Poverty and the impact of AIDS on Older Persons:
Evidence from Cambodia and Thailand

(Revised version of paper presented at the 2006 Annual Meeting of the PAA
Los Angeles, March 29 – April 1, 2006)

John Knodel
Population Studies Center
University of Michigan

Acknowledgements: This research was supported by grants from the National Institute on Aging (grants AG15983; AG18648; sub p/g F009700, sub p/g F010799, R01 AG20063-01). I am indebted to Wassana Im-em, Jiraporn Kespichayawattana, Souvan Kiry Kim, Sina Puch, Chanpen Saengtienchai, Mark VanLandingham, and Zachary Zimmer, my co-investigators on the research on which this article draws, for the many contributions and insights they provided over the course of the projects. An earlier version was presented at the P Seminar "Interactions between Poverty and HIV/AIDS" 12-14 December 2005, Cape Town, South Africa .

Abstract

The present study provides a comparative analysis of the impact of the AIDS epidemic in Cambodia and Thailand on the parents of adults who die of AIDS and how this impact interacts with poverty. We examine the relationship between economic status and routes through which losing an adult child can impact the parents, including through caregiving during illness, paying for medical and living expenses, reduced or forgone economic activity, funeral expenses, loss of current and future support from the AIDS infected adult child, and fostering orphaned grandchildren. We also consider if economic status of parents is associated with community reaction (both positive and negative) to their situation. Finally we assess whether or not the loss of an adult child changes the overall economic situation of the parents. Overall, negative consequences appear more widespread in Cambodia. At the same time, economic status tends to show a stronger association in Thailand than in Cambodia with many of the outcomes investigated. As a result the gap between poor Thais and Cambodians generally is often modest despite the substantial difference in overall levels. The high levels of hardship reported in Cambodia and the often minimal difference by economic status may simply reflect the much more severe levels of poverty in that country compared to Thailand.

Introduction

Background. The potential link between poverty and AIDS has been a recurrent theme in the discourse concerning the epidemic (United Nations Population Fund (UNFPA) 2002:;Cohen 2000:;Eberstadt 2002: 22-45;Whiteside 2002: 313-332). Links at the macro and micro levels have been proposed in both directions. Poverty is sometimes seen as a contributing or even root cause of the epidemic while at the same time HIV/AIDS is seen as undermining the economy and impoverishing communities, families and individuals. Several extensive reviews of the issue tend to be cautious in drawing conclusions, especially at the macro-level, stressing that linkages are likely to be complex and vary with time and setting (Bloom, River Path Associates, and Sevilla 2002:) (Bloom, Mahal, Rosenberg, Sevilla, Steven, and Weston 2004:;Desbaratis 2003: 157-202;United Nations Population Division 2003:;United Nations Population Division 2005:). Much of the discussion has rested on intuitive reasoning or even assertions that verge on rhetoric rather than on solid empirical evidence. However, logical arguments, backed to some extent by small scale studies, have generated general agreement that the poor in a society are particularly vulnerable to potential adverse effects.

While concerns with poverty have been common in discussions of the epidemic, the same can not be said for concerns about older persons. Only recently has any significant recognition emerged of the importance of older people when identifying the impacts and possible responses to the epidemic (United Nations 2002:). For the most part, AIDS is thought of as primarily afflicting prime-age adults who become ill and eventually die leaving behind orphaned children who may themselves be infected. When intergenerational impacts on poverty are discussed, the focus is typically on the perpetuation of adverse effects into the future on the current younger generation, especially orphans and vulnerable children (Cohen 2000:). Yet large numbers of older persons, in particular, parents of adult AIDS victims, are directly impacted by the epidemic worldwide. To realize just how sizeable the numbers are, one only has to recognize that the vast majority of adults who die of AIDS have one or two surviving parents that they leave behind (Wachter, Knodel, and VanLandingham 2002: 25-41). Such parents, who are typically in their 50s, 60s and 70s, are exposed to a myriad of potential adverse consequences from losing a son or daughter (Knodel, Watkins, and VanLandingham 2003: 33:S153-S165). At the same time, older persons play a critical role in helping families and societies cope with the disease, particularly as carers for their adult children dying from AIDS and as guardians for their orphaned grandchildren (Knodel and VanLandingham 2002: S77-S83). The impacts potentially, indeed likely, interact with poverty. Yet research into the situation of these older age AIDS parents and the interaction with poverty has been minimal.

The present study provides a comparative analysis of the impact of the AIDS epidemic in Cambodia and Thailand on the parents of adults who die of AIDS and how this impact interacts with poverty. We examine the relationship between economic status and routes through which losing an adult child can impact the parents, including through caregiving during illness, paying for medical and living expenses, reduced or forgone economic activity, funeral expenses, loss of current and future support from the AIDS infected adult child, and fostering orphaned grandchildren. We also consider if economic status of

parents is associated with community reaction (both positive and negative) to their situation. Finally we assess whether or not the loss of an adult child changes the overall economic situation of the parents.

Setting. Most attention to the AIDS epidemic focuses on Sub-Saharan Africa where almost two-thirds of persons living with HIV worldwide are found as of 2005 (UNAIDS and WHO 2005:). Still almost a fifth of HIV positive persons are estimated to live in South and Southeast Asia making it the second in numerical importance. Within this region, Cambodia and Thailand have the highest adult prevalence levels at 2.6% and 1.5% respectively in 2004 (UNAIDS 2004:). These levels are well below most countries in Africa and only a fraction of the levels in the worst off ones. Also prevalence has been declining in both Cambodia and Thailand for some time (United States Agency for International Development (USAID) 2003:;Cohen 2003: 1658-1662). Still the absolute numbers of persons dying of AIDS in these countries remains substantial and thus large numbers of older persons lose an adult son or daughter to the epidemic. Recent estimates for Thailand indicate that over half a million persons age 50 and older will lose an adult child to AIDS during the 2001-2010 decade (HelpAge International (HAI) 2005:).[1]

Cambodia and Thailand share much in their cultural heritage as neighbouring countries in which the large majority of the population in both profess Theravada Buddhism as their religion and whose histories have been intertwined over the centuries. However their political and economic histories differ sharply, especially in recent decades. While Cambodia was colonized by the French for almost a century (1863-1953), Thailand was never controlled by a European power. Thailand was largely spared the brunt of civil strife associated with recent wars in Indochina. Thailand experienced rapid economic growth during much of the last several decades, interrupted only temporarily, although sharply, during the economic crisis that started in 1997 and engulfed many countries in the region. In contrast, after years of civil strife, the Khmer Rouge completed their takeover in Cambodia in 1975 and for almost 4 years carried out one of the most radical and brutal revolutions known to mankind. During this brief period an estimated 1.5 to 2 million persons, constituting as much as a fourth of the total population, died from violence, starvation and disease (Heuveline 1998: 49-65); (Kiernan 2003: 585-597). Many who died were the sons, daughters and spouses of today's older-aged population (Zimmer, Knodel, Kim, and Puch 2006:). In early 1979 Vietnam invaded Cambodia pushing the Khmer Rouge into remote enclaves and occupied the country for a decade. Only in recent years, following United Nations supervised elections in 1993, has there been relative peace. Even so, socio-economic development has been slow.

[1] These figures were calculated by the author of this paper for HAI using data from two sources: the number of persons estimated to die of AIDS in each age group of the population from 15 on based on the Projections for HIV/AIDS in Thailand 2000-2020 published by the Thai Working Group on HIV/AIDS Projection (TWG) in 2001, of the Ministry of Public Health, and the average number of living parents for the population at each age group starting from 15 on from the Survey of Elderly in Thailand conducted by the National Statistics Office in 1994. We limit consideration to persons who died from AIDS at age 15 on to reflect the loss of grown-up children on older aged parents. The projected number of deaths at each age group from 15 on in the years 2001-2004 were multiplied by the average number of living parents age 50 and above for each of these age groups to estimate the number of older people who will have lost an adult child due to HIV/AIDS.

According to the World Bank classification, Thailand qualifies as a middle income country while Cambodia falls in the low income group. Indeed Cambodia is considered by the UN to be one of "the least developed countries", a grouping in which Africa countries constitute the large majority. That poverty is far more widespread in Cambodia than in Thailand is highlighted in Table 1 by the fact that over three fourths of Cambodia's population are living on less than two dollars a day compared to only a third in Thailand. Cambodia scores considerably worse than Thailand on all other indicators of social and economic well-being and more closely resembles the regional averages for sub-Saharan Africa than for Southeast Asia.

[Table 1 about here]

Table 2 directly relates to populations age 60 in Cambodia and Thailand and compares their material well-being as reflected in the percent who live in households with selected amenities and possessions. Stark differences are evident. The data come from representative samples of the older population in both countries.[2] The Cambodian survey, described in greater detail below, was taken in 2004 while the Thai survey was taken nine years earlier in 1995. Despite the fact that the Cambodian survey took place almost a decade later, Cambodian elders score lower on every item shown except telephones, the latter reflecting the recent spread of cell phones in the region.[3] For example by 1995 living in a household with a toilet and access to electricity was virtually universal among Thai elders while still in 2004 less than half of Cambodian elders had toilets available and less than a third lived in homes with electricity. At the same time, both surveys reflect substantial internal differences in material wealth between elders the capital cities and those living in the provinces, most of whom are in rural areas.

[Table 2 about here]

Beyond the contrast in the sheer extent of poverty in Cambodia and Thailand, differences in fertility and mortality trends and in the extent of public health services and other aspects of social protection are relevant for interpreting any interaction found between poverty and the impact AIDS on older persons. Fertility in Thailand fell sharply from approximately 6 to 2 births per woman between the late 1960s and the early 1990s and has been below the replacement level for over a decade. In contrast, except for the Khmer Rouge period, total fertility in Cambodia remained above 5 until shortly before 2000. Life expectancy at birth improved steadily in Thailand increasing by almost 20 years since the 1950s to reach its present level of 70. In contrast, life expectancy has been considerable lower in Cambodia throughout this period and since the end of the Khmer Rouge period rose only from 52 to its present level of 56.

---

[2] The Cambodia survey is representative of the capital city of Phnom Penh and the five most populous provinces while the Thai survey is nationally representative.

[3] Phones are far more common today in Thailand than they were at the time of the survey and almost certainly are more widespread in households with older persons than in Cambodia (Knodel and Saengtienchai forthcoming:).

These demographic differences bear both on the number of adult children that an older age parent has and the number of orphans left behind when an adult son or daughter dies.

Consistent with high levels of poverty, health care resources and social protection measures are underdeveloped and under-funded in Cambodia (2005:). In contrast, Thailand has an extensive public health system for a developing country. Local health stations and district hospitals are widely accessible. Medical care is free for the indigent and affordable health insurance has been available through several government programs. Prior to late 2001, however, government health insurance schemes did not cover antiretroviral therapy for HIV, although this has changed (World Health Organization (WHO) 2005:). The government also instituted welfare programs specifically directed at persons with AIDS and their families although none target their older-aged parents. NGOs do have programs in both countries (Knodel and Saengtienchai 2002:). Also although few older Thais or Cambodians are entitled to pensions or retirement benefits, in Thailand indigent elderly can receive a small monthly government allowance through the welfare system (Knodel, Chayovan, Graiurapong, and Suraratdecha 2000: 243-266).

Given the substantial differences in the socio-economic levels prevailing in Cambodia and Thailand, the combination of similarities and differences in their cultural, political, and demographic backgrounds, these two countries provide an exceptionally interesting basis for a comparative study of if and how poverty intersects with the impact of AIDS on older persons.

Conceptual framework

An adult child's illness and death from AIDS can adversely affect the material well-being of parents through multiple pathways. Figure 1 identifies potential routes of impact, highlighting the conditioning role played by the parent's and PWA's (person with AIDS) economic situation, and provides a conceptual framework guiding our analysis.

[Figure 1 about here]

Particular pathways of impact are associated with different time frames. During their adult child's illness, parents divert time from economic activities to caregiving, and thus incur temporary loss of income. Fear of contagion may lead customers to stop patronizing businesses run by the parents, especially if the parents live with or care for the ill child. Parents may also shoulder treatment, health care and daily living expenses of the child and in so doing deplete their savings, sell possessions or property, or go into debt. Immediately following death, funeral costs can be considerable. If parents foster orphaned grandchildren, expenses for school, health care, and daily living and opportunity costs associated with childcare can continue for years, further depleting financial resources. If the deceased child had been supporting the parents or helping in their economic activities, a sustained reduction in household income could result. Finally, any old-age support that the adult child would have provided in the more distant future is lost.

Figure 1 also identifies circumstances specific to the parents and the ill child that are likely to condition the impact of these possible pathways. Perhaps most important, and the focus of the present analysis, is the prior economic status of the parents and the adult child with AIDS. Parents who are economically better off are more likely than those who are poor to be able to withstand expenses or lost income

associated with the illness and death of their child. Likewise, adult children who are better off can help defray more costs themselves.

Other factors also bear on the possible impact. Parents who coreside with the child at the time of illness or live nearby are more likely than those who live elsewhere to give care and pay treatment expenses and to inherit responsibility for orphaned grandchildren. The economic burden on the parents also depends on how much other family members financially assist or depend on them. Vulnerability to loss of business patronage will depend on how they earn their livelihood. Better education may increase awareness of treatments for HIV and associated illnesses as well as how to access them. Health insurance and welfare assistance can ease the financial burden on parents. Contributions from community members or funeral societies benefits can lessen the net cost of funerals. Whether the parents foster orphaned grandchildren depends on whether the deceased child had children and who else is available for the task. Finally, implications for old-age support will depend on the availability of other adult children, as well as on formal sources of retirement or old-age benefits.

Different aspects of the setting also influence both the likelihood that parents experience various pathways and the distribution of characteristics conditioning the impacts. Potentially important are the level of economic development, the political commitment to address the epidemic, the health care and formal social protection systems, the informal system of intergenerational support, funeral customs, past and present fertility and mortality levels, the predominant modes of HIV transmission, and community attitudes towards AIDS. As a result, the economic impact on parents may vary considerably from setting to setting. interpretations of empirical findings need to take this into account.

Many of the potential economic consequences shown in Figure 1 would follow from the illness and death of an adult child regardless of cause. However, some aspects of AIDS – the types of symptoms suffered, their duration, and the nature of community reaction – may increase the potential severity of economic consequences for AIDS parents. Also, the fact that spouses can transmit HIV to each other increases the likelihood that both die before their own children are grown and hence that their children will need foster care. Most significantly, in countries with substantial epidemics, AIDS typically is the most common cause leading older persons to lose an adult child.

Data and measures

Sources. For Thailand the analysis draws on two main sources, based on different methodological approaches: case information about adults who died of AIDS and their families provided mainly by local health workers and an AIDS impact survey in which both AIDS and non-AIDS parents were directly interviewed. Both provide data suitable for quantitative analysis. The case information comes from interviews in 1998-99 with staff of local health centers and other knowledgeable informants in 85 sites throughout Thailand. The informants were asked to provide information about individuals who had died of AIDS in their community. In total they provided basic information on living arrangements and caregiving for 768 cases and more detailed information on economic and social impacts for a subset of 258 cases whom the informants knew best. The impact survey of AIDS and non-AIDS parents used a structured questionnaire and involved face-to-face interviews in 2000 with parents of 394 persons who had died of AIDS within the prior three years and a comparison group of 376 parents who did not

experience any recent death among their children. Interview sites were in three provinces in different sub-regions characterized by different epidemiological and economic circumstances. Qualitative data comes from 19 open-ended interviews in 1998-99 with AIDS parents in three provinces and Bangkok. The interviews cover many of the same issues as the survey but encouraged those being interviewed to elaborate on the issues and circumstances affecting them. Detailed descriptions of each approach are available elsewhere (Knodel, VanLandingham, Saengtienchai, Im-em Wassana, and Kespichayawattana 2003:;Saengtienchai and Knodel 2001:;Knodel, Im-em, Saengtienchai, VanLandingham, and Kespichayawattana 2002:).

The data for Cambodia come from the 2004 Survey of Elderly in Cambodia (SEC) and a supplemental sample interviewed in 2005. The original survey consisted of 1273 interviews with persons aged 60 and over and is representative of Phnom Penh and the five most populous provinces (together constituting over 50 percent of the Cambodian population). A detailed description of SEC is available elsewhere (Knodel, Kim, Zimmer, and Puch 2005:). The supplemental sample covered Phnom Penh and all but one of the five provinces included in the original survey and purposively targeted persons age 50 and older who lost an adult child within the last five years to an illness (although not necessarily AIDS). A total of 103 interviews were completed in. Essentially the same questionnaire was used in the SEC and supplemental sample.[4] The questionnaire contains an extensive section directed at assessing the impact of a recent adult child death on the elderly respondent, modeled after the questionnaires used in the Thai AIDS Impact Survey mentioned above, and another section of KAP questions related to AIDS. Also included were several "verbal autopsy" questions to be asked to respondents who experienced a recent death of an adult child due to illness to help determine if the child died of AIDS.

For both Thailand and Cambodia, the data include extensive information about the role of the parents in caregiving including the opportunity costs involved, in paying for health care, medicines, treatment, and funeral expenses and in fostering orphaned grandchildren. In addition, respondents were asked if these activities led to selling assets, borrowing funds, or a need to take extra employment. Respondents were also asked to assess both the extent to which these activities created a financial burden for them and how much difficulty any loss of income or services from the deceased child created for them.

Identifying AIDS deaths. One challenge faced by research on the impact of AIDS on older persons is to accurately identify the cause of an adult child's death as AIDS. In our Thai research, we relied on mainly local health staff to identify AIDS deaths. While such information is likely to be reasonably accurate, some cases may be misidentified. For Cambodia, we relied on a combination of direct replies by parents that the cause of death was AIDS and responses to several "verbal autopsy" questions.[5] We suspect that

[4] The only difference was that the questionnaire for the supplemental sample omitted a section asking about the residential history of the respondent and included one additional question about symptoms associated with the deceased child's illness.

[5] A total of 216 cases in the combined original and supplemental surveys experienced the death of an adult child within the previous 5 years. Of these, 90 were stated as deaths due to AIDS. An additional 28 were classified as likely due to AIDS based on the following criteria: 10 died of TB, 1 experienced severe weight loss and died of shingles; 13 experienced severe weight loss and at least two of four AIDS

most of the deaths for which parents stated AIDS as the cause were in fact due to AIDS. Those judged to be AIDS cases based on symptoms, however, may include a substantial share that are not due to AIDS. Such cases, however, are a minority of the total number of cases classified as AIDS deaths.

Sampling bias. A second and potentially more serious problem for our analysis is a selection bias in the Thai AIDS impact survey and in the Cambodian supplemental sample towards parents whose child died locally. The bias undoubtedly arises from using local informants to identify older age parents who experienced a recent death of an adult child due to AIDS (or any other cause). Our experience indicates that informants usually are able to identify locally residing parents of adults who died locally but are less likely to be aware of non-local deaths and thus less able to identify local parents whose adult child died elsewhere. For obvious reasons, parents whose child died locally (either because the child lived locally all along or returned home due to illness) are much more likely to be involved in caregiving than parents whose child remained elsewhere. As a result, parental caregivers are over represented when parents of adults who died of AIDS or other causes are identified by local informants and the samples are thus biased with respect to a number of outcome variables of interest.

Note that for Cambodia, the original 2004 SEC covered a general probability sample of households that should yield unbiased estimates of the proportions of parents who experienced the recent loss of an adult child. Interviewing a general sample of older persons, however, is inefficient for obtaining sizeable samples of parents who recently lost an adult child to AIDS or other causes, particularly in populations such as Cambodia and Thailand where HIV prevalence is modest. For this reason, in Cambodia we interviewed the 2005 supplemental non-probability sample that targeted only such persons. Local informants often helped identify qualified respondents which in turn likely biased the supplemental sample towards parents whose child died locally and perhaps also to those who were willing to say that their child died of AIDS.

The bias created by using informants to identify older age respondents who recently suffered the death of an adult child is clearly apparent from a comparison of results from the original SEC and the supplemental survey that targeted such cases. In the original survey 32 percent of respondents who reported the death of an adult child during the prior 5 years indicated the child was living outside the locality at the time of death compared to only 7 percent for the supplemental sample.

As table 3 shows, the selection bias results in far higher percentages of situations in which a recently deceased adult child stayed with the parents at the time of death in the supplemental sample than in the original SEC sample. Moreover, parental caregiving is far more common in the supplemental sample then in the original sample. The contrasts are somewhat modified when comparisons are limited with only those cases in the original sample in which the adult child death was due to illness (and thus exclude those due to more sudden causes such as accidents or violence).

---

symptoms and 4 suffered moderate weight loss and at least three of four AIDS symptoms. The four AIDS symptoms were diarrhea, cough, fever and headache for 4 or more weeks.

The sample of AIDS parents interviewed in the AIDS impact survey in Thailand appears to suffer similar selection bias. Only 6 percent reported that their deceased child lived outside the locality at the time of death. As shown in table 3, almost 90 percent indicated that the deceased child lived with them at the time of death and just over 90 percent indicated that a parent provided care including 71 percent who indicated that a parent was a main caregiver. Relatively unbiased estimates or parental caregiving for Thailand, however, are provided by the case information about persons who died of AIDS in the community. These data are more broadly representative because they are based mainly on health staff informants identification of adults who died of AIDS locally (regardless of where their parents lived) rather than local parents whose adult child died of AIDS. It was relatively easy for informants to identify virtually all local AIDS deaths. Although the informants often knew little about parents who lived elsewhere, if the child remained in the locality until death and the parents did not come to help, we can assume at least that the parents were not involved in caregiving. Based on this source, estimates of coresidence at the time of death and parental caregiving among cases in which at least one parent was alive are noticeably lower than those indicated by the AIDS Impact Survey again undoubtedly reflecting selection bias in the latter.

While it is relatively clear that several of our key data sources are skewed towards parental caregivers, these sources should at least provide reasonable information about this substantial and important subset of older age parents. In addition, there is no obvious reason why the selection biases should alter interactions with poverty among this subset.

Measures of poverty. The data sources contain both objective and subjective information that can be used to measure the economic situation of the respondent. In order to assess if economic status affects the way parents are impacted by the illness and death of an adult child, measures are needed of the parents' economic situation prior to when any impact would have occurred. Most measures of current economic status, however, will reflect not only the parents' situation prior to their child's illness but also subsequent impacts deriving from the illness and death.

One way to address this concern is to follow a strategy that distinguishes between liquid and non-liquid assets (Linnemayr 2005:). Presumably parents experiencing economic hardships associated with the illness and death of an adult child would sell liquid assets before non-liquid ones. Thus measures of economic status based on non-liquid assets will be far less susceptible to change as a results of the parent's need to cover expenses than would measures based on liquid assets. It seems reasonable to assume that, while parents might be ready to use savings, sell jewelry (e.g. gold), or household possessions to cover costs, they would be far less likely to sell their residence. Thus housing quality as subjectively assessed or as determined by fixed aspects of the dwelling unit can considered an indication of wealth based on relatively non-liquid assets and used to form a measure of economic status that is unlikely to be affected by outcomes of interest in the present analysis.[6]

[6] While expenses associated with the illness and death could slow or prevent improvements in dwelling units, given the relatively short period of time (5 years or less) thus is unlikely to be an issue in the vast majority of cases. This is borne out by Linnemayr (2005) who has shown in an African setting that non-

Our measures of economic status differ according to the particular data set. For Thailand, the case information about adults who died of AIDS and their parents includes information on the parents' economic situation for the subset of cases whom the informant knew best. Informants were explicitly asked about the situation before the illness. This measure thus should be unaffected by the outcome variables of interest in the present study. For the Thai AIDS impact survey, the interviewer was asked to assess the respondents economic status using a five point scale from very poor to very well off based on the quality of their house, presumably a relatively non-liquid asset. Because only 8 of 394 cases were rated very well off, in the presentation of results, the two top categories are combined into one. The number of cases rated very poor, although greater, is also small (22). However, since this group appears quite distinctive with respect to many outcomes it is retained. Thus the economic status classification used contains four categories (better off, middle, poor and very poor).

For Cambodia, economic status is based on three features of the respondent's dwelling: the toilet facility, the flooring, and the roof, all of which are unlikely to be sold independent of selling the entire house. For each item, the response categories reflect a hierarchy from poorer to better quality and are scored accordingly. Principal component analysis is employed to create a summary economic status scale based on these items (see (Filmer and Pritchett 2001: 115-132)). Given the very limited number of AIDS parents available even when cases from the original SEC survey and the supplemental sample are combined, we form a dichotomous measure of poverty status by regrouping the scores to correspond roughly to the lower and upper halves.

Presumably these measures are able to distinguish meaningful differences in relative economic circumstances between the broad groups used. However, the measures do not necessarily correspond closely with each other. This is particularly true between Cambodian and Thai measures given the very different economic conditions in the two countries. Also given the small number of cases on which the Cambodian information is based and the very different data collection methodologies and sampling strategies involved, comparisons between Cambodia and Thailand can be considered only suggestive. In addition, although results of tests of statistical significance are provided, given that the data are not from probability samples, the they are only an approximate guide to the strength of differences found between economic status categories.

Basic estimates of parental involvement

As noted, only the original SEC for Cambodia and the AIDS case information for Thailand provided reasonably unbiased estimates of parental involvement in living arrangements and caregiving. The Thai data refer exclusively to cases in which the cause of the adult child's death is presumed to be AIDS while the Cambodian SEC includes both AIDS and non-AIDS deaths thus permitting comparisons between the two situations. Results are presented in Table 4. Unfortunately, the number of cases in the SEC in which a

---

liquid assets and specifically housing characteristics in contrast to household possessions are not affected by an AIDS death.

parent reported the recent loss of an adult child is insufficient to calculate separate results by economic status of the parents.

[Table 4 about here]

Overall, the results indicate that both Thai and Cambodian parents are commonly involved with their fatally ill children through both living and caregiving arrangements. The Cambodian data indicate even higher levels of involvement in cases where the child died from AIDS compared to other causes of illness, particularly with respect to parental caregiving. Both the full Thai case information data set and the subset with information on economic status are quite similar to each other and point to higher levels of coresidence with the deceased child prior to death than in Cambodia. The difference in coresidence levels, however, is only modest if the comparison is limited to AIDS cases in Cambodia. Levels of parental caregiving in Thailand fall between those indicated for AIDS and non-AIDS deaths in Cambodia. If only AIDS deaths are considered, the levels of parental caregiving and paying of medical expenses in Cambodia are higher those reported in Thailand. This could reflect the widespread availability of government health insurance in Thailand and its almost total absence in Cambodia.

In Thailand, economic status does not appear to be systematically related to either involvement in living arrangements or caregiving of the deceased child due to AIDS. For all measures except payment of medical expenses, parents classified as poor are intermediate between those whose economic situation is classified as better off or intermediate at the time prior to illness. Moreover, for none of the measures are the differences by economic situation statistically significant.

The extensive involvement of parents in coresidence and caregiving in both Cambodia and Thailand provides a situation in which the loss of the child to AIDS (and other illnesses) could involve serious direct and indirect costs as well as social consequences for the parents during the time of illness. For most of the subsequent analysis, we focus only on AIDS deaths, since the impact of the AIDS epidemic is of central interest in this study and information on non-AIDS deaths is only available for Cambodia. The following results are drawn from the AIDS impact survey for Thailand and combined SEC and supplemental samples for Cambodia and thus are the skewed towards parents involved in caregiving, paying expenses and coresidence as noted above. However, as the results in Table 4 document, the subset who are so involved represent a very substantial share of all AIDS parents. Presumably, results that are conditioned on such involvement should provide reasonable estimates for this important subset.

Living arrangements and caregiving

Table 5 presents several aspects of parental caregiving in relation to the parents' economic situation for Cambodia and Thailand. The Cambodian results show little difference according to poverty status in percentages involved in caregiving, duration of caregiving, or curtailment of economic activity associated with caregiving. There is some suggestion that the poor provide longer care than the non-poor although differences in the mean duration are not statistically significant. Regardless of poverty status, over half of

Cambodian parents who were involved in caregiving had to reduce their economic activity due to their child being stricken with AIDS.

[Table 5 about here]

The Thai results also show no statistically significant difference in parental caregiving in relation to economic status for either provision of any care or of main care. The duration of caregiving reported by Thai parents is noticeably shorter than reported by Cambodian parents. For both Thai and Cambodian parents, caregiving is skewed towards shorter durations as indicated by the substantially lower median than mean values. The means values, but not median values, indicate that better off Thai parents provide care longer than less well off parents. This may reflect a greater ability of parents with better financial means to prolong the life of their child longer although there is no direct evidence to support this.

In almost half of Thai cases, parental caregiving resulted in at least one parent curtailing economic activity. Although the association with economic status is not statistically significant, the very poor are distinctly more likely to report interference with their work. The length of curtailment of work is relatively short among Thai parents and, as with the length of caregiving, skewed towards shorter durations with the median values being well below the mean values. Differences in the duration of curtailment by economic status also are not statistically significant although the very poor curtail work for shorter periods than others. At the same time, a significant inverse association is evident between economic status and the proportion of AIDS parents who report that serious financial hardship resulted from curtailing their work during the period of illness. Over half of very poor parents who curtailed work compared to only one fourth of better off parents reported serious hardship as a result.

Parental expenses

The illness and death of an adult child could entail a variety of expenses for the parents, especially if they are involved in caregiving. Table 6 indicates parental involvement with expenses associated with caregiving and funerals in association with economic status. The Cambodian data show only modest differences by poverty status of the parents for each of the measures. Approximately three-fourths of both poor and non-poor AIDS parents in Cambodia who helped with medical or funeral costs indicate that the expenses created a serious burden for them.

[Table 6 about here]

Much stronger associations with economic status are apparent from the Thai data. For all measures shown, the association with economic status is statistically significant. Poor and very poor parents were less likely to help pay for expenses during illness or to incur net funeral expenses, especially substantial funeral costs. Both expenses associated with having an adult child die of AIDS and adverse economic impact have pronounced associations with economic status in Thailand but in opposite directions. Lower economic status is associated with lesser amounts spent but with higher percentages of parents who felt the expenses were a serious burden. Apparently, even if expenses were not large in absolute amounts for

poor parents, they were still more likely to severely tax their resources. A similar pattern is evident from the case information study results, which indicate that the percentage of cases for which care and treatment expenses were substantial (although not explicitly for the parents) was inversely related to the parents' economic status prior to the adult child's illness (results not shown, see (Knodel, Saengtienchai, Im-em, and VanLandingham 2001: 633-670)).

Overall the percentage of AIDS parents in Cambodia who reported that expenses for their child with AIDS was a serious burden is more than twice as high as reported by Thai AIDS parents. At the same time, the difference is only modest between Cambodian so more widespread in Cambodia and characterizes a far broader spectrum of the population than in Thailand likely accounts at least in part for the higher reported levels of hardship in meeting expenses associated with an adult child with AIDS than in the Thai case.

Most AIDS parents would not have anticipated the costs of care, treatment and funerals prior to becoming aware of their child's illness and in some, perhaps most cases, would have been unprepared to cover these expenses from cash in hand or savings. Even when formal sources of assistance are available, AIDS parents may need to rely on their own means to help deal with the situation. As table 7 shows, about a fourth of Cambodian respondents reported some assistance from formal sources such as government welfare, NGO assistance, or help from the community. NGOs are more commonly reported as a form of assistance that the government or community, consistent with the general underdevelopment of public services in Cambodia (2005:). Interestingly, AIDS parents who were classified as poor were less likely than those who were not to receive such assistance. This may reflect a relative lack of information about potential sources of assistance or fewer personal connections to those who arrange for assistance on the part of impoverished parents compared to those who are economically better off.

[Table 7 about here]

In contrast to Cambodia, health insurance and to some extent government social welfare programs are widely available in Thailand and provide formal channels through which the financial burden associated with AIDS can be eased. Approximately three-fifths of Thai respondents indicated that some form of health insurance, almost all though some government plan, helped pay medical costs of the adult child who died of AIDS. Health insurance was somewhat less likely to be used by the parents who were better off than by those of other economic statuses.[7] Moreover, the fact that a person was ill with AIDS would often prompt government health providers to issue a low-income card for free health insurance to those who had no insurance, provided the person met the criteria. Among cases in which health insurance was used, most respondents in Thailand indicated that it was of considerable assistance. Although not statistically significant, the extent to which insurance helped a great deal is inversely related to the

[7] By far the most common type of health insurance at the time of the AIDS Impact Survey was the voluntary health card scheme of the time in which households not covered by other programs could purchase membership for a modest amount. This program has been replaced by virtually universal health care coverage provided by the "30 Baht Scheme" which was launched in 2001 (Chandoevwit 2005: 14-19).

economic status of the parents. Even among better off parents, almost half who reported that the insurance substantially helped in of the cases where it was used.

Almost a fifth of Thai respondents indicated that some sort of welfare assistance was forthcoming for their ill child or the family. Moreover, in contrast to Cambodia, such assistance was almost entirely through the government rather than through NGOs. Also unlike Cambodia, welfare assistance was inversely related to economic status with the very poor the most likely recipients. These payments were typically made to the person with AIDS, but presumably also benefited parents who contributed to expenses, lessening the amount that they had to pay themselves. The amounts received as welfare assistance, however, were relatively modest compared to typical total expenses involved in care, treatment, and funerals (not shown, see (Knodel, Im-em, Saengtienchai, VanLandingham, and Kespichayawattana 2002:)). This may explain why less than a fifth (19%) of respondents who indicated welfare payments were provided said that the welfare helped very much. The percentage reporting that welfare assistance was very helpful, however, is far higher for poor and very poor parents than others.

Table 8 indicates several potential means through which parents could meet expenses among cases who paid either medical or funeral costs. In both countries, borrowing money was common, especially in Cambodia. Two thirds of Cambodian parents who had expenses had borrowed money to cover expenses and two fifths still had outstanding debts equal to most of what was initially owed. In Thailand, over two fifths who helped with expenses went into debt and most had paid off their debt by the time of interview so that only a little more than a tenth had a large share of the debt still outstanding. However, in both countries, although not statistically significant, borrowing money and having an unpaid debt as a result of losing an adult child to AIDS is inversely related to economic status.

[Table 8 about here]

In Cambodia just over half of AIDS parents who helped with expenses reported that they had sold land, livestock or household possessions as a result and a quarter had sold gold or jewelry. In Thailand, far fewer reported resorting to these measures to cover expenses. Both the poor in Cambodia and the very poor in Thailand were also more likely than those better off to have sold land or possessions. In contrast to selling other possessions, the poor in Cambodia and very poor in Thailand were less likely to have sold gold jewelry then other parents, undoubtedly reflecting their lesser likelihood of having any to sell in the first place compared to those who were better off economically. Information for Thailand is also available on the extent to which extra work was taken on to supplement income in order to pay expenses. While not a particularly common strategy overall, a clear inverse association with economic status is evident with almost a third of parents classified as very poor reporting extra work.

Filial support and services

Among the longer-term economic consequences that the death of an adult child could bring about is the loss of material support or other forms of assistance that the deceased child was either already providing or would have provided in the future. While assessing the latter would necessarily be speculative, the

surveys provide information on the loss of support and assistance that was being provided prior to the illness. As Table 9 shows, just over half of respondents in Cambodia reported that the deceased child had been providing material support for the parental household. Moreover, in most of these cases the child was reported to be a main source of support so that more than two fifths reported loss of a main supporter. In Thailand an even higher percentage of respondents, over 70 percent, reported that the deceased child had been providing some support. However, only one third indicated that the child was a main source of household support. In Cambodia and even more so Thailand, a clear inverse relationship exists between economic status and the loss of material support as well as the loss of main support. Thus among the poor in Cambodia and among the very poor in Thailand, over half of respondents indicated that they had lost a main source of support.

[Table 9 about here]

Adult children can also provide important services to their older age parents, particularly if they coreside or live nearby. Over half of respondents in Cambodia reported that the deceased child had been assisting with chores within the household although little difference is apparent between the non-poor and poor. In Thailand, although only a third of the deceased children provided regular help with household chores, there is a clear inverse association with the parents' economic status with over 40 percent of the poor parents and close to two thirds of the very poor parents reporting such assistance.

The Cambodian survey asked separately if the loss of material support and the loss of household help created a serious problem for them. Among those who did lose material support almost two thirds indicated it created much difficulty while 60 percent who lost assistance with household chores said it created a serious burden. In both cases, the percent of the poor who reported that the losses created serious difficulty was higher than for the non-poor. The Thai survey asked a single question about whether the loss of material support or assistance of the household created much difficulty. Overall, just over one fourth said this was so. However a very strong inverse association exists with economic status with over 40 percent of those classified as poor in Thailand and over two thirds of those classified as very poor indicating the loss created a serious burden for them.

Orphan care

Taking on the responsibility for raising grandchildren left behind because of the death of an adult son or daughter can potentially also have substantial long-term implications for the grandparents. In cases of grandchildren orphaned by AIDS, additional difficulties can result if the orphaned child is HIV positive or if the child is stigmatized or ostracized by other children or other family or community members. Table 10 provides some indications of the extent that parents of adult children who died take responsibility for orphaned grandchildren. Note that we use the term orphan to refer to the loss of either parent. Orphans with a remaining surviving parent will have less need to be fostered by grandparents than those who do not (Knodel and Saengtienchai 2004: 249-274). Also some orphans who are not being fostered by their grandparents at one point in time may live with them later. This is especially likely in cases of AIDS orphans since some currently surviving parents who are currently caring for them may be HIV positive

and die before the child grows up. Note also that some of the measures shown in table 10 are conditioned on the existence of an orphaned grandchild or on supporting one reducing the number of cases available for analysis.

[Table 10 about here]

In considering the potential impact of orphans on older age grandparents in general, it is important to recognize that not all deceased adult sons or daughters had surviving children of their own. In Cambodia modestly over half of the adult children who died of AIDS left behind one or more minor children (under age 16) while just under half left a child of any age behind in Thailand. Thus sizeable shares of deceased adult children in both countries left no AIDS orphans behind. In neither country does the percentage of deceased who left an orphaned child behind differ greatly by economic status.

Among cases in which a minor grandchild was orphaned in Cambodia, a substantial share had spent at least some time living with the bereaved grandparents. Similarly, a substantial share of bereaved grandparents provided some support when a grandchild was orphaned. Similar levels of orphaned grandchild care are found in Thailand in cases of AIDS orphans. Differences by economic status are not pronounced. In Cambodia, we asked respondents who indicated that they had supported an orphaned grandchild following the death of the parent to what extent the support presented a burden for them. Almost two-thirds reported that such support created a serious burden for them. This was particularly true for the poor.

Community reaction

AIDS is commonly portrayed as a stigmatized disease throughout much of the world although the nature, degree, and consequences of stigma are likely to vary considerably across settings and over time (VanLandingham, Im-em, and Saengtienchai 2005: 392-410.). Stigma may extend beyond the person who is infected to family members including parents, especially if they are co-resident or are involved in caregiving. Information on community reaction, both positive and negative, that AIDS parents experienced during the period of their deceased child's illness is available from both the Cambodian in Thai surveys. With respect to positive reactions, respondents were asked whether or not neighbors visited, helped look after the sick child, brought food or medicine, or helped with hospital visits. With respect to negative reactions, respondents were asked if neighbors avoided talking to the respondent or other household members, gossiped, or avoided visiting. The Thai survey also asked a series of questions about positive and negative reactions following the death of the child. Results are presented in Table 11.

[Table 11 about here]

In both Cambodia and Thailand, parents of those who die of AIDS are considerably more likely to report positive than negative reactions from their neighbors during the period of illness. Overall, over 90% of respondents in both countries who lost a child to AIDS reported that neighbors reported positive responses. In contrast, far fewer reported any negative reactions, with modestly less than one fourth in Cambodia and modestly over one fourth in Thailand doing so. In neither country, was the frequency of

reporting positive or negative reactions during illness clearly associated with economic status. With respect to community reaction following the death of the child, the Thai results again indicate almost universal positive reaction but also that about one fifth experienced at least one negative reaction. Unlike the situation with community reaction during illness, however, those who are poor appear to be somewhat less likely to receive positive reaction and substantially more likely to have experienced negative reaction following the death than others.

Change in Overall Economic Well-being

Both the Cambodian survey and Thai AIDS Impact Survey asked respondents to assess how their economic situation had changed since three years earlier. Responses were coded on a five point scale ranging from much better to much worse, with no change as the middle category. Comparisons between respondents who had experienced a recent adult child death with those who have not provide a basis for assessing the net effect of the death on the economic well-being of the parents. The Cambodian data additionally permit comparison between those whose child died of AIDS and those whose child died from other causes. While some potential adverse consequences identified in the conceptual framework discussed above would not yet have had sufficient time to emerge within the reference period, particularly since in some cases the illness and death occurred within the last one or two years, any lasting impacts of those associated with the period of illness and funeral, should already be evident. We also note that although most deceased adult children referred to in each survey died within the three year period, some died earlier (especially for the Cambodian dataset) and others may have been ill earlier even if they died within the prior three years. Thus in some cases economic impacts associated with HIV/AIDS would have already been manifest of the start of the reference period.

The comparisons are presented in Figure 2. Since very few respondents in either country indicated that their economic situation had become 'much better' this category was combined with responses coded as 'somewhat better' to form a single category labeled 'better'. The distribution of responses in Cambodia and Thailand differ somewhat with Thais considerably more likely than Cambodians to say their situation was much worse.[8] It is evident in both the Cambodian and Thai results that respondents are more likely to say that their situation deteriorated rather than improved over the reference period regardless of experience with adult child loss. In the Thai case, given that the survey tool place in 2000, the reference period covers the time immediately following the Asian economic crisis that precipitated in mid-1997. This may also account for why Thai respondents were more likely than Cambodian ones to say that their situation had gotten much worse.

[Figure 2 about here]

[8] This may reflect language differences. Although the questions and response categories used in the two countries were in principle the same, given that different languages are involved, exact equivalence is unlikely.

Both the Cambodian and the Thai results suggest that experiencing the recent death of an adult child tend to worsen the parents economic situation. In the Cambodian case, the difference is evident with respect to the proportion to indicate that their situation became 'somewhat worse' while in the Thai case the difference is apparent with respect to higher proportions indicating their situation became 'much worse'. Cambodian parents not experiencing a recent child death were considerably less likely than those who did to indicate that their economic situation had become 'somewhat worse' but little difference is evident between those whose child died from AIDS and those whose child died from another cause. Also very few Cambodian parents in any of these situations reported that their economic situation became much worse. In contrast, Thai parents who lost a child to AIDS were twice as likely as those not experiencing any recent adult child loss to say their economic situation became much worse over the last three years.

Given that parents who experienced the death of an adult child may differ from those who do not on a number of other characteristics that could affect changes in economic well-being, it is useful to examine the impact of an adult child death within a multivariate framework that controls for these other potential influences.[9] Logistic regression is employed to statistically adjust results for differences in economic status (as reflected in housing quality), education, marital status and age. For this purpose, two dichotomous dependent variables were formed. The first indicates whether or not the respondent said their situation became 'much worse' and the second indicates whether the respondent said the situation was either 'somewhat' or 'much worse'. Table 12 provides both unadjusted and statistically adjusted results. The latter represent mean predicted probabilities based on logistic regression results.

[Table 12 about here]

For Cambodia little difference is evident in either the unadjusted or adjusted results in the percent who say their economic situation became much worse regardless of experience with adult child loss. However, both the unadjusted and adjusted results referring to the proportion who indicated their financial situation became at least somewhat worse are substantial and statistically significant. Parents whose child died from AIDS are modestly more likely to indicate a worsening in the economic situation that those who child died from other causes and both situations are associated with substantially higher proportions indicating that their economic situation had deteriorated than true for parents not losing a child. In the case of Thailand, unadjusted results are statistically significant for both measures but as figure 2 implies, they are driven by the greater proportion of AIDS parents who indicate the situation became much worse compared to those who did lose a child. Once other influences are statistically controlled, differences between AIDS parents and those not losing a child contract a bit and only differences with respect to the percent whose economic situation became much worse remain statistically significant at better than the .10 level.

[9] For example, in the Cambodian data, the ages of those experiencing a death in those not differ considerably. The main reason is because all cases of parents not experiencing a recent death of an adult child are from the original SEC and thus respondents were all age 60 and over (although some had spouses who were under 60). In contrast parents experiencing a recent death come almost equally from the original SEC and the supplemental sample which included respondents in their 50s.

Conclusions

As noted in the introduction, much of the discussion about the links between poverty and AIDS have been intuitive rather than based on empirical evidence. The current study draws on systematically collected quantitative data from several sources to examine the relationship between poverty and AIDS in Cambodia and Thailand with a focus on the older age parents of adults who succumb to the disease. Although the data have numerous flaws, they make clear that older age parents in both countries play major roles in providing living quarters, caregiving, and paying expenses for their adult sons and daughters who become ill and die of AIDS. The Cambodian data, which also include information about the impact of deaths of adult children from causes other than AIDS, strongly suggest that in many respects the involvement of parents in these matters is greater in cases of AIDS.

On a very general level, Cambodia and Thailand share many common cultural features but differ sharply in their levels of economic development, standards of living, and social safety nets provided by their governments. This combination of similarity and differences provide a potential basis for interpreting some of the findings presented above. While there are many similarities in how older age parents are impacted in both countries, the data suggest that Cambodian parents are even more likely to provide care and pay expenses than are Thai parents. This may reflect an even greater lack of alternatives to parental assistance and more extensive poverty in Cambodia than in Thailand. Government assistance is much more common in Thailand than Cambodia with government health insurance serving as a major relief for medical expenses for large shares of the families affected by AIDS. While NGOs play a more important role in Cambodia than in Thailand, they are unlikely to be able to compete at the same level that the national government can in Thailand.

Overall, negative consequences appear more widespread in Cambodia. At the same time, economic status tends to show a stronger association in Thailand than in Cambodia with many of the outcomes investigated. As a result the gap between poor Thais and Cambodians generally is often modest despite the substantial difference in overall levels. This is quite clear with respect to the extend paying expenses associated with the illness and death of an adult child due to AIDS creates a serious burden for the parents in the two countries. In Cambodia, regardless of poverty status the proportions of AIDS parents who say the expenses created a serious burden for them is very high and well above levels reported by Thai AIDS parents overall. In Thailand, however, there is a clear association with economic status and the percentage reporting expenses to be a burden such that the share of very poor Thais who say so comes close to the overall level in Cambodia.

The high levels of hardship reported in Cambodia and the lack of difference by economic status may simply reflect the much more severe levels of poverty in that country compared to Thailand. Even those not categorized as poor within the population may have few economic resources and thus the burden of paying expenses associated with AIDS penetrates broadly across strata within Cambodian society. The greater financial strain of on AIDS parents in Cambodia compared to Thailand is also reflected in far higher proportions in Cambodia who went into debt or resorted to selling assets to pay for expenses and the far greater share of those who borrowed money who were unable to repay the loan by the time of

interview. In regards to this situation, however, Cambodia poor were even more likely to be in these situations than non-poor.

Consistent with similar norms about filial support in the two countries, many AIDS parents reported some loss of support as a result of the death of their child. In both countries, the child who died was more likely to have been a main source of support among the poor than others.

Negative community reactions towards parents of adults with AIDS is not absent in either country. However, it appears that in both settings sympathetic and supportive reactions from neighbors are far more common than stigmatizing ones. There is some evidence that the poorest AIDS parents in Thailand are more subjected to unfavorable reactions following the death of their child but in neither country does community reaction during the illness appear to be highly associated with the economic status of the parents.

Results for both Cambodia and Thailand are consistent with the possibility that the death of an adult child has an impoverishing effect on the parents. Differences in the reported worsening of their economic situation between older persons who lost a child and those who did not, however, are not overwhelming. In both countries substantial portions of older persons who did not experience the loss of a child also reported that their economic situation worsened compared to three years earlier. In addition, non-negligible minorities of parents who lost a child indicate their situation had not changed or even had improved. Thus the contribution of the AIDS epidemic to poverty in the case of the parents of adults who succumb to the disease may be limited in the two countries under investigation.

While differences in data collection methodologies cannot be discounted as underlying the contrasting relationship between poverty and AIDS Cambodia and Thailand, the results of this comparative analysis presented here strongly suggest that setting matters and that the role of poverty in the AIDS epidemic may be far from uniform. Caution appears to be in order when interpreting discussions of this relationship that are based more on assumptions and intuition rather than systematic empirical evidence.

References

Bloom, D. E., River Path Associates, and Sevilla, Jaypee. 2002. Health, Wealth, AIDS and Poverty, Paper prepared for ADB/UNAIDS.

Bloom, David E., Mahal, Ajay, Rosenberg, Larry, Sevilla, Jaypee, Steven, David, and Weston, Mark W. 2004.Asia's 's Economies and the Challenge of AIDS. Manila, Asian Development Bank.

Chandoevwit, Worawan. 2005. Financing Universal Health-care Coverage. TDRI Quarterly Review 20(3):14-19.

Coates, Karen J. 2005. Cambodia Now. Jefferson, N.C.: McFarland

Cohen, Desmond. Poverty and HIV/AIDS in sub-Saharan Africa. 2000. New York. UNDP HIV and development program.

Cohen, Jon. 2003. Two hard hit countries offer rare success stories. Science 301:1658-1662.

Desbaratis, Jacqueline. 2003. HIV/AIDS and poverty: the impact of HIV/AIDS in ESCAP Region. *In* Fifth Asia and Pacific Population Conference: Selected Papers. Economic and Social Commission for Asia and the Pacific, ed. Pp. 157-202. New York: United Nations.

Eberstadt, Nicholas. 2002. The future of AIDS. Foreigh Affairs 81(6):22-45.

Filmer, D. and L. H. Pritchett. 2001. Estimating Wealth Effects Without Expenditure Data - or Tears: an Application to Educational Enrollments in States of India. Demography 38(1):115-132.

HelpAge International (HAI). 2005. Coping with Love: Older perople and HIV/AIDS in Thailand. Chiang Mai Thailand, HelpAge International.

Heuveline, P. 1998. 'Between One and Three Million': Towards the Demographic Reconstruction of a Decade of Cambodian History (1970-79). Population Studies-a Journal of Demography 52(1):49-65.

Kiernan, B. 2003. The Demography of Genocide in Southeast Asia - the Death Tolls in Cambodia, 1975-79, and East Timor, 1975-80. Critical Asian Studies 35(4):585-597.

Knodel, John, Napaporn Chayovan, Siriwan Graiurapong, and Chutima Suraratdecha. 2000. Ageing in Thailand: an Overview of Formal and Informal Support. *In* Ageing in the Asia-Pacific Regions: Issues and Policie*s*. D. Phillips, ed. Pp. 243-266. London: Routledge.

Knodel, John, Im-em, Wassana, Saengtienchai, Chanpen, VanLandingham, Mark, and Kespichayawattana, Jiraporn. 2002. The Impact of an Adult Child's Death due to AIDS on Older-aged Parents: Results from a Direct Interview Survey. Bangkok, Mahidol University, Institute for Population and Social Research.

Knodel, John, Kim, Souvan Kiry, Zimmer, Zachary, and Puch, Sina. 2005. Older persons in Cambodia: A profile from the 2004 Survey of Elderly. Ann Arbor, MI, Population Studies Center. Research Report.

Knodel, John and Saengtienchai, Chanpen. 2002. Older Aged Parents: The Final Safety Net for Adults Sons and Daughters with AIDS in Thailand. Ann Arbor, MI, Population Studies Center, University of Michigan.

Knodel, John and Chanpen Saengtienchai. 2004. AIDS and Older Persons: The View from Thailand. *In* Living longer. Ageing, development and social protection. Peter Lloyd-Sherlock, ed. Pp. 249-274. London: Zed.

Knodel, John and Chanpen Saengtienchai. Forthcoming. Rural Parents with Urban Children: Social and Economic Implications of Migration on the Rural Elderly in Thailand. Population, Space and Place

Knodel, John, Chanpen Saengtienchai, Wassana Im-em, and Mark VanLandingham. 2001. The Impact of

AIDS on Parents and Families in Thailand: A Key Informant Approach. Research on Aging 23(6):633-670.

Knodel, John and Mark VanLandingham. 2002. The impact of the AIDS epidemic on older persons. *AIDS 2002* 16 (Supplement 4)S77-S83.

Knodel, John, VanLandingham, Mark, Saengtienchai, Chanpen, Im-em Wassana, and Kespichayawattana, Jiraporn. 2003. Data Collection Strategies for Studying the Impacts of AIDS on Older Parents: Lessons from Research in Thailand. Ann Arbor, MI, Population Studies Center, University of Michigan.

Knodel, John, Susan Watkins, and Mark VanLandingham. 2003. AIDS and Older Persons: An International Perspective. Journal of Acquired Immunodeficiency 33, Supplement 233:S153-S165.

Linnemayr, Sebastin. 2005. Awareness, morbidity, mortality: when does the economic impact of HIV/AIDS at the household level commence? Seminar on "Interactions between Poverty and HIV/AIDS.

Saengtienchai, Chanpen and Knodel, John. 2001. Parents providing care to adult sons and daughters with HIV/AIDS in Thailand. Geneva, UNAIDS.

UNAIDS. 2004. Report on the Global HIV/AIDS Epidemic. 2004. Geneva, UNAIDS.

UNAIDS and WHO. 2005. AIDS Epidemic Update: December 2005. Geneva , UNAIDS and WHO.

United Nations. 2002. Report of the Second World Assembly on Ageing. Madrid, 8-12 April 2002. New York , United Nations.

United Nations Population Division. 2003. The Impact of AIDS. New York, United Nations.

United Nations Population Division. 2005. Population, Development and HIV/AIDS with Particular Emphasis on Poverty: the Concise Report. New York, United Nations.

United Nations Population Fund (UNFPA). 2002. The State of the World Population 2002: People, Poverty and Possibilities. New York, United Nations.

United States Agency for International Development (USAID). 2003. HIV/AIDS in the Mekong Region. Washington, D.C., USAID.

VanLandingham, Mark, Wassana Im-em, and Chanpen Saengtienchai. 2005. Community reaction to persons with HIV/AIDS and their parents in Thailand. Journal of Health and Social Behavior 46 (4):392-410.

Wachter, Kenneth, John Knodel, and Mark VanLandingham. 2002. AIDS and the Elderly of Thailand: Projecting Familial Impacts. Demography 39(1):25-41.

Whiteside, Alan. 2002. Poverty and HIV/AIDS in Africa. Third World Quarterly 23(2):313-332.

World Health Organization (WHO). 2005. External review of the Health Sector Response to HIV?AIDS in Thailand. Bangkok, Regional Office for South-East Asia.

Zimmer, Zachary, John Knodel, Kiry S. Kim, and Sina Puch. 2006. The Impact of Past Conflicts and Social Disruption in Cambodia on the Current Generation of Older Adults. Population and Development Review 32(2):

Table 1. Selected indicators of social and economic well-being, latest estimates

Indicators	Year	Cambodia	Thailand	Southeast Asia	Sub-Saharan Africa
Population (in millions)	2005	13.3	65.0	557	752
% urban	2005	15	31	38	34
Life expectancy at birth	2005	56	72	69	48
HIV adult prevalence	2003/04	2.6	1.5	0.5	7.4
GNI PPP per capita (US$)	2004	2180	8020	4190	1830
% living below US$2 a day	2002	78	33	44	75
% with access to safe water - urban	2002	58	95	91	82
- rural	2002	29	80	71	45

Note: GNI PPP= Gross national; product in Purchasing Power Parity
Source: Population Reference Bureau, World Population Datasheet 2005 (Washington, DC: Population Reference Bureau)

Table 2. Percent of population aged 60+ living in households with selected amenities and possessions

	Total sample		Provincial areas		Capital cities	
	Cambodia 2004	Thailand 1995	Cambodia 2004	Thailand 1995	Phnom Penh 2004	Bangkok 1995
toilet	44.9	96.0	35.7	95.6	90.8	99.8
electricity	31.2	96.8	19.6	96.4	89.4	99.8
television	63.7	67.1	58.3	64.2	90.6	94.3
phone	16.4	14.7	8.4	8.7	56.4	70.4
refrigerator	4.3	54.8	0.8	50.9	21.6	91.1
air conditioning	1.7	5.9	0.0	2.7	10.1	35.9
motorcycle	29.8	49.0	22.4	50.5	67.0	35.4
car or truck	4.4	17.0	1.9	14.3	17.0	42.8

Table 3. Residence of adult child at death and caregiver status of parents by source of data

	% of cases in which			Base N
	The deceased child lived with parent at time of death	At least one parent provided some personal care to deceased child	At least one parent was a main personal caregiver to deceased child	
Cambodia *(deaths to all causes)*				
Supplemental sample	84.5	94.2	92.2	103
Original SEC sample-all deaths	46.9	60.2	50.4	113
Original SEC sample-illness deaths	50.0	70.0	58.9	90
Thailand				
Impact Survey- AIDS parents	89.1	91.1	71.3	394
Case information on local AIDS deaths	78.8	76.9	59.3	645

Table 4. Living arrangements and provision of care by parents to recently deceased adult children, Cambodia and Thailand.

	Base N	% with whom the child coresided prior to death	% in which at least one parent provided some personal care	% in which at least one parent provided main personal care	% in which at least one parent paid some medical expenses
Cambodia (original SEC 2004 sample)					
Child died from non-AIDS illness	51	41.2	52.9	43.1	51.0
Child died from AIDS(a)	39	61.5	92.3	79.5	69.2
p-value for difference between AIDS and non-AIDS deaths	n.a.	+	***	***	+
Thailand (1998-99 AIDS case study)					
Full data set	652	69.7	76.9	59.3	n.a.
Subset with economic status information					
Total	224	67.0	76.6	59.5	46.9
By economic status prior to illness(b)					
better off	51	58.4	74.6	53.1	44.2
intermediate	111	71.9	80.8	63.0	50.6
poor	62	66.1	71.8	59.1	42.8
p-value for economic status differences	--	>.10	>.10	>.10	>.10

Significance levels: + =.10 * =.05; ** =.01; *** =.001; n.a.= not available

(a) Includes both stated and suspected AIDS cases.

(b) Results are adjusted in the sense that cases with unknown values for economic status are distributed proportionately according to the distribution of cases with known characteristics.

Table 5. Selected aspects of parental caregiving among parents with adult children who died of AIDS, by economic situation, Cambodia and Thailand.

A. Cambodia (*combined 2004 SEC and 2005 supplemental sam*ple)

	Total	Non-poor	Poor	p-value
Base number of cases	118	58	60	--
A parent provided any personal care (%)	95.8	98.3	93.3	>.10
A parent provided main personal care (%)	90.7	94.8	86.7	>.10
Months of care if provided				
mean	7.4	6.3	8.6	>.10
median	4.0	4.0	4.0	n.a.
A parent curtailed economic activity if provided care (%)	58.4	57.9	58.9	>.10

B. Thailand (*2000 AIDS Impact Survey*)

		Economic status				
	Total	Better off	Middle	Poor	Very poor	p-value
Base number of cases	394	61	204	107	22	--
A parent provided any personal care (%)	91.1	88.5	92.6	88.8	95.5	>.10
A parent provided main personal care (%)	71.3	72.1	72.1	67.3	81.8	>.10
Months of care if any care provided						
Mean	2.9	4.8	2.6	2.4	2.7	**
Median	1.0	2.0	1.0	1.0	2.0	--
A parent curtailed economic activity if provided care(%)	47.0	44.3	45.1	48.6	63.6	>.10
Months work curtailed, if curtailed						
Mean	3.2	3.3	3.1	3.9	0.7	>.10
Median	1.0	1.0	2.0	1.0	0.4	--
Work curtailment created serious financial hardship if curtailed work (%)	35.3	25.9	32.6	40.4	53.8	>.10

Significance levels: + =.10 * =.05; ** =.01; *** =.001

Table 6. Parental expenses associated with deceased adult children who died of AIDS, by economic status, Cambodia and Thailand.

A. Cambodia (*combined 2004 SEC and 2005 supplemental sam*ple)

	Total	Non-poor	Poor	p-value
A parent helped pay medical expenses(%)	78.8	79.3	78.3	>.10
A parent was primary payer of medical expenses(%)	61.9	58.6	65.0	>.10
A parent had net funeral expenses (%)	79.7	75.9	83.3	>.10
Expenses were a serious burden among those who paid (%)	74.5	76.0	73.1	>.10

B. Thailand (*2000 AIDS Impact Survey*)

	Total	Better off	Middle	Poor	Very poor	p-value
A parent helped pay expenses during illness (%)	81.7	91.8	85.3	69.2	81.8	***
A parent was main payer during illness (%)	62.6	82.0	64.5	46.2	68.2	***
A parent had net funeral expenses (%)	74.3	77.0	79.2	67.3	54.5	*
A parent had substantial funeral expenses (%)	62.0	73.8	68.3	49.0	31.8	***
Combined care and funeral expenses						
Mean (Thai Baht in 1000s)	52.6	115.8	48.0	30.5	21.5	***
Median (Thai Baht in 1000s)	22.5	50.0	30.0	10.3	7.5	n.a.
Expenses were a serious burden among those who paid (%)	39.2	19.3	37.7	50.6	66.7	***

Significance levels: + =.10 * =.05; ** =.01; *** =.001; n.a.= not applicable
For base N see table 5.

Table 7. Support from formal sources to persons or families with AIDS, by economic status, Cambodia and Thailand.

A. Cambodia (*combined 2004 SEC and 2005 supplemental sam*ple)

	Total	Non-poor	Poor	p-value
Any formal assistance to PWA (%)	25.4	32.8	18.3	+
From government	6.8	8.6	5.0	>.10
From community	5.9	6.9	5.0	>.10
From NGO	16.9	22.4	11.7	>.10

B. Thailand (*2000 AIDS Impact Survey*)

	Total	Better off	Middle	Poor	Very poor	p-value
Health insurance helped pay medical expenses (%)	59.6	50.8	62.2	59.0	63.6	>.10
Health insurances helped a lot among those who used it (%)	61.7	53.8	59.8	65.5	76.9	>.10
PWA or family received welfare (%)	18.8	13.1	17.0	22.6	33.3	>.10
Welfare helped a lot among those who received (%)	19.1	0.0	12.9	31.8	28.6	>.10

Significance levels: + =.10 * =.05; ** =.01; *** =.001; n.a.= not applicable
For base N see table 5.

Table 8. Means used to meet expenses associated with illness and death of adult children due to AIDS among parents who paid for some expenses, by economic status, Cambodia and Thailand.

A. Cambodia (*combined 2004 SEC and 2005 supplemental sam*ple)

	Total	Non-poor	Poor	p-value
Borrowed money (%)	65.7	60.0	71.2	>.10
Still has mostly unpaid debt (%)	40.2	36.0	44.2	>.10
Sold land, livestock or household possession (%)	51.0	40.0	61.5	*
Sold gold or jewelry (%)	24.5	36.0	13.5	**

B. Thailand (*2000 AIDS Impact Survey*)

	Total	Better off	Middle	Poor	Very poor	p-value
Borrowed money (%)	43.4	33.9	42.8	48.2	57.9	>.10
Still has mostly unpaid debt (%)	11.4	8.5	9.6	15.3	21.1	>.10
Sold land or household possession(%)	15.4	15.3	15.0	14.1	26.3	>.10
Sold gold or jewelry (%)	8.0	3.4	6.4	15.3	5.3	*
A parent took extra work (%)	16.0	10.2	13.4	22.4	31.6	*

Significance levels: + =.10 * =.05; ** =.01; *** =.001; n.a.= not applicable
For base N see table 5.

Table 9. Support provided by deceased adult child to parents, by economic status, Cambodia and Thailand.

A. Cambodia (*combined 2004 SEC and 2005 supplemental sam*ple)

	Total	Non-poor	Poor	p-value
Child provided any support (%)	52.5	43.1	61.7	*
Child provided main support (%)	42.4	31.0	53.3	*
If child provide support, loss of support created much difficulty (%)	64.5	60.0	67.6	>.10
Child did household chores (%)	56.8	58.6	55.0	>.10
If child did household chores, loss of help created much difficulty (%)	59.7	50.0	69.7	>.10

B. Thailand (*2000 AIDS Impact Survey*)

	Total	Better off	Middle	Poor	Very poor	p-value
Child provided any support (%)	71.3	65.6	65.2	85.0	77.3	**
Child provided main support (%)	32.2	16.4	26.5	44.9	68.2	***
Child regularly did household chores (%)	35.3	31.1	29.9	42.1	63.6	**
Loss of support and help created much difficulty (%)	26.1	13.1	16.7	43.0	68.2	***

Significance levels: + =.10 * =.05; ** =.01; *** =.001; n.a.= not applicable
For base N see table 5.

Table 10. Orphaned minor children and foster arrangements, by economic status, Cambodia and Thailand.

A. Cambodia (*combined 2004 SEC and 2005 supplemental sam*ple)

	Total	Non-poor	Poor	p-value
The deceased child left behind one or more children under age 16 (%)	58.3	56.9	59.8	>.10
Among cases with an orphaned minor grandchild:				
The orphan ever lived with the respondent (%)	66.7	67.7	65.6	>.10
The orphan was ever supported by the respondent (%)	69.8	72.6	67.2	>.10
Among cases in which an orphaned grandchild was supported by the respondent:				
The support was a serious burden (%)	64.8	57.8	72.1	+

B. Thailand (*2000 AIDS Impact Survey*)

	Total	Better off	Middle	Poor	Very poor	p-value
The deceased child left behind one or more children	49.0	45.9	44.1	58.9	54.5	>.10
Among cases with an orphaned grandchild, the orphan was cared for by respondent (%)	66.0	71.4	67.4	58.1	83.3	>.10

Significance levels: + =.10 * =.05; ** =.01; *** =.001; n.a.= not applicable
For base N see table 5.

Table 11. Community reaction to parents of recently deceased adult children, by economic status, Cambodia and Thailand.

A. Cambodia (*combined 2004 SEC and 2005 supplemental sam*ple)

	Total	Non-poor	Poor	p-value
Any positive reaction (%)	96.6	94.8	98.3	>.10
Any negative reaction (%)	22.0	24.1	20.0	>.10

B. Thailand (*2000 AIDS Impact Survey*)

	Total	Better off	Middle	Poor	Very poor	p-value
Any positive reaction during illness (%)	92.4	91.8	94.1	90.7	86.4	>.10
Any negative reaction during illness (%)	27.4	21.3	25.9	34.0	27.3	>.10
Any positive reaction after death (%)	98.5	100.0	99.0	98.1	90.9	*
Any negative reaction after deathh(%)	19.6	11.5	17.2	26.2	31.8	*

Significance levels: + =.10 * =.05; ** =.01; *** =.001; n.a.= not applicable
For base N see table 5.

Table 12. Reported change in parents' financial situation during prior three years by experience with a recent adult child death, Cambodia and Thailand

Country and experience with an adult child death	% saying their financial situation compared to three years ago is now (unadjusted)		% saying their financial situation compared to three years ago is now (statistically adjusted)	
	Much worse	Somewhat worse /much worse	Much worse	Somewhat worse /much worse
Cambodia 2004-05				
AIDS Death	6.0	60.7	5.5	63.4
Non-AIDS Death	4.1	56.7	3.8	57.2
No death	5.6	41.2	5.8	40.9
p-value	.804	.000	.726	.000
Thailand 2000				
AIDS Death	19.5	53.6	18.6	52.8
No death	10.4	46.3	11.1	47.1
p-value	.000	.044	.003	.110

Sources: Cambodia - combined 2004 SEC and 2005 supplemental sample; Thailand - 2000 AIDS Impact Survey
Adjusted results represent mean predicted probabilities based on logistic regression controlling for economic status reflected in housing quality, education, marital status, area of residence and age

Figure 1. Pathways and Conditioning Factors through which the Illness and Death of an Adult Child with Aids Can Adversely Impact the Economic Well-Being of Parents

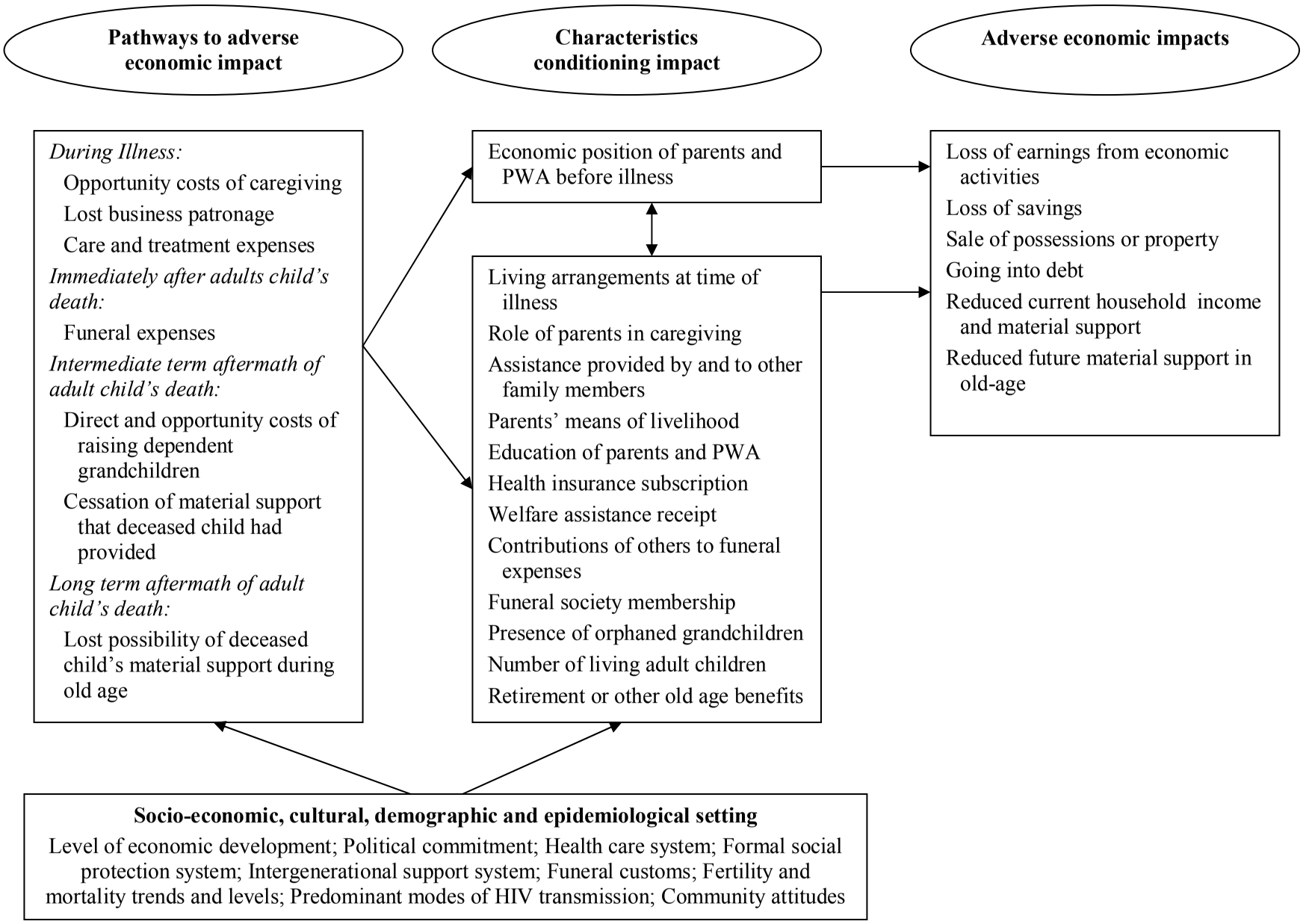

Figure 2. Change in economic situation during prior 3 years by experience of recent death of adult child (% distribution)