Orphans, Schooling and Medical Aid Coverage in the Era of HIV/AIDS in South Africa

Henry V. Doctor[1] and Zodwa M. Radasi[2]

[1,2]University of the Western Cape, Department of Statistics, Private Bag x17, Bellville 7535, South Africa

ABSTRACT

Using data from the 2003 General Household Survey, we examine the level of orphanhood and its impact on school enrolment and medical aid coverage in South Africa. Results show that the proportions of orphanhood increases with age and that non-orphans are 42 per cent more likely to be enrolled in school than orphans. Non-orphans are about four times more likely to be enrolled in a medical aid scheme than orphans. These findings call for the continued support of the government and the extended family in enhancing the welfare of orphans.

Key words – HIV/AIDS, medical aid, orphans, school enrolment, South Africa

INTRODUCTION

The escalating HIV/AIDS prevalence in sub Saharan Africa (hereafter SSA) has got negative consequences on socio-economic development and household dynamics. A huge proportion of people are infected with HIV and most of these are adults, leaving majority of children infected and affected. South Africa continues to have the highest number of HIV infected people with over five million people estimated to be living with HIV/AIDS at the end of 2003. Of those people living with HIV/AIDS, about three million were women (UNAIDS, 2004). Overall, sentinel surveillance data show that HIV prevalence in South Africa was estimated at 28 per cent in 2003 - a one percentage increase from 2002. Most recent estimates show that prevalence levels are still increasing in all age groups, except for pregnant women older than 40 years of age. Provincial variation in sentinel HIV prevalence are pronounced with more than 30 per cent of women infected in three provinces (Free State, Mpumalanga and KwaZulu-Natal, reaching 38 per cent in the latter) while the prevalence in Western Cape, Northern Cape and Limpopo ranges between 13 per cent and 18 per cent. Since 2001, HIV prevalence has risen in all provinces excluding Free State and Gauteng (UNAIDS, 2004). Due to the high HIV prevalence in SSA countries such as Botswana, Malawi, South Africa, Uganda, Zambia, and Zimbabwe, more than 15 per cent of children under the age of 18 have lost one or both parents (Doctor, 2004). In this paper, we examine the level of orphanhood, school enrolment, and medical aid coverage among children by socioeconomic status (SES) in South Africa. We use data from the 2003 General Household Survey (GHS) collected by Statistics South Africa (Stats SA).

The increasing HIV prevalence in SSA and elsewhere poses a challenge to government efforts in tackling issues related to the welfare of infected and affected people. In South Africa, the government is still facing some challenges in setting up mechanisms aimed at addressing the needs of orphans and other vulnerable children (OVC). For example, Kelly

(2002) cited in (Giese et al., 2003) stated the need for the South African Government to ensure that children of school-going age in communities hit hard by HIV/AIDS have the opportunity and financial resources to receive education of good quality. In addition, the education sector was called upon to provide support and assistance needed in addressing the social and psychological effects experienced by children affected or infected with HIV/AIDS. Although in 2000 the gross school enrolment rate for South Africa was estimated at 94 per cent, making it one of the highest enrolment rates in SSA, the prevalence of non-school attendance among children of school-going age remains high. For example, in 1996, 16 per cent of children aged 6–14 years were out of school with the highest prevalence of non-schooling observed in rural areas at 19 per cent and among Black Africans and boys. The Eastern Cape, Northern Province, and North West had the highest prevalence of non-school attendance (Giese et al., 2003).

Recent studies have documented the negative effects of orphanhood on children's school enrolment in SSA such as delayed enrolment, poor performance, and dropping out. However, there is no clear evidence suggesting that the risk of delayed enrolment or poor performance among orphans is higher than non-orphans (Doctor, 2004; Kinghorn et al., 2002). In South Africa, Ainsworth and Filmer (2002) using data from 1998, found out that there is no significant difference between enrolment of orphans and non-orphans. The study by Ainsworth and Filmer (2002) was based on household surveys from 28 African countries in SSA, Latin America, the Caribbean and south-east Asia. In their study, further evidence of the non-significant relationship between orphans and non-orphans and the extent to which orphans and non-orphans differ in school enrolment is country-specific. Other factors influencing school attendance among orphans include huge loads of domestic work and caregiving responsibilities particularly for older orphans. The challenges faced by orphans

irrespective of the outcome of interest are comparable across SSA and other less developed countries.

Another challenge faced by the Government of South Africa lies in the provision of health services to orphans and OVC. The current health system in South Africa attempts to respond to the needs of orphans by providing a strong political commitment to children and a basic health service infrastructure in all parts of the country. Despite these efforts, good quality and equitable implementation of health services for children throughout the country is still modest. Medical aid coverage among orphans and OVC is imperative in ensuring that children have access to advanced health care services. Although a number of medical aid schemes are available on the market that claims to offer cheap monthly premiums, they are often expensive for the average household with orphans and OVC. This has implications on access to advanced or specialist health services particularly in situations where the public health services and manpower are too stretched.

In the next section, we discuss the data and the methods used in our study and show that (1) double orphans remain a majority from age 14 to 18 with substantial differences by province, (2) non-orphans in South Africa are more likely to be enrolled in school than orphans, and (3) non-orphans are more likely to have medical coverage than their counterparts. Our findings and their interpretation are important because school enrolment and medical aid coverage are often used by social scientists to assess the welfare of children. If good education and medical aid coverage have consequences on the growth and development of children as future leaders, then assessing the extent to which school enrolment and medical aid coverage varies by orphanhood status is an appropriate task.

DATA AND METHODS

Data

The data for this study come from the second round of the GHS conducted in July 2003 by Stats SA. The data are archived by the National Research Foundation South African Data Archive (http://www.nrf.ac.za/sada/). The main purpose of the GHS is to measure the level of development and performance of various government programmes and projects (Stats SA, 2004). Information collected in the 2003 GHS include individual socio-demographic characteristics, survival status of parents, access to health services, employment characteristics, quality of housing, ownership of durable goods, sources of roofing and wall materials, and sources of energy/fuel for cooking, heating and lighting.

The GHS sample was drawn from the master sample used by Stats SA to draw samples for its regular household surveys. The master sample is drawn from the database of the South African 1996 Census enumeration areas (EAs). As part of the master sample, small EAs consisting of fewer than 100 households were combined with adjacent EAs to form primary sampling units (PSUs) of at least 100 households, to allow for repeated sampling of dwelling units within each PSU. The sampling procedure for the master sample involved explicit stratification by province and within each province, by urban and non-urban areas. Within each stratum, the sample was allocated disproportionately. A probability proportional to size sample of PSUs was drawn in each stratum, with the measure of size being the number of households in the PSU. Altogether approximately 3,000 PSUs were selected. In each selected PSU a systematic sample of 10 dwelling units was drawn, thus, resulting in approximately 30,000 dwelling units. All households in the sampled dwelling units were enumerated (Stats SA, 2004).

The 2003 GHS asked a responsible adult to list each member of the household and indicate the survival status of their parents (i.e., living, deceased, or unknown). For purposes

of collecting official statistics, Stats SA defines a household as 'a group of people who live together at least four nights a week, eat together and share resources, or a single person who lives alone' (Statistics Act of South Africa, 1999). The 2003 GHS does not collect information on cause of parental death, so AIDS orphans cannot be distinguished from others. Due to the lack of data on cause of parental death, any discussion on the impact of AIDS on orphans will be speculative and not empirically determined. Consistent with conventional definition of children, we restrict our sample to those aged 18 and younger representing 41 per cent of the total sample.

METHODS

We follow the conventional approaches to defining the categories of orphans by dividing the children into four mutually exclusive categories for our analysis. 'Paternal orphans' are children whose fathers are dead and whose mothers are alive. About 1.4 per cent of children in the 2003 GHS had the vital status of their fathers reported as 'unknown.' 'Maternal orphans' are children whose mothers are dead and whose fathers are alive. The proportion of children with the survival status of their mothers reported as 'unknown' was 0.12. We exclude children whose survival status of their parents was unknown from our analysis. 'Double orphans' are children whose parents are deceased (Smart, 2003, p, 7). 'Non-orphans' are children whose parents are alive.

A proxy measure for SES in our study is derived from principal components analysis (PCA) (Filmer and Pritchett, 2001) which is used to create an index of household assets and housing quality used as a proxy for SES. According to Filmer and Pritchett (2001), the index of household assets is obtained as the first principal component of forty one items in the following categories: source of water (two items), type of toilet (five items), source of heating (five items), source of cooking (four items), source of lighting (three items), housing structure

(five items), roofing material (four items), livestock (three items), ownership of household durables (ten items).

Current school enrolment for children aged six to eighteen is measured by the following question: 'Is (name) currently attending school or any other educational institution?' Responses to this question were a simple dichotomy, yes or no. Although the reported qualifications varied, the interest in this question was to find out the number of people who were currently attending any educational institution. This included distance or correspondence education.

Medical aid coverage in the survey was sought by the following question: 'Is (name) covered by a medical aid or medical benefit scheme or other private health insurance?' This question is applicable to all children. Possible responses to this question were in three categories: 'yes', 'no', and 'don't know.' The medical aid schemes were supposed to be operational at the time of the survey. Enumerators were instructed to inform the respondents that these schemes can cover the medical expenses partially or fully (Stats SA, 2004).

RESULTS

Table 1 provides some demographic characteristics of our study sample. The results show that majority (30 per cent) of the children are in the age group 10–14 followed by those in the age group 5–9 at 26 per cent. Children in the age group 15–18 account for 23 per cent of the sample whereas the youngest age group (0–4) constitutes 22 per cent of the sample. Among non-orphans, the lowest proportion is observed in the youngest age group at 9 per cent. The mean age for the sample is 9.67 years and higher for non-orphans at 11.71 years whereas orphans have the lowest mean age at 9.23 years.

Table 1 about here

About 12 per cent of all children are covered by a medical aid scheme whereas the proportion among non-orphans and orphans is about 4 per cent and 14 per cent respectively. Seventy-three percent of all children were enrolled in school with non-orphans accounting for the highest proportion at 82 per cent and their counterparts at 71 per cent. The sex composition of the sample is almost equal. Black/African children constitutes a majority of the sample at 82 per cent followed by Coloured children at 11 per cent, Indian/Asian children at about 2 per cent and White children at 5 per cent. Most of the children in the sample are from Limpopo (15 per cent), Eastern Cape (16 per cent), and KwaZulu-Natal (18 per cent) provinces. Children in the Western Cape, North West, Gauteng, and Mpumalanga provinces account for 10 per cent each of the sample. Free State and Northern Cape provinces have the lowest proportion of children at about 7 per cent and 5 per cent respectively.

Proportion of Orphans

Figure 1 displays the proportions of orphans irrespective of type by the age of the child for the total population. The proportion of orphanhood increases fast after the age of 12 and decreases at the age of 15 before it increases again at the age of 18. These results show that the proportion of orphans increases with age, a finding that is consistent across many countries in SSA (e.g., Foster et al., 1995). These results demonstrate the challenges faced by school-going children: they are at a higher risk of being orphans than younger children.

Figure 1 about here

Figure 2 shows the proportion of orphans by province. As was the case in Figure 1, the results displayed in Figure 2 show that the number of orphans increases with age. Although the patterns are not smooth, each province has got an increasing number of orphans with age. Specifically, more orphans are found in KwaZulu-Natal and the Eastern Cape and less of them are found in the North West. These results are to a large extent influenced by the large

proportion of households that are infected and affected with HIV/AIDS. And poverty is one of the plausible explanations that exacerbates high mortality particularly in rural in South Africa (Gyekye and Akinboade, 2003; Doctor and Simelane, 2005).

Figure 2 about here

What is the magnitude of orphans in South Africa based on data from the 2003 GHS? We answer this question by analyzing the proportion of orphans in Table 2. Orphans are grouped into three types: maternal, paternal, and double orphans. In South Africa, the results indicate that 3 per cent of children aged 18 or younger are maternal orphans and almost four times that percentage are paternal orphans. Of children aged 18 or younger, 2 per cent have lost both parents and about 17 per cent have lost one or both parents. Results by province do not differ that much. However, we observe that at provincial level, Free State has more maternal orphans (5 per cent) followed by Mpumalanga and Kwazulu-Natal at 4 per cent each. The lowest proportion is observed in the Western Cape and Gauteng at 2 per cent each. There are more paternal orphans in the Eastern Cape (15 per cent) followed by KwaZulu-Natal at 13 per cent and Free State at 12 per cent. Again, the lowest proportion is observed in the Western and Northern Cape at 8 per cent each. The proportions of paternal orphans in the other regions are in the magnitude of 10 per cent. Orphans of any type at the provincial level range from a low of 11 per cent in the Western Cape to a high of 21 per cent in the Eastern Cape with the other provinces lying between these proportions.

Table 2 about here

In Figure 3, we plot the proportions of children by orphan status. There are differences in the reported survival status of parents by the sex of the parent. The difference in the proportion of orphans in the youngest ages (zero to nine) is small for maternal and paternal orphans whereas for double orphans the proportions are high at each age. By age 11, the proportion of maternal orphans is higher than paternal orphans. However, by age 13 the

results are reversed. These results seem to confirm the expectation that as children grow older, we expect less of them to have surviving parents. Furthermore, as Preston and Taubman (1994) note, these results may be influenced by gender differences in accessing life enhancing resources among adult men and women.

Figure 3 about here

Orphans, Living Standards and School Enrolment

Information on asset ownership from the 2003 GHS is used to obtain a proxy measure of SES which is one of the key variables used in our analysis. We first report scoring factors from the PCA of the 41 variables that we used in the analysis and then move to a discussion of the variations in living standards by orphan status and school enrolment. These results are reported in Table 3. Each of the variables reported in Table 3 is dichotomous and it follows that its mean and standard deviation range between 0 and 1. The observed pattern in the first column by orphans status is consistent with our expectation: higher positive scores are assigned to variables that are more likely to be associated with rich households than poor households and low or negative values are more likely to be associated with poor than rich households.[1] For instance, positive values are assigned to households that are using electricity as a source of heating (0.118), a house made of a brick structure on separate stand (0.076), and those that have piped water on site (0.067). Ownership of traditional dwelling has a score of -0.113 whereas use of wood for cooking scores -0.132. The dichotomous nature of these variables makes the interpretation of the weights assigned to them easy. A move from zero to one (i.e., a move from "no ownership" to "owning an asset") changes the index by the

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[1] Our definition of "rich" and "poor" households does not follow the conventional definition of poverty but they are based on PCA procedure and the definitions of the quintiles (or groupings) are purely subjective. For example, some scholars choose to divide the SES index into three groups such as "first 40 per cent", "second 40 per cent", and "last 20 per cent." In this study we divide the SES index into five groups and hence refer to them as quintiles.

amount of SF/SD (ratio of scoring factor to standard deviation—column [4] of each orphan status in Table 3).

For example, orphans who live in households whose roofing material is corrugated iron/zinc have an asset index higher by 0.101 than those who do not, whereas for non-orphans their index is higher by 0.128. Having a bed for sleeping increases the asset index by 0.188 for orphans and 0.193 for non-orphans. When we compare column [4] by orphan status we find that virtually all orphans have higher SF/SD values than their counterparts. This may suggest that orphans are disadvantaged to an extent that having certain household goods or resources has a huge impact on the welfare of orphans. Further, although the differences are small, comparison of column [2] ("mean") by orphans status confirms our expectation that orphans do live in poor households than non-orphans. Generally, almost all households with orphans have lower mean values (or percentage of ownership) than households with non-orphans.

At the time of the 2003 GHS, 93 per cent and 90 per cent of all orphans and non-orphans respectively were enrolled in school. Further, among all enrolled children in school, 20 per cent were non-orphans and 80 per cent were orphans. This is a reflection of majority (80 per cent) of all school-going children in the study being orphans. In Table 4, we sort the households by their quintiles of the SES index the results reveal slight differences in the percentages if children enrolled in school by quintile and orphanhood status, particularly between the first and second quintiles. On average, among the poorest households (first quintile), more non-orphans (21.8 per cent) are enrolled in school than orphans of any type (21.3 per cent). These differences persist in the first quintile but moving up the quintile ladder in the second and third quintiles we see the reverse: Few non-orphans are enrolled in school than orphans. We speculate that these may be older children who might have dropped out of

school due to factors such as pregnancy or deferred success. The results presented in Table 4 do not signal any gender differences in school enrolment by orphan status.

Tables 3 and 4 about here

To gauge the extent to which orphans may be disadvantaged in school enrolment, we present the results in Table 5 which provide a summary of the mean value of the asset index for households with orphans and those with non-orphans. The differences in school enrolment are small. In general, the results show that in South Africa school-going orphans (of any type) on average live in poorer households than school going non-orphans. For example and irrespective of sex, the mean value of the asset index for households with school-going orphans is 2.93 whereas for non-orphans it is 2.95. Households with maternal orphans have a higher mean value at 3.00 than those with paternal and double orphans at 2.90 and 2.98 respectively. Among male school-going orphans, the mean value is 2.94 whereas for non-orphans it is 2.95. Furthermore, these results persist for all children irrespective of school enrolment. The mean value for the asset index of orphans (of any type) is 2.94, compare with that of non-orphans at 2.95.

Table 5 about here

Table 5 further shows that, for all children and irrespective of school enrolment, the mean value of the asset index for households living with maternal orphans is the highest at 2.99, compared with paternal orphans at 2.92, double orphans at 2.98, any orphan at 2.94 and non-orphans at 2.95. The magnitude of the mean of the household asset index by gender of child is not large. Except for maternal orphans, the results show that boys live in households whose mean value is slightly higher than those of girls.

The conventional expectation is to see children from rich households being enrolled in school more than those in poor households. In our study, we find that the level of the asset index seems to matter less in the level of enrolment. In virtually all the cases, children in the

first quintile, have higher rates of enrolment than those in the second and third quintiles. This finding suggests that it is a great task to tease out the differences in the relationship between poverty and school enrolment in South Africa. This may be an artefact of our measure of SES and the nature of the cross-section data. It would be interesting to track households with school-going children overtime to see the level of attrition between poor and rich households. However, in the present analysis, our data do not permit this kind of analysis. The percentages reported here for girls and boys are not very different.

Up to this stage, our analysis has been descriptive. In the following sections, we employ logistic regression analysis to examine whether orphan status influences the odds of being enrolled in school (at the time of the survey) before and after controlling for other socio-demographic variables. Our unit of analysis are children aged 6 to 18 years. We expect that being a non-orphan should positively associate with being enrolled in school. That is, children who are orphans should have, on average, lower chances of being enrolled in school than children who are non-orphans. We report these results in Table 6.

Table 6 about here

Model 1 of Table 6 estimates the baseline effect of orphanhood status on school enrolment. The results are consistent with our expectation: Compared to orphans, being a non-orphan increases the odds of being in school by 42 per cent. After controlling for gender and age group in Model 2, the influence of orphanhood status is still robust although the results are attenuated. Non-orphans are about 36 per cent more likely to be enrolled in school than orphans. However, the sex of the child does not matter in school enrolment suggesting that girls and boys receive equal treatment with respect to school enrolment. The effect of age group on school enrolment shows that children aged 9 to 11 years are about eight times (Odds Ratio [OR] = 7.52] more likely to be enrolled in school than the youngest age group (6-8

years). The odds are reduced for children aged 12 to 14 years (OR = 5.81) whereas they are further reduced for older children aged 15 to 18 years (OR = 0.81).

Controlling for population group and living standards index in Model 3 does not change the results a great deal. Compared to Blacks/Africans, we observe that being Coloured reduced the odds of being enrolled in school by about 51 per cent. There are no significant differences in school enrolment for Indians/Asians, Whites, and the living standards index.[2] Model 4 finally adds province of residence and the results are consistent with those from previous models. With the Western Cape as a reference category, we observe that children in the Northern Cape are 30 per cent less likely to be enrolled in school with the North West and Mpumalanga having the highest odds ratios at 1.38 and 1.72 respectively.

Orphans and Medical Aid Coverage

In this section we turn to our second key research question in this study: Are there differences in medical aid coverage by orphanhood status before and after controlling for other socio-demographic characteristics? We follow a similar approach to the analysis of school enrolment. In the present analysis, our dependent variable is medical aid coverage (yes, no) whose description has been discussed in the "Methods" section. We focus on all children aged 0 to 18 of which about 12 per cent of them were covered by some form of medical aid scheme. The results of this analysis are presented in Table 7.

Table 7 about here

In Model 1 we present the baseline effect of orphanhood status on medical coverage. The results shows that compared to orphans, the odds of being covered by medical aid for

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[2] The fact that there is no significant relationship between current school enrollment and living standards is surprising. In other studies using a similar approach this relationship has been established to be significant. For example, Doctor (2004) found that in Malawi, a child from a rich household is about 22 per cent more likely to be enrolled in school than a child from a poor family. Nevertheless, results from this study may suggest that our measure of living standards may not be an appropriate one for a cross-sectional analysis. Perhaps following cohorts of enrolled children and assess the attrition level may demonstrate some differences by living standards.

non-orphans increases by about four-fold (OR = 4.13). Controlling for gender and age group in Model 2, maintains the robustness of orphanhood status (OR = 4.28) whereas gender has no significant effect. However, we find that children aged nine to 11 years are about 13 per cent more likely to be covered by medical aid than children in the youngest age group. The odds of being covered by medical aid increase with age. Children aged 12 to 14 years and those aged 15 to 18 years are about 20 per cent and 25 per cent respectively more likely to be covered by medical aid.

Controlling for population group and living standards index in Model 3 attenuates the OR for orphanhood by about one point (OR = 3.08). However, the odds for age group do not change substantially—except for the oldest age group with an OR of 1.17 compared with that of 1.25 observed in Model 2. Compared to Blacks/Africans, the odds of Coloured children more than doubles at 2.12 whereas for Indians/Asians the odds are at a high of 5.41. White children have the highest odds at 20.28. When we were looking at the effect of orphanhood on school enrolment, we did not observe any effect of living standards index (see note 1). Here the results are different. We see that as households move up on the SES ladder, their children are less likely to be covered by medical aid.[3]

When we control for province in Model 4, the results of the influence of orphanhood status on medical aid are robust and consistent in terms of their magnitude and direction with those reported in Model 3. Children in the Eastern Cape are 12 per cent less likely to be covered by medical aid than those in the Western Cape. Similarly for Northern Cape and KwaZulu-Natal, children are 33 per cent and 28 per cent respectively less likely to be covered by medical aid whereas a child residing in Gauteng is 77 per cent more likely to be covered by a medical aid scheme.

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[3] These results hold even at the bivariate level (that is, regression of medical aid coverage on living standards index).

CONCLUSION

In this study we have used data from the 2003 GHS to examine the level of orphanhood and its effect on school enrolment and medical aid coverage in South Africa. Our study was motivated by the high AIDS-related adult mortality in South Africa (Dorrington et al., 2004). Our results show that the proportion of orphanhood in South Africa increases with age particularly after age 12 and starts decreasing by the age of 15. In addition, KwaZulu-Natal and the Eastern Cape provinces have more orphans on average than the other provinces. The finding that there is an increasing proportion of orphans by age in South Africa is consistent with studies done in South Africa (Dorrington et al., 2004) and in Malawi (Doctor, 2004).

Examining the effect of orphanhood on school enrolment, we find that not only do orphans live in generally poor households but also that there is no gender differences in school enrolment. That is, the results seem to suggest that girls and boys are treated equally with respect to school enrolment. However, we find that non-orphans are 42 per cent more likely to be enrolled in school at the time of the survey than orphans. This reconfirms findings from other studies in sub Saharan Africa that points to the challenges faced by orphans in their attempts to schooling (Doctor, 2004). With respect to race, we find that compared to Blacks, Coloureds are less likely to be in school.

In this study were also interested in finding out the relationship between orphanhood and medical aid coverage. Again, we find that orphans are disadvantaged. That is, being a non-orphan increases the likelihood of having medical aid coverage by four-fold. Compared to Blacks, we find that White orphans are more likely to have medical aid followed by Coloureds.

The literature is abounding with studies commenting on various strategies that governments and the society at large should adopt in order to minimize the challenges faced by orphans. While certain policies may be applicable in specific settings, the conventional

wisdom is that researchers should foster a greater analysis of the social-political dimensions of responses to the needs of orphans and OVC. For example, whereas in South Africa every child under the age of seven has access to free medical services, this provision is not sustained after age seven. Whether or not governments should institute policies which would take care of orphans from an early age until they are independent adults is always met with mixed reactions. However, as Dickinson (2006) puts it, the challenges of curbing the deadly AIDS epidemic are far from over unless politicians and the public at large engage in new thinking. This would help in ensuring that the expected increase in international funding for HIV/AIDS (hovering at about $10bn a year from 2007) is put to good use particularly in poor and politically fragile countries.

The findings reported here are very important in that they help the government gauge the progress made towards achieving one of the United Nations Millennium Development Goals (MGDs) of reducing the world's poverty by half. Considering that majority of orphans are poor, and if poverty and the general welfare of the orphans remain unchecked, it is very unlikely that the MDGs will be met. The results in this study also call for researchers to continuously take advantage of the available data to assess issues that are related to the socio-economic development of South Africa. Stats SA collects massive data on various socio-economic aspects of the South African community and it is imperative that researchers make use of these data to continuously assess cross-cutting issues relevant to the 21st century.

FOOTNOTES

1. Our definition of "rich" and "poor" households does not follow the conventional definition of poverty but they are based on PCA procedure and the definitions of the quintiles (or groupings) are purely subjective. For example, some scholars choose to divide the SES index into three groups such as "first 40 per cent", "second 40 per cent", and "last 20 per cent." In this study we divide the SES index into five groups and hence refer to them as quintiles.

2. The fact that there is no significant relationship between current school enrollment and living standards is surprising. In other studies using a similar approach this relationship has been established to be significant. For example, Doctor (2004) found that in Malawi, a child from a rich household is about 22 per cent more likely to be enrolled in school than a child from a poor family. Nevertheless, results from this study may suggest that our measure of living standards may not be an appropriate one for a cross-sectional analysis. Perhaps following cohorts of enrolled children and assess the attrition level may demonstrate some differences by living standards.

3. These results hold even at the bivariate level (that is, regression of medical aid coverage on living standards index).

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Figure 1. Proportion of Orphanhood by Child's Age, South Africa, 2003
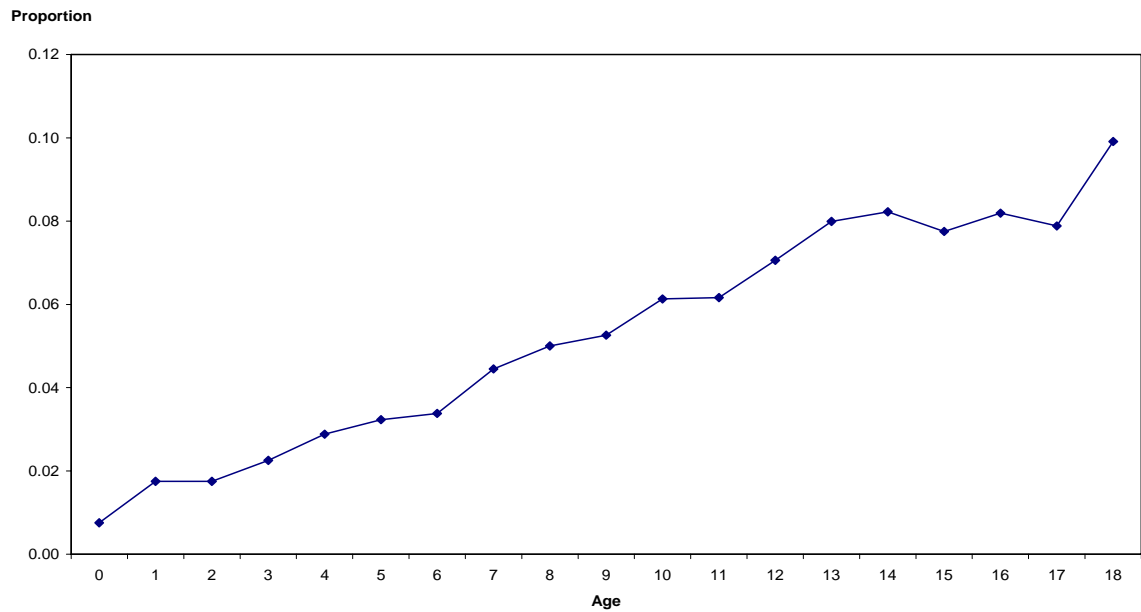
Proportion

Figure 2. Proportion of Orphanhood by Child's Age and Province, South Africa, 2003

Proportion

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Figure 3. Proportions of Maternal, Paternal and Double Orphans by Child's Age, South Africa, 2003
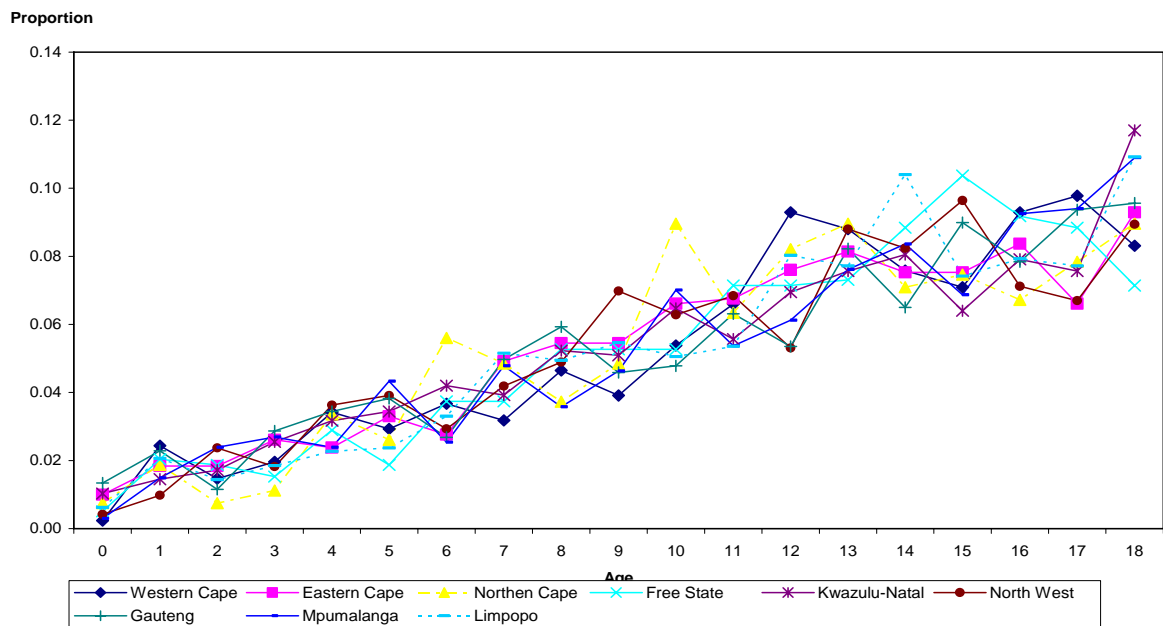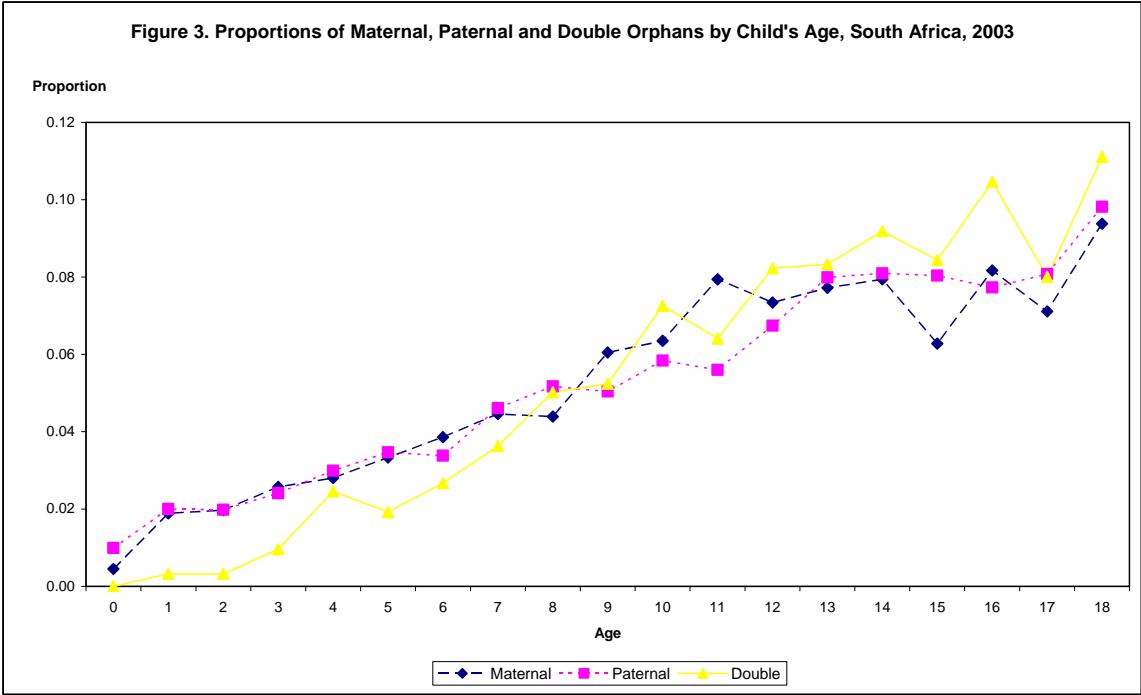
Table 1. Selected Characteristics of Children Aged 0–18, South Africa, 2003

Characteristics	Orphan		Total
	Yes	No	
Age group			
0–4	24.05	9.39	21.51
5–9	26.39	21.32	25.52
10–14	28.96	35.55	30.10
15–18	20.60	33.74	22.87
Mean age	9.23	11.71	9.67
Percent with medical aid coverage	13.85	3.74	12.10
Percent enrolled in school	71.16	81.54	72.95
Sex			
Male	50.82	50.12	50.70
Female	49.18	49.88	49.30
Population group			
Black/African	79.81	91.32	81.80
Coloured	12.07	7.32	11.25
Indian/Asian	1.89	0.45	1.64
White	6.24	0.91	5.32
Province			
Western Cape	10.11	5.93	9.39
Eastern Cape	15.28	18.87	15.90
Northern Cape	4.88	3.88	4.70
Free State	7.14	8.52	7.38
Kwazulu-Natal	17.62	21.06	18.21
Northwest	9.76	10.38	9.86
Gauteng	10.10	7.58	9.67
Mpumalanga	9.91	9.71	9.88
Limpopo	15.20	14.07	15.01
Number of cases	32,998	6,900	39,898

Source: 2003 General Household Survey; *Note:* Numbers are reported in percentages unless otherwise stated.

Table 2. Proportion of Orphans, South Africa, 2003

Residence	No. of observations	Maternal orphan	Paternal orphan	Double orphan	Orphan of any type
South Africa	39,898	0.033	0.116	0.024	0.173
Province					
Western Cape	3,746	0.017	0.082	0.010	0.109
Eastern Cape	6,345	0.029	0.149	0.027	0.205
Northern Cape	1,877	0.034	0.080	0.028	0.143
Free State	2,944	0.046	0.124	0.030	0.200
Kwazulu-Natal	7,266	0.042	0.126	0.032	0.200
North West	3,935	0.038	0.118	0.026	0.182
Gauteng	3,857	0.021	0.100	0.014	0.136
Mpumalanga	3,940	0.044	0.100	0.027	0.170
Limpopo	5,988	0.028	0.120	0.015	0.162

Source: 2003 General Household Survey; *Note:* Proportions of orphans are calculated using all children aged 18 and under whose parents are coded being alive or deceased.

Table 3. Scoring Factors of Principal Component Analysis and Summary Statistics of Household Characteristics for Children (6–18 years), South Africa, 2003

Characteristic	Orphans				Non-orphans			
	SF	Mean	SD	SF/SD*	SF	Mean	SD	SF/SD*
Sources of water								
Piped (tap) water in dwelling	0.063	0.419	0.493	0.128	0.060	0.400	0.490	0.122
Piped (tap) water on site/yard	0.067	0.280	0.449	0.149	0.066	0.301	0.459	0.144
Type of toilet								
Flush toilet (public sewage) inside	---	0.366	0.482	---	---	0.358	0.479	---
Flush toilet (septic tank) inside	0.064	0.021	0.145	0.441	0.059	0.019	0.137	0.431
Pit latrine with ventilation pipe	0.023	0.051	0.220	0.105	0.027	0.055	0.229	0.118
Pit latrine without vent pipe	0.015	0.219	0.414	0.036	0.024	0.227	0.419	0.057
None	-0.091	0.090	0.286	-0.318	-0.096	0.090	0.286	-0.336
Source of heating								
Electricity	0.118	0.501	0.500	0.236	0.116	0.502	0.500	0.232
Gas	0.013	0.008	0.089	0.146	0.008	0.007	0.080	0.100
Paraffin	0.011	0.106	0.309	0.036	0.012	0.108	0.310	0.039
Wood	-0.128	0.243	0.429	-0.298	-0.126	0.243	0.429	-0.294
None	0.028	0.087	0.282	0.099	0.026	0.084	0.277	0.094
Source of cooking								
Electricity	0.131	0.587	0.492	0.266	0.127	0.583	0.493	0.258
Gas	0.015	0.020	0.139	0.108	0.013	0.017	0.130	0.100
Paraffin	0.007	0.159	0.366	0.019	0.010	0.154	0.361	0.028
Wood	-0.132	0.197	0.398	-0.332	-0.129	0.202	0.402	-0.321
Source of lighting								
Electricity	0.118	0.802	0.398	0.296	0.116	0.794	0.405	0.286
Gas	-0.007	0.001	0.026	-0.269	-0.006	0.001	0.029	-0.207
Paraffin	-0.042	0.041	0.199	-0.211	-0.049	0.042	0.202	-0.243
Housing/dwelling structure								
Brick structure on separate stand	0.076	0.633	0.482	0.158	0.086	0.618	0.486	0.177
Traditional dwelling/structure	-0.113	0.097	0.297	-0.380	-0.120	0.108	0.310	-0.387
Flat or apartment	0.006	0.041	0.198	0.030	0.003	0.046	0.210	0.014
Informal dwelling/shack	0.018	0.109	0.312	0.058	0.016	0.105	0.307	0.052
Room/flat let	0.013	0.036	0.186	0.070	0.014	0.039	0.193	0.073
Roofing material								
Corrugated iron/zinc	0.050	0.573	0.495	0.101	0.063	0.584	0.493	0.128
Cardboard	0.037	0.179	0.384	0.096	0.038	0.179	0.383	0.099
Thatch	-0.111	0.052	0.221	-0.502	-0.120	0.055	0.229	-0.524
Asbestos	0.042	0.159	0.366	0.115	0.036	0.136	0.343	0.105
Livestock								
Cattle	-0.054	0.071	0.257	-0.210	-0.056	0.075	0.264	-0.212
Sheep/goats/other small animals	-0.062	0.074	0.262	-0.237	-0.056	0.079	0.270	-0.207
Poultry	-0.062	0.174	0.379	-0.164	-0.066	0.184	0.388	-0.170
Household durables								
Landline telephone	0.065	0.242	0.429	0.152	0.054	0.227	0.419	0.129
Cellphone	0.061	0.391	0.488	0.125	0.062	0.386	0.487	0.127
Access to land for agriculture	-0.082	0.115	0.320	-0.256	-0.085	0.118	0.323	-0.263
Vehicle	0.065	0.244	0.429	0.152	0.056	0.239	0.426	0.131
Plough	-0.026	0.037	0.189	-0.138	-0.029	0.038	0.192	-0.151
Television set	0.099	0.598	0.490	0.202	0.098	0.585	0.493	0.199
Bicycle	0.032	0.201	0.401	0.080	0.032	0.195	0.396	0.081
Radio	0.053	0.801	0.399	0.133	0.049	0.798	0.402	0.122
Bed	0.034	0.967	0.181	0.188	0.036	0.964	0.187	0.193
Watch/Clock	0.065	0.856	0.352	0.185	0.059	0.860	0.347	0.170

Source: 2003 General Household Survey; *Notes:* Each variable takes on the value 1 if true, 0 otherwise. The scoring factor is the weight assigned to each variable (normalized by its mean and standard deviation) in the linear combination of the variables that constitute the first principal component; *Ratio of scoring factor to standard deviation' "---" - not computed due to zero variance.

Table 4. Percent of School Going Children (6–18 years) Enrolled in School by Orphanhood Status andQquintile of the Household Asset Index, South Africa, 2003

Quintile	Type of orphan				
	Maternal orphan	Paternal orphan	Double orphan	Orphan (any type)	Non-orphan
Both sexes					
First quintile	19.34	22.07	20.13	21.27	21.82
Second quintile	21.18	21.10	20.64	21.05	20.11
Third quintile	19.63	19.89	20.00	19.86	18.81
Fourth quintile	20.02	18.37	19.87	18.90	19.64
Fifth quintile	19.83	18.57	19.36	18.92	19.62
Girls					
First quintile	17.39	22.41	19.32	21.02	21.79
Second quintile	21.74	21.85	24.54	22.21	20.21
Third quintile	20.55	19.12	17.49	19.16	18.68
Fourth quintile	20.36	18.51	19.32	18.97	19.70
Fifth quintile	19.96	18.12	19.32	18.64	19.62
Boys					
First quintile	21.25	21.74	20.90	21.52	21.86
Second quintile	20.68	20.37	16.92	19.93	19.99
Third quintile	18.60	20.64	22.39	20.51	18.95
Fourth quintile	19.73	18.24	20.40	18.84	19.58
Fifth quintile	19.73	19.01	19.40	19.20	19.62

Source: 2003 General Household Survey; *Note:* School enrolment is based on the survey question whether the child was enrolled in school.

Table 5. Mean Values for the Asset Index of Households by Orphanhood Status and School Enrolment, South Africa, 2003

Quintile	Type of orphan				
	Maternal orphan	**Paternal orphan**	**Double orphan**	**Orphan (any type)**	**Non-orphan**
Enrolled in school					
Both sexes	3.00	2.90	2.98	2.93	2.95
Girls	3.04	2.88	2.95	2.92	2.95
Boys	2.96	2.92	3.00	2.94	2.95
Irrespective of enrollment[*]					
Both sexes	2.99	2.92	2.98	2.94	2.95
Girls	3.01	2.90	2.96	2.93	2.95
Boys	2.94	2.97	2.99	2.95	2.95

Source: 2003 General Household Survey; *Notes:* Refer to earlier tables for notes; *Regardless of whether the child is in school or not.

Table 6. Odds Ratios of Being Enrolled in School for Children Aged 6-18 Years by Orphanhood Status and Other Socio-demographic Factors, South Africa, 2003

Variable	Model 1	Model 2	Model 3	Model 4
Orphan				
Yes	1.000	1.000	1.000	1.00
No	1.420***	1.364***	1.406***	1.370***
Sex				
Male		1.000	1.000	1.000
Female		1.003	1.005	1.008
Age group				
6–8		1.000	1.000	1.000
9–11		7.515***	7.542***	7.605***
12–14		5.810***	5.790***	5.796***
15–18		0.806***	0.794***	0.785***
Population group				
Black/African			1.000	1.000
Coloured			0.491***	0.557***
Indian/Asian			0.882	1.026
White			1.245	1.217
Living standards index				
First quintile			1.000	1.000
Second quintile			0.937	0.939
Third quintile			0.872	0.873
Fourth quintile			0.967	0.977
Fifth quintile			0.879	0.886
Province				
Western Cape				1.000
Eastern Cape				0.868
Northern Cape				0.700***
Free State				1.164
Kwazulu-Natal				0.812
Northwest				0.837
Gauteng				1.377**
Mpumalanga				1.177
Limpopo				1.724***
N	**29,452**	**29,452**	**29,431**	**29,431**
LR Chi2	**46.06**	**1462.49**	**1596.47**	**1723.76**
Log likelihood	**-7882.93**	**-7174.72**	**-7103.57**	**-7039.92**
Prob > chi2	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Source: 2003 General Household Survey; *Notes:* ***p<0.001; **p<0.01

Table 7. Odds Ratios of Being Covered by a Medical Aid Scheme for Children Aged 0-18 Years by Orphanhood Status and Other Socio-demographic Factors, South Africa, 2003

Variable	Model 1	Model 2	Model 3	Model 4
Orphan				
Yes	1.000	1.000	1.000	1.00
No	4.133***	4.278***	3.078***	3.024***
Sex				
Male		1.000	1.000	1.000
Female		0.993	1.008	1.001
Age group				
0–4		1.000	1.000	1.000
5–9		1.131**	1.142**	1.151**
10–14		1.201***	1.210***	1.229***
15–18		1.248***	1.174**	1.179**
Population group				
Black/African			1.000	1.000
Coloured			2.121***	2.222***
Indian/Asian			5.410***	6.030***
White			20.276***	18.594***
Living standards index				
First quintile			1.000	1.000
Second quintile			0.887*	0.888*
Third quintile			0.717***	0.723***
Fourth quintile			0.825***	0.837***
Fifth quintile			0.829***	0.832***
Province				
Western Cape				1.000
Eastern Cape				0.883
Northern Cape				0.674***
Free State				0.839
Kwazulu-Natal				0.723***
Northwest				1.164
Gauteng				1.772***
Mpumalanga				1.019
Limpopo				0.892
N	**39,846**	**39,835**	**39,812**	**39,812**
LR Chi2	**690.76**	**717.05**	**4673.61**	**4931.55**
Log likelihood	**-14355.57**	**-14339.03**	**-12343.90**	**-12214.93**
Prob > chi2	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Source: 2003 General Household Survey; *Notes:* ***p<0.001; **p<0.01; *p<0.05