have brought rape or sexual enslavement of young girls, but also suggested that war-induced hardships motivated families may try to marry off girls earlier in order to alleviate the household's economic burden.

These findings from these other crises seem directly applicable to the HIV/AIDS crisis. The existing evidence strongly suggests that although the epidemic could delay marriage through later sexual debut and longer screening of partners (Mukiza-Gapere and Ntozi 1995), these mechanisms are most available to those in advantaged socioeconomic

positions. Further, young women from households affected by AIDS seem particularly vulnerable to early marriage.

These effects are clearly seen in panel data from Kenya and Tanzania.¹ In Kenya, Yamano and Jayne (2004) surveyed 1,422 households in 1997 and again in 2000 to study the effects of working-age mortality on family composition and livelihoods. They documented that 72.6% of daughters left households over the three-year period when the head had died, as compared to only 41.1% of daughters leaving households not affected by adult mortality. Almost two-thirds of those leaving death-stricken families reported marriage as the reason for leaving.

The effects of men's mortality on subsequent household composition were much greater in poorer families than in wealthier ones (Yamano and Jayne 2004). In Tanzania, Beegle and Krutikova (2007) also demonstrated that girls (but not boys) who became paternal orphans married earlier—and that this effect was concentrated among girls from poor families: girls in rich families were relatively protected from early marriage. Qualitative evidence suggests that heavy domestic workloads following parental death motivates female orphans to marry, and that they may view marriage as one of the only means to a better life after dropping out of school (Oleke, Blystad et al. 2006).

2) Context of earlier marriage

The research described above indicates that HIV can promote earlier marriage by increasing the number of orphaned girls. There are additional mechanisms through which HIV can also promote earlier marriage. Reduced life expectancy can motivate an earlier start to procreation (Beegle and Krutikova 2007). Uncertainty about future HIV status can also produce a desire to succeed at childbearing before becoming infected (Rutenberg, Biddlecom et al. 2000) . Early marriage is also viewed as desirable by some parents to protect daughters from exposure to HIV through potential multiple partnerships before marriage (Bracher, Santow et al. 2003; Oleke, Blystad et al. 2006). The risks associated with earlier marriage under ordinary conditions are plentiful, as Beegle and Krutikova (2007) explain when emphasizing the importance of their findings that orphanhood increases the probability of girls' early marriage:

"Marriage at a younger age increases health risks for women, as well as potentially resulting in "worse" marriage matches. Younger mothers are more likely to suffer from micronutrient deficiencies and be unaware of the health risks associated with pregnancy; they are also more likely to have children soon after marriage which increases the risk of maternal and infant mortality (World Bank, 2007). Younger ages at first marriage may also be associated with curtailed education among girls, although it is difficult to ascertain the causality. Further, a younger bride may be less able to assert power and authority in her marriage especially given that women marry men who are on average several years older" (pp. 3-4).

However, their discussion omits two sobering points that give further cause for concern about early marriage in the context of HIV. First, early marriage may not be protective against HIV. Clark (2004) shows that married adolescent girls are at *higher* risk of HIV infection than unmarried sexually debuted adolescent girls. While married girls did have fewer sexual partners than their unmarried counterparts and were therefore protected against acquiring HIV by one means, their husbands were older than the boyfriends of their unmarried counterparts and more likely to be HIV positive (Clark 2004). Moreover, intercourse was more frequent among the married, and therefore the probability of acquiring HIV from an infected partner greater—compounded by the fact that condom use within marriage was less likely (Clark 2004). Early marriage can also truncate education, one of the primary channels through which young women acquire information about HIV/AIDS. Finally, young girls may be able to exercise little power over sexual relations particularly if cultural norms uphold men's rights over their wives. This first point leads directly to the second: the HIV/AIDS epidemic can increase social stratification through early marriage. One of the many ways poverty reproduces itself is that girls from families that cannot afford to educate them marry earlier and have patterns of childbearing that are not conducive to human capital development in the next generation either. HIV/AIDS can exacerbate this by speeding the marriage of orphan girls from poor households who are then more likely to become infected themselves through early marriage, placing their children at economic disadvantage and great health risk (Clark 2004; Beegle and Krutikova 2007; Yamano and Jayne 2004).

Historically, marriage did not increase vulnerability to economic or disease shocks: if anything, it was protective because it created bonds between individuals and families

that provided a safety net. Marriage can be protective in the face of HIV/AIDS where it is mutually monogamous, but marriage to an HIV-positive spouse is particularly problematic because exposure is repeated and condom use is rare. Thus, divorce can be protective against HIV infection while divorce has rarely served a protective function—particularly for women—historically.

C) Lessons learned

It remains to be seen whether HIV prevalence contributes to earlier or later marriage in the aggregate, but girls from poorer families and particularly those already disrupted by adult death are at increased risk of early marriage as indirect results of the epidemic.

Programmatically, this means:

- 1) more effort has to be made to keep poor girls who have lost parent(s) to HIV or are caring for sick relatives, in school in order to help delay marriage
- 2) women who leave their partners because of HIV or suspicion of HIV should be given additional support to improve their livelihoods particularly if they have children; particular attention needs to be paid to the legal framework that often determines women's rights to property and assets; it should be noted that targeting should not be restricted to only women who leave their partners but those who go on to get married and those who remain married to men who they suspect of being HIV positive;
- 3) More effort at HIV/AIDS education must be targeted towards poor families in order to make them aware about the risks posed by early marriage; particular attention must be paid to empowering girls to negotiate safe sex through condom use; this must be coupled with programmatic interventions that offer choices other than marriage as a means to improving livelihood; this could include training in vocational skills, small business management, securing small loans for starting businesses, etc.

Fertility

One of the primary difficulties in comparing the fertility effects of HIV/AIDS with the fertility effects of other crises is that the long-run fertility effects of crisis are generally unknown (Eloundou-Enyegue, Stokes et al. 2000). Compounding this basic difficulty is the fact that fertility depends on sexual activity, and sexual activity contributes to the

spread of HIV. Usually causation runs only from the crisis to fertility-related behavior, not in reverse as well. We nonetheless use consistencies and contrasts in the literature on the fertility effects of crisis to inform our understanding of how HIV/AIDS is likely to affect families through fertility. Here we discuss:

- A) what the literature says about crisis led fertility transition,
- B) what we know about HIV and fertility, and
- C) implications of fertility change for addressing the needs of children and families affected by HIV.

A) Crisis led fertility transition

Classic demographic transition theory posits that people reduce the number of children they have in response to prosperity (Notestein 1945). For example, economic development brings lower mortality which reduces the need to bear many children to ensure having surviving children. In addition, schooling increases the costs of children while developments such as mechanization reduce the value of child labor. More prosperous societies generally have lower fertility rates and within societies, it is commonly those with higher socioeconomic status who have fewer children. The transition from high to low fertility commenced during periods of economic growth historically.

But Lesthaeghe (1989) put forward the theory that fertility decline could commence in response to economic hardship—and indeed might do so in sub-Saharan Africa. He outlined how a crisis-led fertility transition could work. Parents wanting many children might have their ambitions frustrated by the high costs of child-rearing in societies experiencing inflation and rising costs of living. Further, as more women entered the labor force out of economic necessity, women's time would have higher opportunity costs and childbearing would be more costly. Families might also be less willing to take in foster children because of hardship, and therefore individual couples would bear the costs of their own fertility decisions—rather than those costs being dispersed across a wider kin network. Lesthaeghe also put forth a number of factors that might serve to impede a crisis-led transition from high to low fertility, including that high mortality with HIV/AIDS would increase the uncertainty around successful childbearing (the

converse of economic development reducing the precariousness associated with reproduction). He concluded that children were likely to remain valuable where economic development was weak because they were still the prime means of providing old-age security, and thus that even if there were a crisis-led fertility transition, it would stall out with families continuing to have four or five children.

Against this theoretical backdrop, we review empirical evidence on how crisis has in fact influenced fertility.

1) Crises and fertility reduction

It is commonly recognized that crisis tends to reduce fertility, and that fertility also typically rebounds to a higher levels after the crisis before returning to normal (Watkins and Menken 1985; Palloni, Hill et al. 1996). Short-run fertility fluctuations are often attributed to changes in marriage (particularly delayed marriage, see above), but Lee (1990) argues that most of the change is in marital fertility, not change in marriage. Separation of married couples due to crisis helps moderate fertility (Hill 1989), but fertility also drops under conditions of hardship that do not separate spouses. The literature stresses uncertainty as motivation for fertility control. Dips in fertility associated with increases in grain prices point to volitional fertility control within marriage (Lee 1990). For example, fertility decreased in Guadalajara, Mexico from 1982-85, years when households were increasing in size to cope with the economic hardship, but not through the addition of younger members (González de al Rocha 1988).

Acute crises are particularly likely to curtail fertility as seen in China 1958-62 during the famine of the Great Leap Forward (Peng 1987) and also during more recent Ethiopian famines in the 1970s and 1980s (Lindstrom and Berhanu 1999). In these types of cases, rebound to fertility above pre-crisis levels seems particularly likely (Ashton, Hill et al. 1984). Concentration of births following a crisis results from spouses being reunited (Hill 1989) and a particularly high proportion of women being neither pregnant nor lactating following short-run fertility falls. In Niger around 1972 , a post-drought "baby boom" also resulted from improving nutritional status of females and also more money being available for bridewealth (Faulkingham 1977). However, to attribute higher fertility solely to the fecundability of non-pregnant, non-lactating women again overlooks the

role of volitional fertility control. Detailed investigation of the fertility rebound following the Khmer Rouge regime in Cambodia indicates deliberate compression of birth intervals in the period following the crisis (Heuveline and Poch 2007). Agadjanian and Prata (2002) also provided evidence of volitional fertility control in a pre-transitional country when they showed that Angolan women of higher socioeconomic standing both curtailed fertility more in periods of conflict and had a more “forceful” rebound in their fertility rates during the 1980s and early 1990s.

2) Protracted crises and fertility

However, protracted crises likely offer lessons more relevant to HIV/AIDS than acute ones. Demographic literature on the fertility response to crises in Ethiopia and Angola in recent decades stresses how short-run crises may evoke longer-run responses. For Ethiopia, Lindstrom and Berhanu (1999) argue that fertility may have been curtailed when the *Dergue* first came into power, but that the prolonged nature of the political crisis would have “dispelled any lingering expectations that conditions would improve soon. What may have been viewed as a temporary state had now become a standard feature of life.” Similarly, Agadjanian and Prata (2002) argued that in Angola the fluctuations between war and peace made political uncertainty part of fertility planning. In other words, when crisis becomes endemic, the fertility response can potentially include more than simple postponement of births: lower total fertility may result. Nonetheless, evidence for longer run responses is generally lacking (Agadjanian and Prata 2001). Lindstrom and Berhanu explained that sustained hardship can permanently change couples’ approaches to childbearing through awareness of opportunity costs and decreased social resistance to contraceptive methods that came into use during the crisis. They argued that continued fertility decline after the *Dergue* was removed from power in 1991 was likely evidence of sustained change. However, their 1990 survey data were not appropriate for directly addressing that question.

Lindstrom and Berhanu further argued that the multidimensionality of the crisis in Ethiopia (war, political repression, economic decline, and famine) may have contributed to a true crisis-led fertility transition, a notion that had been discounted in other African countries that had not seen the onset of fertility transition despite sustained hardship (Locoh 1994). If multiple hardships are the key to crisis-led fertility declines, then the

HIV/AIDS epidemic seems quite likely to contribute to lower fertility.

But there is a competing explanation for why prolonged crises may not lead to sustained fertility decline, and that is that children serve as risk insurance.ⁱⁱ Certainly Sahelian countries and others that experience recurrent droughts did not adapt to hardship with generally lowered fertility.ⁱⁱⁱ On a sparsely populated continent like Africa, migration has historically served as a mechanism for dealing with crisis and with population pressure, and curtailing fertility has generally been unnecessary. With economic reversals occurring in the 1980s and migration becoming much less likely to improve livelihoods without economic expansion, the conditions for a prosperity-led fertility transition would certainly not be met.

B) HIV and fertility

1) Fertility depressing effect

Despite the value of child labor and the important risk insurance function of children in underdeveloped economies, it is generally believed that the HIV/AIDS crisis will contribute to lower fertility. This is largely because fertility-suppressing effects of HIV infection on individual fertility have been well documented, with a number of possible biological as well as behavioral mechanisms identified (Carpenter, Nakiyingi et al. 1997; Gray, Wawer et al. 1998; Hunter, Isingo et al. 2003; Terceira, Gregson et al. 2003). In addition, high rates of HIV prevalence could curtail the fertility of even uninfected women who either took in orphaned children of extended family members or considered that possibility in the future highly probable. Further, fertility might also be lowered where scarcity of labor increases the value of women's time and hence the opportunity costs of childbearing (Young 2005).

However, these community-level effects have rarely been empirically measured, and they could be offset by factors that would promote higher fertility. In communities with high rates of HIV infection individual women could be motivated to: (1) prove their "healthiness" through the production of healthy children (particularly important where most do not know their sero-status, as is generally the case in sub-Saharan Africa; see Grieser et al. (2001); (2) shorten the duration of postpartum abstinence to decrease the

probability that their husbands will engage in extramarital affairs (Cleland, Ali et al. 1999; Desgrées du Loû and Brou 2005); (3) time childbearing early so as to fulfill fertility desires before becoming infected (Rutenberg et al. 2000); (4) increase fertility because of greater fear of child loss in a community with high mortality rates (United Nations Population Division 2002).

Most empirical estimates of the impact of the HIV/AIDS epidemic on fertility in sub-Saharan Africa have been calculated under the assumption that the fertility among uninfected women represents the levels of the entire population in the absence of the epidemic (e.g., Terceira et al. (2003); Zambuko and Mturi (2005). That is, fertility of uninfected women is taken as what fertility of infected women would have been if not for HIV. This method assumes that community HIV prevalence has no effect on the fertility behavior of uninfected women, and therefore ignores community-level fertility stimulating effects. Unlike these other studies, Young (2005) estimated the effect of community-level HIV prevalence in South Africa by linking maternity clinic seroprevalence data to Demographic and Health Survey (DHS) data. He concluded that the epidemic suppressed fertility. However, his HIV data is not nationally representative and without being able to control for individual infection status, behavioral effects might be underestimated. Recent DHS data include HIV blood testing for nationally representative samples and allow for estimating individual- and community-level effects. Multi-level random effects models using Kenyan data indicate that HIV prevalence does stimulate fertility (DeRose 2006), but HIV prevalence in Kenya is highest in Nyanza Province which was also the highest fertility province in the country before the epidemic. Without nationally representative HIV data from more than one point in time, controlling for region-specific fixed effects is difficult and estimates could be biased. Random effects models for multiple countries are a partial solution to this problem.

2) HIV and fertility transition in Africa

The question of whether there can be a crisis-led fertility transition is pertinent for sub-Saharan Africa where twelve countries (home to 24% of the region's population) still have fertility rates at least 90% of the highest ever recorded (6-8 children per woman, depending on the country), and thus have not entered the fertility transition by the conventional definition.^{iv} Although post-onset economic crisis can speed fertility decline

(National Research Council 1993; Rutenberg and Diamond 1993; Guzmán 1994; Martine 1996), we know little about whether crisis can cause the initial destabilization of high fertility regimes (see Eloundou-Enyegue, Stokes et al. (2000). Even for the three-quarters of the region where fertility decline has already commenced, the progress of fertility transition is still questionable. With historical transitions, people have gotten healthier and better educated before and during fertility declines. Crises have generally not interrupted this progress. In contrast, there is extensive deterioration of human capital in contemporary sub-Saharan Africa with declining educational attainments (see below) and increased mortality. Therefore, while research on European fertility transitions concluded that once commenced fertility decline would continue until average childbearing reached about two children per woman (van de Walle and Knodel 1980), the current conditions are radically different enough to question this conclusion.

Nonetheless, an important indication that economic crisis can contribute to sustained fertility decline in countries that have begun the transition to lower fertility comes from the National Research Council (1993) study with data spanning 30 years and documenting widespread delay of first and second order births in the wake of economic crisis. They also found stronger effects in urban areas where effects of structural adjustment were more keenly felt (see also González de al Rocha (1995); Eloundou-Enyegue et al. (2000), and this is parallel to the HIV epidemic because prevalence rates are higher in urban areas. However, Locoh (1994) pointed to 15 years of economic crisis in Ghana exacerbated by structural adjustment programs with no sign of fertility decline (1973-1988) and argued that while the urban middle class might respond to hardship with fertility limitation, the population as a whole was responding to increased difficulty in obtaining health care and education. The AIDS crisis has also made health service delivery and education more difficult to sustain. Further, prior to the HIV/AIDS epidemic, those surviving childhood generally survived their reproductive years. Thus parents could invest in the education of school-aged children expecting their children to be alive to support them in old age. Investing in education makes less sense when the time horizons for returns to education may be truncated by HIV-related death (Hamoudi and Birdsall 2004). Therefore, while economic development generally motivates parents to invest in smaller numbers of educated (“quality”) children, the epidemic may shift rational calculus back toward favoring quantity over quality.

Finally, crisis can contribute to lower fertility through increasing the fragility of marriage. The ways that HIV/AIDS can destabilize marriage are discussed above, but we also note that single motherhood is more feasible with a small number of children than a larger one. For example, economic crisis in Ecuador when did not prevent women from wanting children, but they revised down ideal family size in response to the possibility of raising children alone (Pitkin and Bedoya 1997).

The effects of HIV on different measures of fertility are summed up in Table 2.

Table 2: Fertility Effects of HIV at the Individual and Community Levels

Effect of HIV on:	Individual Level	Community Level
Onset of Childbearing	<p>Possibly earlier marriage and childbearing for</p> <ul style="list-style-type: none"> a) children unable to stay in school b) orphans, especially those from poorer families <p>Possibly later marriage and childbearing for children whose labor may be especially valuable to households afflicted by adult morbidity/mortality</p>	<p>Possibly earlier marriage and childbearing because</p> <ul style="list-style-type: none"> a) time horizons for returns to education are shorter on average with high HIV prevalence b) unknown future sero-status may motivate procreation while uninfected <p>Possibly later marriage and childbearing because</p> <ul style="list-style-type: none"> a) delaying onset of sexual activity is desirable where HIV risk is high b) screening of partners may be extended where HIV risk is high c) of difficulties accumulating bridewealth
Spacing of Births	<p>Birth spacing could be longer for</p> <ul style="list-style-type: none"> a) women who divorce because of husband's adultery or HIV status b) women who stay married but curtail sexual relations because of suspicion 	<p>Birth spacing could be shorter where high HIV prevalence encourages monogamy</p> <ul style="list-style-type: none"> a) shorter postpartum abstinence b) shorter breastfeeding where weaning is culturally desirable before resuming sexual relations

		Birth spacing could be longer where remarriage is slower because widow/widowers and divorcees are suspect
Children Ever Born	<p>HIV-positive women have lower birth rates</p> <p>a) because of lesser ability to conceive and possibly to carry a child to term</p> <p>b) possibly because of less sexual activity due to HIV morbidity</p> <p>c) because of more contraceptive use where sero-status is known</p> <p>d) because maternal death obviously truncates childbearing</p> <p>Higher birth rates may results if women give birth in order to prove their healthiness</p>	<p>Communities with higher HIV prevalence rates may have higher birth rates</p> <p>a) because of declines in school quality and quantity</p> <p>b) because increased uncertainty about reproduction discourages contraception</p> <p>Communities with higher HIV prevalence rates may have lower birth rates</p> <p>a) because opportunity costs of women's time are greater where there is labor shortage</p> <p>b) because taking in orphans decreases resources available for further childbearing</p>

C) Lessons learned

Exactly how HIV is affecting fertility in both short run and long run is still not completely understood. It seems that while the onset of childbearing is typically delayed under conditions of crisis, the effects of the HIV/AIDS epidemic both promote and discourage early childbearing. The effects on birth spacing and total fertility are similarly ambiguous. However, the review of historical crises suggests that there are some important implications for families' coping ability and the role of external intervention to provide support.

1) Decrease in fertility would lead not only to a higher proportion of elderly but elderly without sufficient support from the younger generations in successive cohorts. This might necessitate changes to existing pension programs in countries such as South Africa where elderly pensions are an important source of household revenue.

2) Increase in fertility would lead to higher dependency ratios exacerbated by the premature deaths of adults of reproductive ages. This might necessitate an increase in the amount of both foster care grants and elderly pensions or a lowering of the age of eligibility for elderly pensions where such programmes exist. More generally, it requires increased attention to households with high dependency ratios and elderly heads of households.

3) Decrease or increase in birth spacing could lead to changes in the availability of labor and allocation of resources within families. Therefore, new criteria for the disbursement of child care grants may need to be developed to accommodate families in which there is a concentration of very young children. In the absence of such grants, more effort is needed to target households with unfavorable dependency ratios.

Migration

In this section, we discuss A) migration as a means to improve livelihoods in the context of crises and B) unique features of HIV and migration. We close with some thoughts on the implications of these findings for addressing the challenges faced by families affected by HIV.

A) Migration as a means to improve livelihoods

Movement is a common response to crisis as a means to improve the livelihoods of individuals and families. Most often productive household members leave impoverished areas in search of better work opportunities, but sometimes as among the patrilocal Bambara in Mali women may be sent back to their natal villages during the dry season when it is difficult to feed everybody (Adams and Castle 1994). Migration of adult men alone has historically been more common under less severe conditions, and accelerates with crisis (Faulkingham and Thorbahn 1975). Older men and whole families are more likely to migrate under crisis conditions (Shipton 1990), though in many cases women, children, and the old are still left behind (Bush 1988). Households split during crisis because of long-distance moves in search of sustenance (Hill 1989). Destinations are less likely to be known with crisis migration, and Shipton (1990) also notes that absences often become more permanent and remittances less reliable.

Thus migration is a two-edged coping strategy. It contributes to family stability by increasing access to more and more diversified income whereby improving livelihoods. For instance, local wage labor and remittances from long-distance migrants were key to cash and survival for most households in Darfur during the 1984/85 drought (Bush 1988). Households also become more eligible for food aid in the absence of adult men, further promoting migration in areas where food aid is distributed on this basis (El-Farouk 1996). But migration also changes the composition of families when returns become uncertain, and it reduces resources where absent labor is not compensated by remittances. Labor shortage is a particular problem for agricultural areas where productivity has gone down markedly with the departure of able-bodied family members (Hill 1989). Poor productivity in turn contributes to the need for migration and migrant remittances. Men's migration contributes to a breakdown in the sexual division of labor as women left in rural areas often assume men's tasks, but that also means that women have less time for their own economic pursuits (El-Farouk 1996). Therefore, food aid or cash transfers might offer much needed short term support to women and their households.

Forced migration as a result of both environmental changes and food insecurity has been meticulously depicted in the Gwembe Valley of Zambia. In their seminal work on the effects of the Kariba Dam on the lives of the Gwembe Tonga when, Colson and Scudder demonstrate the destructive effects on family organization, nutrition and livelihood strategies (Colson 1979; Scudder and Colson 1982). The Gwembe Valley study is one of the few studies that is both longitudinal (predated the building of the dam) and includes a qualitative component. Colson and Scudder focus on the cultural coping mechanisms that the Gwembe used to manage the severe disruption to their lives that the dam caused.

Migration as both a consequence of and response to hardship was made evident in South Africa under apartheid and to a lesser extent, today. The apartheid state made it such that black men were forced to migrate to cities for employment leaving behind wives and families (Murray 1981; Spiegel 1987). Migration and the remittances that families received through migrant labor became one of the only ways in which families could survive. HIV/AIDS presents a somewhat different set of conditions. Migration out of afflicted areas was one historical means of coping with smallpox (Hartwig 1981), but

more often migration spreads disease e.g., Phillips (2001). Currently migration to urban areas means moving to where HIV prevalence is higher, and return migration increases risk to rural populations. Even when migrants do not return, contracting HIV in urban areas has negative implications for rural residents who face an even less reliable migrant remittance stream.

B) HIV and migration

One feature of migration that is somewhat unique to the HIV/AIDS epidemic is large numbers of people returning home to die (Clark et al. in press). Infectious disease that kills more rapidly did not allow that luxury whereas HIV-positive individuals return to rural areas to subsist more cheaply and be cared for by relatives. Older generations are heavily affected in places like Thailand where coresidence with elder parents is common anyway, but becomes even greater when infected individuals move home. Knodel et al. (2001) showed that 70 percent of HIV infected adults had an older relative caring for them (Belsey 2005).

Migration then remains a means by which households can increase access to income, but with the current crisis it 1) increases HIV risk, and 2) contributes to labor shortage. In the ten countries with the highest HIV prevalence rates, the agricultural labor force is projected to decline by 11-26% by 2020 (United Nations Population Division 2005), despite continued population growth everywhere besides Botswana and Swaziland where the population is declining by one-tenth of one percent per year (Population Reference Bureau 2007). While migration to urban areas has historically caused similar problems in rural areas, these have never been coupled with such extreme adult mortality over long time spans. The care-giving labor required of those in rural areas tending to return migrants further saps available labor. However, more research needs to be done to determine to what extent migration is a response to the death of an income earner from HIV/AIDS.

C) Lessons learned

The most important feature that sets HIV apart from other crises is that migration has served as a coping strategy in the face of other crises, but is particularly risky where an

infectious disease like HIV is widespread. The following are some possible implications for programmatic efforts to strengthen support to children and families:

- 1) Focused intervention on HIV prevention and coping with HIV needs to happen for families that have numerous migrants working elsewhere. This could include skills training to prepare others to seek employment, care giving for HIV infected individuals, cash transfers, etc. Effective training in care giving is particularly important for households that may have a member return home to die.
- 2) Short term infusion of cash transfers or other forms of social protection might serve as an incentive for people to stay rather than move away in search of work. This is particularly important where hardship is transient.
- 3) Alternatively, promotion of “family friendly” migration would enable families to remain together without jeopardizing economic well-being. However, this would require employers to bear some of the costs through increased salaries, provision of housing and other subsidies. Clearly this strategy is only a feasible option in relatively wealthy countries such as those in southern Africa.

Fosterage

Fostering of children has been a common response to crises particularly in sub-Saharan Africa. In this section, we 1) review the literature on crisis fostering, 2) examine factors that make HIV/AIDS different in terms of fostering, and 3) suggest ways in which programs to assist children and families could be strengthened.

A) Crisis fostering

To begin with, it should be noted that children being fostered from one family into another does not necessarily represent crisis in either the sending or the receiving family. Fosterage is used to balance labor needs over the life-cycle (e.g., fostering in girls to help with care of infants and toddlers), to cement bonds within and between families, and to provide children with opportunities for education and apprenticeship that are not available in their home communities (Isiugo-Abanihe 1985). Household boundaries are more fluid than is commonly recognized, and this is more so in sub-Saharan Africa and particularly for children.

Children have also been fostered in crisis situations, particularly ones in which their parents are not present or do not survive. A classic example comes from apartheid South Africa when black children grew up with grandparents and other relatives in the absence of parents who were working away in cities (Burman and Reynolds 1990; van der Waal 1996). Much of the literature from this period focuses on the negative effects of fosterage on children's nutrition and educational attainment (e.g., Cock and Emdon 1987). The general message is that black households were under so much economic stress that foster children's welfare, in many cases, was compromised.

Writing about the West African context, Goody says that kin who would foster a child under non-crisis conditions are expected to do so under crisis conditions. However, reciprocity obligations between families become less important during crisis situations (Goody 1982). Fostering also provides a way to prepare for crisis situations in that it enables families to share the costs of child rearing and offer more options to protect children's well-being during crises (Bledsoe 1990a; Castle 1995). Empirical work examining the effects of fostering on children's well-being in West Africa suggests that while children do suffer nutritionally and in terms of health, this may not necessarily be a result of fostering itself. In other words, pre-existing conditions of poverty may well explain the differences better than fostering itself (Bledsoe and Brandon 1992; Bledsoe, Ewbank and Isiugo-Abanihe 1988).

B) HIV and fosterage

Given that child fosterage is not a new phenomenon in Africa, we must ask what, if anything, is different about the current situation faced by children affected by HIV/AIDS. Indeed, this is the question that Madhavan (2004) has posed in her review of fosterage patterns in the era of AIDS. She concludes that we can draw on the existing fosterage literature particularly from West Africa to determine whether HIV/AIDS is causing a change in the "cultural logic of fostering." In other words, is there a notable shift in kinship obligations to foster children in times of crises? We still do not know the answer though promising research is underway (Hosegood et al. 2007).

One of the key concerns voiced in the literature on HIV/AIDS is the need for foster homes to house children who do not have kin willing and able to accommodate them. Particular concern has been raised about stigma deterring kin from accepting children orphaned by AIDS. Despite these fears, almost all orphans affected by AIDS live in families rather than on the street or with other children, but there remains concern about the well-being of households absorbing these children. Older generations are frequently called on to help with ill children and orphaned grandchildren; this burden can compromise their own health (Belsey 2005). While it is clear that the extended family structure is being stretched, the institution remains the most important form of caregiving for children and therefore needs to be strengthened in culturally appropriate ways (Ankrah 1993).

Caring for orphaned children can also increase household expenses. However, Ainsworth and Filmer (2006) document considerable cross-country variation in the extent to which orphans live in the poorest households. While in about two-thirds of the 51 countries they studied, paternal orphans are more likely to be in relatively poorer households, in some countries they appeared to reside in relatively richer households. Both selective placement—households that can afford the burden being more likely destinations for fostered children—and initial concentration of HIV mortality in upper economic strata are offered as explanations. Thus orphaned children may or may not be at socioeconomic disadvantage. Boys are also more likely to become members of households that have experienced adult deaths, suggesting that fosterage is a means of coping with labor scarcity within afflicted households (Yamano and Jayne 2004).

C) Lessons learned

Our review of the crisis fostering literature offers a few insights into addressing the plight of families and children affected by HIV/AIDS.

- 1) Culturally appropriate interventions that support existing community structures to take care of fostered and orphaned children need to be promoted; orphanages should only be considered as a last resort option as they do not provide the optimum environment for children;
- 2) Death clustering resulting from HIV also means that orphan care needs to be catered towards sibling sets or groups of children linked through kinship. For example families

are more likely to foster in two or more children at the same time thereby increasing the burden of care. Foster care grants as, are available in South Africa, need to be adjusted in terms of amount and patterns of disbursement to meet this challenge. Alternatively, if orphanages are deemed appropriate (as a last resort strategy), more effort needs to be made to keep siblings and other child groups together in order to minimize emotional trauma.

3) More effort is needed in identifying key potential caregivers for fostered and orphaned children in the extended family well before the onset of crisis. Culturally based succession planning would make it possible to better prepare children and families financially, emotionally and logistically.

4) Foster grants, where they exist, needs to be made widely available to foster families to offset the additional financial costs of fostering.

5) More outreach by social workers or those identified in the community as facilitators/advocates to identify and follow up with children and families could help ease the burden on families. Any intervention needs to collaborate with existing institutions to enhance the livelihood of orphans, foster children and the families taking care of them.

Labor, education and livelihoods

In this section, we examine the literature on how crises affect 1) labor needs and 2) educational attainment both of which impact livelihoods and 3) what makes HIV/AIDS different. We close the section with some lessons learned from this review to apply to addressing the challenges brought on by HIV/AIDS

A) Labor responses to crises

Crisis intensifies households' need for labor. Households can try to meet this need by recruiting new members or by having existing members intensify production. One of the possible consequences of intensifying work among household members is that children may be withdrawn from school and used as labor to offset the effects of crises on livelihoods. Because declines in primary school enrollments have been shown to increase fertility (DeRose and Kravdal 2007), and because they can plausibly be expected to have adverse effects on health and marital timing, this section briefly reviews other means of

increasing household labor during crisis, but then focuses in greater depth on the question of what other crises have to teach us about the impact of HIV/AIDS on schooling.

Other responses to adverse economic conditions across Latin America included intensified work on the part of household members and home production of previously purchased goods (González de al Rocha 1995). Most of the increased employment outside the home in Mexico during the early 1980s was among women over age 15 and boys under 14 (González de al Rocha 1988). Ecuadorian women participated in the informal economy to supplement insufficient incomes caused by inflation and a decline in real wages 1989-1991, despite cultural constraints to their paid employment (Pitkin and Bedoya 1997). Similarly, “side” economic activity in addition to regular jobs increased in Russia in the 1990s when salaries were not meeting household needs (Prokofieva and Terskikh 1998). The same authors also noted an increase in mutual aid among kin especially in the poorest families particularly for child minding services given that these services are no longer free or affordable. The side activities used by Cameroonian women to cope with economic crisis starting in 1987 included petty trading, baking, home gardening, hairdressing, embroidery, dying of cloth (Tanga, Mbuagbo et al. 2002).

The literature on the effect of crisis on child labor is surprisingly thin. As backdrop to their study of the effects of accidental crop loss on child labor in Tanzania 1991-1994, Beegle and her colleagues (2006) identified only one other study that investigated the effect of income shocks on child labor: it found that child labor increased when income went down unexpectedly in Guatemala in the year 2000. They also reviewed literature substantiating that child labor was greater among households lacking access to credit. In both cases, the relationships could be driven by poverty: poorer household could be more likely to experience income shocks, and poorer households generally have weaker access to credit. Therefore, the 2006 study by Beegle and her colleagues is particularly important because they were able to control for household fixed effects using four rounds of household panel data from the Kagera region of Tanzania. They demonstrated that transitory income shocks significantly increased child labor. Households with assets were able to offset about 80% of this shock and therefore did not increase child labor in response to crisis nearly as much as poorer households did (Beegle, Dehejia et al. 2006).

Child labor is a concern with regard to human capital development primarily to the extent that it interferes with education. Economic crisis in Latin America during the 1980s caused some to desert school in favor of immediate employment (González de al Rocha 1995), and declines in enrollments based on seasonal agricultural labor need have been documented four different agroclimatic zones in India 1975-1978 (Jacoby and Skoufias 1997). Declines in enrollment did not occur with economic crisis in the 1980s in Mexico (Fallon and Lucas 2002) or Peru (Schady 2004), but they did in several economic crises including Indonesia's in 1998 (Thomas, Beegle et al. 2004) and also in Costa Rica during economic recession in the 1980s (Funkhouser 1999). In Côte d'Ivoire enrollments were lower in response to poor rainfall conditions 1985-1988 (Jensen 2000). School enrollment likewise decreased in response to crop loss in Tanzania 1991-1994 (Beegle, Dehejia et al. 2006).

Household incomes do not have to suffer as much in economic crisis as individual incomes do. Having household members working in different sectors of the economy diversifies risk, but also increasing household size is a means of coping with crisis. For instance, during economic crisis in the 1980s, more adult members were added to Mexican households, and extended families became more common (González de al Rocha 1988). Newly married couples became more likely to live with parents than in the previous period (González de al Rocha 1988). Correspondingly, in a low-income housing project in Ecuador, there was a marked increase in the percentage of extended family households during a period of structural adjustment, from 17% in 1989 to 33% in 1991 (Pitkin and Bedoya 1997). Based on their fieldwork, Pitkin and Bedoya also noted that even households that maintained a nuclear structure still functioned as extended households with more labor sharing between households as a result of the crisis.

B) Crises and education

Clearly withdrawal from school is not an uncommon response to hardship and crisis, but understanding the implications of this for the HIV/AIDS crisis requires attention to the duration of the crisis and whether the impact depends on national and/or household resources. First, acute crises are less likely to have strong impacts on overall attainment. With the Indonesian economic crisis, panel data showed that schooling of older children was better-protected than schooling of younger children (Thomas, Beegle et al. 2004).

Parents may have felt that they could keep children close to finishing in school for a short time, whereas with ongoing difficulties, sustaining the sacrifices necessary to keep children in school may be implausible (Thomas, Beegle et al. 2004). Also supporting the notion that acute crisis may have smaller effects on education than processual crisis, children were back in school very quickly following the Indonesian tsunami of 2004 (Telford and Cosgrave 2006).

The ability of Mexico and Peru to weather economic crisis without showing dips in enrollments whereas lower income countries show negative effects of crisis indicates that national resources or level of development may be pertinent. Schady (2004) argued that despite reductions in public expenditures for education in Peru and reductions in household income, that the opportunity costs of going to school were also reduced by the sharp economic reversal between 1987 and 1990. It also seems plausible that in a middle income country, schooling was still of reasonably high quality even with sharply curtailed expenditures.

In the countries where crisis does decrease school enrollments, there is large variation in the magnitude of the declines. In Costa Rica, there was about a 7 percentage point decline in enrollments attributable to economic crisis. In the most severely impacted group in Indonesia, there was a 12% decline in enrollments (Thomas, Beegle et al. 2004). In Côte d'Ivoire enrollments were 20 percentage points (33%) lower in response to poor rainfall conditions (Jensen 2000). School enrollment also decreased 20 percentage points (28%) in response to crop loss in Tanzania (Beegle, Dehejia et al. 2006).

While it is commonly known that children from poorer households have higher drop-out rates (e.g., Jacoby 1994), the question of whether crisis impacts poorer households more deeply is more complex. However, because poorer households have fewer assets and less borrowing capacity, it is not surprising that the evidence suggests that crisis disproportionate affects the school enrollments of poorer children. Typical households in the Kagera region of Tanzania were able to keep their children in schooling despite crop loss between 1991 and 1994, whereas those at lower asset levels had increased likelihood of withdrawing children (Beegle, Dehejia et al. 2006).

Characteristics of the crisis, the nation, and of affected households all seem to determine whether crisis-related drop-outs represent less human capital accumulation or whether lost time from school is made up for later. For Latin America, González de al Rocha (1995) clearly labeled dropping out as a short-run strategy with little effect of eventual educational attainments. Similarly, empirical work on India showed that seasonal fluctuation in schooling that result from child labor needs did not, on average, result in considerable loss in human capital (Jacoby and Skoufias 1997). This case represents chronic hardship conditions in a poor country, not acute crisis. Despite Costa Rica being a relatively wealthy developing country, cohorts that would have been completing school 1981-83 showed lower completion rates than the cohort finishing immediately prior to the economic recession (Funkhouser 1999).

C) What makes HIV different?

In sum, it seems that the HIV/AIDS crisis may have more detrimental effects on human capital accumulation and livelihoods than other crises that have also seen increases in school drop-outs. There are several reasons for this.

1) There are fewer alternatives to child labor where adult mortality is high. Unfortunately, the ability of families in sub-Saharan Africa to meet labor needs by recruiting adult members is limited by the age structure of HIV mortality, with a disproportionate share of deaths occurring in the prime adult years. In KwaZulu Natal province in South Africa, older people living in households without younger adults were the poorest (Hosegood and Timæus 2005).

2) HIV/AIDS is a long-run crisis and parents cannot expect conditions to get better before their children finish school.

3) Many countries in sub-Saharan Africa do not have the resources (including supply of trained teachers) to offer schooling of high enough quality to be worth removing children from productive tasks. In the wealthiest country in the region, old-age pensions have been shown to protect the schooling trajectories of children living with pensioners (Edmonds 2006). Thus pensions represent an important support for schooling when many orphans live with grandparents, but they are hardly an affordable intervention in most countries. To give an idea of the magnitude of the support that has protected schooling of grandchildren in South Africa, the pensions are 125% of black median per capita income.

4) It seems less likely that drop-outs will be motivated to re-enroll where the time horizons for returns to investment in school has become more variable and on average shorter because of HIV.

5) As discussed in the marriage section above, the epidemic seems to motivate early marriage in the poorer households. While Ainsworth and Filmer (2006) found the male/female education gap among orphans to be the same as in the general population, they were comparing enrollments of 7-14 year-olds and therefore were quite unlikely to pick up the effects of early marriage. Overall, more girls are withdrawn from school than boys because of the HIV/AIDS crisis (UNAIDS 1999).

D) Lessons learned

It is clear from this review that HIV/AIDS poses enormous challenges to families' abilities to maintain their livelihoods both in terms of meeting labor needs as well as investing in children's education. Therefore, we offer the following programmatic suggestions:

1) Economic support to families, particularly poor ones, in the form of cash grants, payment of school fees, food parcels, medical aid, and school feeding may offset the effects on children's schooling and enable children, particularly girls, to remain in school longer. Such support could be made conditional on keeping children in school.

2) Skills training is needed to diversify the employment potential within families whereby protecting the long term livelihood of families. Alternative skills development programmes need to be developed for older orphans for whom schooling is no longer an option.

3) Meeting household labor needs during illness or following a death needs to be a priority. Ideally, an intervention should leverage existing community resources such as church based work groups and kin based (or other factor) reciprocity networks.

4) Research should address what barriers to resuming schooling exist for dropouts in various localities. These should then be addressed so that interrupted school careers are less likely to become aborted ones.

Conclusions

Overall, we have not painted a picture of the HIV/AIDS crisis that causes it to stand in stark relief against the backdrop of other crises. Like drought and other crises, the epidemic challenges the ability of families to cope with the crisis. Large-scale mortality that disproportionately affects prime age adults has occurred before. Other crises have destabilized marriage and led to earlier marriage among girls from the poorest households. Although we have cast doubt on the facile assumption that the HIV/AIDS epidemic will contribute to fertility decline, we also recognized a number of mechanisms through which it might possibly do so. We identified migration as a coping strategy and part of the problem with respect to HIV, like it was with smallpox (protecting those who fled from the disease and also spreading it to new areas) and like it sometimes is with economic crisis (diversifying livelihoods but creating labor shortage in agriculture). We also identified ways that child fosterage benefits both sending and receiving households, even with the stress placed on fosterage networks with HIV/AIDS. Finally, we showed how increases in child labor and declines in school enrollments are common responses to crises.

Yet at the same time, we have not claimed that the HIV/AIDS epidemic is like any other epidemic or that coping with it is like coping with economic reversals. For the simple reason that HIV/AIDS is a sexually transmitted disease, it has greater potential to affect marriage and childbearing patterns than other infections. And widespread lethality means that severely afflicted countries are losing productive labor at the same time that they are facing a major health crisis. Multidimensional crises are more likely to have long-run effects (Lindstrom and Berhanu 1999). Further, the staging of impacts with multiple insults to households and communities sets the epidemic apart from other crises (Baylies 2002). More nuanced understandings of how people perceive their vulnerability and risk are sorely needed.

Another thing that is different is the long-term nature of the HIV/AIDS crisis. Many areas across sub-Saharan Africa cope habitually with irregular rainfall and intermittent crop failures. That is, even where food shortage is not chronic, acute food shortage occurs repeatedly enough to be anticipated (de Waal 1989, Shipton 1990, Adams et al. 1998). In such circumstances, people have well developed coping mechanisms. Only

when drought is unusually bad are ordinary coping mechanisms stretched beyond capacity. However, even then interventions can keep drought from turning into famine. An unusually long drought in Botswana from 1982/83 to 1987/88 neither turned into a famine nor contributed to rural income inequality. In explaining how rural Botswana could be so little changed by such a severe ecological insult, Valentine (1993) pointed to government interventions that helped preserve rural livelihoods. The availability of government-related employment programs to supplement rural incomes both helped families survive and helped families stay in high-risk agriculture so that they would still be farmers after the crisis had passed (Valentine 1993). Botswana was in a relatively advantaged economic position relative to other African states in the 1980s and was able to finance such successful efforts. Since then, the HIV/AIDS epidemic has claimed large volumes of government expenditure. The government was able to sustain agriculturalists through heavy expenditures until productivity in agriculture returned. However, for AIDS-afflicted African states, the primary agricultural problem is shortage of labor due to HIV-related mortality (FAO 2007; Gillespie and Kadiyala 2005). This does not represent a short-run problem that government solvency can see denizens through, even in the wealthier African states.

Perhaps the single most important reason that the HIV/AIDS epidemic will have lasting effects on families in sub-Saharan Africa is because it degrades human capital so extensively. It also compromises the educational and health systems necessary to restore human capital in the future. Obviously death is loss of human capital. Dips in enrollment are worrisome too, but diminished incentives for investing in education more so. Standard demographic transition theory has emphasized that people do not limit fertility until children can be expected to survive (Haynes et al. 1979). Historically, low childhood mortality has coincided with low reproductive-aged mortality. With HIV/AIDS, this correlation is weakened. Perhaps fertility is only curtailed when children can be expected to live long enough to make investing in education worthwhile (Soares 2005).

Another conclusion that needs to be stressed is that AIDS has strong potential to deepen social inequality. Again, this is not unique to this crisis, but with a long-run crisis, multiple impacts are more possible, and with HIV/AIDS being transmitted sexually and from mother to child, these effects are likely to be clustered within households. Even uninfected individuals can bear intergenerational burdens from AIDS as where paternal

death speed marriage of girl children. The literature indicates that adult death is much more likely to affect the schooling and marital timing of children in poorer households than in richer ones. Thus, those relatively disadvantaged before the crisis have better are more vulnerable to short run effects of the crisis and, in turn, have less regenerative ability to recover from the crisis in the longer run.

Further, the unevenness with which HIV strikes households also contributes to it being viewed more as a household problem than a community problem (Baylies 2002). The stigma associated with HIV/AIDS can cause intra-family blaming and other adjustment problems for families to deal with (Belsey 2005).

There are also a number of methodological issues that we must keep in mind as we push our knowledge of how crises affect families forward:

- 1) Focusing on the household as the unit of analysis misses events that may be very important to the coping and longevity of families and households given the importance of inter-household linkages. Whereas the household is a convenient unit for data collection and analysis, social connections extend well beyond the temporal and physical boundaries of a household. This is particularly true in context marked by intense mobility. The most obvious example of this is deaths outside the immediate household. Hosegood and her colleagues (2007) call these “off-stage” events, but marriages, migrations, and labor decisions of neighbors all represent effects of the epidemic that are not easily measured. Shipton (1990) argues that it is not good to fixate on one particular unit of analysis but rather understand the shifting linkages between them in studying the effects of famines and food insecurity.
- 2) Some of our most reliable insights come from fixed effect models, but large-scale longitudinal data collection is expensive. Repeated cross-sectional surveys with the same sampling clusters could represent a more economical means of including fixed effects in estimations covering broader geographic areas and having larger samples.
- 3) Qualitative research on the effects of crises is extremely labor and time intensive (which would explain the relatively few studies) but potentially very valuable in exposing the cultural processes inherent in managing crises. This type of research also provides insights into how people construct notions of vulnerability and risk. Longitudinal studies that incorporate a qualitative component (see Colson 1979 and Scudder and Colson 1982) could yield even richer data on pre-crisis to crisis to post-crisis change.

4) Research that has tested whether the effects of crisis differ by socioeconomic level generally finds that it does. We also need empirical tests of whether those at different socioeconomic levels recover from crisis differently, and what facilitates differential outcomes (e.g., which poor orphan girls marry later or continue school longer and why: positive deviance). Adams et al.(1998) provide a conceptual framework that details the ways in which crisis impacts differ according to income and other endogenous factors. Following this line of thinking, it is clear that there is not just one set of effects of HIV/AIDS and therefore, attention must be paid to designing studies and conducting analysis that account for such variation. In short, a context specific analysis is invaluable in identifying factors and outcomes relevant to each culture and help determine appropriate intervention strategies.

5) At what point to examine effects is clearly another very important methodological point that has come up repeatedly in the crisis literature. Short term impacts such as a surge in mortality or postponement of marriage or hoarding of food can be quite different from medium run or long term (in the case of chronic situations) effects. The ideal design would be a longitudinal study that predates the onset of crisis and continues throughout and after the crisis such as those done in Zambia (Colson and Scudder) or Indonesia (Thomas and Frankenburg). A second best option would be repeated cross-sectional studies. To discern the effects of HIV/AIDS, it is vital that we distinguish short term from long term impacts. This will become even more crucial as anti-retroviral rollout intensifies.

In closing, we would like to offer a few thoughts about the relevance of our conclusions for policy/intervention programmes focused on families and children affected by HIV/AIDS. The fact that HIV/AIDS is not entirely unique in its effects on age structure, fertility, marriage, migration, and labor and education should offer us both models to adapt and lessons on mistakes to be avoided.

1) It is clear from our review that interventions must be tailored according to socioeconomic status, household size, and other pre-existing factors (i.e. household dependency burdens, number of children under 5, income sources, presence of temporary migrants). Our sense is that, currently, a simplistic notion of vulnerability is applied uniformly to all households that have experienced HIV related illness or death. This is demonstrated in the system of social grants that are currently available in South Africa. All families that have fostered in a child receive the same amount of money

regardless of income level. While we recognize that targeting is not well suited to scaling up to a national level, we do advocate for an approach that includes some level of differentiation. Our review suggests that grants programs pegged to income levels might be better suited for the HIV/AIDS situation.

2) Targeting that is both culturally appropriate and feasible for scale up applies to countries without social grants programs as well. The use of a holistic criteria that incorporates measurables such as household composition indices and income as well as culturally sanctioned practices and available community resources needs to be promoted.

2) Duration needs to be considered when designing intervention programmes. Short-term interventions in the form of food assistance might be appropriate for the period of intense caregiving for the sick or immediately following a death but as time passes, other programs focused on job training, educational assistance and an accessible referral system are needed. Put another way, there needs to be comprehensive programming with a long term vision and with different components addressing different needs that arise at different points of the caregiving process. Given the challenges associated with any form of transfer (cash, food, etc.), it is vital to include training and education as part of a long term strategy to safeguard the livelihood of children and families.

3) Policies and interventions need to be based on well designed research. This means that scientists need to inform policy makers about the limitations of various studies. Additionally, more needs to be done to convey qualitative research findings to policy makers so that these data actual inform policies.

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ⁱ The results presented here do depend on the longitudinal design of the studies. Beegle and Krutikova (2007) demonstrated that omitting baseline characteristics from their models reduced the effects of mortality shocks on marriage timing in both magnitude and statistical significance.

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- ii Agadjanian and Prata (2002) note that even temporary fertility declines in response to conflict are a constant feature in developed economies and have only sometimes been documented for developing countries: they point to risk insurance to explain this.
- iii Hill (1989) suggests that Sahelian demographic regimes may very well be long-term adaptation to food insecurity, but the distinctive features he refers to are temporary separation of married couples and substantial proportions of women either single or not living in a sexual union: these mechanisms did not suppress Sahelian fertility below levels typically associated with natural fertility.
- iv Historical data for fertility trend from United National Population Division and current population size data from Population Reference Bureau (2005). Onset of fertility transition was defined as when the total fertility rate falls to 90% of its maximum, the criterion established by the Princeton European Fertility Project.