The impact of AIDS on intergenerational support in South Africa: Evidence from the Cape Area Panel Study

Cally Ardington
University of Cape Town

Anne Case
Princeton University

Mahnaz Islam
Harvard University

David Lam
University of Michigan

Murray Leibbrandt
University of Cape Town

Alicia Menendez
University of Chicago

Analia Olgiati
Princeton University

Prepared for the conference
"The Impact of AIDS on Older Persons in Africa and Asia"
University of Michigan
November 2008"

Revised February 2009

This research has been supported by grants from the National Institute on Aging (R01 AG20275-01, P01 AG05842-14, and P30 AG024361), and funding from the National Institute of Child Health and Development (R01 HD045581-01).

The impact of AIDS on intergenerational support in South Africa: Evidence from the Cape Area Panel Study

Abstract

We use panel data collected in metropolitan Cape Town to document the role played by aging parents in caring for the children of children who die. In addition, we quantify the probabilities that older adults and the older adults' children provide financial support to orphaned grandchildren. We find significant transfers of public and private funds to older adults in households with orphans. Perhaps for this reason, we see no difference in expenditure patterns between households with orphans and other older adult households. With respect to older adults' quality of life, we find no effect of reporting that a child died, or of co-residence with orphaned grandchildren, on the older adults' reports of depression, or on their self-assessed health.

1. Introduction

The HIV/AIDS crisis in sub-Saharan Africa has resulted in the death of a large number of prime-aged men and women. These deaths have in turn affected both the children and the parents of those who died. A large body of research over the past decade has examined the educational and health outcomes for AIDS orphans who have been absorbed into non-parental households, generally headed by kin (Subbarao and Coury 2004; Case, Paxson, and Ableidinger 2004, Case and Ardington 2006). More recent work has analyzed the impact of HIV/AIDS on the older generation. Parents of those infected with HIV are affected in many ways, including providing care during illness, absorbing direct financial costs of illness and death, losing financial support, and providing care for orphaned children (Ntozi and Nakayiwa 1999; Williams and Tumwekwase 2001; Nyambedha et al. 2003; Knodel and Im-Em 2004, Knodel et al. 2007; Schatz and Ogunmefun 2007, Knodel 2008). This paper focuses primarily on the last of these impacts – the burden imposed on older South Africans of caring for the orphaned children of their adult children who die of AIDS.

The role of grandparents caring for AIDS orphans has received extensive discussion in research on the impact of HIV/AIDS in Africa and Asia. Saengtienchai and Knodel (2001) found that grandparents were almost always the primary caretakers of AIDS orphans in Thailand, although other surviving children sometimes played an important role. Studies from a number of countries indicate that grandparents play a major role in caring for AIDS orphans in Africa (Ntozi and Nakayiwa 1999; Foster and Williamson 2000; Nyambedha et al. 2003; Subbarao and Coury 2004). While a number of studies report that caring for orphans imposes a burden on grandparents, most of the evidence is qualitative and does not directly compare grandparents who are caring for grandchildren with other grandparents. Nyambedha et al.

(2003), for example, provide a number of reports from grandparents about the burdens imposed by having to provide schooling, food, and discipline to orphaned grandchildren. Quantitative evidence about the impact on grandparents of caring for AIDS orphans is more limited. The goal of this paper is to use survey data on a representative set of older adults to improve our understanding of the role that older persons play in caring for AIDS orphans in South Africa and to examine how public and private transfers may mitigate the burden on older caregivers.

Using panel data collected in a representative survey of Coloured and African households in metropolitan Cape Town, we document the role played by parents in caring for the offspring of children who die. In addition, we quantify the probabilities that older adults (and their surviving children) provide financial support to their orphaned grandchildren (orphaned nieces and nephews). We find that Africans are significantly more likely to absorb their orphaned grandchildren than are Coloured respondents. In addition, we find that orphans are significantly more likely to be absorbed into poorer households. Among all older adults who report having lost children, it is the poorest among them who report being co-resident with their orphaned grandchildren. Older adults are significantly more likely to absorb grandchildren when their own child died after an illness, such as AIDS, and less likely when their child died a sudden death. Characteristics of the older adult's surviving children – whether those co-resident or those living elsewhere – are not significantly associated with whether orphaned grandchildren live with the grandparent interview in the Cape Area Panel Study (CAPS).

We also look at how sources of public and private support may help older adults deal with the burdens of caring for orphaned grandchildren. We find that government grants and

adjustments in the flow of resources between older adults and their remaining living children play a role in support for orphans. Households are significantly more likely to report foster care grant receipt when there are orphaned minors in the household. In a similar vein, older adult grandparents – grandmothers, to be specific – are significantly more likely to report foster care grant receipt if they report living with an orphaned grandchild. In addition, we find the probability that older adults report transferring resources to living children is significantly diminished if they are housing orphaned grandchildren, and that living children are significantly more likely send resources to a parent who is housing orphaned grandchildren.

We look at the impact of an adult child death and coresidence with orphaned grandchildren on several measures of the quality of life of older adults. Perhaps in part because of the mediating flow of public and private resources, we see no difference in the spending patterns of households with orphaned children relative to other households followed by CAPS. We also find no effect of reporting that a child died, or of co-residence with orphaned grandchildren, on the older adults' reports of depression, or on their self-assessed health.

The paper proceeds as follows. Section 2 discusses some salient background features of South Africa in general and Cape Town in particular. Section 3 introduces our data. We discuss the living arrangements of orphans in Section 4. Section 5 examines how households meet the needs of orphans, through government transfers and changes in intergenerational flows between older adults and their living children. Section 6 discusses the impact of orphans on household spending patterns and on measures of older adults' quality of life. Section 7 provides a summary and conclusions.

2. The Setting

Our analysis is based on data from Cape Town, South Africa's second largest city. Relevant to our analysis is the fact that Cape Town has a somewhat different population composition than the rest of South Africa. Microdata from the 2007 South Africa Community Survey (Statistics South Africa 2007) indicate that Cape Town's population of 3.5 million was roughly 35% African (Black), 44% Coloured, 19% White, and less than 2% Asian (Indian), using the standard self-identified classifications collected by Statistics South Africa. This compares to a national population that is 79% African, 9% Coloured, 10% White, and 3% Asian. Part of our analysis will focus on contrasts between the African and Coloured respondents in our survey. These two groups both experienced significant disadvantages relative to Whites under apartheid, but they had important differences. Africans had the least access to services, the most restrictions on work and migration, and the lowest expenditures on schooling. The Coloured population, which is heavily concentrated in Cape Town, occupied an intermediate status under apartheid, with higher expenditures on schooling, fewer restrictions on residential mobility, and better access to jobs than Africans.

HIV prevalence rates are lower in Cape Town than in the rest of South Africa, but are nonetheless high enough to cause a significant burden on the elderly. According to the 2005 national HIV survey done by the Human Sciences Research Council, the HIV prevalence rate for African women aged 15-49 was 24.4% for South Africa as a whole, compared to 14.5% for the Western Cape province that includes Cape Town (Shisana et al. 2005). HIV prevalence is much lower in the coloured population. While the national HIV prevalence rate for 15-24 year-olds was estimated at 12.3% for Africans in 2005, the Coloured HIV prevalence rate for the same age group was only 1.7% (Shisana et al. 2005).

As expected, Cape Town's lower HIV prevalence leads to a somewhat smaller problem of orphanhood than in other parts of South Africa. The problem of orphaned children in Cape Town is nonetheless quite serious. Our analysis of data from the 2007 Community Survey indicates that 9.5% of African children under age 10 in Cape Town had at least one deceased parent. This compares to 11.8% in Johannesburg (South Africa's largest city) and 14.9% in South Africa as a whole.

An important feature of support networks in South Africa is the relatively generous system of government grants. Three major public grants – the old age pension, the child support grant, and the foster care grant – are highly relevant to the impact of HIV/AIDS on older persons. The old-age pension is a non-contributory pension that provides monthly payments to women beginning at age 60 and men beginning at age 65 regardless of work history. The value of the pension in 2006 (the year our data were collected) was 820 rands per month (about $200 in Purchasing Power Parity dollars). As discussed in Case and Deaton (1998), the pension is equivalent to twice median per capita African income and plays an important role in the budgets of African households. There is a means test, with individuals losing eligibility in 2006 when their income reached R20,232 (about $5000) per year. In practice the means test is rarely binding for the African elderly. As shown in Lam, Leibbrandt, and Ranchhod (2006), about 90% of age-eligible Africans report receiving the pension in recent national household surveys. Details about the child support grant and the foster care grant will be discussed below.

3. Data

We investigate the care-giving and intergenerational transfers in households with resident orphans using data from the Cape Area Panel Study (CAPS), a longitudinal study conducted

in four waves between 2002 and 2006 in metropolitan Cape Town (Lam et al. 2008). CAPS has followed young adults (aged 14 to 22 in Wave 1) through all four waves. Wave 4 had an additional module for adults aged 50 and above who had been resident in households sampled in Wave 1. Much of our analysis is based on interviews with these older adults (OAs). In addition, Wave 4 had a special focus on intergenerational support, and asked a battery of questions about transfers of time and money between parents, children and grandchildren.

Table 1 provides summary statistics on the African and Coloured OAs interviewed in Wave 4. Approximately 60 percent of all OAs are women. On average, OAs are 60 years old. Approximately a third of these adults are eligible for the state old-age pension. Of those who are age-eligible, 87% of African OAs and 82% of Coloured OAs report that they receive the pension.

Both African and Coloured OAs report 3.7 living children on average. However, we find markedly different numbers of deceased children by racial group – 0.8 for African OAs and 0.3 for Coloured OAs. For each deceased child, OA respondents were asked a number of questions, including the child's age at death, whether the child "died suddenly or after an illness," whether the OA helped care for the child during the illness, whether the deceased child left any living children, whether those children live with the respondent, and whether there are financial transfers between the OA and the children of the deceased child. Focusing on the deaths of children who were adults, the mean number of children who died between age 15 and 44 is 0.33 for African OAs and 0.11 for Coloured OAs. The mean number of children who died at age 15-44 after an illness is 0.16 for African OAs and 0.04 for Coloured OAs. The respondents almost always helped care for adult children who died after an illness –

the mean number of children who died at age 15-44 and were cared for by the OA is 0.15 for African respondents and 0.3 for Coloured respondents.

While respondents were not asked to identify AIDS as the cause of death, information from other studies can be used to estimate the proportion of deaths attributable to AIDS. Hosegood et al. (2004) provide estimates of cause-specific death rates in the Africa Centre Demographic Information System in rural KwaZulu-Natal, using verbal autopsies to identify deaths attributable to AIDS. According to their estimates, 81% of deaths to those aged 15-44 that followed an illness (AIDS, TB, heart disease, cancer, etc.) were attributable to AIDS. This compares to only 5% that would be attributable to AIDS for those aged 60 and over. While HIV prevalence is higher in KwaZulu-Natal than in Cape Town, it seems likely that the majority of deaths due to illness in the 15-44 age group for Africans were attributable to HIV/AIDS.

In related statistics, we see in Table 1 that there are racial differences in the fraction of OAs who report living with at least one orphaned grandchild: 10 percent of African OAs live with an orphaned grandchild, in contrast to 2 percent of Coloured respondents. Conditional on being at risk for such a living arrangement – that is, reporting that a child has died leaving grandchildren – 57 percent of African OAs and 24 percent of Coloured OAs report at least one of those grandchildren is resident in their household.

Africans report themselves as poorer than Coloured respondents on many dimensions. They have completed a full year less education on average. In addition, over half of African OAs live in households that reported their financial situation as ‘poor’ or ‘very poor’ in Wave 1. This was reported for less than 20 percent of Coloured OAs.

Part of our analysis will follow OA-child dyads. Summary statistics for these dyads are shown at the bottom of Table 1. We have 2,752 OA-child dyads in the African sample and 4,375 in the Coloured sample. For each child, the OA is asked to report on transfers of time and money (or goods given in-kind). Questions on support refer to support to or from each child and their offspring, or to or from the grandchildren alone in cases where the OA's child has died.[1] The bottom panel of Table 1 suggests that African and Coloured OAs are equally likely to report exchanges of time with their children and grandchildren (approximately two-thirds report providing or receiving time or help with tasks). In contrast, African OAs are almost three times as likely to report providing financial support to their children or grandchildren. Thirty-seven percent of Africans report giving financial help, true of only 14 percent of Coloured respondents. Coloured OAs are more likely than Africans to report that they receive financial help from their children (20 percent versus 16 percent). We will use responses on these transfers when we examine support for orphans, in Section 5. We turn first to the question of where orphaned grandchildren live.

4. Determinants of Orphans' Residential Status

Using the questions asked in Wave 4 about each deceased child and his or her children, we focus on whether orphaned grandchildren were living with the OA respondent at Wave 4. Specifically, knowing that a child has died leaving grandchildren, we examine whether characteristics of the household and those of the OA, the deceased child, and the OA's living children are associated with reporting that orphaned grandchildren are co-resident with the OA. Table 2 presents results of Ordinary Least Squares regressions in which the dependent variable is equal to one if the OA responds that children of the deceased child are living in his

[1] For example, on financial transfers, for each of their children separately, OAs are asked "In the past year, have you given – or –'s children any money or in-kind transfers, such as clothing, or have you paid any of –'s or –'s children's expenses, such as school fees, or health expenses? Do not include gifts such as birthday presents."

or her household. The sample here is restricted to OA-deceased child dyads for which the OA reports that there are living children of the deceased. Column 1 presents results on whether household socioeconomic status at Wave 1 is associated with the presence of orphans at Wave 4. We find that among those OAs who have lost children, it is the poorer households that house orphans. OAs residing in households that reported their financial situation was 'poor' or 'very poor' in Wave 1 are 17 percentage points more likely to report that children of the deceased are resident. This is consistent with work in sub-Saharan Africa more broadly, and South Africa in particular, which finds orphans are significantly more likely to live in poor households (see Case, Paxson, and Ableidinger 2004, and Case and Ardington 2006.)

Column 2 adds controls for OA characteristics, including race, sex and age of the OA, and indicators for whether the OA was of pension age or worked for money at Wave 4. Of these controls, only race is significantly associated with reporting resident orphaned grandchildren. On average, African OAs are 30 percentage points more likely to report co-resident orphaned grandchildren. (Note that this effect is not due to the fact that Africans are more likely to have deceased children: the sample here is restricted to only those OAs who have lost children who themselves had children.) The inclusion of a racial indicator slightly reduces the association between reporting a resident orphan and the indicator that the household was poor in 2002.

These results are surprising for what we don't find: respondents old enough to receive the pension are no more likely to take in orphaned grandchildren than are OAs who were below pension age at Wave 4. We do not know the ages of the deceased's children. It may be that pensioners, generally having stopped working, are better positioned to take care of orphans, but the orphaned grandchildren of pensioners are old enough to live on their own. In

addition, we find no evidence that women are more likely than men to take in orphaned grandchildren. This is apparent in the raw means: conditional on being at risk of living with at least one orphaned grandchild, 60 percent of African women, 51 percent of African men, 24 percent of Coloured women, and 25 percent of Coloured men report doing so.

Column 3 adds controls for characteristics of the deceased child. The older was the child at the time of death, the less likely is the OA to report orphaned grandchildren of that child to be co-resident. We interpret this negative coefficient as a marker that the grandchildren are older, perhaps old enough to be living on their own.

Orphaned grandchildren are significantly more likely to live with the OA if the OA's child died after an illness (as opposed to a sudden death). Specifically, grandchildren left after a child dies following an illness are 24 percentage points more likely to be living with the OA than are grandchildren left following a sudden death. As discussed above, we do not know the cause of the OA's child's death, although we estimate that well over half of the deaths due to illness were due to AIDS. These results suggest that AIDS orphans would be more likely to live with grandparents than those whose parents died in, say, a traffic accident. One possible contributing factor is that an adult children who died of AIDS may be more likely to have also had his or her spouse die than is an adult child who died in a car accident. Unfortunately we have no information about whether the surviving grandchild's other parent is living or dead.

The question of whether both parents have died may also be related to the fact that African OAs are so much more likely to live with orphaned grandchildren than are Coloured OAs. Note that the coefficient on the African dummy declines when we control for whether the death was sudden or from an illness in Regression 3. Given the much lower HIV prevalence in the Coloured population, orphaned grandchildren of Coloured OAs are much

less likely to have had a parent die of AIDS. As a result, they are probably also much less likely to have had both parents die, even when one parent died of natural causes. As noted, we unfortunately do not have any information about whether the orphaned grandchild's other parent is still alive.

Whether the OA's home is the residence for orphaned grandchildren may depend upon the other possible living arrangements for these children. To explore this, we included in our regression a set of characteristics about the OA's living children, including age, education, residency in the OA's household, and living children's financial status, employment status and health status. Individually and jointly these controls were insignificant. We explored the mean of living children's characteristics (as listed above) for children resident in the OA's household and, separately, the mean characteristics of living children who were not resident. In no cases did we find the OA's living children's characteristics significantly associated with whether the orphans lived with their grandparents. In addition, we examined whether the composition of the household in Wave 1 with respect to non-orphaned children was associated with placement of orphans in OA households. We had thought perhaps households with non-orphaned children may provide an attractive environment for orphans. We found no robust associations between numbers of non-orphaned children aged 0 to 5, or aged 6 to 17, and reports of orphaned grandchildren residing in the household at Wave 4.

Our sample of OA-deceased child dyads is small, and for that reason we are reluctant to divide the sample by race. However, doing so, and including in our orphan residency regressions the variables that were significant correlates in Table 2, we find coefficients for Africans and Coloureds that are very similar. We present these results, again for the OA-deceased child dyads, in Table 3. For both African and Coloured respondents, poor household

financial status is associated with a 15 percentage point increase in the probability that at least one orphaned grandchild is resident, and a one year increase in age-at-death is associated with a one percentage point decline in the probability of having a resident orphan. Death after an illness is associated with increased odds of reporting a resident orphan, significantly so for Africans. Given the similarity in coefficients between races, and our sample size, we will analyze the two groups together, and control for race with an indicator variable.

5. Public and private transfers to households with orphans

Who provides resources for orphaned children? We can use the CAPS data to examine whether the presence of orphaned children is associated with public and private transfers to households.

Public transfers

Table 4 investigates households' receipt of the two most widely reported, publicly available transfers that could aid grandparents caring for orphans: government-provided child support grants and foster care grants. Poor children younger than age 14 are eligible for monthly support from the government. In 2006, if the child's parents' or primary care giver's total income did not exceed R1100 per month ($275 per month in purchasing power parity dollars), the primary care giver could receive a monthly amount of R190 per eligible child ($48). A grandparent could apply for a child support grant for an age-eligible orphan if the OA was the child's primary caregiver and if they lived in a poor household (see Case, Hosegood and Lund 2005 for more details on the child support grant). In addition, the government has on the books a more generous foster care grant. The government's website states that this grant is for children who are placed into foster care because either the child has no parent or guardian, or the child has a parent or guardian who cannot be traced, or the child is in the custody of a

parent, guardian or any person who is unable or unfit to have custody. In the past 10 years it has been easier for grandparents to access the (less generous) child support grant for orphaned grandchildren than it has been to access the (more generous) foster care grant. The Foster Care Grant in 2006 was R590 per child per month ($148).

Table 4 explores household and OA receipt of child support and foster care grants. Columns 1 and 2 present regression results in which the amount of money households report receiving in the form of child support or foster care grants monthly is regressed on the number of children under 18 in the household who have lost at least one parent. In addition, we control for the number of children aged 0 to 5 and the number aged 6 to 17 in the household, and include indicators that the household is African, and that it reported itself as 'poor' or 'very poor' in Wave 1. Household reports of child support grant receipt are highly associated with the number of children in the household, especially those aged 0 to 5. Each additional child less than age 6 in the household is associated with 93 Rands per month from a child support grant. Without controls for the number of children by age category, the number of orphans under 18 in the household is positively and significantly related to child support grant receipt (results estimated but not included in Table 5.) However, inclusion of these controls for household composition renders the coefficient on orphaned minors insignificant. Orphaned children do receive child support grants, but are no more or less likely to have one than are other children. In contrast, even with controls for the number of children by age category, households report an additional 80 Rands per month in foster care grant receipt for each orphaned minor in the household.

We find a very similar pattern when we analyze a simple indicator of whether or not OAs report grant receipt, rather than the amount received. Columns 3 through 5 present

results in which indicators that the OA reports child support grant receipt or foster care grant receipt are regressed on an indicator that the OA responds that at least one orphaned grandchild is co-resident. Controlling for the number of children in the household, we see no significant relationship between the presence of orphaned grandchildren and child support grant receipt. However, the OA is 20 percentage points more likely to report receipt of a foster care grant when orphaned grandchildren are in the household. Column 5 suggests this effect works entirely through female OAs, who are almost 30 percentage points more likely to report a foster care grant when living with orphaned grandchildren. Men are eligible to be recipients of grants for children. However, it is less common to see men take up these grants. (See Case, Hosegood and Lund 2005 for similar findings.)

In summary, we find evidence that both child support grants, which benefit a broad range of children, and foster care grants, which are more closely targeted, help households and OAs care for orphaned children. As with the old-age pension, these government grant programs differentiate South Africa from most other African countries with high HIV prevalence. The grants at least partially offset the burden on older South Africans of absorbing the orphaned children of their own adult children who die of AIDS.

We turn now to investigate whether and to what extent OAs and their living children give and receive financial help from each other, and the extent to which the presence of orphans affects the existence and size of such transfers.

Private transfers

Table 5 examines OAs' reports that they provided financial help to each of their living children in the past year, and their reports that they received financial help from each of their living children during that same period. We regress these reports on an indicator that the OA

reports living with an orphaned grandchild, and on OA characteristics and those of their children. Each observation is an OA-living child dyad.

We find that female OAs are significantly less likely than men to report providing financial help to their children. African OAs are significantly more likely to provide financial help than are Coloured OAs. Female children are significantly more likely than male children to receive financial help. However, children residing outside the OA's household, and those with characteristics that suggest greater financial stability (having more education, reported to be working at Wave 4) are significantly less likely to receive support. Results in Table 6 suggest that an OA is 10 percentage points less likely to provide financial support to a living child if the OA is currently living with at least one orphaned grandchild. This may be one of the levers that households can use to redirect resources after a death: by giving less money to children, OAs may be able to provide goods needed by orphaned grandchildren.

Table 6 also suggests that children in better financial positions are significantly more likely to make financial transfers to their parents. For example, better educated children and children who are working are significantly more likely to help their parents. OAs are 5 percentage points more likely to receive financial help from children when they live with orphaned grandchildren. This result, however, is not robust to the inclusion of controls for the sex, education, and labor force status of the OA's living child.

In summary, older adults are less likely to make financial transfers to their living children when they have taken in orphaned grandchildren.. Whether this is a joint decision by the older adults and their living children or a unilateral action by the older adults is unclear, but it is consistent with other evidence in our regressions that transfers to children are less likely when the OA is less likely to be financially better off than the child. This suggests that

in cases in which the OA provides the home for the orphaned grandchild, the financial burden is at least partly shared by the OA's living children in the form of reduced financial support from the OA.

6. Expenditure patterns and quality of life in older adult households

Data collected in Wave 4 of CAPS can also be used to examine whether older adults' quality of life responds to the presence of orphaned grandchildren in their households. We investigate this in two steps. We begin by examining whether households with orphans display different expenditure patterns than other OA households. Taking spending reported by category in the household module, we test whether expenditure shares vary with household composition, specifically with the fraction of members that are orphaned children under the age of 18. We then turn to the question of whether the death of a child, and the presence of that child's children, have an effect on the OA's labor force participation, reports of depression, and self-assessed health status.

Household Expenditure patterns

We define the expenditure shares, for each spending category i reported for household h as $w_{ih} = \frac{x_{ih}}{X_h}$ where X_h is the sum over all household expenditures. We express each expenditure share, using a Working-Leser framework, as a function of total household expenditure per member (X_h / N_h). Specifically:

$$(1) \quad w_{ih} = \beta_0 + \beta_1 \ln(\frac{X_h}{N_h}) + u_{ih} .$$

We want to allow for the fact that orphans may have different effects on household spending than do other members. For this reason, we express 'effective' household size as

$$\tilde{N}_h = N_h + \alpha n_h = N_h(1+\alpha \frac{n_h}{N_h})$$

where n_h is the number of orphaned children under the age of 18 in the household.[2] If orphaned children have the same effect on household spending as other members, α will be equal to zero, and effective household size will be equal to observed household size. We approximate the log of effective household size as

$$\ln(\tilde{N}_h) = \ln(N_h) + \ln(1+\alpha \frac{n_h}{N_h}) \approx \ln(N_h) + \alpha \frac{n_h}{N_h}.$$

Substituting this into (1), our estimating equation becomes

$$(2) \quad w_{ih} = \beta_0 + \beta_1 \ln(X_h) - \beta_1 \ln(N_h) - \beta_1 \alpha (\frac{n_h}{N_h}) + u_{ih}.$$

Our test of whether spending patterns in OA households with orphans is different from those in other OA households is a test of whether the fraction of orphans in total household size is significantly different from zero in (2).

Table 6 presents sample means and coefficients from estimating (2) for each expenditure category. Each row presents coefficients for a different OLS regression. All regressions include the log of household size; the fraction of members aged 0 to 5, and aged 6 to 17, at Wave 4; indicators for race and for the household reporting itself as 'poor' or 'very poor' in Wave 1 of the survey; and a constant term. The table shows the coefficients on log of total household expenditure and that on the fraction of members who are orphaned children.

The coefficient on log of total expenditure indicates whether the category in question is a necessity which, by definition, implies the budget share falls as total income (expenditure) rises, or a luxury, for which we would observe the budget share rising with income. By this

[2] Orphan minors are defined as household members under age 18 who are reported in the household module to have at least one parent who is dead at Wave 4.

measure, utilities and "groceries and food eaten at home" are the only "necessities" in the households' budgets. With the exception of life insurance, which shows no pattern with total expenditure, expenditure shares on all other categories – meals eaten out, rent, clothing, telephone, health care, transportation, and spending on schooling – are observed to increase significantly with increases in total expenditure. This breakdown between luxuries and necessities is not uncommon in poor areas: almost everything aside from food and utilities are goods one can find a way to do without.

We find for every spending category in Table 6 that the fraction of household members who are orphaned children has no significant effect on spending patterns, which is consistent with α being equal to zero in (2) above. This implies that orphaned children entering the household have much the same effect on consumption choices as the addition of any other children. In other words, we do not see any evidence that the presence of orphaned children has a significant impact on the way in which resources are allocated in the household.

Older adult well-being

We analyze the impact of having an adult child die and taking in their orphaned children further in Table 7. We look at three outcomes reported our OA respondents. In column 1 we look at whether the loss of a child or the presence of orphaned grandchildren caused the OA to stop working. In column 2 we look at whether the OA is depressed some or most of the time, given responses to a screening module in the Wave 4 questionnaire based on the K6 mental health screening scale (Kessler et al. 2002). In column 3 we look at whether the loss of a child or the presence of orphaned grandchildren affects the OA's self-assessed health (which is reported categorically: 1=poor, 2=fair, 3=good, 4=very good, and 5=excellent).

We find many of the correlates of well-being that have been documented elsewhere are significant for these measures of well-being for the CAPS older adults. Women are more likely to report depression, and more likely to report themselves in worse health (Case and Paxson 2005). In addition, the probability of not working and the probability of reporting poorer health both increase with age. Africans, who are poorer on average than Coloureds by almost every measure, are more likely to report depression and more likely to report themselves as less healthy. Education is associated with an increased probability of working, conditional on age, and a significantly better report of self-assessed health (Cutler and Lleras-Muney cite). Having been in a household that reported it was 'poor' or 'very poor' in 2002 is associated with a lower probability of working at Wave 4, an elevated probability of reporting being depressed, and a poorer report of health at Wave 4.

These data are consistent with many patterns witnessed for well-being across communities at very different levels of development. It is interesting, then, that neither a report that an OA has lost a child nor the presence of orphaned grandchildren in the OA's household is significantly associated with labor force participation, reports of depression, or self-assessed health. The coefficients on "at least one child deceased" and "orphaned grandchildren in the household" are small and statistically insignificant in all three regressions. Together with the fact that expenditure patterns for households with orphans are not significantly different from those of other households, it appears that the safety net in South Africa – public and private – protects older adults against many of the consequences that could befall adults who must pick up the mantle when their adult children die.

7. Summary and Conclusions

This paper focuses on one of the most important ways in which older people are affected by HIV/AIDS – the burdens imposed on parents when they must take in the orphaned children of their deceased adult children. Using data on a sample of respondents aged 50 and over in metropolitan Cape Town, we find that 33% of African respondents had a child aged 15-44 die, with about half having died after an illness. Based on estimates from other sources, we expect that well over half of these illness-related deaths were due to HIV/AIDS. Among those older African respondents whose deceased children left an orphaned grandchild, the orphan lives with the older adult 57% of the time, with poorer households more likely to take in orphaned grandchildren.

We find that two sources of financial support help buffer the impact of taking in orphaned grandchildren. First, South Africa's unusual government grant programs play a role. In particular, households are much more likely to receive the relatively generous foster care grant when there are orphaned grandchildren in the household. Second, private financial transfers between parents and their surviving children adjust in predictable ways. Older adults are less likely to provide financial support to surviving adult children and are more likely to receive support from surviving adult children when they are caring for orphaned grandchildren.

We find no impact of either the death of a child or taking in orphaned grandchildren on three measures of adult well-being. We find no statistically significant effect of either the death of a child or coresidence with an orphaned grandchild on the grandparent's ability to work, whether the grandparent is depressed some or most of the time, or the grandparent's self-reported health. This result may be due to the fact that both public and private transfers

buffer what would otherwise be negative effects of losing a child or caring for an orphaned grandchild.

Our results are consistent with the evidence from many African countries that grandparents play a key role in caring for grandchildren who are orphaned due to AIDS deaths. Our results suggest that this burden does not have significant effects on the quality of life of these grandparents, however, at least as measured by their ability to work, their mental health, or their subjectively reported health. An obvious caveat is that this result may be due to the unique features of the South African social safety net. The old-age pension, the child support grant, and the foster care grant may all help offset the burden of caring for orphaned grandchildren. We also find that private intergenerational transfers move in parallel directions, shifting in ways that give grandparents additional resources to support coresident orphaned grandchildren.

References

Case, Anne and Cally Ardington. 2006. "The Impact of Parental Death on School Outcomes: Longitudinal Evidence from South Africa." *Demography* 43(3), 401-420.

Case, Anne and Angus Deaton. 1998."Large Cash Transfers to the Elderly in South Africa." *Economic Journal* 180(450), 1330-1361.

Case, Anne, Victoria Hosegood and Frances Lund. 2005. "The Reach and Impact of Child Support Grants: Evidence from KwaZulu-Natal." *Development Southern Africa* 22(4), 467-82.

Case, Anne and Christina Paxson. 2005. "Sex Differences in Morbidity and Mortality." *Demography* 42(2), 189-214.

Case, Anne, Christina Paxson and Joseph Ableidinger. 2004. "Orphans in Africa: Parental Death, Poverty and School Enrollment." *Demography* 41(3), 483-508.

Hosegood, Victoria, Anna-Maria Vanneste, and Ian Timæus. 2004. "Levels and causes of adult mortality in rural South Africa: the impact of AIDS," *AIDS* 18(4)5: 663-671,

Kessler, Ronald C., G. Andrews, Lisa J. Colpe, et al. 2002. "Short screening scales to monitor population prevalences and trends in non-specific psychological distress," *Psychological Medicine* 32: 959-976.

Knodel, John, and Wassana Im-Em. 2004. "The Economic Consequences for Parents of Losing an Adult Child to Aids: Evidence from Thailand." *Social Science and Medicine* 59(5):987–1001.

Knodel, John, Zachary Zimmer, Kiry Sovan Kim, and Sina Puch. 2007. "The Effect on Elderly Parents in Cambodia of Losing an Adult Child to AIDS," *Population and Development Review* 33(3): 479-500.

Knodel, John E. 2008. "Poverty and the Impact of AIDS on Older Persons: Evidence from Cambodia and Thailand." *Economic Development and Cultural Change*, 56(2):441-475.

Lam, David, Murray Leibbrandt and Vimal Ranchhod. 2006. "Labor Force Withdrawal of the Elderly in South Africa," in Jane Menken and Barney Cohen, editors, *Advancing the Research Agenda on Aging in Africa*, National Academies Press, Washington DC, 2006, pp. 214-249.

Lam, David, Cally Ardington, Nicola Branson, Anne Case, Murray Leibbrandt, Alicia Menendez, Jeremy Seekings and Meredith Sparks (2008). *The Cape Area Panel Study: Overview and Technical Documentation of Waves 1-2-3-4*. The University of Cape Town, October 2008

Nyambedha, Erick, Simiyu Wandibba, and Jens Aagaard-Hansen. 2003. "Retirement lost – the new role of the elderly as caretakers for orphans in western Kenya. *Journal of Cross-Cultural Gerontology*, 18: 33–52.

Ntozi James, and Sylvia Nakayiwa S. 1999. "AIDS in Uganda: how has the household coped with the epidemic?" in J. Caldwell, I Orubuloye, and J. Ntozi J (eds.) *The Continuing HIV/AIDS Epidemic in Africa: Response and Coping Strategies*. Health Transition Centre, Australian National University, Canberra, 155–180.

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

Schatz, Enid, and Catherine Ogunmefun. 2007. "Caring and Contributing: The Role of Older Women in Rural South African Multi-generational Households in the HIV/AIDS Era" *World Development* 35(8): 1390–1403

Shisana O, Rehle T, Simbayi L, Parker W, Zuma K, Bhana A, Connolly C, Jooste S, Pillay V. 2005. *South African National HIV Prevalence, HIV Incidence, Behaviour and Communication Survey*, Cape Town: Human Sciences Research Council Press.

Statistics South Africa. 2007. Community Survey, 2007, Statistical Release P0301.

Subbarao, K. and D. Coury. 2004. *Reaching Out to Africa's Orphans, A Framework for Public Action.* Washington DC: World Bank.

Williams Alun, and Grace Tumwekwase. 2001. "Multiple impacts of the HIV/AIDS epidemic on the aged in rural Uganda," *Journal of Cross-Cultural Gerontology* 16: 221–236.

Table 1. Summary Statistics for Cape Area Panel Study Older Adults, Wave 4

	African	Coloured
Summary Statistics on Older Adults:		
Female	0.57	0.61
Age	60.0	60.5
Pension age	0.33	0.39
Receiving pension, conditional on being pension age	0.87 (n=239)	0.82 (n=457)
Number of living children	3.68	3.68
Number of deceased children	0.84	0.30
Number of children who died aged 15-44	0.33	0.11
Number of children who died aged 15-44 after illness	0.16	0.04
Number of children cared for during illness who died aged 15-44 after illness	0.15	0.03
An orphaned grandchild lives with OA	0.10	0.02
An orphaned grandchild lives elsewhere	0.08	0.05
An orphaned grandchild lives with OA, conditional on having a deceased child with offspring	0.574 (n=141)	0.241 (n=79)
Years of education	6.31	7.58
Wave 1: household finances poor or very poor	0.56	0.17
Number of observations	719	1172
Summary Statistics on Older Adult-Children Dyads:		
Older Adult provides financial support	0.37	0.14
Older Adult receives financial support	0.16	0.20
Older Adult provides time	0.61	0.63
Older Adult receives time	0.68	0.69
Number of observations	2,752	4,375

Means by race for older adults (OA) and OA-child dyads. Questions on support refer to support to or from each child and their offspring, and to or from the offspring alone in cases where the child has died. Sample is restricted to African and Coloured adults ages 50 and older who report ever having had a child.

Table 2. Determinants of Orphans' Residential Status

	(1)	(2)	(3)
Wave 1: log(household income per member)	–0.038 (0.048)	0.036 (0.048)	0.007 (0.049)
Wave 1: household finances 'poor' or 'very poor'	0.171** (0.076)	0.135* (0.077)	0.154** (0.076)
OA pension age	--	–0.064 (0.180)	–0.059 (0.151)
OA pension age × female	--	–0.122 (0.201)	–0.075 (0.175)
OA female	--	0.130 (0.193)	0.144 (0.165)
OA African	--	0.318*** (0.073)	0.236*** (0.076)
OA Years of education	--	0.003 (0.011)	0.007 (0.011)
OA Wave 4: works for money	--	–0.092 (0.184)	–0.071 (0.162)
OA Wave 4: works for money × female	--	–0.013 (0.207)	–0.050 (0.185)
Deceased child's age at death	--	--	–0.009** (0.004)
Deceased sudden death	--	--	–0.237*** (0.069)
Controls for living children's characteristics	no	no	no
Observations	220	220	213
R-squared	0.041	0.135	0.204

Ordinary least squares regression coefficients with standard errors in parentheses. The dependent variable is equal to 1 if the OA reports that any of the deceased child's children live with the OA. Unobservables are clustered at the older adult (OA) level. All regressions include a constant term and an indicator that the report of household financial status was missing in Wave 1. The sample is restricted to OA-deceased child dyads for OA respondents who report having a child who died leaving offspring. Asterisks denote: ***p-value<0.01, **p-value<0.05, *p-value<0.1.

Table 3. Orphans' Residential Status by Race

	African	Coloured
Wave 1: household finances 'poor' or 'very poor'	0.147* (0.085)	0.150 (0.124)
Deceased child's age at death	–0.010* (0.005)	–0.008* (0.005)
Deceased sudden death	–0.277*** (0.083)	–0.131 (0.107)
Constant term	0.959*** (0.178)	0.585*** (0.205)
Observations	136	77
R-squared	0.112	0.072

Ordinary least squares regression coefficients with standard errors in parentheses. The dependent variable is equal to 1 if the OA reports that any of the deceased child's children live with the OA. Unobservables are clustered at the older adult (OA) level. Regressions include an indicator that the report of household financial status was missing in Wave 1. The sample is restricted to OA-deceased child dyads for OA respondents who report having a child who died leaving offspring. Asterisks denote: ***p-value<0.01, **p-value<0.05, *p-value<0.1.

Table 4. Grant receipt in households with orphans

	Household grant receipt (Rands)		Indicator: OA reports grant receipt (=1 if receipt)		
	Child support grant	Foster care grant	Child support grant	Foster care grant	
Number of orphaned minors in Wave 4 household	–4.28 (9.43)	79.66*** (17.55)	--	--	--
OA reports living with an orphaned grandchild	--	--	0.029 (0.036)	0.194*** (0.040)	–0.016 (0.007)
Female OA reports living with orphaned grandchild	--	--	--	--	0.286*** (0.057)
Number of children 0-5 in Wave 4 household	92.87*** (7.81)	5.64 (10.88)	0.010 (0.008)	–0.006 (0.006)	–0.006 (0.006)
Number of children 6-17 in Wave 4 household	35.24*** (4.60)	14.90 (6.23)	0.016*** (0.005)	0.015*** (0.004)	0.015*** (0.004)
OA is female	--	--	0.045*** (0.008)	0.027*** (0.006)	0.016*** (0.004)
African	45.21*** (8.15)	0.68 (11.26)	0.049*** (0.010)	0.010 (0.008)	0.009 (0.008)
Household ‘poor’ or ‘very poor’ at Wave 1	25.35*** (8.82)	6.43 (12.36)	0.033*** (0.012)	–0.003 (0.007)	–0.004 (0.008)
Number of observations	1469	1469	1889	1890	1890

Ordinary least squares regression coefficients reported, with robust standard errors in parentheses. Standard errors allow for correlation in the unobservables from the same geographic cluster. Columns 1 and 2 report results at the household level, and in columns 3, 4 and 5 at the OA level. All regressions include an indicator that the household report of poverty at wave 1 is missing.

Table 5. Financial transfers to and from the OA's children

	OA reports providing financial help to a child		OA reports receiving financial help from a child	
OA reports living with an orphaned grandchild	–0.109*** (0.033)	–0.070** (0.033)	0.055* (0.032)	0.037 (0.033)
OA is female	–0.069*** (0.016)	–0.056*** (0.015)	0.089*** (0.015)	0.078*** (0.015)
African	0.220*** (0.018)	0.172*** (0.019)	–0.035** (0.017)	0.010 (0.017)
Child is female	--	0.032*** (0.010)	--	0.017* (0.010)
Child does not reside with OA	--	–0.157*** (0.013)	--	–0.098*** (0.013)
Child's years of education	--	–0.004* (0.002)	--	0.009*** (0.002)
Child is working at Wave 4	--	–0.150*** (0.014)	--	0.225*** (0.014)
Number of observations	6941	6702	6954	6696

Ordinary least squares regression coefficients reported, with robust standard errors in parentheses. Standard errors allow for correlation in the unobservables from the same OA. The sample is the set of all OA-living child dyads. All regressions include the number of children in the OA household who are aged 0 to 5, and aged 6 to 17, an indicator that the household reported being 'poor' or 'very poor' in Wave 1, and an indicator that the household's poverty report at Wave 1 is missing.

Table 6. Expenditure Patterns in Households with Orphans Under Age 18

Expenditure Category	Mean Expenditure Share	Coefficient on log(household expenditure)	Coefficient on Fraction of Members who are Orphaned Minors
Food at home and non-food groceries	0.411	–0.090*** (0.011)	0.006 (0.042)
Meals eaten outside the home	0.008	0.010*** (0.001)	–0.002 (0.005)
Utilities	0.126	–0.053*** (0.006)	0.009 (0.020)
Rent or bond payment	0.060	0.012** (0.006)	–0.030 (0.023)
Clothing	0.072	0.020*** (0.005)	0.017 (0.031)
Telephone and cell phone	0.049	0.004* (0.002)	–0.001 (0.011)
Health care	0.030	0.016*** (0.003)	0.000 (0.014)
Transportation	0.092	0.031*** (0.004)	0.003 (0.028)
School fees, uniforms and other school-related expenses	0.036	0.013*** (0.004)	–0.023 (0.027)
Life insurance, burial society, funeral policies	0.052	–0.003 (0.003)	0.017 (0.017)

Ordinary least squares regression coefficients reported, with robust standard errors in parentheses. Standard errors allow for correlation in the unobservables from the same geographic cluster. Each row reports results from a different regression, one for each expenditure category. The sample is restricted to households with at least one OA who reports ever having had a child, with one observation per household. The number of observations in each regression is 1459. Also included in each regression are: log(household size); the fraction of household members that are aged 0 to 5, and the fraction aged 6 to 17, at Wave 4; indicators for race and for household reporting itself as ‘poor’ or ‘very poor’ at Wave 1; an indicator that the household’s financial report is missing; and a constant term.

Table 7. Older adult outcomes and the presence of orphans

	Dependent Variable		
	OA working at Wave 4	OA depressed some or most of the time	OA self-reported health status
Indicator: at least one child deceased	–0.012 (0.023)	0.024 (0.016)	–0.025 (0.055)
Indicator: orphaned grandchildren in the household	–0.024 (0.037)	–0.010 (0.033)	–0.111 (0.084)
OA is female	–0.210*** (0.020)	0.046*** (0.012)	–0.238*** (0.041)
OA is African	0.122*** (0.024)	0.071*** (0.016)	–0.114** (0.054)
OA years of education	0.015*** (0.003)	–0.001 (0.002)	0.023*** (0.007)
OA age	–0.024*** (0.001)	–0.000 (0.001)	–0.019*** (0.002)
Household 'poor' or 'very poor' at Wave 1	–0.062** (0.024)	0.042** (0.017)	–0.183*** (0.054)
Number of observations	1890	1884	1890

Ordinary least squares regression coefficients reported, with robust standard errors in parentheses. Standard errors allow for correlation in the unobservables from the same household. The sample is one observation per OA. Health status is equal to "1" if poor, "5" if excellent.