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**Facing the consequences of AIDS: orphans,
educational outcomes and cash grants in South Africa**

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ABSTRACT

Despite growing interest in the impact of AIDS on educational outcomes, it is unclear how or why orphans might be educationally disadvantaged compared with unorphaned children and how to intervene to mitigate this disadvantage. This research attempts to determine the impact of parental death on educational outcomes; the mechanisms involved; and whether social grants mitigate any observed impact.

This thesis analyses educational outcomes of orphans in South Africa using data on 1635 school-age children from the *KwaZulu-Natal Income Dynamics Study* (KIDS), a panel of households that has been surveyed in 1993, 1998 and 2004. All three waves of KIDS have collected demographic and household expenditure data. In addition, the 2004 wave collected detailed information on children's schooling. This dataset has been linked to official statistics on schools to control for school effects. Regression modelling is used to control for confounding factors and identify causal pathways.

More than a third of children aged 7-20 in the study are orphans. Paternal and dual orphans tend to live in poorer households than other children but also tend to come from urban areas and to have relatively educated parents.

Death of a parent more than doubles the risk of late enrolment in school for both boys and girls. Paternal orphanhood is significantly associated for girls with late or non-completion of primary school, grade repetition, and dropout; and for teenage boys with poor attendance. The poor outcomes of paternal orphans persist when controlling for the poverty and other characteristics of the household before the father's death. Important causal mechanisms include difficulties with meeting the costs of schooling and higher levels of teenage pregnancy.

Cash grants reduce the educational disadvantage of poor children but do not significantly offset the specific adverse effects of orphanhood on educational outcomes.

Declaration by candidate

I declare that the work presented in this thesis is my own.



Tania Boler

January 2007

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CHAPTER ONE: INTRODUCTION

In the history of AIDS, the story of South Africa is perhaps one of the most tragic. In 1990, HIV prevalence rates were the same as in Thailand but by 1998 they were twenty times higher ¹. Although many other countries in Southern and Eastern Africa have been hard hit by HIV and AIDS, South Africa differs because of her relative wealth - the country is classified as middle-income, with GNP estimates of \$3020 per year ¹. A high percentage of GDP is created through services (66.7 percent) and industry (28.9 percent), with a low dependency on agriculture (4.4 percent) ². Literacy rates are also relatively high, with an estimated 86.4 percent of the population literate ². These strengths of South Africa's economy, human resource base and infrastructure mean that the country could potentially mount a response to the HIV/AIDS epidemic unrivalled by neighbouring countries.

Yet, despite this potential, the actual numbers of patients receiving ARVs is still far off target, with only 27,000 people receiving treatment at the end of December 2004 ³. Given the current rate of ARV rollout, the Actuarial Society of South Africa estimate a reduction in the number of AIDS-related deaths in 2010 from 495,000 (non ARV scenario) to 380,000 ⁴. The consequences of this inaction has been a decrease in life expectancy to 48.5 years for men and 52.7 years for women ⁴. Consequently, the mothers of an estimated one million children and fathers of 2.13 million children have died ⁵.

Although all the different facets of the HIV/AIDS epidemic merit significant attention, it is the plight of the orphans that has most captured the imagination of the world. International agencies such as UNICEF, DfID, UNESCO and the World Bank are rallying around this perceived orphan catastrophe. However, in their urgency to help these – undoubtedly – vulnerable children, their response has raced ahead of the evidence. Piecemeal evidence has been patched together clumsily to create a generic orphan story, which runs something as follows: when a parent becomes ill or dies from AIDS, the child will have to leave school in order to care for younger siblings and to find alternative sources of income. A mother dying is worse for the children's education than if a father dies and girls are more likely to drop out than boys.

The problem is that the evidence does not support such a story. The extensive literature review in Chapter 2 highlights the diversity of existing findings, as well as the methodological limitations which have beset thorough investigation of the impact of AIDS on children.

This dissertation attempts to overcome some of these limitations of the existing literature by linking together data on 1635 children from a 1993-2004 panel of households in KwaZulu-Natal, South Africa with a national school database in order to examine the different ways in which orphaned children may become educationally disadvantaged compared with unorphaned children (Chapters 5, 6 and 7). Regression modelling is used to control for confounding factors and identify causal pathways. The findings show the multidimensional and gendered impact of AIDS on education and illuminate the complex causal pathways involved.

A thorough understanding of the problems facing orphans in South Africa is a prerequisite for any response. However, policy makers also urgently need to understand how effective their policy responses are. South Africa differs from her African neighbours in many ways, one of which is to have in place an extensive system of cash grants. Studying the role of these different grants in mitigating the impact of AIDS on education can not only provide South African policy makers with important evidence for deciding which response works but also serve as a lesson for other countries. Chapter 8 uses stepwise logistic regression modelling to examine the role of three grants (school fee exemption, Child Support Grant and pension) in mitigating the impact of AIDS on education.

The final chapter synthesizes the results from the statistical modelling into a holistic account of the impact of AIDS on children's schooling and provides some insight into possible policy interventions. The limitations of the thesis and recommendations for future research are discussed.

1.1 Research objectives

This dissertation reports the results from a panel study in KwaZulu-Natal, South Africa linked with a national school database. The overarching research aim was to examine the impact of orphanhood on educational outcomes. A subsidiary aim was to investigate the role of three grants in mitigating the impact of orphanhood on educational outcomes.

The three research questions which guide the research are:

- 1 In what ways do the educational outcomes of orphans differ from those of unorphaned children?
- 2 What are the causal mechanisms underlying the relationship between orphanhood and educational outcomes?
- 3 To what extent do the existing policy interventions mitigate the impact of orphanhood on educational outcomes?

1.2 Acronyms and definitions

ACDIS	Africa Centre Demographic Information System
AIDS	Acquired Immunodeficiency virus
ANC	Ante natal clinic
Annual School Survey	Annual school survey
ARV	Anti-retroviral
ASSA	Actuarial Society of South Africa
Children	People aged 0 to 17 (inclusive)
DfID	UK Department for International Development
HIV	Human immunodeficiency virus
HSL	Household subsistence level
KIDS	KwaZulu-Natal Income Dynamics Study
KZN	KwaZulu-Natal
LSMS	Living Standards Measurement Survey
MICS	Multiple Indicator Cluster Survey
MLL	Minimum living level
Orphan	Any person from the KIDS dataset (aged 7 to 20 in 2004), one or both of whose parents has died
PCE	Per capita expenditure
TIMMS	Trends in International Mathematical and Science Study
UNESCO	United Nations Education, Science and Cultural Organisation
UNGASS	United Nations General Assembly Special Session

CHAPTER TWO: LITERATURE REVIEW

The chapter reviews three broad areas of enquiry. The first section describes the literature relating to growing up in South Africa in the context of AIDS. The second part examines research on educational outcomes and the factors which determine how likely a child is to succeed at school in South Africa. The final part reviews the literature on the impact of the HIV and AIDS epidemics on education.

Given the breadth of available literature, the review is restricted, where appropriate, to South Africa and in particular KwaZulu-Natal (the study setting). The literature is also restricted to the Black South African population (the study population).

2.1 Growing up in South Africa

In order to understand the context in which Black South African children are growing up, it is important first to understand the wider historical and cultural forces which have shaped the way Black South African families function. This overview is followed by a review of some of the key issues facing Black South African children and finally, a discussion on how AIDS has impacted on growing up in South Africa.

2.1.1 *The South African household*

Although South Africa differs contextually from many other countries in Sub-Saharan Africa, it has been argued that traditional African family and household structures are relatively similar across much of the continent^{6,7}.

A household is commonly defined as a group of people who share a physical space and resources⁸. However, a traditional African household is very different from one in Europe. Households are typically much larger and consist of the extended family in which more than one nuclear family lives under one roof. Lloyd and Desai⁹ analysed DHS data from 19 countries and found strong patterns across Sub-Saharan Africa in

which co-residence of family members outside of the nuclear unit is extremely common. This may often manifest itself in different generations living together, child fostering or a mother and her children living within a larger family unit. Hosegood and Timæus⁸ examined self-definition of households in South Africa and found that, in addition to multiple generations living together, many non-residents were viewed as household members, resulting in individuals belonging to more than one household at a time. Levels of mobility between households were also found to be very high and the composition of households highly fluid.

Thus, African households are fluid, complex and difficult to define⁸. The western ideal of children living with their parents and siblings does not hold in Sub-Saharan Africa where many children spend a substantial proportion of their childhood away from one or both parents^{6,9}.

South Africa stands out from other countries in the region because this stereotypical African family structure evolved a long time ago due to the historical impact of Apartheid¹⁰. Apartheid policies were wide-sweeping and covered every facet of daily life from employment to educational opportunities (see 2.2.1). Of these different policies, the policy of enforced labour migration is commonly perceived as having caused the most disruption to family life^{11,12}. Migration was compounded by the 1913 Land Act which stipulated that Black South Africans were only allowed to own 13 percent of the land¹³.

Strict policies controlling permanent migration to the cities led to large number of men leaving their rural homes in order to work in the mines¹². During this same period (1930 – 1960), women were forbidden from joining their husbands in town thus leading to unprecedented levels of marital separations¹⁴. The consequences for family life are well documented and precipitated a new type of household known as a “stretched household”^{11,12}. First coined by Spiegel¹², a stretched household refers to domestic units which are connected across space by kinship and remittances. The defining characteristics of a household have changed and can no longer be categorised as a spatially discrete entity but instead exists in multiple locations at the same time.

This stretching of households has had numerous knock-on effects on family life in South Africa. The dearth of men has meant that a large number of households became female-

headed¹⁵. This phenomenon continues today with the 1999 DHS survey estimating 51 percent of Black South African women to be living in households headed by a woman¹⁶.

The enforced separation of men and women has also been attributed to decreasing marriage rates¹⁷ which Case and Ardington¹⁸ argue have been further reduced through limited economic opportunities and the unfeasibility for many men of paying lobola (bridal wealth). Pick and Obermeyer¹⁹ show that an adaptive strategy employed by female-headed families is to come together with other female-headed families in order to support each other under one roof, leading to multiple female-headed households or “alliance household” formation.

The migration of men to cities during Apartheid led, not to a straightforward process of urbanisation, but rather to a form of “circular migration” in which men would migrate only temporarily to cities and then return during leave to rural homesteads. Despite the end of forced labour migration, to this day, circular migration is still a common part of life in South Africa²⁰. Due to changing labour prospects in cities, many adults move to cities but maintain their rural homes, thus leading to high numbers of “multiple-home households.”

In a qualitative study of why low-income adults in Durban maintain their rural homesteads, Smit²⁰ describes a variety of different reasons. Economic reasons include the safety net provided by rural households in the case of unemployment: adults are likely to return to the rural home when in need of an economic safety net, only to return to the city when the opportunity arises. The other key reasons included escape from violence (41 percent) and having a place to go to during leave (19 percent). Cultural reasons were also stated for why families wish to maintain strong urban-rural linkages.

2.1.2 Childhood in South Africa

The forced labour migration of Black South African men led to huge upheavals in traditional African family life. For children, this meant they were often living with their mothers. However, after 1960, restrictions on the employment of women eased and many children were then left in the care of relatives as mothers also went in search of

work¹³. Growing up in South Africa has therefore been characterised for many decades by high levels of child mobility and voluntary fostering¹⁰.

Fostering

The extended family system makes it possible in much of Africa, for children to be sent to live with relatives^{6,21-23}. Levels of fostering in the region are estimated to be between 16 and 25 percent²⁴. A more recent study in KwaZulu-Natal showed that 22 percent of teenage mothers were not living with their child, revealing the high level of fostering in the province²⁵.

Much of the literature on fostering refers to West Africa but many similarities exist with fostering practices in South Africa¹⁰. The practice of fostering is generally separated into voluntary fostering and crisis fostering^{10,26}. Madhavan¹⁰ defines voluntary fostering as the voluntary arrangements made between biological and foster parent which are often informal rather than formal (i.e. the foster parents do not hold any legal rights or obligations with respect to the child). Evidence from West Africa suggests that the most common reasons for voluntary fostering are kinship obligation, apprenticeship, alliance building, domestic labour and education²⁷. Seminal researchers such as Bledsoe^{21,22,28} highlight the positive aspects of voluntary fostering in the region such as the social benefits for the child. In addition, voluntary fostering is seen as an important way to build social and kinship ties between two households which in turn increases reciprocity obligations, social security and access to resources^{10,26}.

This largely beneficial African practice of fostering is perceived as distinctly less benevolent in South Africa¹⁰. The prolonged practice of labour migration and consequent voluntary fostering in the country has had well documented negative effects on children's well-being^{10,29,30}. However, many of these adverse outcomes are attributable as much to the perceived breakdown in family life rather than the consequences of fostering itself. Moreover, in many of the studies it is unclear if fostered children were actually voluntarily fostered or crisis fostered. Castle²⁶ argues that only the latter form of fostering is related to adverse outcomes for children. This second type of fostering – crisis fostering - refers to fostering which occurs in response to a death or poverty and is more relevant to fostering that occurs in the context of AIDS.

Although crisis fostering is viewed as occurring out of social obligation²³ it is likely that many of these social obligations are being stretched because of AIDS (see 2.1.3). Furthermore, the existence of Foster Care Grants in South Africa might be altering incentives to foster in children from those arising primarily from social obligation to possible economic motivation¹⁸.

Additional challenges facing children in South Africa

In terms of growing up in South Africa, Richter (among others) argues that the main risk factor undermining children's well-being is not HIV but the backdrop of poverty and inequality^{31,32}. Recent statistics suggest that 57 percent of South Africa's population live below the poverty income line and that although the proportion of people living in poverty did not change between 1996 and 2001, the poor became poorer³³. Since the end of Apartheid, economic inequality appears to have decreased between the races but increased within racial groups^{33,34}. Of South Africa's nine provinces, KwaZulu-Natal has the largest poverty gap: defined as the annual income transfer to all poor residents required to bring them out of poverty³³.

Girls growing up in South Africa are at a high risk of sexual violence: levels of coerced sex are estimated to be high, with one study suggesting that 10 percent of girls aged 15 to 19 had been raped and over two-thirds had been physically abused by their boyfriends³⁵. These forms of sexual vulnerability demonstrate some of the deeper social divisions between men and women in South Africa and are likely to fuel the spread of the epidemic³⁶.

Teenage pregnancy is common in South Africa and reflects patterns of sexual activity that place teenagers at risk of HIV infection: national statistics show that 35 percent of women under the age of twenty have been pregnant and 25 percent of 15 – 24 year olds attending antenatal clinics in 2004 were found to be HIV positive³⁷. The same data show that only three percent of women in the same age group are living with partners or husbands, suggesting most of their children are brought up without the presence of the father.

In an ethnographic study of teenage sexual activity, Wood and Jewkes³⁸ argued that teenagers are given "socially sanctified" freedom to experiment sexually; marriage is

relatively late and pre-marital sex and motherhood are the norms. Low rates of marriages for young people – especially among the Black South African population - are also confirmed in the Transitions to Adulthood study ²⁵. This longitudinal study in KwaZulu-Natal, showed increased poverty to be associated with increased levels of teenage pregnancy ²⁵.

Educational policy towards teenage pregnancy also demonstrates the extent to which the issue has become institutionalised; the government brought in new legislation through the National Education Policy (1996) which prohibits the expulsion of a student if she is pregnant or if she wishes to return after childbirth ³⁵.

The government supports mothers through the provision of the Child Support Grant (CSG). This grant is provided by the Department of Social Development to all families that earn below a certain amount of money (see Chapter 8 for more details). The grant is the main form of social security for children and aims to benefit the child's nutritional and educational well-being. When the grant was rolled out in 1998, only children up to the age of 7 were included, however in 2003, this was increased to all children up to the age of 14 ³⁹.

2.1.3 Impact of AIDS on growing up in South Africa

Given the low level of access to Anti-retroviral treatment in South Africa, for the majority of HIV positive people, the infection has inevitably led to death preceded by chronic illness ⁴⁰⁻⁴². In South Africa, the main mode of transmission of HIV is through sexual intercourse⁴³. Consequently, most of those who are dying are adults in the most productive part of the human life cycle (both in terms of procreation and economically).

‘Impact of HIV/AIDS’ refers to the consequences of this increased chronic illness and death ³⁶. Each person - as an individual in society - is embedded in a network of family, peers, communities and society. As a person becomes ill and dies, there are important consequences (impact) for their family - particularly for any dependents such as children or the elderly. These individuals are often categorised as “HIV affected”, showing that although they are not HIV positive, their lives have been changed by living with

someone who is HIV positive. When enough individuals become infected with HIV, the consequences begin to affect whole communities. The next development – some researchers argue – is that whole societies begin to feel the consequences of unprecedented levels of death in this age group ⁴⁴.

Ainsworth and Over⁴⁵ describe a theoretical model of the impact of AIDS which consists of three distinct phases. First, HIV causes illness in the household, which is categorised as an exogenous shock. As theirs is an economic model, this shock is conceived of as a decrease in the HIV positive individual's ability to carry out their daily activities (such as not being able to work). A more psychological model would emphasize the person's emotional response to their illness such as anger and sadness whereas a demographic study would look at changing morbidity and mortality rates.

The second phase of the economic model consists of how household members respond to the illness of the HIV positive individual by changing their own behaviour. This will include changes in expenditure (for example less money being spent on basic needs and more money spent on health-related purchases) and changes in employment (for example, stopping work in order to care for the sick household member). The more psychological literature emphasizes the coping responses of affected household members^{32,46}. In contrast, the demographic literature focuses on how households respond in terms of demographic changes such as migration, household dissolution and fostering

⁴⁷⁻⁵⁰.

The third phase of Ainsworth's model is the change in well-being of affected household members. The economic and demographic approaches converge at this stage with most of the research focussing on two proxies of well-being: 1) health outcomes (e.g. anthropometric scores for children) and 2) educational outcomes. Far less evidence exists on the psychological well-being of affected individuals although it has been postulated that one of the outcomes might be increased delinquency or mental illness⁵¹. For the vast majority of the literature, the assumption is that the impact of AIDS on non-infected individuals will negatively affect their well-being⁵². More recently, researchers⁴⁶ have been arguing that such an assumption ignores an individual's resilience and ability to cope (see below).

Politically, the potentially devastating impact of AIDS epidemics around the world has been used to mobilise resources and action. The international donor community has been lobbying African governments, arguing that the very institutions holding society together are under threat: health systems, education systems and industries ^{41,42}.

However, these systemic impacts have been difficult to show empirically ^{53,54}. One possible reason for this is that many of these systems are already dysfunctional and although AIDS is making matters worse, the systems still continue to function (or dysfunction) ⁵⁵. Given the complexities which determine the extent to which an education system is functioning, the shortage of any longitudinal data partly explains why - to date - there has been little evidence of systemic impacts.

It has been easier for researchers to show the consequences of increased illness and death at the household level by surveying affected households. Asking questions such as what happens to children when one or two parents die ⁵⁶⁻⁵⁸ and what is the effect of adult death on household income ^{54 59,60}? The next section briefly reviews some of the pertinent literature which attempts to answer these questions about the impact of AIDS on households.

Short-term and long-term impacts

Whiteside – among others – argues that the impact of HIV/AIDS is felt as an immediate and severe shock (short-term impact); and later by more complex, gradual and long-term changes (long-term impact) ^{36,61}. For instance, when a parent dies, a child might have to move house - a sharp and readily observable consequence. A few years later, that child might drop out of school because of emotional stress and poverty – both of which were indirectly triggered by their parent dying. There is a need to see how short-term and long-term impacts feed into each other - the only way to do this is through longitudinal studies.

Impact of AIDS on children

Skinner et al. ⁶² categorise four different ways in which children might be affected by HIV:

- 1) through death of a parent
- 2) parental illness
- 3) living in a household which has taken in an AIDS orphan

- 4) discrimination and stigma because of parent's HIV status.

Probably the most visible sign of the impact of AIDS on children is the increasing number of orphans in high prevalence countries⁶³. UNICEF estimate that by 2010, 18 million children will have lost a parent because of AIDS⁶³.

Although children are often orphaned for reasons other than AIDS, as a cause of orphanhood, AIDS stands out because of the increased likelihood that if one parent is HIV positive the other parent will also be infected with HIV. Therefore children affected by AIDS face a large risk that both parents might die within a relatively short period of time⁶⁴. Without AIDS, UNICEF predicted that the total number of dual orphans (children who have lost both parents) in Sub-Saharan Africa would decrease between 1990 and 2010. Instead, because of AIDS, the total number of dual orphans is predicted to triple by 2010⁶⁵.

Orphaned children are relatively easy to identify. However, as discussed above, it is clear that the impact of AIDS is not felt solely after an HIV positive individual has died but much earlier when parents first become ill. In recognition of the fact that AIDS impacts on children both through orphaning and through increased parental illness, the term OVC (orphan and vulnerable children) was coined. This concept shifts the focus from orphans to children who have been made vulnerable because of HIV and AIDS.

However, soon after this broader definition of OVC had been created, UNICEF and other development agencies complained that such a term was of limited value as vulnerable was perhaps too broad a category and could be taken to mean any poor child. Furthermore, the term OVC only included HIV-affected children and not necessarily all HIV-infected children. In 2006, UNICEF dropped the term OVC in favour of CABA (children affected by AIDS). CABA is seen to be more specific to the various ways in which children might be affected by HIV and removes the spotlight from orphans.

Any study into the impact of AIDS on children's well-being will need to take into account the spectrum of disadvantages these children might be facing and consequently, the inter-related ways in which well-being might be undermined. Such a framework is

provided by Boler and Carroll⁶⁶ with respect to how HIV-related vulnerability is related to educational outcomes.

Figure 1. Extract from Boler and Carrolls' theoretical framework on understanding the spectrum of educational disadvantage faced by orphans and vulnerable children⁶⁶.

Consequences for children	Issue facing AIDS-affected children	Educational response
<ul style="list-style-type: none"> • Low educational expectations of orphans • Lower prioritisation of orphans' education over other children within the household • Lack of homework support or encouragement for education 	Lack of family support	<ul style="list-style-type: none"> • Increase school-home liaison to work with families on increasing support to education • Create after-school homework clubs to provide additional support to those without families • Create mentor schemes in which vulnerable children have a mentor to provide emotional and intellectual support to their studies
<ul style="list-style-type: none"> • Low attention • Absenteeism • Difficulty in participating in certain school activities (e.g. sports) 	Chronic illness	<p>FAMILY SUPPORT</p> <ul style="list-style-type: none"> • Take special consideration with respect of each school activity to ensure that less physically able children are included • Train all staff in first aid • Resource person within the school with knowledge of local healthcare providers
<p>ILLNESS</p> <ul style="list-style-type: none"> • Drop out of education due to unaffordable schools fees • Stigmatised because of inadequate uniform and learning materials • Low attention span due to hunger 	Poverty	<ul style="list-style-type: none"> • Abolish school fees or provide bursaries for poor children • School feeding schemes • Change policies around uniforms and learning materials
<ul style="list-style-type: none"> • Social exclusion: marginalisation of children affected by HIV/AIDS • Negative learning environment • Barriers to participation 	Stigma	<ul style="list-style-type: none"> • Create inclusive school policies and practices • Eliminate discrimination in education and care services • Pressurise authorities to recognise rights and allocate funds • Encourage all learners and educators to adopt inclusivity and zero tolerance towards discrimination • Education of community and parents to combat AIDS-related stigma
<ul style="list-style-type: none"> • Low expectations of children • Fear of infection by learners and educators • Difficulties in adhering to ARV treatments due to lack of understanding 	HIV positive learners	<ul style="list-style-type: none"> • Train teachers and learners around infection, to reduce stigmatisation and ensure that necessary safety precautions are available • Foster policies, practices and cultures on inclusive education

Despite the growing recognition that orphans are not the only children affected by AIDS, the reality still remains that because of AIDS, the prevalence of orphanhood has increased dramatically⁶⁷. Orphans still provide an important proxy for studying the impact of AIDS as the outcomes of these children will represent the cumulative and long-term impact of AIDS. While not all orphans have been orphaned because of AIDS,

studying orphanhood remains the most visible, extensive and measurable means of identifying impact of AIDS on children⁵².

Orphans and fostering in the context of AIDS

Based on the ASSAⁱ model, in 2004, there were an estimated one million children in South Africa whose mother has died and 2.13 million children whose father has died⁵³. Given that most people in South Africa are not aware of their HIV status, it is very difficult to determine whether or not children have been orphaned because of AIDS. However, estimates suggest that AIDS is now the leading cause of death in KwaZulu-Natal⁶⁸.

As discussed earlier, the extended family traditionally takes on the responsibility of looking after orphaned children⁵⁸. In South Africa, this child-rearing responsibility is most commonly taken on by the maternal grandmother⁵² leading to the formation of skipped generation households, in which grandparents live with grandchildren⁶⁹. Skipped generation households are a common response to orphaning in many other countries in Africa^{57,58,70}.

Given the unprecedented rises in the number of orphans, it appears that these coping systems are becoming over-stretched^{71,72}. Foster has argued forcibly that the traditional extended family system simply cannot cope with the number of orphans, leading to children growing up in culturally inappropriate settings or looking after themselves – evidenced by the increase in the number of child-headed households^{73,74}.

However, despite such claims that traditional fosterage systems cannot cope with the AIDS crisis, the evidence in South Africa is far from conclusive¹⁰. In a recent survey, nearly 90 percent of adults were certain that, if they died, a family member would look after their children⁷⁵. This finding is echoed in two regional reviews by Bicego⁵⁷ and Monasch⁷⁶ who both showed that more than 90 percent of orphans were being cared for by the extended family network.

ⁱ Actuarial Society of South Africa

Any analysis of the impact of AIDS in South Africa must be placed within a historical context of at least 50 years of systematic destabilising of traditional family structures. As Madhavan says:

“Because of this history (Apartheid), we need to see HIV as an additional destabilising mechanism to an already fragile system.”

Madhavan 2004.

Although the rapid increase in the number of orphans in South Africa cannot be disputed, it is far from clear whether or not these orphans are disadvantaged in ways which will undermine their well-being. One group of researchers in South Africa has recently argued that the psychological impacts of AIDS on children may have been exaggerated and based on assumptions which are supported neither by research in psychology nor the realities of growing up in Africa ^{31,32,46}.

Drawing from psychological literature on resilience, Killian argues that between 50 to 66 percent of children growing up in circumstances of multiple risk overcome their adverse conditions and show strong signs of coping and resilience⁴⁶. The author goes on to argue that resilience is often over-looked in the literature on orphans and is an important process in adapting successfully, despite difficult circumstances. Clearly, it cannot be assumed that orphanhood automatically undermines the well-being of children and its effects are likely to be context specific. Yet, there is a dearth of evidence on the circumstances under which orphanhood might lead to adverse outcomes.

Impact on poverty

Barnett and Whiteside review the literature on the impact of HIV/AIDS on household levels of poverty and conclude that impact will depend on 1) the number of AIDS cases a household experiences 2) the characteristics of dead individuals 3) community attitudes and 4) the household's wealth ⁵⁴. The implication is that future impact studies should take into account these socio-demographic and economic factors. Moreover, the authors suggest that more longitudinal research is needed to understand how impact of parental illness and death is felt by households. Finally, they – and others- criticise the small sample sizes of many impact studies ^{54,77}.

Three different sets of researchers have analysed data from around nineteen Demographic and Health surveys (DHS). One group found that orphans in Africa live, on average, in poorer households than non-orphans⁷⁸. Conversely, Bicego's analysis of the data suggests that orphans are no more economically disadvantaged than non-orphans⁵⁷. The answer may be that impact will be felt differently in different countries, and at different times⁵⁶. However, these contrasting results from the same datasets are also due to the different ways that the researchers measured the variables.

In South Africa, a longitudinal study in Free State showed that AIDS-affected households were poorer at baseline but also that over a six-month period, their household expenditure and income decreased more rapidly than unaffected households⁷⁹. Although this study shows the importance of using longitudinal data to understand the dynamic nature of the impact of AIDS, the baseline survey did not differentiate between the stages of impact that the households were experiencing.

2.1.4 Summary

Despite the establishment of democracy, growing up in South Africa still remains - for many - a difficult and vulnerable period. Apartheid has undermined the traditional African family structure through forced labour migration which has led to high number of children being fostered or living in female-headed households. Children are facing multiple vulnerabilities with only a minority living in a two-parent nuclear family.

The pre-existing vulnerability of many children in South Africa is increased through the impact of AIDS. How the impact will be felt will depend on how households respond, which in itself is determined by complex factors such as resilience, fostering and local customs with regards to child-rearing.

The impact of AIDS on children is a dynamic process and can thus be observed at different stages. Even though children are undoubtedly affected when their parent becomes ill, studying the impact of orphanhood on children remains one of the most easily identifiable approaches to studying the impact of AIDS.

Studies of the impact of AIDS must be placed within this unusual demographic context. In order to do this, demographic surveys are needed which incorporate the realities of a typical African household. Surveys which can link together households over time are necessary so that orphaned children can be compared with other groups of vulnerable children. Only within this context is it possible to determine exactly what specific vulnerabilities – if any – orphans face.

This first part of the literature review has highlighted the inter-relatedness of poverty, HIV and children's well-being. Research has attempted to untangle these links but a lack of longitudinal data has obstructed an understanding of the causal mechanisms underlying the impact of AIDS on children. Clearly, a need exists for longitudinal studies which combine strong socio-economic indicators as well as detailed demographic information.

In terms of children's well-being, a number of different indicators exist ⁸⁰. Of these, educational outcomes are some of the most important, with the highest predictive power in determining children's future chances of health and economic prosperity ^{81,82,83-85,86}

2.2 Educational Outcomes

Without a doubt, formal education has a central role in the life of a young person and will shape not only who that child becomes as an adult, but also what opportunities he or she will have for the future.

During Apartheid, educational opportunities for Black South Africans were capped under the 1953 Bantu policy ⁸⁷. In the wake of democratisation, re-addressing the inequities in the formal education system became a focal point of the Reconstruction and Development Programmes with a massive mobilisation of resources for education ⁸⁸.

It therefore becomes imperative to know how effective this investment in education is. Are young people learning? What are their educational outcomes ⁸⁹? The first germane question is: how are these educational outcomes measured? The second is, given that

there are huge differences between individual children on their progress through the education system, how can these differences be explained?

The following section of the literature review is split into three parts: 2.2.1 provides a brief overview of the key factors affecting educational outcomes in South Africa; 2.2.2 discusses problems with measuring educational outcomes and 2.2.3 reviews the literature on determinants of educational outcomes.

2.2.1 Education in South Africa

Since the end of Apartheid, education has been at the centre of public sector reform in South Africa with no aspect of the education system left untouched⁹⁰. Chisholm describes two periods of educational policy change in South Africa: first, a period from 1994 to 1999 in which there was a focus on increasing access to schooling, evidenced through the redistribution of funding and the introduction of the Teacher Redistribution and Deployment Act. In line with the overarching policy of fiscal austerity, funding for education actually decreased during this period⁹¹. However, by 1999, it was becoming clear that the quality of education was unacceptably low and there was a shift to a new education policy framework called Tirisano, which means working together⁹⁰. This new framework (2000 to 2005) had more of a focus on quality and the curriculum changed from one which was overly based on rote learning to one based on outcomes and skills.

Quality and access

Despite recent increases in educational expenditures by the government, the Department of Education acknowledges that the quality of education is still low⁸⁷. There remains a large difference in quality depending on where a child lives: for example, schools in informal settlements are of very low quality regardless of whether they are in an urban or rural area. To compound these problems, KwaZulu-Natal spends less on each student than any other province in the country⁹⁰.

In terms of access, South Africa enjoys enrolment figures unrivalled by most African countries. In his 2004 re-election speech, Mbeki proudly announced that secondary school enrolment was up to 85 percent⁹¹. However, school fees remain an obstacle for many households.

Despite the high level of access to schooling, rates of progress through the education system are poor: it is estimated that over 50 percent of learners are either outside the system or held back ⁹².

Early childhood development

Early childhood development (ECD) is a crucial predictor of educational outcomes in later life ⁹³. At the end of Apartheid, provision of ECD was fragmented with public pre-primary schools regulated by the Education Ministry; crèches regulated by the Welfare and ECD centres in informal settlements not regulated at all ⁹⁴.

The fragmentation that characterised the Apartheid era continues, with about half of ECD centres being community-based and the rest either school or home based. Furthermore, funding for ECD is primarily from fees rather than the government ⁹⁵. The government recently introduced a new reception grade into primary schools in order to systematise ECD and shift it to schools rather than other institutions. However, a national audit by the Department of Education shows that only one in six children has access to ECD with Black South African children accessing lower quality institutions⁹⁵. By 2005, the situation appears not to have changed with very few children accessing the new reception grade⁹⁰.

Learning outcomes

For a long time, the qualifications system has been skewed toward the matriculation examinations at the end of Grade 12 of secondary school. National pass rates have increased from 58.1 percent in 1994 to 73.3 percent in 2004 ⁹⁴. Although the government interprets this trend as evidence for its policy reform programme, critics have highlighted a possible decrease in standards ⁹⁴. However, as Chisholm points out, although the pass rate has increased, it is becoming clear that fewer students are actually taking the exam ⁹⁰.

In addition to matriculation examinations, there have been a number of literacy and numeracy tests to test the learning outcomes of younger children. The most well-known of these is TIMMS⁹⁶. In the most recent comparison across 45 countries, South Africa

⁹⁶ Trends in International Mathematical and Science Study

rated worst on a number of indicators including maths and science scores for eighth graders ⁹⁶.

The Department of Education tested Grade 4 learners on literacy, numeracy and life skills and found the average score to be below 50 percent – an unacceptably low level of learning achievement ⁹⁷. Finally, Taylor et al.⁹⁸ compared the learning outcomes of children on the national curriculum and concluded that by Grade 3, children were one to two years below the required level and only had a rudimentary understanding of literacy. By the time children reached Grade 6, they had, on average, slipped to three years below the nationally required level. Learning achievement is low across the country, with Black South African students consistently performing worse than other racial groups²⁵.

Language of instruction

Since the end of Apartheid, the government has introduced a multilingual language policy. Although such a policy was intended to increase learning achievement, it may actually disadvantage children: first, if the child is not fluent in the language of instruction and, second, if the teacher is not either ⁹⁸. In a study of the determinants of educational outcomes, Simkins and Paterson found that the frequency in which the language of instruction was practised in the home was the key determinant in learning success ⁹⁹.

2.2.2 The problem of measurement

Unlike variables such as height or weight, there are no objective instruments which can measure education directly (i.e. assign a numerical quantity to it). The reason for this is, in part, because disagreement remains over what to measure and how ¹⁰⁰.

Ultimately, policy makers want some measures of how much young people learn (learning outcomes) as this is the *raison d'être* of the formal education system⁹³. The World Bank has conducted a number of studies investigating which learning outcomes are of most interest to policy makers which can be categorised as the following ¹⁰⁰:

1. basic cognitive skills such as literacy and numeracy
2. complex cognitive skills such as reasoning ability
3. general knowledge on a wide variety of subjects

4. specialised technical skills
5. diplomas and certificates
6. values and behavioural norms that arise through the curriculum (e.g. life skills/citizenship), and through social interaction between students.

However, most of these concepts remain abstract, and to operationalize them, data need to be collected on more concrete variables that are closely related to learning. The most common approach is through assessment: the administration of either traditional achievement tests to measure the amount of knowledge acquired; or psychometric tests which attempt to measure aptitudes – potential for learning^{93,101}.

Many countries have a series of standardised achievement tests which are used as indicators of learning outcomes and general aptitude. South Africa is somewhat of an anomaly in that only one standardised assessment is used – the matriculation exam - at the end of Grade 12. This exam is the most important formal educational outcome from the education system and determines future employment prospects and access to tertiary education^{102,103}.

Prior to taking the matriculation examination, schools set their own exams to determine whether students have gained the skills appropriate to their school grade. However, since these exams are set by individual schools, it becomes difficult to compare results across schools. Moreover, there is evidence that these grades are inflated¹⁰².

2.2.3 Determinants of educational outcomes

The “big question” occupying the efforts of education researchers is, what is more important in determining educational outcomes: home or school?

In an historical review of the literature, Kadzamira¹⁰⁴ charts how this pivotal educational debate was sparked in the 1960s by the publication of two government papers: 1) The Coleman Report (1966) and 2) The Plowden Report (1967). Produced for the American and British governments respectively, they both argued that home factors (socio-demographic and economic factors) are more important in determining educational outcomes than school factors. These reports triggered a flurry of research claiming the

opposite: that school effects are the crucial factor, especially in developing countries ¹⁰⁵. The problem is that many of the explanatory variables are related to each other in complex ways, making the task of identifying the true mechanisms difficult ⁹⁹.

Of course, inherent individual differences in ability unequivocally affect educational outcomes. However, it is also clear that IQ tests, designed to measure intelligence, do not account for the majority of differences in educational outcomes ¹⁰⁶. As the purpose of this thesis is to examine some of the social influences on educational outcomes, inherent individual differences in ability will not be considered.

Socio-demographic determinants

Research suggests that there are a number of possible socio-demographic determinants at the household level. These include: parental support, levels of parental education, gender, age, family size, family structure, language of instruction at home and race ^{25,99,107-110}.

Parental support has been shown to determine a number of child well-being indicators, particularly psychological well-being ¹¹¹⁻¹¹⁴. In terms of education, the evidence is mixed: Douglas's classic study suggested that working-class children did not benefit as much from schooling because of a lack of parental interest and low expectations¹¹⁵. South African research suggests that key stakeholders (such as teachers) view lack of parental support as the main reason for poor performance in matriculation exams. ^{103,116}.

However, Legotlo et al.¹⁰³ showed that, in addition to low parental support, school factors such as poor teacher morale were equally important in determining educational outcomes - demonstrating the broad and interlinked nature of determinants of educational outcomes. Heystek and Smit argue that parental involvement in their children's education is more dependent on levels of school support rather than on parents themselves – once again, demonstrating how inter-linked school and home are ^{117,118}.

South African research has shown that family structure – in particular whether or not students live with their parents - influences learning achievement ¹¹⁹. This is in addition to other socio-demographic factors such as gender, race, age and family size ^{102,116,118,120}. In

terms of race, the Black South African population have consistently lower educational outcomes than other groups ^{25,90},

Living in rural areas in South Africa also creates specific disadvantages because of the distances many children must travel to attend school and the additional time commitments of children outside of school hours, which can lead to lower attention in lessons ¹²¹. This study by EPC highlights the difficulty in separating school and home factors: distance to school is determined by the number of schools in the local area (school factor) but only becomes a problem if the family cannot afford to pay for the travel (home factor) ¹²¹.

Finally, in the context of HIV and AIDS, teenage sexual behaviour potentially begins to determine educational outcomes, although, as Chisholm points out ⁹⁰, evidence in this area is lacking:

“The extent to which sexual abuse and female pregnancy is a component of the dropout rate in secondary schools is unclear.”

One study which attempts to fill this research gap is the Transitions to Adulthood study, undertaken in two districts in KwaZulu-Natal in 1999 and 2001²⁵. Analysis of this dataset (N=3052) by Horizons highlights the inter-related effects of both poverty and pregnancy on educational outcomes, with pregnancy among poorer girls being the main reason for school delayⁱⁱⁱ. The authors point to the need for researchers in South Africa to use age-specific educational outcomes, especially as girls progress more quickly than boys in primary school but lose this advantage in secondary school due to pregnancy and consequent dropout.

Economic determinants

Children’s schooling is an investment for the future, with high financial costs. Across the world, at an aggregate level, poorer children have worse educational outcomes than their richer counterparts ¹²²⁻¹²⁴. Filmer and Pritchett ¹²⁵ analysed 44 Demographic and Health Surveys (DHS) to investigate the effect of household wealth on educational attainment. They found that the enrolment profiles of the poor differ from country to country. The

ⁱⁱⁱ School delay was defined as having dropped out of school or repeated at least one grade.

wealth gap^{iv} is very high in South Asia (10 years) compared with Southern Africa (1 to 3 years). This study is important in highlighting how levels of household poverty by themselves do not determine educational attainment. Clearly, the amounts that countries charge for education (user fees) also determine to what extent poor children can access formal education ¹²⁶.

School effects

The study of school effects on education outcomes is a recent phenomenon in South Africa ⁹⁹. Key studies include Case & Deaton (1999) ¹²⁷; Crouch and Mabagoane¹²⁸ (2001) and Simkins & Paterson⁹⁹ (2005).

Case and Deaton examined a number of South African databases^v, looking at associations between school effects and results in functional literacy and numeracy tests ¹²⁷. They found very strong schooling effects – especially for learner-educator ratios (LERs), and concluded that, if ratios were reduced from 40 to 30, educational attainment should increase by one third of a year. However, despite using several databases, other schooling variables such as textbooks and teachers' qualifications were omitted. The data are also from 1993 and, in the context of the huge changes which have since taken place in South African policy, it is likely that these results are now outdated.

Evidence also suggests that the effect of school inputs on education outcomes is country specific and depends on the gender of the learner ¹²⁹. Crouch and Mabagoanne ¹²⁸ looked at the relationship between the number of under-qualified teachers in each school, textbooks and learning outcomes. There was a strong correlation between these crude indicators of quality and the learning outcomes, showing again the importance of accounting for school effects.

In a study which linked together school and home factors, Simkins and Paterson ⁹⁹ found that school factors accounted for 10 to 30 percent of variance in South African test scores at Grade 9 and Grade 11. The rest of the variance was explained by individual ability (especially for maths scores) and the language of instruction at home. Although the Simkins and Peterson study is one of the only ones in South Africa that links both

^{iv} The difference in median grade attainment between the poor and rich

^v Including the first wave of KIDS data – the main dataset used in this thesis

school and home factors with actual test scores, the findings are limited because the data collected were based on the perceptions of students – for example, the data on levels of parental education had to be discarded as children had clearly exaggerated in their responses.

To summarise, there have been a number of studies internationally on the determinants of educational outcomes. The review has highlighted the need to conduct studies which link together school-based indicators with home-based indicators. The literature on South Africa shows different results according to which outcomes and which determinants are measured. Given how context-specific the findings are, any study which wishes to advance upon current knowledge must include as many outcomes as possible.

2.2.4 Summary

There clearly is a dearth of appropriate measures and data on learning outcomes with which to assess the South African education system. The key formal qualification is the matriculation exam but it is only applicable to a minority of all young people – highlighting the need to develop age-appropriate measures of learning outcomes. Research into South African educational outcomes for younger age groups will therefore have to rely on functional tests or measures which are assumed to be indicative of such learning outcomes. These measures include 1) education attainment, 2) repetition rates, 3) attendance and 4) age of first enrolment¹⁰⁰.

There are school, socio-demographic and economic determinants of educational outcomes¹³⁰. It is unclear which set of factors is the most significant partly because most investigations have relied on either school-based surveys or population-based surveys, producing strong data on either the school or home side but not both^{131,88,132}.

Few studies have linked together population-based data with school-based data, even in South Africa, where this type of analysis is possible due to the richness of the national school databases. Moreover, all of the studies reviewed are cross-sectional in design, making it problematic to determine causal mechanisms. A longitudinal study of the determinants of educational outcomes would overcome this limitation. However, given

the fluid policy environment in South Africa (as described above), it will be difficult to disentangle the socio-demographic and economic determinants of educational outcomes.

2.3 The impact of orphanhood on educational outcomes

This final section of the literature review looks at the small but growing body of empirical quantitative research on the impact of HIV/AIDS on education. Although less than twenty studies exist, they have all been conducted in the past five years and reflect the recent galvanisation of international support over the perceived orphan crisis¹³³.

2.3.1 The South African studies

Only two quantitative studies have been published on the impact of AIDS on education in South Africa ^{18,134}. A further two references were found through a literature search although these are not publicly available ^{135,136} and it proved impossible to attain these studies despite repeated efforts.

In the most comparable study, Case and Ardington ¹⁸ analysed data from a demographic surveillance area in Hlabisa district of KwaZulu-Natal. They analysed two rounds of data (2001 and 2003/2004) on 19,899 children. Three educational outcome measures were used: 1) highest grade completed 2) current enrolment status and 3) expenditures on schooling.

The researchers found that both paternal and maternal orphans were educationally disadvantaged, with no gender differences between boys and girls. The educational disadvantage among paternal orphans was attributable to lower socio-economic status. However, the researchers argue that these paternal orphans were living in poorer households before paternal death and this was the cause of their educational disadvantage. The main focus of the research is on the impact of maternal death – which was found to be a significant causal predictor of all three educational outcomes. Being a

dual orphan was not significantly different from being a maternal orphan with respect to educational outcomes.

This study has several limitations: first, the measurement of educational outcomes was limited and ignored school-side factors – there are only three educational outcomes and it can be debated whether educational expenditures are an outcome or rather an input to school¹³⁷. Second, the data are limited in that the fathers of 41 percent of the children were categorised as “unknown status” – therefore any conclusions on the impact of paternal orphanhood must be read with caution.

Finally, the research was not conducted by educationalists and, perhaps for this reason, ignores some of the complexities of the educational system. For example, Case and Ardington assume that all children start school at the age of six, which often is not the case in South Africa⁹⁰. Also, their research on levels of school fees ignores the widespread use of a fee exemption system in South Africa.

The second key South African study was conducted by Shierhout et al¹³⁴ and is based on a cross-sectional school survey on the educational outcomes of 1445 students in Free State and Limpopo. Their results show that orphans are more likely to display erratic attendance and periods of interruption – however, it did not make any difference as to whether the father or mother had died. For example, both paternal and maternal orphans were equally more likely to have experienced school interruption than unorphaned children. Both boys and girls were educationally disadvantaged but in different ways. Although this study is important in highlighting the different ways in which orphans are educationally disadvantaged, it is limited through its reliance on self-reporting on home factors, limited economic data and the issue that school-based studies cannot include those children out of school¹³⁸. Finally, as it is a cross-sectional survey, it becomes impossible to determine the sequencing of events.

2.3.2 International literature

Internationally, a received wisdom has sprung up which claims that girl orphans are more educationally disadvantaged than boy orphans and that the death of a mother has more

of an impact on education than the death of a father. However, several systematic reviews and analyses of multiple datasets suggest otherwise.

Four different groups of researchers have analysed DHS data from a number of countries in order to explore cross-country correlations between enrolment and orphanhood^{56,57,76,78}. In a comparison of 28 countries, Ainsworth and Filmer argue that it is impossible to make cross-country generalisations because the relationship between orphanhood and economic status is not uniform⁵⁶. Although orphanhood has an effect on enrolment in some countries, by far the more important factor was poverty.

Case's analysis of the same datasets suggests that orphans are less likely to be enrolled in school, even once economic background is controlled for⁷⁸. Combining both DHS and MICS, Monasch and Boerma analyse datasets from 37 countries and also find that in 30 of these countries, orphans are less likely to be enrolled. Like other researchers, they found no clear pattern as to the type of orphan or sex⁷⁶.

A recent systematic review on the impact of orphanhood on education in Sub-Saharan Africa,¹³⁴ found 17 studies of which 12 were household studies and the remaining five were school-based surveys. None of the studies linked together school and household surveys. Across the 17 studies, Schierhout et al. generalised that orphans have lower enrolment than unorphaned children, especially older orphans. However, it is not always the case that orphans are educationally disadvantaged^{57,139}.

In terms of gender, although some evidence exists that girls are more affected, evidence exists that boys are affected too^{18,134,140} and some statistics suggest that any gender differences among orphans simply reflect underlying gender differentials in enrolment⁵⁶. Similarly, although some studies show that maternal death has a greater impact than paternal death^{18,57,141}, contrary evidence exists that the mother's death and father's death have a similar effect¹³⁴. Some researchers have found dual orphans to be particularly educationally disadvantaged⁵⁷ while others suggest dual orphans might actually be advantaged because of the scholarship criteria of many NGOs^{53,110}.

The other dimension to the debate is whether orphans are disadvantaged because they are poorer^{142,143} or through some other factor such as increased stigma and

discrimination ¹⁴⁴. One study suggests that orphans – particularly maternal orphans - were angry and depressed when having to live with a foster family and that this in turn, impacted on their education ⁷⁴.

A demographic approach is taken by Case who argues that educational outcomes for orphans depend largely on the degree of relatedness of the child to the head of the household ^{78 18}. The importance of socio-demographic factors was also highlighted by Gould and Huber ¹³⁹ and Mishra ¹¹⁰ who show that children from one-parent households could be as disadvantaged at school as orphans.

Research into which educational outcomes are affected by orphanhood also yield mixed results. The majority of the studies have focussed on enrolment ^{56,78,133,135,143,145} while others have also included primary school completion ¹⁴¹, school fees ¹⁸, delayed enrolment ¹⁴² and attendance ^{53,134,139}.

Many of the researchers contributing to this literature are not educationalists but rather researchers who are interested in children's well-being and see the impact of AIDS on education as both a way to assess well-being and a way to estimate the long-term economic impact of the AIDS epidemic. Although some of this research has yielded important results, one of the limitations of many studies is that the prevailing educational policy context has been ignored. As Carr-Hill and Peart point out, the impact of AIDS on enrolment has been masked in many countries by the concurrent policy of abolishing user fees in primary education ¹⁴⁵.

In terms of fostering, the picture is even less clear: Zimmerman ¹⁴⁶ and Richter ³² argue that fostering can have beneficial effects on education, while Mishra ¹¹⁰ argues the effects are adverse.

Trying to pull together a cohesive story from all these findings is difficult with various studies showing different groups of children to be educationally disadvantaged, in different ways and for different reasons. There are certain methodological limitations to much of the existing research which could be preventing a more coherent theory from emerging. In addition to the multiple limitations cited above, the following problems also hinder analysis:

- Cross-sectional studies are unable to determine causal mechanisms or the sequencing of events ^{53,56,57,139}
- Lack of strong economic data (often relying on asset indices rather than per capita expenditure data) ^{53,134,139,145}.
- Research on the impact of AIDS on education is not placed within the wider educational policy context ^{18,147}
- Educational outcomes are associated with endogenous variables such as fostering and commitment to education
- Control groups and samples are sometimes ambiguous or not representative ^{74,140}

Although these methodological problems have undoubtedly restricted research in this area, it is also clear from the review that children in South Africa are facing multiple vulnerabilities in a complex educational system. It is therefore somewhat misguided to assume that the impact of orphanhood on educational outcomes would be consistent across countries.

2.3.3 Summary

Existing studies of the impact of AIDS on education have produced very mixed results. Links between orphanhood and enrolment are not straightforward and seem to depend on a number of different factors. In the context of the prior discussion on determinants of educational outcomes, this is not surprising as there are likely to be a number of mechanisms involved. What is surprising though is how few studies have looked into the possible mechanisms through which HIV/AIDS impacts on educational outcomes. The only factors which have been investigated are poverty, relationship to head and family composition ^{139,142 78}. More longitudinal studies are needed to understand these potential mechanisms and also to investigate the sequence of events which leads to educational disadvantage.

Many studies have relied on sampling through schools which excludes some of the most disadvantaged children who have already dropped out of the formal education system. Sample sizes have also, on occasions, been small. There is a need for large-scale household surveys.

The research agenda also needs to be broadened to look at a wider range of educational outcomes – not just enrolment. These outcomes need to be looked at by age taking into account the overarching policy context.

None of the studies included school-level indicators in order to control for school effects. The earlier discussion on educational outcomes shows that to ignore school-level factors will lead to spurious results. Research has been led by economists and researchers interested in the long-term impact of AIDS, and thus, education is viewed as a proxy for both children's well-being and as a factor in determining long-term economic impacts. One of the flaws with this approach is that the understanding of educational outcomes has been limited – this is evidenced through the focus on enrolment as the sole indicator of education success and by ignoring the prevailing educational context.

There remain a number of important research questions to be answered. Consensus exists that orphanhood is detrimental to the well-being of a child. However, empirical data are lacking – in particular longitudinal data, which are needed to examine the mechanisms through which the impact of parental deaths is felt by households. Moreover, many of the studies are limited by small sample sizes and inadequate measures of socio-demographic and economic variables.

Drawing from across the various literature, it is possible to categorise the factors involved in the impact of AIDS on education (Table 1) in order to inform the conceptual framework.

Table 1. Factors involved in impact of AIDS on education.

Background factors	Characteristics of impact	Mechanisms	Educational outcomes
<ul style="list-style-type: none"> Household poverty School policies (fees/pregnancy / stigma) Household and community characteristics (resilience/ household size/step parents) 	<ul style="list-style-type: none"> Age when parent dies Type of orphan (paternal/ maternal / dual) Length of illness preceding death Gender of child 	<ul style="list-style-type: none"> Poverty Socio-demographic factors (living with grandparents/ foster parents) Psycho-social (stigma/ emotionally bereft) 	<ul style="list-style-type: none"> Learning outcomes (matriculation scores) Repetition, attainment Drop out of school

CHAPTER THREE: DATA AND METHODS

The literature review identified a wide array of issues around the impact of HIV/AIDS on education about which researchers understand very little. These issues are not only of theoretical significance, but are of huge policy relevance. But they also involve human suffering which, through our lack of understanding, continues unabated.

This chapter pulls together the lessons from the literature review, firstly providing a conceptual framework for the research, and outlining the key research questions. Section 3.2 then details the research design, the two datasets and the fieldwork. The third section discusses the limitations and strength of the KIDS data. The final section (3.4) provides a brief description of the key variables.

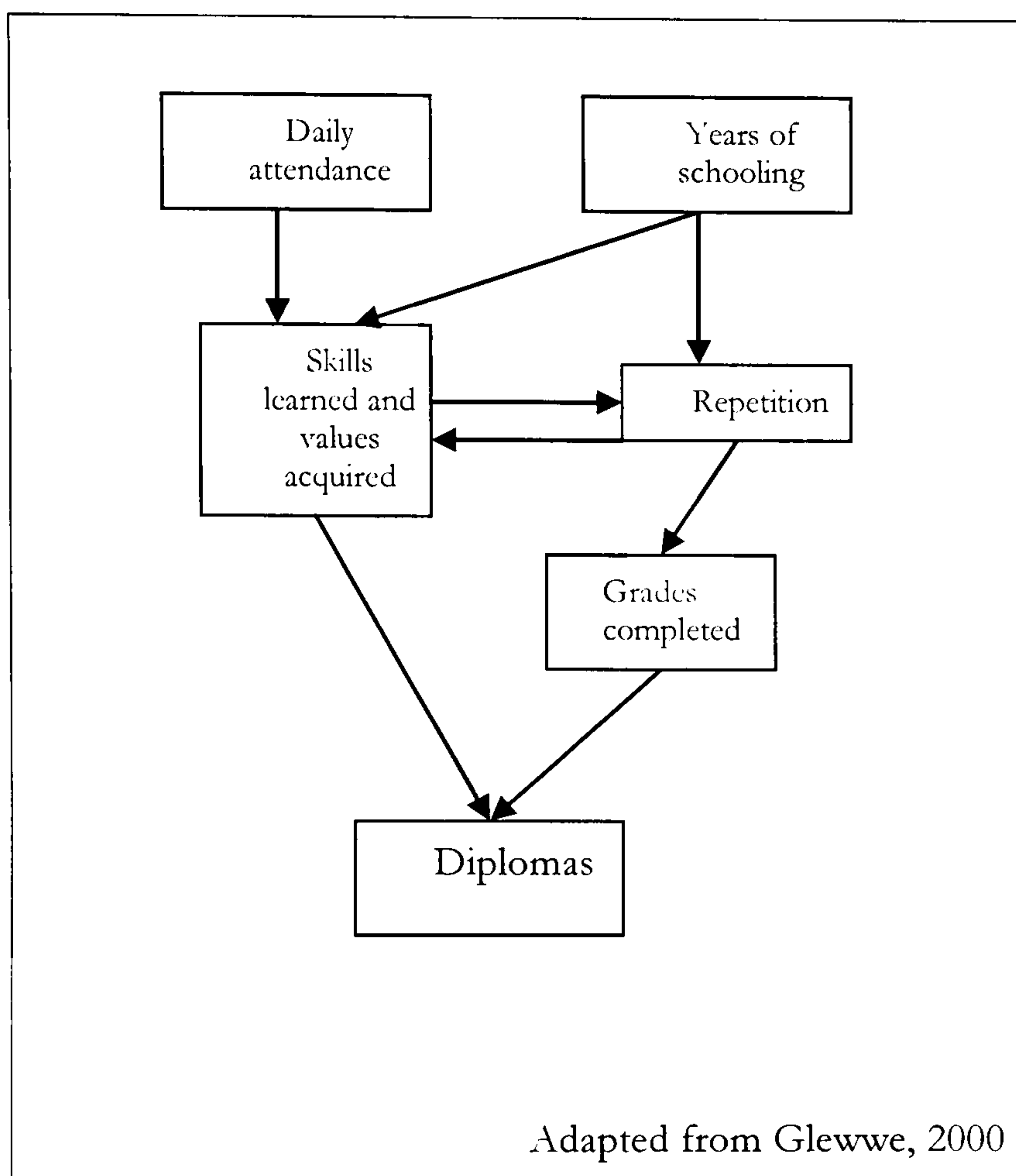
3.1 Conceptual framework

This section attempts to draw together the lessons from the literature review and provide an analytic framework in which to situate the thesis. First, a conceptual framework for the study of educational outcomes is provided (3.1.1), followed by a discussion on vulnerability (3.1.2), conceptual framework for use in understanding the impact of orphanhood on education (3.1.3), and a statement of the guiding research questions (3.1.4).

3.1.1 South African educational outcomes

Based on Glewwe¹⁰⁰, the relationship between the various educational outcomes is and conceptualised as shown in Figure 2.

Figure 2. Conceptual framework for understanding the relationship between the different educational outcomes



When applying this framework to the South African context (see 2.2) it becomes apparent that different sets of educational outcomes need to be measured for different age groups. In brief, for the older age group (18-20 year olds) the crucial set of educational outcomes revolves around matriculation results and dropout. For the middle age group (11-15 year olds), indicators such as attainment, repetition and attendance are appropriate educational outcomes. For the youngest age group (7 - 10 year olds), functional tests of literacy and numeracy, delayed enrolment into primary school and attendance at pre-primary school are the most appropriate means for assessing educational progress (partly because their exposure to schooling is less than for older age-groups, and repetition and dropout are unlikely to have occurred⁹⁰).

3.1.2 Conceptualising children's vulnerability

This thesis aims to investigate the impact of AIDS on children's educational outcomes. However, the literature review has highlighted that 1) children are vulnerable for many reasons apart from HIV, 2) children are made vulnerable because of HIV in many different ways which vary over time and 3) it is very difficult to identify if a child has been made vulnerable specifically because of HIV, as most people are unaware or in denial of their HIV status.

Vulnerability can be defined in many different ways and it is difficult to disentangle HIV-related vulnerability from other forms of vulnerability. This study will therefore examine both proxies of AIDS impact (including death of one or both parents; chronic illness of parents; fostering following death of a parent) and indicators of more general vulnerability (including single parent households; fostering (with parents alive); poverty and dependency ratios).

As children's vulnerability cannot be measured directly, indicators need to be designed which are easily measurable but also valid. A balance needs to be struck between these two aspects: for example, although psychological impact of HIV-related parental illness is important, it is difficult to measure⁵².

Due to data limitations described in 3.3.1, the analysis presented in this thesis focuses on the impact of orphanhood on education rather than the impact of parental illness. Although an analysis of the effects of orphanhood cannot capture all the dimensions of how children are affected by AIDS, orphans still represent the most visible, extensive and measurable group of children exposed to the impact of AIDS⁵².

Even the term orphan is ambiguous and used differently in different contexts. Bray¹⁴⁸ argues that definitions of orphanhood do not often take cognisance of local interpretations and that, in many African languages, orphans are taken to mean children who are without a home. This potential limitation is overcome in the research by not asking specifically if a child is an orphan but rather determining survival status of parents (see 3.2).

UNAIDS define an orphan as a child aged 18 or younger who has lost a parent. However, some researchers argue that such an age cap excludes a significant number of older AIDS orphans whose well-being is also affected^{52,149}. As the outcomes of most interest to this thesis are educational – and most young people over the age of 18 in South Africa are still in school⁹⁰ – this thesis will examine the impact of orphanhood on all young people aged up to 20 years.

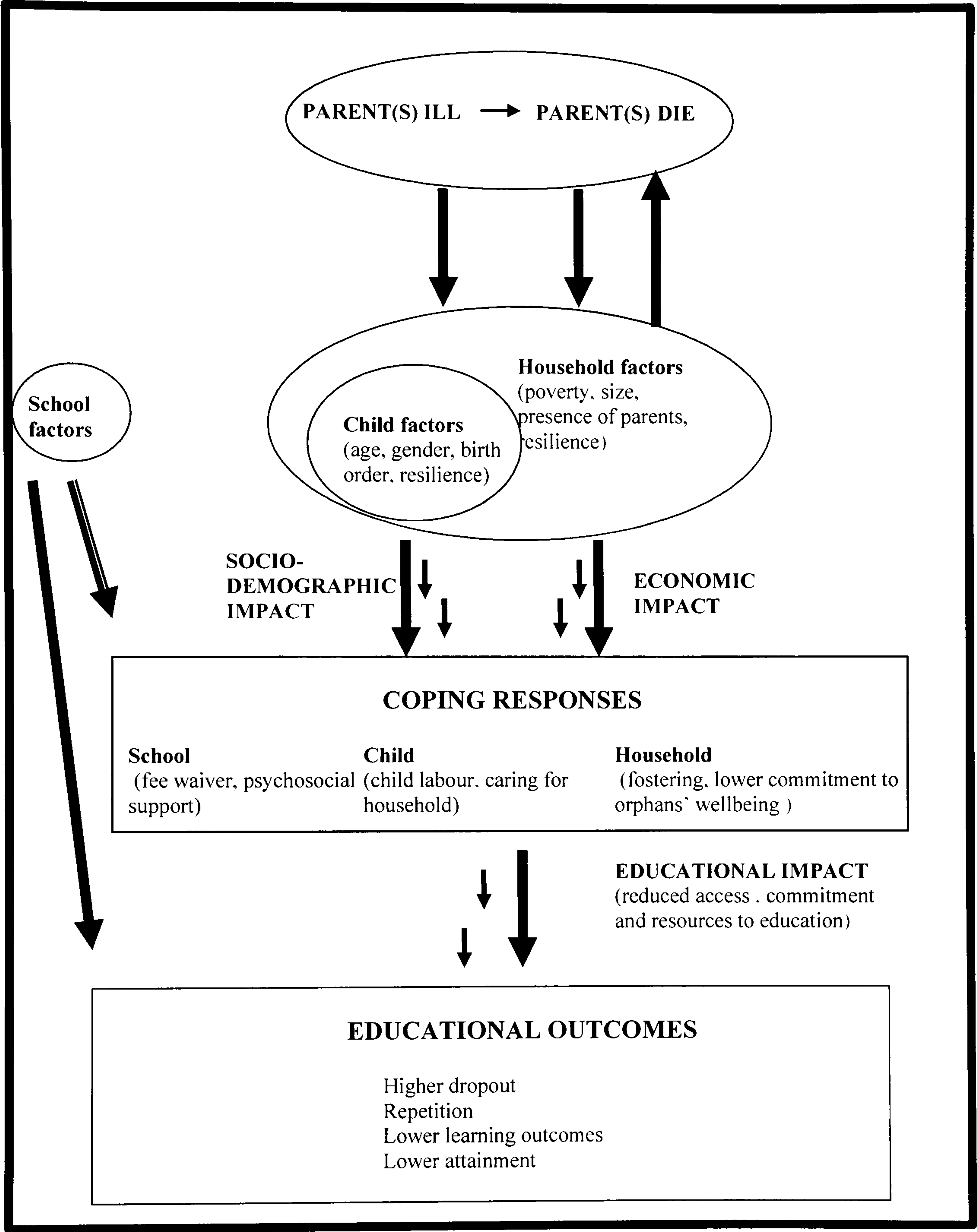
In line with UNAIDS definitions, this thesis conceives of orphaned children as either maternal orphans (the mother has died and the father is still alive), paternal orphans (the father has died and the mother is still alive) and dual orphans (both parents have died).

Furthermore, this analysis places the effects of orphanhood within a wider context of childhood vulnerability and therefore examines the relationship between orphanhood and other indicators of vulnerability such as fostering, living in a lone-parent household, gender and poverty.

3.1.3 Impact of AIDS on educational outcomes

This section pulls together the findings from the literature review into a conceptual framework on the impact of AIDS on educational outcomes. The framework is shown in Figure 3 and described below in more detail.

Figure 3. Conceptual framework for understanding the impact of parental illness and death on educational outcomes



1) Parent(s) ill and parent(s) die

This top level of the diagram represents how AIDS-related orphaning occurs. As HIV is sexually transmitted, often both parents become ill and then die during the time in which a child is growing up. The process often takes several years and there are likely to be both short-term and long-term impacts.

2) Context

This level of the diagram contains the household, child and school factors which mediate the impact of orphanhood on education. Pre-existing levels of poverty, household size etc. can either increase resilience or vulnerability to impact. Resilience is defined as the ability of households or children to recover from adverse circumstances whereas vulnerability infers the opposite – the likelihood that a child or household will succumb to adverse impacts.

3) Impact

There are two proposed pathways through which orphanhood is hypothesized to impact on children and education: 1) economic and 2) socio-demographic. The first pathway relates to increased poverty due to adult illness and death resulting in less money available for looking after children. The socio-demographic pathway encompasses any psychological impact of orphanhood on the children and their households as well as demographic impacts such as changes in household structure etc. Both these pathways are dynamic and will change in nature over time (depicted by the short and long arrows), i.e. the short-term impacts will be different from the long-term impacts. Impact of parental death is defined as the effect of the parent dying on the child and household.

4) Responses

This tier of the diagram depicts some of the responses adopted by children and as a coping mechanism to deal with the two forms of impact. From this perspective, fostering is a coping mechanism undertaken by households in response to parental death. Another response might be for children to undertake paid work.

5) Educational impact

This penultimate tier of the framework (depicted by the arrows) shows the impact of these coping mechanisms on educational choices. Impact occurs through reduced resources (e.g. less school fees paid), reduced access (as a result of child labour) or reduced commitment (preference given to natural born children over foster children). Again, there are likely to be distinct short-term and long-term educational impacts. For instance, short-term impacts might occur around the time of parental death if a child misses several months of school. Long-term impact might occur if the child is taken out of school in order to find employment.

6) Educational outcomes

This final level of the diagram shows how educational outcomes might change as a result of this process of parental death. This part of the diagram refers back to Figure 2 above and shows how outcomes such as attainment, learning outcomes, repetition rates and dropout might be affected.

It should be noted that this conceptual framework attempts to pull together all the different ways in which orphanhood might impact on educational outcomes. The current research does not attempt to examine all these different pathways – indeed, it would be very difficult for any one piece of research to do so. Instead, the focus of the research is on the economic and socio-demographic impact of parental death on education, controlling for school effects. The diagram shows two sets of responses, first the coping responses adopted by households when someone dies and second, the educational response that affects children. This thesis does not examine in any great depth the general coping strategies of households to an AIDS-related death but does look in as much detail as possible at the mechanisms involved in the educational impact. Factors such as psycho-social impacts and the impact of parental illness are excluded (section 3.3.3 below explains why the impact of parental illness is excluded from the analysis).

3.1.4 Research questions

Flowing from the conceptual framework, the research has the following objectives:

- 1) To investigate the ways in which educational outcomes of children and young people in KwaZulu-Natal are being undermined by orphanhood
- 2) To examine the processes through which educational outcomes are adversely affected by orphanhood
- 3) To examine the success of existing government interventions at mitigating the impact of orphanhood on educational outcomes.

In order to address these objectives, the following research questions will be used to guide the analysis:

- 1) In what ways do the educational outcomes of orphans differ from those of unorphaned children?

- 2) What are the causal mechanisms underlying the relationship between orphanhood and educational outcomes?
- 3) To what extent do existing policy interventions mitigate the impact of orphanhood on educational outcomes?

3.2 Research design

The literature review revealed a number of methodological weaknesses in prior research on the impact of AIDS on children and their education. To recap, these included small samples size, cross-sectional data which cannot be used to determine causality or dynamic change, a limited set of educational outcomes, and an over-reliance on either school-based data or population-based data.

This study avoids a number of these issues by analysing an on-going household panel study called KIDS (KwaZulu-Natal Income Dynamics Study), with which the author became involved at a early stage of planning for the 2004 wave. Through the use of school identifiers, it was possible to link this database to a national school database, the Annual School Survey, 2001.

The data are analysed longitudinally with a focus on home effects, while controlling for school effects. By controlling for home factors before parental death, it is possible to create a cohort design (as there are two waves of data). Section 3.4 provides further detail on the type of analysis used. The next section briefly describe the two datasets (KIDS and the Annual School Survey), and is followed by more detailed discussion of the KIDS fieldwork and design^{vi}.

3.2.1 Study Setting

The research took place in KwaZulu-Natal, which is one of South Africa's nine provinces and home to just over one fifth of South Africa's 44.8 million inhabitants.

^{vi} The focus on this section is on KIDS rather than the Annual School Survey as the former is the main research instrument and also constitutes the fieldwork undertaken as part of my research training.

Recent data from the Census in 2001 show that the largest population group in the province is Black South Africans (84.9 percent), followed by the Indian population (8.5 percent) ¹⁵⁰.

KwaZulu-Natal has experienced a very severe HIV/AIDS epidemic; with prevalence rates during the last ten years increasing from an estimated 7.1 percent in 1990 to 36.5 percent in 2000⁴³. Recent analysis of data from a demographic surveillance system of a rural population in northern KwaZulu-Natal (ACDIS^{vii}), suggests that AIDS is now the leading cause of death in adulthood: responsible for 48 percent of deaths in 2000 in the study region ⁶⁸. Although KwaZulu-Natal is not the poorest of South Africa's provinces, two fifths of its residents live in poverty ¹⁵¹.

3.2.2 Annual School Survey

The Annual School Survey is a national survey of schools which collects data annually on a series of educational indicators such as numbers of learners and teachers, levels of teacher qualifications, text books, number of classrooms and class sizes. It is the most important governmental source of information for educational planning ¹⁵². At the time of writing, the most recent dataset available for KwaZulu-Natal was 2001. Permission to use the dataset for this research was obtained from a research NGO called EduAction.

The following sections describe the KIDS dataset and fieldwork in more detail.

3.2.3 KIDS

KIDS stands for KwaZulu-Natal Income Dynamics Study and is a panel of households which has been re-interviewed twice since it was first surveyed in 1993. The panel originated in a cross-sectional survey of all South Africans (Project Living Standards and Development) with a sample designed to be representative at the national and provincial levels and, at the time, the study was the first fully representative household survey to be conducted in South Africa ¹⁵³. Given the sweeping changes in policy since 1993, a group

^{vii} Africa Centre Demographic Information System

of economists at the University of Natal (now the University of KwaZulu-Natal) and elsewhere decided to revisit the households in KwaZulu-Natal in 1998. The White and Coloured populations were excluded from the 1998 wave because of doubts over the representativeness of the small and highly clustered samples of these population groups interviewed in 1993 and their low response rates. In 2002, plans for a third wave of data collection were developed between the University of KwaZulu-Natal, University of Wisconsin and London School of Hygiene and Tropical Medicine (Ian Timæus and Tania Boler).

KIDS has collected information on a large set of socio-demographic and economic indicators during all three waves of the data. These indicators are necessary for any attempt to understand the mechanisms through which parental death affects educational outcomes. Kids therefore provided an opportunity to develop and administer a detailed module on children's educational outcomes in the context of an ongoing panel study that had already collected information at the earlier dates on household's composition, member's activities and on assets and expenditures.

KIDS covers an 11 year span – the same 11 year period which has seen huge increases in AIDS-related death in the region ⁶⁸. The study is therefore perfectly placed for analysing the long-term impacts of parental death.

3.2.4 Data collection instrument

Based originally on the World Bank's Living Standard Measurements Survey, the questionnaire used in 1993 includes sections on demographic composition, household income and expenditures, education access and anthropometric measures for children aged six and under. Details of relevant questions from the questionnaire are included in the results chapters (Chapters 4-8).

A second wave of the data collection took place in 1998 from March to June, omitting the white and coloured population groups (see discussion above). This second wave of the data was used primarily to investigate dynamic changes in poverty since the end of

Apartheid¹⁵³. The instrument was based on the original 1993 survey with the addition of modules on economic shocks, social capital, kin networks, civic engagement and trust¹⁵⁴.

The questionnaire for the third wave of data collection was adapted to address new research questions on the impact of AIDS. In addition to previous modules, it included an expanded education section (designed specifically for this doctoral research); new death and health sections; a new grants sections; and revised anthropometry sections.

3.2.5 Author's involvement in KIDS

The author was involved in the KIDS project from November 2002. At this stage, the main research centres were at a very early stage of planning for a third wave of data collection. I attended the first planning workshop for KIDS 3 in Washington DC in January 2003. At this time, funding had not yet been secured so I was involved in discussions regarding resource mobilisation as well as a preliminary exercise to map out key research questions and possible additions to the 2004 questionnaire. In collaboration with a colleague – Futoshi Yamauchi - from International Food Policy Research Institute, I argued successfully for the reintroduction of an education module, which had been removed from the 1998 questionnaire.

Following the meeting in Washington, different teams took on lead responsibility for developing particular modules. Futoshi and I took the lead on the education module and we spent the next six months drafting different versions of the module and discussing research objectives. Both of us were keen to study actual learning outcomes so I put together a proposal to conduct literacy and numeracy tests on 7 to 9 year olds, based on those used by the Young Lives Project being conducted by School of Hygiene and Tropical Medicine and other institutions¹⁵⁵.

The first challenge was to find funding for conducting the functional learning tests. Julian May at the School of Development Studies secured core funding for the third wave of data collection but this did not include funding for the additional proposed education module. Futoshi managed to find money from the Japanese government for these

additional education modules which meant the team could include an additional two education modules in the 2004 questionnaire.

In August 2003, the research team met in Durban to discuss the questionnaire and make decisions on which research questions to include and exclude. I was very much part of these discussions and it was decided that a core group would be set up to supervise the questionnaire design and implementation. Jorge Agüero from the University of Wisconsin took the lead in this with me in a support role. After the planning meeting in Durban, I stayed on for a week to interview key stakeholders such as state government officials, NGOs and teachers. Futoshi and I also tested some of the early questions we had designed in some local communities and used this small pilot to inform the design of the two education modules.

A third international planning took place in December 2003 in Washington, at which I represented the London School of Hygiene and Tropical Medicine. The focus of this meeting was on how to measure the impact of the Child Support Grant. Although I was primarily involved in designing the two education modules, I also partook in discussions and decisions on all other modules but in particular on child support, death module and the roster.

In January 2004, I moved to Durban for six months to work as a member of the core team of five who oversaw the final questionnaire design, training, fieldwork supervision, quality control and data cleaning. We finished the questionnaire design in early February and then embarked on a two-week pilot study conducted in areas which were not going to be visited in the third wave of data collection. The pilot study is described in detail in section 3.2.8.

Following the pilot study and scan, we oversaw the training of supervisors and fieldworkers (see below). In the following four months, the main wave of interviews was conducted by the research company Development Research Africa (DRA). I was often involved in visiting the DRA offices to check the quality of the data and answer any questions as they arose. In addition, I accompanied many of the teams to support them in making the anthropometric measurements as it became clear early in the fieldwork that

these skills needed to be improved. I also made field visits in order to check the quality of the fieldwork.

Once the fieldwork had been completed, the core research team took on the responsibility of cleaning the dataset. In collaboration with Ian Timæus, I checked the two education sections as well as some of the death module. A number of queries were generated and relayed back to DRA. I was involved in data cleaning for over four months, after my return to the UK in July 2004.

3.2.6 Sample and attrition (1993 – 1998)

In the first wave of data collection, the sample was drawn using a sampling frame based on the 1985 census, following a two-stage self-weighting design and was intended to be representative of the population of KwaZulu-Natal at the time. In total, 1558 households of all races located in 73 clusters were surveyed¹⁵⁶. In 1998 it was decided to revisit the households omitting the White and Coloured households, reducing the sample of households by 165 (see section 3.2.3).

During this second wave of data collection, 222 households could not be identified. For more than one third of these households, it was verified that the household had moved but not enough information existed to track the new location of the household. However, for the remaining households, no evidence was found that these households had ever existed. Return visits to the areas suggested that 39 households in two clusters had probably been fabricated in 1993. An investigation followed and the clusters were revisited in 2004 in preparation for the third wave of data collection. Verification of households in 2004 led to two clusters being definitely dropped from the panel with a total of 1171 households of the 1354 eligible households being included in the second wave dataset.

Even apart from dropping the White and Coloured population groups, each successive wave of data collection is less representative of the province than the previous wave (see limitations in 3.3.1). In particular, it was noted that the sample was ageing and that younger people were under-represented.

The following strategy was developed in 1998 in order to replenish the diminishing and ageing sample: for the subsequent waves of data collection, up to five ‘core’ people were identified in each household. Core people were intended to be key decision-makers in the household and comprised either the head of household, their spouse or adults who satisfied the following three criteria:

1. aged 30 years or more in 1993
2. the son/daughter or niece/nephew of the 1993 household head
3. the parent of a child in the household.

Thus, all heads of households and spouses of heads are automatically designated core people, together with some adults of the next generation. In cases in which core people within a household had split off into multiple households, attempts were made to interview the split household as well as the original household.

In both 1998 and 2004, core persons were traced and their new households interviewed. In 2004, this was also done for all households where adult children of core individuals had split off and a) formed a new household of their own and b) had children of their own. This sampling strategy helped to replenish the ageing sample ¹⁵⁷.

In addition, in 2004 all children under the age of 18 who were being cared for by other households were also tracked in order to investigate the welfare of foster children and increase the number of children on whom longitudinal information is available. Households are referred to as C (original households from 1998), K (households that were identified as containing an adult child of a core member, and N (children under the age of 18 who had been cared for by others). The final questionnaire for C households was adapted for N households by only asking questions on household composition, expenditure and child-related questions – this is because the households are not part of the panel study but rather the level of analysis is the individual cohort of children who had been tracked.

It is this individual cohort of children, followed since 1998, that is the sample group for this thesis.

Given that HIV prevalence is very low in the Indian population in KwaZulu-Natal ¹⁵⁸, it was decided to focus only on the Black South African population.

3.2.7 Training

Data collection was contracted out to a research company called Development Research Africa (DRA). However, the academic team (including myself) was responsible for training the fifty fieldworkers.

Before the training commenced, the core research team (including myself) produced a sixty page training manual which detailed the rationale and prompts for each of the questions in the 81 page questionnaire.

In March 2004, we conducted a two-week intensive training course, employing a cascade approach in which field supervisors were trained in the first week and, in turn, assisted us in training the fieldworkers in the second week. I led the training on the education, death, learning, anthropometric and roster modules. We used a range of participatory techniques in training such as role plays and skill-building on anthropometric measurements.

The training also provided insight into several remaining problems with the questionnaire design. In particular, fieldworkers found the chronic illness section confusing and were unaware how far 5km was. This lack of understanding regarding the metric measurement system was also evident when trying to teach how to measure weights and heights for the anthropometric questions. Many of the fieldworkers were confused on the relationships between millimetres, centimetres, metres and kilometres and similarly on grammes and kilogrammes. Further probing revealed a low level of knowledge on multiplication and division, thus leading to the observed problems in metric conversion. In the end, I taught some basic mathematics skills to the fieldworkers and we repeated the anthropometric training in the workshop but also, most importantly, in the field.

3.2.8 Pilot study and scan

The core research team conducted an extensive pilot study in late February 2004. We identified areas which were located close to the KIDS clusters to ensure responses would be broadly comparable. We visited both a rural (Valley of 1000 Hills) and urban setting (Cato Manor). First, we spoke to the local leaders in order to obtain permission to visit households. In each case, permission was granted and we were welcomed into the community. The team divided the questionnaire into sections and in small groups of 2-3 people, tested the questions on randomly picked households.

The pilot study was instrumental in identifying which modules were difficult and laborious for respondents to answer. I was in charge of testing the education modules and found that Section 12 (the main education module) was relatively easy and fast to complete. However, a number of potential pitfalls were identified during the pilot study for Section 13 (literacy and numeracy tests).

The literacy and numeracy tests were adapted from the Young Lives project¹⁵⁵. Zulu colleagues at the University of KwaZulu-Natal developed comparable sentences in IsiZulu which children aged 7 to 9 should be able to read and write. The aim was to provide the test in either English or IsiZulu depending on the language of instruction in the child's school.

During the pilot, we visited local schools and asked teachers to provide feedback on the Zulu instruments that we had developed. The teachers helped refine the tools, providing examples that should be able to differentiate between first, second and third grade students. However, through discussions with the teachers, it became clear that determining the language of the test by the language of school instruction would not suffice. The problem is that, even when the official language of instruction is English, in practice, the teachers often switch between English and IsiZulu.

We therefore decided to ask children which language they felt they would be able to perform best in. If during the test, children wished to switch language, this was allowed and we noted any changes. The rationale behind this approach is that we wanted to

determine the child's literacy and numeracy skills rather than investigate language of instruction.

Even with this more flexible approach to the literacy and numeracy tests, the pilot revealed that the tests were very difficult to administer. Our Zulu colleagues explained that for cultural reasons Zulu children are very shy about taking tests. We realised that it would need some more extensive training in order for fieldworkers to make the children feel comfortable enough to take the test.

As well as general shyness, it was difficult for fieldworkers to find a quiet place to conduct the tests. Many households, contained more than one child aged 7 to 9 so it was vital that the test was administered without other children present to reduce both the chance of cheating as well as the level of distraction. However, the pilot testing showed that parents were not comfortable with the idea of a stranger alone with their child. We therefore adapted our procedures so that, as far as possible, the fieldworker administering the test was of the same sex as the child and that one adult from the household was present at all times.

Analysis of the results from the pilot study showed that the literacy and numeracy tests sufficiently differentiated between seven, eight and nine year olds and they were therefore kept in the questionnaire.

Apart from enabling us to improve specific questions in the questionnaire, the pilot study also revealed two areas of operational concern. First, we realised that the entire questionnaire took over three hours to complete. By the end of this period, the key respondent was often exhausted. Furthermore, as different sections of the questionnaire involved different household members, it was difficult to complete the entire questionnaire in one session as certain required respondents were often missing.

Taking into consideration the average times in which adults and children come home from work or school, it was decided to split the questionnaire into two parts and administer sections 1-7 in the morning and then return the next day to administer sections 8 – 13 in the afternoon. This way, children and relevant adults were more likely

to be at home. In fact, as households were now expecting us to return the second day, it was possible for them to ensure that relevant household members were available.

Second, the pilot study revealed that we needed to address certain ethical issues such as how the fieldworkers should respond to circumstances of extreme vulnerability. For example, during the pilot study, one respondent broke down in tears as she relayed the story of how her daughter was raped. This caused distress amongst the fieldworkers and a sense of responsibility. After discussion with the wider research team we decided that we were not in the position to assist in such difficult circumstances but that we could refer to support groups who were more appropriate. As a result, we developed a small toolkit of support organisations, which the fieldworkers used when needed. In the case of the distraught woman, a member of the University team followed up with a telephone call with suggested organisations for her to contact.

Following the pilot study, DRA conducted a scan of households in order to plan for the fieldwork. The scan took place in February 2004 and involved visiting all households to be surveyed to gather information about household membership and migration, including households in the three clusters in which fabrication had been suspected. The scan located 916 core persons, 469 adult children of cores and 242 foster children living in other households, giving a total of 1713 households to be interviewed¹⁵⁹. The scan was conducted using a Global Position System (GPS) device and geo-coordinates were validated during the actual fieldwork. Unfortunately these data were not available at the time of writing the thesis as a lengthy process of data cleaning was required to make them usable.

3.2.9 Confidentiality and ethical considerations

The research proposal was granted ethical approval by University of KwaZulu-Natal, The London School of Hygiene and Tropical Medicine, and the University of Michigan.

Permission to work in the survey areas was obtained in advance from municipal offices and traditional leaders (as in the pilot study). The research team was concerned about the research being too extractive and we were keen to find ways to feed back information

and results to the communities. Given the focus of the research on grants and AIDS, we felt obliged to provide information which would help communities to access the relevant services. Suraya Dawad (University of KwaZulu Natal) and I therefore visited local government offices in Durban and Pietermaritzberg in order to collate information to give to the local leaders. In addition, we included in the pack both results from the second wave study and general contact details. Fieldworkers wore a badge of identification at all times and training by myself was provided specifically on ethical issues. This was especially relevant to the interview with children.

Only households that had agreed to be revisited in 1998 were interviewed in 2004. Respondents were given the opportunity to withdraw from the interview at any point or refuse to answer specific questions.

In order to obtain informed consent, the interviewers explained in detail to each of the participants the following issues: the purpose of the study, the confidentiality of the data, and their right to refuse to participate. Obtaining written consent was a pre-requisite for participation in the research. A small incentive of food or cleaning products was given to the respondent irrespective of their participation in the research. In addition, we provided a simply written leaflet describing the study and its key findings from 1998.

As the questionnaire took on average three hours to complete, the fieldworkers brought refreshments to assist the household and minimise the risk of respondent fatigue. Normally, interviews were conducted over a period of two days in order to create less disruption to the households. A break between sections seven and eight was also introduced to reduce respondent fatigue.

The highest possible degree of confidentiality was maintained throughout the processing of the data, with names of subjects removed at an early stage. Where questions were of a sensitive nature, the fieldworker asked to interview the individual in private. All fieldworkers were trained in the ethics of the research and how to respond to various complicated ethical problems which might arise out of the fieldwork.

A number of different strategies were undertaken to ensure that the results of the research were disseminated back to the communities and plans are currently underway to

summarise the findings into a readable format to be given to the community leaders. The anonymised database is now in the public domain (<http://sds.ukzn.ac.za>).

3.2.10 *Fieldwork*

Fieldwork commenced in March 2004 and was completed by December of the same year. As mentioned already, the fieldwork was contracted out to a research company called DRA. Fieldworkers were divided into small groups of four fieldworkers and one supervisor. The supervisor was responsible for initial checking of the questionnaires and for sending fieldworkers back to any households where the questionnaire was incomplete or unclear.

Each fieldworker was expected to complete on average one questionnaire a day although as explained earlier, this was split over a two day period for over three quarters of households. The duration of the first visit was two hours and of the second visit 1.2 hours, with an average total interview time of 2.8 hours per household.

3.2.11 *Quality control and data cleaning*

Quality control took place in two stages. First, the research company (Development Research Africa) made checks on completed questionnaires at the end of each day of fieldwork and checked the data for validity. Our team then conducted random spot checks during fieldwork in addition to extensive checking of the emerging dataset. Inconsistencies were regularly raised with Development Research Africa and, in certain instances, the fieldworkers were asked to return to households and correct inaccurate questionnaires. In addition, the questionnaire included administrative information concerning the interview so that checks could be made and relevant fieldworkers contacted in case of any queries arising. Data cleaning was on-going throughout the fieldwork and involved both the University research team and Development Research Africa.

3.3 Validity and limitations of KIDS

This section describes the extent to which KIDS can be used to examine the impact of AIDS on educational outcomes. First, the level of attrition between waves is discussed and results from preliminary analysis by May et al.¹⁵⁷ are used to infer the extent to which the KIDS dataset is representative of KwaZulu-Natal's Black South African population. The second part details some of the methodological limitations with using KIDS to study the impact of AIDS, followed by a brief summary of other key methodological limitations.

3.3.1 Attrition of households: 1998 to 2004

The rate of attrition between waves of data collection partly determines the validity of the data¹⁶⁰. Attrition can be caused through a combination of mobility, failure to locate households and refusal to respond to the survey. An analysis of attrition in the dataset was conducted by May et al.¹⁵⁷ and reveals a follow up rate between 1998 and 2004 of 74 percent^{viii}.

Any level of attrition automatically brings in the potential problem of sample bias¹⁶⁰ and given the level of attrition between 1998 and 2004, it cannot be assumed that the KIDS dataset is representative of the situation of all Black South Africans in KwaZulu-Natal. Analysing the demographic structure of the sample also shows the panel to be ageing with the mean age of resident members of core households rising from 22.6 years in 1993 to 26.0 years in 2004¹⁵⁷. However, once other demographic characteristics are taken into account, the dataset remains broadly representative of the Black African population of the province¹⁵⁷. A more detailed analysis of attrition and the representativeness of the KIDS dataset is provided by May et al.¹⁵⁷.

There were high rates of attrition of loss to follow up of children who had been fostered out: for instance, only 41 percent of households identified in the scan were actually

^{viii} This is follow up of "dynasties" rather than households (a dynasty includes the household of any "core" members who may have moved out as well as households in which children may have moved to.

interviewed. This was often because when the household was visited it was found that the index child was not, or was no longer, a member, demonstrating the high level of mobility of these fostered children¹⁵⁷. The implications for studying orphanhood and education are serious and it one has to take into account that many of the most vulnerable children have not been included in the sample and thus, the findings are likely to under-estimate the effects of orphanhood.

3.3.2 Characteristics of children lost to follow-up

The question arises whether or not children who were lost to follow-up were different from children who were followed in 2004. A sub-question is whether or not orphans were more likely to be lost to follow-up and if so, what are the implications for the analysis? In order to test this, the characteristics of the resident children from 1998 who were interviewed in 2004 (tracked children) were compared with resident children from 1998 who were lost to follow-up in 2004 (untracked children).

The dataset was reduced to all children who were resident in 1998 who were under the age of 15 in 1998 and under the age of 21 in 2004¹⁵⁸, leading to a sample size of 2683 including thirty children who were alive in 1998 but had died by 2004. All of these thirty children who had died were living in tracked households as it is impossible to get data on children in un interviewed households. As both groups of tracked and untracked children include children who have died, the following analysis on 1998 characteristics (before any child has died) will include the thirty tracked children who died before 2004. Following these definitions, of the 2683 children, 769 children (28.7 percent) were categorised as “untracked” (i.e. resident in 1998 but lost to follow-up in 2004).

The following descriptive analysis compares tracked and untracked children on several basic demographic factors as well as prevalence of orphanhood (to see if orphans are less likely to be tracked) and 1998 educational outcomes.

¹⁵⁸ Children under the age of 21 in 2004 are the focus of the analysis throughout the thesis.

Age differences between tracked and untracked children

The age of untracked children in 2004 was estimated by adding six to their age in 1998 (apart from the eight untracked children for whom data on were available in 2004). The table below shows the percentage of children in three age groups and shows a broadly similar age distribution between tracked and untracked children. Logistic regression modelling showed no significant differences between the tracked and untracked children in terms of the three age groups or by age as a linear variable.

Table 2. Children according to their age and whether or not they were tracked in 2004.

Age in 1998	Tracked children		Untracked children	
	Number	Percentage	Number	Percentage
0 to 4 years	535	28.0	214	27.8
5 to 9 years	651	34.0	242	31.5
10 to 14 years	728	38.0	313	40.7

Gender differences between tracked and untracked children

There are no apparent gender differences in which children are tracked or not. The percentage of girls within the tracked group is 50.2 percent compared with 48.7 percent among the untracked group. These differences are not significant with or without a control for age ($P>0.4$).

Prevalence of orphanhood for tracked and untracked children

In terms of orphans, it is only possible to compare whether children were orphaned before 1998 as it is unknown whether the untracked children became orphaned by 2004 because nearly all of the households of untracked children were not tracked at all in 2004.

Table 3. Number and percentages of tracked and untracked children in 2004 according to the residential and survival status of their mothers in 1998.

Mother in 1998	Tracked children		Untracked children	
	Number	Percentage	Number	Percentage
Mother resident	1,633	85.3	636	82.7
Mother absent	245	12.8	118	15.3
Mother dead	36	1.9	15	2.0

Logistic regression was used to see if the residency or survival status of mothers in 1998 was related to whether or not children were tracked in 2004. There differences are not significant at the 5 percent significance level but there is a strong suggestion that if the mother was absent in 1998, children were less likely to be tracked in 2004 (odds ratio = 1.23, P=0.08).

The results with respect to residency and survival status of fathers in 1998 are shown below. It seems that children whose fathers are known to have died are less likely to have been tracked in 2004. This was confirmed through a logistic regression which shows that death of father before 1998 is associated with an increased odds ratio of 3.5 (P< 0.01) of not being tracked by 2004. Children whose fathers are absent in 1998 are also less likely to have been tracked in 2004 although this is not quite significant at the five percent level (odds ratio = 1.2, P=0.06). A Chi² test between the two dummy variables (absent father versus dead father) shows the two coefficients to be significantly different from one another (Chi² = 5.9, P =0.01). The models were refitted including controls for age and gender in 1998 but still showed that death or absence of a father before 1998 was associated with reduced probability of being tracked in 2004.

Table 4. Number and percentages of tracked and untracked children in 2004 according to the residential and survival status of their fathers in 1998.

Father in 1998	Tracked children		Untracked children	
	Number	Percentage	Number	Percentage
Father resident	1,002	52.4	359	46.7
Father absent	798	41.7	338	44.0
Father dead	114	6.0	72	9.4

Clearly, children orphaned before 1998 are more likely to have been lost to follow-up by 2004 than unorphaned children (especially if the father has died). Implications for the analysis are discussed in the limitations section below.

Educational outcomes for tracked and untracked children

The 1998 questionnaire did not include a detailed education module although there were two questions in the roster which can be used as proxies for dropout and educational attainment.

In terms of dropout, the “activity” question in the roster asks:

What is [...]’s main activity?

For the 749 children aged under five years in 1998, this answer was coded as not applicable. Of the remaining 1927 children^x aged five to 14, 8.5 percent had dropped out of school. It should be noted that this measure of dropout is different from the one used in Chapter 7 (see 7.3 for more detailed description of the validity of the two possible dropout variables).

The table below shows the percentage of children tracked and untracked children in 2004 according to whether or not they had dropped out of school in 1998. The percentages show very little differences in levels of dropout between tracked and untracked children, which is confirmed through logistic regression modelling (controlling for age and gender).

Table 5. Number and percentages of tracked and untracked children in 2004 according to whether or not they had dropped out of school in 1998

Dropout in 1998	Tracked children		Untracked children	
	Number	Percentage	Number	Percentage
Dropped out in 1998	1,261	91.8	503	91.0
Enrolled in 1998	113	8.2	50	9.0

In terms of educational attainment in 1998, an estimate was derived from the question in the roster:

What is the highest educational standard completed by [...] ?

A variable was then constructed to differentiate between children who had attained the expected or higher grade for their age and those children who had attained less than the expected grades for their age. These results are shown in the table below. Significance

^x This does not include the one child who was categorised as disable or missing data on this activity question

testing shows there to be no significant differences in levels of attainment between tracked and untracked children. (odds ratio = 0.97, P =07).

Table 6. Number and percentages of tracked and untracked children in 2004 categorised according to their attainment for age in 1998.

Attainment in 1998	Tracked children		Untracked children	
	Number	Percentage	Number	Percentage
Expected grade for age	1,141	71.0	770	71.8
Lower than expected grade for age	465	29.0	303	28.2

Although only a limited range of educational outcomes existed from the 1998 dataset, it can be concluded that the educational outcomes of untracked and tracked children are unlikely to differ in important ways.

3.3.3 *Is KIDS measuring the impact of AIDS?*

Although the primary research interest is on the impact of AIDS on educational outcomes, it is impossible to determine precisely through KIDS what the actual cause of death is. Members of the University research team have conducted a preliminary analysis of the KIDS data from 2004 and found that mortality rates among 20 to 44 year olds have more than doubled during the period 1998 to 2004 compared with the period 1993 to 1998: Seventeen percent of men aged 30 to 39 and 10 percent of women aged 25 to 24 in 1998, died by 2004 ¹⁵⁷. The authors conclude that this unusual age pattern of mortality is typical of populations with high rates of HIV prevalence and further analysis on the cause of death among this age group supports the hypothesis that most of these deaths are AIDS related. This conclusion is supported by research in KwaZulu-Natal that is able to identify causes of death.⁴⁹

Although it is likely that most of these adult deaths are caused by AIDS, for the sake of accuracy, the results chapters refer to the impact of parental death and orphanhood rather than AIDS. The assumption underlying the analysis is that orphaning caused by AIDS is unlikely to be qualitatively different from other types of orphaning for most children¹⁴⁵. Nevertheless, this may not be the case, especially if there is AIDS-related stigma towards AIDS orphans. Such stigma could mediate the impact of orphanhood on children’s well-being (e.g. stigmatisation at school could lead to exclusion of AIDS

orphans). For this reason, the analysis revolves around orphanhood in general rather than specifically the impact of AIDS.

Impact of parental illness

In order to determine the full impact of AIDS on children, it is important to consider the impact of parental illness as well as parental death ¹⁴².

There is a health section in the KIDS questionnaire. Unfortunately, exploratory analysis revealed it was not a good way to measure chronic morbidity. In short, the three sections to the health module included: 1) acute illnesses 2) maternal health and 3) chronic illness. The module of most interest to the research is the third section, which was only asked of people who had been defined as core rather than all members of the household. Consequently, full health data are only available for 684 mothers (63.2 percent) and 332 resident fathers (63.1 percent).

Although this may still seem like a large number, once the groups are differentiated by health outcomes, each group becomes prohibitively small. For example, the obvious control group is if both parents are well. However, this group only contains 58 children (25 households). It therefore becomes difficult to analyse the effects of parental illness.

In order to maintain comparability, the health module was based on the original 1993 Living Standards Measurement Survey. However, other analysts of this survey have also noted the limitations of the health module ^{137,161}. For example, the module on chronic illness asks respondents if they are able to walk five km without stopping. This is problematic for two key reasons: first, it was clear in training that the many of the fieldworkers had little concept of how far five km is. Second, the question lacks any concept of time: it is not clear if the question refers to today or in general. Given that the research focus is on the impact of AIDS, this question is too ambiguous to pick up on the often erratic nature of ill-health which accompanies AIDS ¹⁶².

Exploratory analysis was conducted to see if the variables derived from the health section were associated with any of the educational outcomes. There were no meaningful associations and, given the limitations outlined above, it was decided not to include

parental illness as an independent variable and instead to focus on the impact of parental death.

3.3.4 Limitations of KIDS and research design

Limitations of KIDS

One of the main limitations of KIDS for the purpose of this research is that – as Carr-Hill ¹³³ points out - some of the most vulnerable children - those who are perhaps living in institutions or on the street - are unlikely to be picked up through a household survey.

This disproportionate loss of orphaned children from the panel between the second and third waves of KIDS poses several challenges to the interpretation of the 2004 dataset. It suggests first that the orphans present in 2004 may not be representative of all orphans and second, that any impact of orphanhood may be underestimated because the most vulnerable orphans (those children who are the most difficult to track) are not included in the analysis. However, in terms of other characteristics such as gender, age and general educational outcomes, no significant differences existed between tracked and untracked children, which suggest that tracked children are broadly representative of all children (including untracked children).

Although KIDS is a longitudinal study, which is a powerful design for studying the impact of AIDS on education, one of the limitations of longitudinal studies is attrition between waves of data collection and the consequent losses in the representativity of the sample. Initially, it was proposed to analyse a second dataset: The African Centre Demographic Information System (ACDIS) at Hlabisa, KwaZulu Natal. ACDIS collects data on all residents within the catchment area and is therefore representative of this study population. However, while KIDS draws its sample frame from all over the province, ACDIS focuses intensely on one rural population in the north of the province. However, my PhD upgrading committee decided that analysing two complex large datasets was an overly-ambitious project and recommended focussing only on KIDS as it would allow for me to acquire research design and fieldwork experience rather than just rely on analysing a secondary data source.

Household surveys also have limitations as a way of collecting educational data as it is not clear to what extent household members are aware of the educational outcomes of the children in the house. For example, adults might not know if children are actually attending school or just pretending to. In addition, self-reporting of educational outcomes may be biased towards socially desirable results – i.e. caregivers might not want to admit that the children have not been attending school.

An alternative (and more commonly used approach) to examining educational outcomes is to use school-based survey¹³⁷. In terms of measuring attendance, conducting surveys in the school has the advantage of enabling one to observe whether the child is in school on that particular day. However, in many cases, researchers rely on official daily attendance registers which are likely to be biased – especially if attendance rates are used as school performance indicators.

A further limitation of a household survey is the difficulty in documenting the flow of resources between households. The approach used in the thesis focuses on individual children and the household they are currently living in but excludes inter-household relationships and therefore does not precisely measure vulnerability. Qualitative research is more appropriate than a household survey for examining these subtle inter-household relationships.

Another overarching limitation with using KIDS is the reliance on quantitative analysis of a single dataset. For quantitative analysis to be valid, the study has to have sufficient power to detect important differences i.e. an adequate sample size. In this thesis, children were compared across complex dimensions such as residency, survival and gender of each parent. Although the sample overall was large (more than 4000 children), for certain sub-groups of vulnerable children, the sample size was inadequate to carry out detailed quantitative analysis. This is particularly the case when looking at young orphans (see Chapter 5) and maternal orphans. Some domestic situations are very rare – for example, maternal orphans who are living with their fathers – and therefore it is not possible to study the effects of fostering among maternal orphans.

One area of concern with the KIDS dataset is that at the time of writing the thesis, no information was available yet on where households were situated. Whether or not a

household is situated in a rural, metropolitan or urban area is of huge significance in South Africa but KIDS only collected this information during the first wave of data collection (1993). In recognition of this shortcoming, the third wave design included the use of geographical positioning systems (GPS) in order to locate households precisely and to use this information to link to pre-existing databases on services such as schools and hospitals. However, given the high level of technological expertise needed to complete this part of the study, these data were still not available by June 2006 (time of thesis submission). Part of the problem was that fieldworkers coded the position of households incorrectly, which warranted revisiting and checking.

With regards to relevant modules within the KIDS questionnaire, a certain amount of resistance existed in completing the literacy and numeracy tests, with many children unaccustomed to being tested and finding it difficult to perform in front of a stranger. This limitation was reduced through extensive training and role play, in which fieldworkers were shown how to allay the child's anxiety. In addition, fieldworkers kept notes on who was present during the test as well as any surrounding factors that may affect performance (e.g. interruption).

As with any survey, data cleaning revealed a number of limitations with regards to specific questions in the survey. These limitations on specific questions in the survey are covered in the relevant results sections.

Limitations of only using a quantitative study

My upgrading seminar also inspired discussion of whether or not this doctoral research should include a qualitative component. Qualitative analysis could help complement and triangulate some of the findings from the quantitative analysis and give valuable insight into decision-making process. At the time, Ian Timæus (doctoral supervisor) and Victoria Hosegood (based at the Centre for Population Studies) had just finished collecting ethnographic case studies of ten households in Hlabisa (rural area of KwaZulu Natal) on the impact of AIDS on households. The upgrading committee suggested that I analyse these transcripts. Unfortunately, after several months of work on these, it became apparent that the transcripts were not suitable to answer questions on the impact of AIDS on education as very little information on children's schooling had been collected (this was not one of the major research questions investigated by the project).

During this period, I made a presentation on the transcripts to a qualitative research group at the London School of Hygiene and Tropical Medicine and their conclusion was that this study should be excluded from the doctoral research for two main reasons. First, this group felt it is not good research practice to analyse the ethnographic work of two unknown researchers without having been involved in the study design process. Second, the qualitative study was unlinked to KIDS and it was unclear how the two sample groups are related to one another. Taking into consideration this advice (and the shortage of relevant information), it was decided to drop the qualitative component from the doctoral research. Although working on the qualitative study was a valuable learning process, it is certainly a limitation of the thesis that it includes no qualitative work.

Limitations of ASS

The research design involves linking together a household panel study (KIDS) with a school-based survey (ASS). Although this approach allows for investigation of both school and home factors, the benefits of this were limited due to the quality of Annual School Survey (ASS) data. South Africa is one of the very few African countries which has a functioning education management information system (EMIS). However, the validity and reliability of the data collected through these systems are questionable. In addition, the South African government is very slow in publishing the results and at the time of KIDS fieldwork (2004) the latest set of results available dated back to 2001. These data are limited as some of the schools identified through KIDS in 2004 are not the schools that those children were attending in 2001. Furthermore, the question arises as to which school has had the most dominant effect on children's educational outcomes. For example, a child might have recently transitioned to secondary school in 2001, yet it is in fact the prior years in primary school which will have had the largest effect rather than the secondary school. Unfortunately, data are not available on which schools children attended before 2004, thus limiting the validity of relying solely on the 2004 EMIS code, especially for those who are in the first several years of secondary school. The 2001 ASS data are further limited as a scandal broke out after data collection in KwaZulu-Natal because much of the data from the province had been lost.^{xi} Given the data quality issues that surround ASS, it was decided to only use the data for gross

^{xi} Dan Wilson in communication

indicators of school quality (i.e. school inputs) rather than as the focus of intense analysis.

3.4 Analysis

The current analysis of these data focuses on the cohort of all children under the age of 15 in 1998 who were followed up in 2004. The KIDS dataset and the Annual School Survey dataset were linked by means of a unique school identifier known as the EMIS number. The questionnaire included questions on both the school name and the nearest town to the school. If the school was in KwaZulu-Natal, then the fieldworkers used these two pieces of information to identify the school's EMIS number. In cases of missing data and for schools outside of the province, I cross-matched schools through the national schools database. By this means, schools data were matched to all but 47 of the 1476 currently enrolled children aged 7 to 20^{xii}.

Data from the Annual School Survey are used to control for school effects, in particular class sizes, which have been shown to be a significant predictor of educational outcomes in South Africa ¹²⁷.

Data were analysed using logistic regression modelling. The use of multilevel modelling was also explored – this approach is useful for untangling the effects of school, households and the individual. However, it was not possible to use multilevel modelling on the dataset because of the following reasons. First, multilevel modelling examines variation between children within schools and thus, a minimum of two children need to be attending an individual school. In reality, 46.6 percent of children (n=734) are attending a school with no other child from the KIDS sample, thus reducing the sample size by half. Second, multilevel analysis is limited if it is not possible to know why schools might vary from one another. Far more information is needed about the school and it was decided that school effects would not be the focus the research but rather a control for examining household factors.

^{xii} School information was only collected on those currently enrolled in school

Finally, the use of multilevel modelling in this type of research is likely to over-estimate the role of the school as it is more difficult to take into account selection processes in which more committed parents are more likely to place their children in better quality schools. The children of these more committed parents are more likely to succeed because of this parental influence rather than the school and yet, in multilevel modelling such success is likely to be attributed to the school. In other words, multilevel analysis can be misleading if the outcomes are biased because of endogeneity and strong selection processes.

The following chapter of the thesis describes the general characteristics of orphans and the households they are living in (Chapter 4). The characteristics considered include: gender, age, fostering, household size, residence, per capita expenditure as well as two school inputs (class sizes and school fees).

The KID dataset produced a whole battery of educational outcomes, which can be summarised as follows:

Table 7. Summary of key educational outcomes collected through KIDS

Outcome	Sample set
Age of first enrolment	All 7 to 20 year olds
Attendance	7 to 20 year olds who are currently enrolled
Early childhood development	All 7 to 20 year olds
Dropout	All 7 to 20 year olds
Functional literacy and numeracy tests	7 to 9 year olds
Matriculation results	Young people who have attained Grade 12
Primary school completion	13 to 16 year olds
Repetition	All 7 to 9 year olds

The following three chapters analyse each of these eight outcomes in turn. As a way to organise the material, the results are grouped into those relating to entry, progress and exiting from formal education and presented as follows:

- Chapter 5: Early school years
 - This set of educational outcomes are relevant to the youngest age group (children aged 7 to 10 year olds) and include age of first enrolment, participation in pre-primary education, and literacy and numeracy tests results.
- Chapter 6: Progress in school
 - This set of educational outcomes charts the progress of orphans who are currently enrolled in school. Outcomes considered include attendance, repetition rates and primary school completion. The age group for this analysis is mostly 11 to 15 year old children.
- Chapter 7: Final education outcomes
 - For the oldest age group (16 to 20 year old children/young people), both matriculation results and dropout rates are examined.

Each chapter attempts to answer both the first two research questions. To recap, these are:

1. In what ways do educational outcomes of orphans differ from those of unorphaned children?
2. What causal mechanisms underlie the relationship between orphanhood and educational outcomes?

In answering the first question, relevant education outcomes are cross-tabulated across different groups of children in order to investigate which educational outcomes were associated with orphanhood. Variations by age and gender were also explored and differences are tested for significance using chi-squared tests.

If it was found that the outcome variable did not differ according to orphanhood, then the analysis was discontinued. If there were significant effects of orphanhood, logistic regression modelling was undertaken in order to determine exactly which sub-group of

orphans is affected. Causal mechanisms (the second research question) were determined by adding the hypothesized socio-demographic and economic determinants into the model in order to see which are significantly associated with the outcome variable. Those variables which are associated were then included in the modelling process. Likelihood ratio tests and stepwise regression modelling was used to determine the best fitting model. Finally, the data are re-analysed between waves in order to investigate the sequencing of events.

The final results chapter (Chapter 8) attempts to answer the third research question:

3. To what extent do existing policy interventions mitigate the impact of orphanhood on educational outcomes?

The presence of three grants (Child Support Grant, pension and school fee exemption) is included into the best fit models derived from Chapters 5 to 7. Again stepwise logistic regression modelling is used to determine the role of each grant in mediating the impact of orphanhood on each of the previously identified educational outcomes.

3.4.1 Creating controls from 1998

Because KIDS is longitudinal, it is possible to ensure that children, parents, households and schools are as comparable as can be determined before parental death takes place. In order to do this, it is necessary to control for as many relevant factors as possible in 1998 in order to study the impact of parental death during the period 1998 to 2004 on educational outcomes in 2004.

The following section explores the different ways that KIDS data can be used to control for school, child and household factors before parental death. If there is still an effect of parental death in the period 1998 to 2004 on educational outcomes in 2004 for children and parents that are comparable in 1998, then the results are suggestive of a causal effect of parental death – i.e. parental death is a determinant rather than an outcome.

A longitudinal dataset was created which links together the 1998 data and 2004 data. Outcomes in 2004 were compared between children who have never been orphaned and children who were orphaned between the two waves of data collection. As a way to rule out the alternative hypothesis that households might have been different from one another before death and that these differences are causing differences in educational outcomes, as many control variables as possible were constructed from the 1998 data.

This process involved more, however, than simply choosing basic socio-demographic and economic indicators such as family size or per capita expenditure – which have already been used. Instead, it required a detailed assessment of all the possible factors that might be important – the observed, the unobserved and the unobservable. From this framework, the 1998 questionnaires were examined to find proxies for as many of these factors as possible – especially the more intangible ones such as “motivation towards education” and “sexual vulnerability”.

The next section describes this attempt to measure as many household, child and school characteristics from before 1998 (before parental death) as possible.

School Characteristics

No data were collected that identified schools in 1998 and therefore it was not possible to examine school-based data from 1998. However, the questionnaire in 1998 did ask how much the household spent on 1) school fees 2) books and uniform and 3) other educational expenses. It was therefore possible to create two variables – average expenditure on education per child and 2) proportion of total monthly expenditures spent on education.

The question arises as to what educational expenditures are actually measuring. Total expenditures per child might be an indicator of school quality. However, the data might show that a household only pays 50 Rand a term in fees – suggesting a low quality education. But in reality, the school in question might be charging 500 Rand but this child has been exempted from paying the total amount. From the 1998 questionnaire, it is impossible to know what the school fees should actually be before any possible exemptions. In the 2004 questionnaire, this problem was dealt with by asking two

questions on fees – how much they officially are, and how much each household has paid.

In addition to being an index of school quality, the amount of school fees paid towards a child's education partly demonstrates the commitment by the household to that child's education. It is important to find a proxy for education commitment in 1998 in order to rule out the hypothesis that educational outcomes in 2004 are caused by different levels of educational commitment before parental death took place. As commitment to education is such a difficult variable to quantify¹⁰⁰, two variables have been chosen: expenditures and membership of educational organisations.

Household characteristics

Socio-demographic and economic factors need to be controlled for, including household per capita expenditure, family size, its dependency ratio, number of legally school-aged children (7 to 15 inclusive) and geographical location. In addition to these basic variables, the following areas were also explored: economic shocks, impact of preceding illness and death, receipt of grants, social capital, violence in the community and commitment to education.

- Economic shocks

Of the negative shocks between 1993 and 1998, the most common were death (403 households) and illness (228 households) followed by loss of a regular job (213 households). Although economists view illness and death as economic shocks (quantifying the costs incurred etc.), this research hypothesizes that illness and death have effects which go beyond the costs incurred and these two measures are considered separately (see the following section on mortality and morbidity in the household). Although it is possible to create sophisticated variables according to duration and economic implications of each shock, simpler shocks variables were adopted because economic shocks other than death constitute an of investigation, which falls outside the main focus of this thesis. Instead, the loss of a regular job was included as a control variable in and of itself as well as a second shocks variable with aggregated information on whether or not the household had experienced one of the other negative shocks.

Far fewer households experienced positive economic shocks (N= 322). Therefore a binary variable was created coding whether or not a household had experienced any of the positive shocks.

Controlling for the cumulative impact of morbidity and mortality on a household

It is important to factor in the impact of morbidity and mortality in the household prior to 1998 and the death of the parent in question. In 1998, data were collected on these two issues through the economic shocks section. In this section, households were asked about events that had hurt the household financially. With respect to illness, the question was:

“Has serious injury or illness kept a household member from doing normal activities?”

Controlling for receipt of grants

One of the research questions being investigated is the role of social grants in mitigating the impact of orphaning on education outcomes. It is therefore necessary to control for receipt of grants before parental death. Analysis of the non-employment income section allows one to identify the social grants received in 1998. The most common was the social pension (34.3 percent of households), followed by the disability grant for people over the age of 18 (6.3 percent of households). Receipt of other social grants was rare (e.g. foster child grant, child state maintenance (precursor to Child Support Grant) and child dependency grant) . An additional variable was constructed of whether or not the household received at least one social grant in 1998 (60.2 percent of households).

Social capital

In addition to economic factors, it is important to try and measure aspects of social capital that might be related directly to educational outcomes or to the protection and well-being of children in general. Some researchers^{32,163} argue that fathers have an important role to play in their daughter's lives through increasing the level of social capital available. Death of a father might result in a decrease in social capital which has negative effects on sexual vulnerability and education.

Measuring social capital is not straightforward, in part because different conceptions exist as to what social capital is. The questions on social capital used by KIDS changed from

1998 to 2004 with a shift from questions on violence and organisation membership to questions on community networks and trust. A sub-set of these questions in 1998 specifically concern engagement on education: study groups; youth groups; school committees and singing/music groups. These were therefore analysed separately as a proxy for commitment to education.

- 1) community participation: each core person was asked how often they went to community decision-making meetings. The average was taken for the household and households were categorised as zero, low, medium or high participation
- 2) membership of organisations: the data were split in 1998 by the number of household members who belonged to groups other than religious groups. 33.3 percent of households had no member who belonged to a group; 53.7 percent had one member and 13.1 percent of households had more than one member who belonged to a group.
- 3) religious groups: in 1998, households were asked if they were members of the African Independent church or any other church. By household, 37.7 percent had one member who belonged to a church, 35.8 percent had no member and 27.3 percent at more than one church member.

In addition, a subset of questions on violence was used as a 1998 proxy for sexual violence thus allowing further analysis of the sexual vulnerability pathway. It is known that violence in the community increases the vulnerability of young people – making girls more sexually vulnerable¹⁶⁴. Moreover, it is plausible that higher levels of violence in the community lead to both pregnancy and parental death (i.e. violence is an unobserved confounder in the relationship between parental death and education or else an indicator of sexual vulnerability).

Households were asked if any member had experienced the following incidents in the preceding twelve months: assault by household member; assault by non-household member; rape; murder; robbery, kidnapping or other serious crime. Of 1073 households, 13.3 percent had experience at least one of these various incidents of violence. A binary category was subsequently created which coded zero for no incident of violence and one for at least one incidence of violence.

Finding a proxy for commitment to education

As mentioned above, it is crucial to find a proxy for commitment to education in 1998 and 2004. Two possible proxies for commitment to education have already been mentioned:

- 1) proportion of household expenditures spent on education
- 2) participation in education-related groups

The limitations of the first indicator are that the proportion of its income a household spends on education will depend on a) the number of children b) whether or not the children are in primary or secondary school. In addition, it does not capture the influence of intra-household differences which might go on to affect total proportion spent on education. If - as Case argues- households spend more money on the education of natural-born children rather than fostered-in children, the levels of commitment gained through examining the educational expenditures will fail to reveal these intra-household differences.

In addition, two separate variables from 1998 were examined to see if they could be used to indicate levels of education commitment. The first is whether the household receiving a scholarship (possibly a sign of commitment to education) and second, whether the household reported responding to a negative shock by taking a child out of school. Unfortunately, the variation between households is prohibitively small: i.e. only 7 households had an educational scholarship of some sort and only 12 households said they had taken a child out of school because of negative shocks.

A variable was created at the household level identifying households with a member who was a member of either a) sports group b) study group c) singing/music group d) youth group and 3) school committee. Out of 766 households, 122 (15.9 percent) had members who belonged to one of these “educational groups”

Child Characteristics

Controls for child characteristics from 1998 include enrolment and highest grade completion. In addition, age, gender and relationship to household head, were included.

CHAPTER FOUR: GENERAL CHARACTERISTICS AND LIVING ARRANGEMENTS OF ORPHANS

This first results chapter provides the context for answering the research questions: before looking at the educational outcomes of orphans, it is imperative to know more about the living arrangements of orphans. Do orphans live in large households? Poor households? Who do orphans live with? What type of schools do orphans attend (school inputs)?

This chapter therefore presents simple cross tabulations of the distribution of orphans by:

- 4.1) age and fostering status
- 4.2) household poverty
- 4.3) maternal grade completion
- 4.4) residence
- 4.5) household size
- 4.6) class size
- 4.7) school fees paid.

As explained in the previous chapter, only Black South Africans are included in the analysis. In the province, the dominant ethnic group is Zulu and the majority of Africans are Christian. Although levels of religious commitment are included in the controls, it was not possible to distinguish between different religious groups as the 1998 survey did not collect this information.

4.1 Distribution of orphans by age and fostering patterns

Throughout the analysis, the sample set is restricted to all those children who were 1) aged between 7 and 20 in 2004, and 2) resident in KIDS households in both 1998 and 2004. Of these children, eight were classified by their parents as being disabled and

unable to attend mainstream school. It was therefore decided to remove these children from the dataset as their reasons for educational disadvantage are qualitatively different from the research hypotheses, thus reducing the sample size to 1627.

These disability responses highlighted the problem that the questionnaire did not ask explicitly if a child is disabled. It is therefore possible that other disabled children apart from the eight identified are still included in the dataset. The eight children were picked up as being disabled in answer to the question “What is [...]’s main activity?” It is therefore being assumed that respondents whose child has severe disabilities that prevent them from going to school, would state so in answer to this question.

The problem of counting orphans

In line with many other household questionnaires ¹⁶¹, the following single question is used to determine if a child’s parent has died:

“Who is [...]’s father/mother?”

If the respondent answers “dead” then the code 88 is entered. Any other code signifies either which living household member is the parent or that the parent is living elsewhere.

However, given that the KIDS dataset includes data on all household members from 1993 and 1998, it becomes possible to link across and within waves to check if someone reported to be a parent has subsequently died. This cross checking revealed a number of discrepancies; the most common scenario is one in which a child’s parent has died and the surviving parent has remarried. At the latest wave of data collection, the step-parent is erroneously coded as the biological parent when in fact the parent is dead. In order to adjust for this error, the survival status of the first reported parent is taken as accurate throughout this thesis. A similar process of cross checking of the residency of the “first reported” parent also reveals a number of hidden fostered out children. Despite these careful attempts to count all orphans, it is likely that the actual number of orphans is larger than the number identified because unknown or non-resident fathers may have died without the household having knowledge of this.

It should also be noted that there are different definitions of what constitutes an orphan (see Chapter 3 for review). In this thesis, any person under the age of 20 whose parent has died is considered an orphan (this includes one or two parents).

Categorising orphans

Orphans can be categorised in a number of ways. Throughout the analysis, the simplest categories used are a function of 1) which parent has died and 2) if the surviving parent is resident (defined as living in the household for at least two weeks in the last month). This combination of factors creates the following 9 categories of children:

- 1) living with both parents
- 2) father absent, mother resident
- 3) mother absent, father resident
- 4) fostered out (both parents absent)
- 5) paternal orphan, not fostered out
- 6) paternal orphan, fostered out
- 7) maternal orphan, not fostered out
- 8) maternal orphan, fostered out
- 9) dual orphan

The first four categories of children are considered unorphaned children. When merged, these four categories could be used as a control group. However, in order to investigate family disruption as a possible mechanism through which parental death impacts on children's education, it was decided to use the sub-group of unorphaned children who are living with both parents as a control as this group represents the least disrupted household arrangement (within a nuclear family model). This is line with Gould's finding that the effects of orphanhood can be masked if all unorphaned children are treated as a homogenous group¹³⁹.

At times, it is more useful to compare orphans with unorphaned children who have similar living arrangements: for instance, a paternal orphan living with her mother can be compared with a child whose father is absent in order to determine the difference between parental absence and parental death.

There are, however, several limitations with these comparisons that result from the nature of the dataset. For instance, if the father is living elsewhere, it is impossible to assess what level of involvement he has with his child. This holds for both financial involvement (because the man's person code is often coded as 99, which is untraceable), and emotional involvement (which was not measured in the questionnaire). In other words, none of these nine categories of children are homogenous entities. Take the category of maternal orphans who are fostered out: within this group of children, the following scenarios are possible:

- 1) the child was living with both parents, the mother dies (disruption 1) and then the child is fostered out (disruption 2)
- 2) the child was living with the mother (absent father) and then the mother dies (disruption 1). The child continues to live in the same household as before
- 3) the child was living with the mother (absent father) and then the mother dies (disruption 1). The child is sent to live in another household (disruption 2)

Within each of these scenarios, there are several other combinations. The main point though, is that it is impossible using the KIDS dataset to differentiate between some of these scenarios as it does not attempt to document the level of involvement absent parents have with the child.

The numbers and proportions of the different categories of orphans are shown in Table 8. Over one third of the children have been orphaned. Of the different types of orphan, the most common are paternal orphans, who make up nearly two-thirds of all orphans. The relationship between orphanhood and fostering clearly depends on which parent has died: the majority of paternal orphans have not been fostered out, whereas the majority of maternal orphans have been fostered out.

High level of fostering are also found among unorphaned children, with nearly a quarter of these children not living with either parent. Many unorphaned children are also living in single-parent households: absence of father is especially common (35 percent of unorphaned children) whereas absence of mother is far less common (5 percent of unorphaned children).

Table 8. Percentages of children aged 7 to 20 in 2004 by the residency and survival status of their parents

Parental status	N	Percentage
Parents alive	1072	65.9
of whom:		
Parents resident	376	23.1
Father absent, mother resident	380	23.4
Mother absent, father resident	56	3.4
Both parents absent	260	16.0
Orphaned child	555	34.1
Of whom:		
Paternal orphan	352	21.6
Paternal orphan, living with mother	238	14.6
Fostered out paternal orphan	114	7.0
Maternal orphan	109	6.7
Maternal orphan, living with father	16	1.0
Fostered out maternal orphan	93	5.7
Dual orphan	94	5.8

The age dimension

Table 9 shows the number of children according to whether they are orphaned or live with their parents by age group. As would be expected, there are higher percentages of orphans in the older age categories: in a cohort, the proportion of children who are orphaned can only increase with age. The prevalence of orphanhood increases by over 10 percentage points between the youngest and the eldest age groups. Some of the orphan categories are prohibitively small, for example, there are only two maternal orphans living with their fathers in the 11 -15 age group. This suggests that at times, it will be impossible to analyse the orphans by whether or not they have been fostered out.

Table 9. Percentage of children aged 7 to 20 in 2004 according to parental survival and residency status by age group.

Parental status	All ages	Percentages of children by age group		
	N	7 to 10	11 to 15	16 to 20
Parents Alive	1072	71.5	66.9	60.8
Of Whom:				
Parents Resident	376	19.1	26.0	23.0
Father absent, mother resident	380	30.8	21.8	19.6
Mother absent, father resident	56	4.2	2.9	3.4
Both parents absent	260	17.4	16.2	14.7
Orphaned Child	555	28.5	33.1	39.2
Of Whom:				
Paternal Orphan	352	18.6	21.1	24.4
Paternal Orphans, Living With Mother	238	12.0	14.5	16.7
Fostered Out Paternal Orphan	114	6.6	6.7	7.7
Maternal Orphan	109	5.9	6.8	7.2
Maternal Orphan, Living With Father	16	0.5	1.3	1.0
Fostered Out Maternal Orphan	93	5.4	5.5	6.1
Dual Orphan	94	4.0	5.2	7.7

The table demonstrates the importance of including age into any analysis in order to avoid it confounding other relationships.

4.2 Orphans and poverty

The literature review showed the pivotal role that poverty plays in determining a child’s well-being. Indeed, poverty is hypothesized to be one of the key causal pathways in explaining the impact of parental death on educational outcomes. Although there is overriding consensus that poverty is highly related to educational attainment ¹²⁵, there is far less consensus on how to measure poverty. Poverty can either be measured in absolute or relative terms. In this analysis, both forms of measurement are used.

1) Measuring absolute poverty using KIDS.

The simplest way to create an indicator of absolute poverty is to apply a poverty line to the data and categorise children as either falling above or below the line. The problematic issues is deciding which poverty line to use. In South Africa, there are three commonly used poverty lines: 1) the international poverty line set by the World Bank (one dollar a day); this is useful for international comparison ¹⁶⁵; 2) the minimum living level (MLL) and 3) the household subsistence level (HSL).

This thesis adopts the poverty line followed by the economists in the KIDS team in order to produce comparable statistics. This is based on the minimum living level ¹⁵⁷ and was created using a “cost of basic needs” approach to draw a normative poverty line of 282 Rand per capita per month in 1998 and 392 Rand in 2004 (difference is due to inflation). Given the high levels of poverty in KwaZulu-Natal, it was decided to focus particularly on the “very poor”: those who have a household per capita expenditure (pce) below half the poverty line (196 Rand in 2004).

2) Measuring relative poverty using KIDS.

Two indices of relative poverty are used at different points in the analysis: the first is based on Ainsworth’s categorisation of households into poor and non-poor according to the median household level of expenditure ¹⁴². The second measurement of relative poverty was to categorise the households into quintiles according to household levels of expenditure.

Table 10 shows the mean per capita expenditure in 1998 and 2004 for the different groups of children. Thirty four percent of all unorphaned children are classified as very poor, compared to 41 percent of orphaned children. Orphans overall are living in poorer households (coefficient = -73.8, $P < 0.01$) although it seems to be particularly the paternal orphans (coefficient = -82, $P < 0.01$) and dual orphans (coefficient = -88, $P = 0.05$) who are most likely to be economically disadvantaged.

In families where children are living with their father (either because the mother is absent or dead), less than 23 percent fall under this extremely poor category. This suggests that living with a father can have protective benefits. This also fits in with the finding that

absence of father (through either death or absence) is related to lower per capita expenditure. Maternal orphans do not differ significantly from unorphaned children (P=0.45). However, unorphaned children are not a homogenous group with absence of mother being associated with higher per capita expenditure and absence of father with lower per capita expenditure. South African literature suggests that in households with an absent mother, the mother is often living elsewhere in order to gain employment (migrant workers) ⁹¹. The higher levels of household per capita expenditure in KIDS households with an absent mother suggest that the mothers have moved away for improved economic opportunities.

Table 10. Expenditure and poverty by orphan status and residency for children aged 7 to 20 in 2004.

Parental status	Mean Per Capita Expenditure Rand (standardised to 2000 constant prices)		Percentage of children living in “very poor” households (2004)
	1998	2004	
Parents Alive	244	315	34.2
Of Whom:			
Parents Resident	262	341	32.2
Father absent, mother resident	225	263	38.2
Mother absent, father resident	284	463	23.2
Both parents absent	238	323	33.8
Orphaned Child	226	282	41.1
Of Whom:			
Paternal Orphans	231	275	42.3
Paternal orphans, living with mother			46.6
	228	272	
Fostered out paternal orphan			33.3
	238	281	
Maternal Orphans	234	313	40.4
Maternal orphan, living with father	369	368	18.8
Fostered out maternal orphan	210	304	44.1
Dual Orphans	196	269	37.2

4.3 Maternal grade completion

The educational attainment of parents is known to influence the attainment of their children ^{81,125}. A more educated parent is more likely to value and promote the education of their child through a possible willingness to pay more in school fees and through choice of higher quality schools. In KIDS, the roster in all three waves contains information on each household member's level of grade completion. Data were linked for parents across all three rounds; in cases of contradictory or missing information, information from the latest available round was used.

One would like to look at the influence of both maternal and paternal grade completion on educational outcomes. Unfortunately, the data are far from complete and there were very different response rates for mothers compared with fathers: Maternal grade completion was recorded for 1408 children (87 percent) while paternal grade completion is only available for 841 children (52 percent of cases). So, although it would have been preferable to include paternal grade completion, doing so would reduce the sample size considerably. The correlation between maternal and paternal grade completion is 0.58, suggesting that a considerable degree of assortative marriage occurs in South Africa. This limitation must therefore be kept in mind throughout the analysis.

Focusing on maternal grade completion: mothers of orphaned children have completed an average of 7.5 years of schooling, compared to only 6.5 years for children living with both parents (see Table 11).

As with many of the hypothesized socio-demographic variables, maternal grade completion is highly related to both poverty and a child's educational outcomes ¹²⁵. Parent's educational attainment affects poverty, which is why Table 11 looks at maternal grade completion by poverty group. In the poor group, average maternal grade completion for children living with both parents is 5.0 years compared to 8.4 years in the non-poor group. A quick look at the other orphan groups reveals a similar pattern of lower maternal grade completion for poorer households.

Table 11. Maternal grade completion of children aged 7 to 20 in 2004, by orphan status and poverty group.

Parental status	Mean number of completed schooling years for mothers					
	N	Mean	N	Poor children	N	Non-poor children
Parents Alive	961	7.2	601	6.1	356	9.0
Of Whom:						
Parents Resident	361	6.5	205	5.0	154	8.4
Father absent, mother resident	374	7.3	258	6.2	115	9.7
Mother absent, father resident	32	7.5	16	6.1	16	9.0
Both parents absent	194	8.2	122	7.8	71	9.0
Orphaned Child	447	7.5	283	6.6	168	9.1
Of Whom:						
Paternal Orphan	306	7.1	193	6.1	113	8.8
Paternal orphans, living with mother	233	6.9	153	5.9	80	8.8
Fostered out paternal orphan	73	7.8	40	6.9	33	9.0
Maternal Orphans	84	8.6	52	7.5	32	10.4
Maternal orphan, living with father	6	9.7	2	8.0	4	10.5
Fostered out maternal orphan	78	8.5	50	7.5	28	10.4
Dual Orphan	57	8.1	38	7.9	19	8.4

Fostering and maternal grade completion

Within the group of unorphaned children, being fostered out is associated with higher maternal grade completion for the poor children but not for the non-poor children. Why would parents with higher grade completion be more likely to foster out their children? Higher maternal grade completion is highly associated with favourable educational outcomes for children¹²⁵. It may be the case that households are fostering their children out in order to increase their educational opportunities (e.g. be closer to a good school). These findings suggest that for some reason more educated parents are choosing to foster their children out, contradicting the view that fostering out will necessarily have a negative impact on education⁴².

Orphanhood and maternal grade completion

Returning to Table 11, all the groups of orphans have more educated mothers than do children living with both parents. This is confirmed through a simple logistic regression of orphanhood on mother's education (odds ratio = 1.08, $P < 0.01$). For paternal orphans, the difference is smaller than for maternal and dual orphans. As there were not enough reliable data on paternal grade completion, it is impossible to determine if the dead fathers had completed more grades on average.

Orphans appear to have higher maternal grade completion than non-orphans, regardless of whether the house is classified as poor or not poor. Piot – among others - has argued that early in an AIDS epidemic, the more educated were more vulnerable, due to their relatively high levels of social mobility and power. Later in an epidemic, the reverse is hypothesized to be the case with higher levels of education protecting against infection. Parents who died before 2004 in South Africa are likely to have been infected early in the course of the epidemic ¹⁶⁶.

The relationship between AIDS-related mortality and educational attainment as a determinant of that mortality is far from resolved ⁸² and warrants further investigation. However, it goes beyond the scope of this thesis to investigate these links in detail.

4.4 Residence of orphans

Going to school in rural KwaZulu-Natal is likely to be a very different experience from going to school in Durban. Indeed, a recent qualitative study by EPC¹²¹ revealed a wide range of difficulties specific to the schooling in rural South Africa. Consequently, it becomes important to factor in the child's residence. Unfortunately, the KIDS dataset has several limitations with determining where a child is living. First, the classification into rural, urban and metropolitan (Durban and Pietermaritzburg) is somewhat ambiguous and restrictive: for example, there is significant diversity within urban areas especially between the centre of a small city and a township in an ex-homeland.

However, the biggest limitation is that information on residence was not collected in 1998 and the 2004 residency data were not available at the time of writing. In 2004, a geographical positioning system (GPS) was used to locate precisely the residence. Once

ready, these data will be a valuable information source but in the meantime, it is only possible to use the 1993 data on residency. The findings should therefore be interpreted in terms of where parents came from rather than where they might be living now. Residence of children by parental status is shown in Table 12.

Table 12. 1993 residence of children aged 7 to 20 in 2004 by orphan status

Parent status	Percentages living in each geographical location			
	N	Metropolitan	Urban	Rural
Parents Alive	1044	15.4	7.6	77.0
Of whom:				
Parents Resident	365	11.5	11.2	77.3
Father absent, mother resident	373	19.3	5.9	74.8
Mother absent, father resident	55	14.5	3.6	81.8
Both parents absent	251	15.5	5.6	78.9
Orphaned Child	534	19.1	6.4	74.5
Of whom:				
Paternal Orphan	339	20.6	5.9	73.5
Paternal orphans, living with mother	229	19.7	5.7	74.7
Fostered out paternal orphan	110	22.7	6.4	70.9
Maternal Orphans	104	14.4	6.7	78.8
Maternal orphan, living with father	16	25.0	6.3	68.8
Fostered out maternal orphan	88	12.5	6.8	80.7
Dual Orphan	91	18.7	7.7	73.6

Nineteen percent of orphaned children came from metropolitan Durban and Pietermaritzburg compared with only 11 percent of children living with both parents (the control group). In fact, all sub groups of orphans are less likely to come from a rural background (odds ratio = 0.58, $P < 0.01$) than other children. This finding is consistent with epidemiological studies from a number of countries showing that urban areas have higher HIV prevalence than rural areas ¹⁶⁷, thus supporting the hypothesis that many of these deaths are AIDS related. However, this remains just a hypothesis as it is possible that living in urban areas increases mortality from causes unrelated to HIV. As the geographical data date back to 1993, it is not possible to analyse whether or not orphans are being fostered from rural to urban areas or possibly vice versa.

4.5 Household size

Household size is thought to be a key demographic determinant of education outcomes (see 2.2.3). However, the size of a household is somewhat ambiguous in this population: Hosegood, Herbst et al.⁴⁸ point out that the membership of households in KwaZulu-Natal is highly fluid. Households often have non-resident members who may move frequently between linked households. The KIDS questionnaire has two questions aimed at determining household membership (and in turn household size):

- 1) *Has the respondent lived under this roof for more than 15 days in the last year?*
- 2) *Has the respondent lived under this roof for more than 15 days in the last month?*

If the respondent answers yes to the first question they are classified as a member of the household as they have some links to the household. The second question aims to determine the level of involvement in the household and assumes that if the person has spent 15 days of the last month in the household that they are centrally involved and can be classified as a resident. There are some obvious limitations with this classification: for instance, a member of the household who lives in another city may have come back to the household for their holidays but erroneously be classified as a resident when they should have been classified as a non-resident member.

In terms of defining household size, it was decided to only include resident household members (i.e. those who answered yes to both questions). In order to determine relative household size, the data were collapsed to the household level and then split into four groups each representing 25 percent of households.

Table 13 shows household size in 2004 by orphan status and residence of parents. The average household size of children living with two parents is 9.1 compared to 8.7 for orphaned children. Fostered-out paternal orphans are more likely to be living in households with more than 11 members than the control group of children. At this superficial level of analysis, it is not clear how to interpret the numbers in the table. However, as this chapter only provides a situational context, further analysis of household size is left to the relevant results chapters.

Table 13. Household size of children aged 7 to 20 in 2004 by orphan status

Parental status	Household size		Percentage of children living in households with more than 11 resident members
	N	Mean	
Parents Alive	1072	8.9	21.6
Of Which:			
Parents Resident	376	9.1	23.7
Father absent, mother resident	380	9.3	23.2
Mother absent, father resident	56	8.6	21.4
Both parents absent	260	7.9	16.5
Orphaned Child	555	8.7	22.0
Of Which:			
Paternal Orphan	352	8.6	22.7
Paternal orphans, living with mother	238	8.4	18.5
Fostered out paternal orphan	114	9.1	31.6
Maternal Orphans	109	9.3	23.9
Maternal orphan, living with father	16	6.8	6.3
Fostered out maternal orphan	93	9.7	26.9
Dual Orphan	94	8.4	17.0

4.6 Class sizes

The final two sections of this chapter shift focus from the household to the school. Through linking of the KIDS database to the Annual School Survey (see Chapter 3 for more details), it is possible to calculate the class sizes of children currently enrolled in school^{xiii}. Class sizes are a strong indicator of overall school quality and have been shown to be a strong predictor of educational outcomes (see page - 37 -).

^{xiii} KIDS could only be linked to the school database for those children currently enrolled in school

Class sizes were calculated by linking the EMIS identifier in the KIDS questionnaire to the 2001 Annual School Survey (ASS). Although the ASS is conducted every January, it takes a considerable length of time to gain access to the results. At the time that the KIDS fieldwork was completed, the 2001 database was the latest database available. As 2001 falls exactly between the second and third waves of KIDS data collection, it is assumed that this dataset represents the average conditions of schools over the five year period.

Table 14 shows the mean class size for currently enrolled children. In this preliminary analysis, there appears to be little difference between groups^{xiv} of orphaned and unorphaned children. Despite the lack of apparent association between orphanhood and class size, it will be important to include class size into the regression modelling as a way to control for school effects.

Table 14. Mean class size for children aged 7 to 20 in 2004 that are currently enrolled in school, by orphan status and school cycle.

Parental status	All school cycles		Primary school		Secondary school	
	Mean	N	Mean	N	Mean	N
Parents Resident	38.5	320	41.8	156	35.5	99
Father absent, mother resident	38.5	337	39.9	209	36.4	79
Mother absent, father resident	40.9	46	43.8	27	38.3	6
Both parents absent	38.4	229	39.5	129	37.4	53
Paternal Orphan	38.8	287	41.0	151	36.0	78
Maternal Orphan	39.0	96	41.5	50	36.8	21
Dual Orphan	37.5	76	40.8	38	33.5	22

4.7 School fees

The second school input included in this chapter is the amount the household spent on sending a child to school. Individual-level information was collected through the education section and household-level expenditures on education collected through the

^{xiv} This was confirmed through statistical testing which shows no significant differences between groups

expenditures section. However, given that there might be differences in educational expenditures between children within households, it was decided to use the individual-level data. A variable was constructed which estimates the proportion of monthly household expenditure spent on a particular child’s education – including fees, transport, uniforms and food.

This estimate led to some outliers: in eleven cases, the monthly educational expenditure per child was more than 50 percent of the entire household expenditure. In five cases, expenditures on education was estimated to be over 90 percent of monthly household expenditures. The median proportion of household expenditures spent on education is two percent. It is unlikely that some households are spending the majority of their money on education and these amounts were probably erroneously reported.

The problem with calculating the total educational expenditures is that the respondent is expected to calculate costs such as food and transport, requiring quite complicated mathematical reasoning. Given these limitations and the likely outliers, it was decided to restrict the educational expenditure variable to school fees alone as this requires less calculation on behalf of the respondent. Doing so shows that the largest percentage of monthly expenditures spent on fees by any one household per child is 13.5 percent. This appears plausible.

Table 15 shows how the proportion of monthly expenditures on education varies for each sub-category of child. Dual orphans are having less money spent on their education than other children but the findings are not clear cut and do not take account of the age of the child.

Table 15. Mean proportion of monthly expenditure spent on education by orphan status

Parental status	Mean	SD	N
Parents Resident	0.65	0.01	338
Father absent, mother resident	0.60	0.01	345
Mother absent, father resident	0.39	0.01	51
Both parents absent	0.70	0.01	237
Paternal Orphan	0.80	0.02	302
Maternal Orphan	0.62	0.01	97
Dual Orphan	0.44	0.01	76

Absolute levels of school fees

In addition, the total amount of school fees for a year was calculated for each child and split by primary or secondary schooling. These results are shown in Table 16. Although it looks as if there are large differences between the different categories of children, none of the orphan groups are significantly different from the control group (children living with two resident parents). The only significant differences are for children in primary school who are living with either their mother absent or both parents absent – in both these cases, school fees are significantly higher than if children are living with both resident parents. It should be noted that these results provide some elementary context and absolute levels of school fees are not very useful if not analysed with levels of household poverty (hence the focus above on proportion of expenditures spent on education).

Table 16. Annual school fees by school cycle and orphan group

Parental status	Primary school		Secondary School	
	Mean	N	Mean	N
Parents Resident	103.6	166	412.8	108
Father absent, mother resident	88.2	221	310.9	84
Mother absent, father resident	288.0	29	184.4	8
Both parents absent	216.9	140	337.2	56
Paternal Orphan	157.8	162	321.4	82
Maternal Orphan	99.9	51	238.9	25
Dual Orphan	52.4	41	151.4	22

4.8 Summary of findings

This chapter provides a descriptive context to the investigation of the main research questions. Cross tabulations are used to show the distribution of orphans by some of the key hypothesized socio-demographic and economic factors. In many ways, orphans are living in different conditions from unorphaned children: paternal and dual orphans live in poorer households whereas the presence of a father is associated with less poor households. Levels of parental education (measured through maternal grade completion) indicate that orphans come from more educated households, which fits into a scenario in which more educated people are more vulnerable to infection with HIV in the initial stages of an HIV/AIDS epidemic.

Orphans are also more likely to have come from urban areas and to be older than unorphaned children. Fostering out of single orphans appears to depend on which parent has died – if the father dies, then most children continue to live with the mother. However, if the mother dies, most children are not living with their father. These children will have been fostered out or – as is common among unorphaned children – else never actually resided with their father.

No discernable patterns exist for three of the indicators: school fees, class sizes and household size. However, these variables will still be used in the following chapters as a way to control for as many background and school factors as possible.

These findings have two implications for the analysis: 1) orphans appear to be disadvantaged for a number of reasons and their inter-relationships need to be explored and 2) when looking at educational outcomes, it will be important to allow for the economic and socio-demographic factors discussed above.

CHAPTER FIVE: EARLY SCHOOL YEARS

This results chapter focuses on early school years and is therefore structured as follows:

- 5.1 Early childhood development
- 5.2 Delayed enrolment
- 5.3 Functional learning tests

The common thread holding together these three outcomes is that they are the most appropriate measures of early schooling outcomes. Dropout and repetition are very rare among younger children in South Africa ¹²⁷ and are therefore dealt with in later chapters.

Although the hypothesis is that the three educational outcomes will affect the younger children, the analysis starts off more broadly by including all age groups and then narrows down to the specific affected age group.

5.1 Early childhood development

Early childhood development (ECD) has been shown to be a crucial predictor of educational outcomes in later life ⁹⁴. ECD incorporates any education which takes place before the start of primary school and includes pre-primary, crèche and nursery. At the end of Apartheid, provision of ECD was fragmented with public pre-primary schools regulated by the Ministry of Education; crèches regulated by the Ministry of Social Welfare and ECD centres in informal settlements that were not regulated at all⁹⁰.

The fragmentation from the Apartheid era continues, with about half of ECD centres being community-based and the rest either school or home based. Furthermore, funding for ECD comes primarily from fees rather than the government ⁹⁵. The government recently introduced a new reception grade into primary schools in order to systematise and shift ECD from communities to schools. Despite these attempts to increase access

to ECD, a national audit in 2001 shows only one in six children accessing pre-primary, with Black South African children accessing lower quality institutions⁹⁵. By 2005, the situation appears not to have changed with very few children accessing the new reception grade ⁹⁰.

In the KIDS questionnaire, there was a specific question in the education section on early childhood development:

Q : For how many years did [...] attend a pre-primary school (crèche)?

The results show that the recent educational policy changes have increased access for the KIDS population: younger children are more likely to have attended pre-primary school compared with older children (see Table 17). The same table shows there to be a high level of gender equity in access, supporting the evidence that – unlike other African countries - girls are not educationally disadvantaged compared to boys.

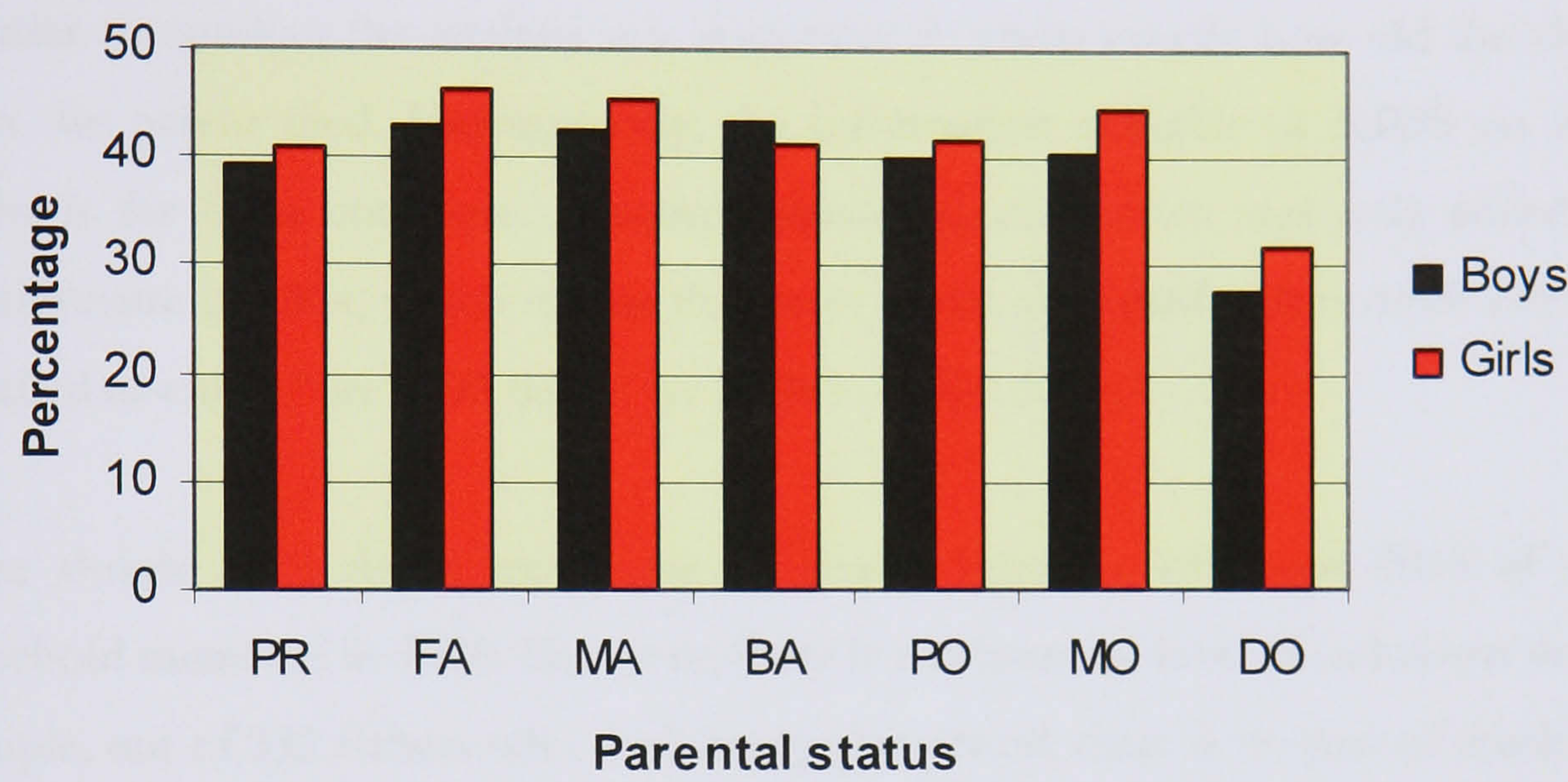
Table 17. Percentages of children aged 7 to 20 in 2004, who have attended pre-primary school by age and gender

Period at pre-primary school	By age group					Gender	
	N	All children	7 to 10	11 to 15	16 to 20	Boys only	Girls only
No pre-primary school	918	58.6	41.3	57.5	72.2	59.4	57.8
One year	438	27.9	41.8	29.6	16.1	27.2	28.6
More than one year	212	13.5	17.0	12.9	11.7	13.4	13.6

5.1.1 Orphans and pre-primary school

Children who were orphans in 2004 do not appear to be less likely to have attended pre-primary school (see Figure 4).

Figure 4. Percentages of children aged 7 to 20 in 2004 who have attended a pre-primary school by gender and orphan status.



Note PR (parents resident); FA (father absent); MA (mother absent); BA (both absent); PO (paternal orphan); MO (maternal orphan) and DO (dual orphan).

The only group of orphans that might be disadvantaged are the dual orphans. However, this group is older than other children therefore, a simple logistic regression was run for orphanhood on pre-primary school attendance, controlling for age. The result shows that once age is controlled for, none of the currently orphaned groups are less likely to have attended pre-primary school – thus, the effect of being a dual orphan is indeed an artefact. The regressions were run separately by gender but there are still no effects of orphanhood.

Exploratory analysis was undertaken to see if any effect of orphanhood was being masked by residence, per capita expenditure or family size; none of the regressions showed significant associations.

For the sake of brevity, such non-significant regression results will mostly be omitted from the thesis.

Sequence of events

It is not really unexpected that orphanhood overall is not related to pre-primary school. After all, many of these children will have been orphaned after pre-primary school. No plausible reason exists why attendance in pre-primary school should affect parents' risk of dying later in life.

It was therefore decided to split the orphan variable according to when the parent died. In order to conduct the analysis it is important to know exactly how old the child was when the parent died. Unfortunately, the information available in KIDS on dates of deaths is far from complete. A comprehensive death section was only added to the questionnaire in 2004, which means that most adults who died before 1998 can only be classified as either "pre 1993 death" or "1993 – 1998 death".

There should be a death record for all deaths between 1998 and 2004 of resident household members in 1998. However, there is a substantial level of unknown dates. For example, out of 332 fathers who died during this period, there is no year of death for 169 (50.9 percent). For mothers, there is no year of death for 40 (23.3 percent). In most cases, year of death is missing as the parent was not resident in 1998.

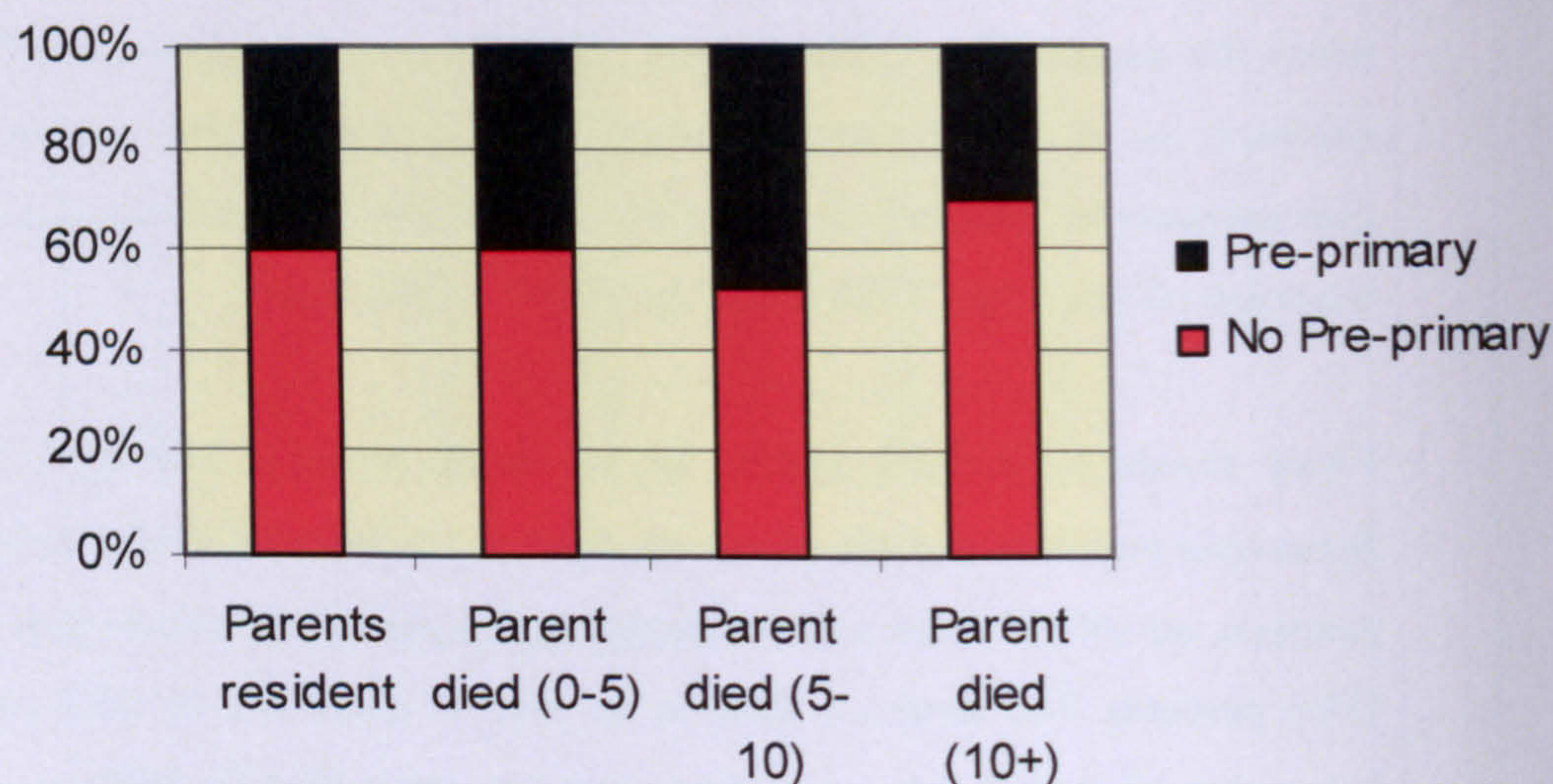
With respect to early childhood development, the analysis becomes even more difficult because there are very few children whose parents died before starting pre-primary school. However, as this is an important line of enquiry it was decided to estimate the year of death by taking the mid-point between waves in cases of unknown data. Year of death was therefore coded as either 1996 or 2001 (depending on the period). Although this estimate is obviously flawed, it makes it possible to investigate whether parental death before the age of five is related whether children attended pre-primary school. The only other option would have been to remove the missing cases; however, this would have more than halved the already small sample size.

Using this estimate, there are only 22 children whose mother died before the child was five and 86 children whose father died by age five. Given the small sample size, it was

decided to merge together the two categories and create a variable according to age of the child at which the first parent died^{xv}.

The percentages of children who attended pre-primary school according to when their parent died are shown in Figure 5.

Figure 5 Percentages of children aged 7 to 20 in 2004 according to the child's age when their first parent died and attendance in pre-primary school.



The graphs show little difference between when a parent died and attendance at pre-primary school (this is confirmed through a logistic regression). A logistic regression – excluding age- shows parental death after the age of ten to be significantly associated with lower attendance in pre-primary school (odds ratio = 0.64, $P = 0.01$). However, as soon as age is included in the model, the effect of orphanhood disappears (odds ratio = 0.93, $P = 0.72$). In sum, there are no significant effects of orphanhood on pre-primary school attendance.

^{xv} the numbers above double count children as a few children will have lost both parents before age five

5.2 Delayed enrolment

Delayed enrolment refers to the age at which children first start primary school and was a major focus of Ainsworth's (2002) study in Tanzania¹⁴², which found that the only impact of parental death on education was through delayed enrolment (see literature review for more details). In South Africa, delayed enrolment is of particular policy relevance and is still the subject of one of the government's most controversial policy changes: at one stage, the government decided to increase the age of first enrolment to primary school to the year in which the child turns seven in order to stop the advantage that non-black families were perceived in gaining by enrolling early¹⁴⁷. However, the increase in age of first enrolment caused such a public outcry that the government has had to backtrack and is currently reviewing the policy. In the interim, a younger child may start grade one if the provincial education minister allows it and if he or she is considered "ready" by the school. National policy has less control of private school admissions and there have been a number of cases of five year old children being allowed to start private school. Within this complicated policy context, it is important to find out the extent to which orphaned children are being educationally disadvantaged by starting primary school at later ages.

Measuring delayed enrolment is complicated precisely because of the changes in policy over the last ten years, as well as variations between state schools and private schools. In KIDS, the questionnaire asked:

"In which calendar year did ... start primary school?"

This question was asked of all 7 to 20 year olds and therefore includes those who have dropped out of school. However, the question was relatively difficult to answer as it required the respondent to think back over many years; data were coded as either missing or "Don't know" for 200 children (12.3 percent of the sample size).

A new variable was constructed which estimates the age of first enrolment by using the results from the question above and subtracting the year in which each child was born. This new variable shows the age which the child turned in the year that they first enrolled in primary school. Therefore, a child born in April 1996 who started primary school in 2003 is coded as age seven as this is the age they became in their first year of primary

school, even though this child was actually six when he started in January 2002. Children were then categorised as normal enrollers (enrolled in the year they turned seven or younger) and late enrollers (enrolled in the year they turned eight or above).

However, drawing from the lessons learnt from the analysis of attendance at pre-primary school, there is little point in examining any effects of orphanhood if the parent died after the child had already enrolled in school. A variable was therefore constructed comparing children whose parents were alive with children whose parents died before the year in which they first enrolled.

Again, the analysis is limited by the small number of children orphaned at early ages. There are 139 children whose father died before the year they first enrolled and only 43 children whose mother died before they first enrolled. Given the small sample sizes, it was decided to look more broadly at parental death rather than differentiate by which parent died. The percentages of children who had delayed enrolment by orphan status are shown in Table 18. It is striking that 28 percent of children who were orphaned before starting primary school enrolled late, compared to only 22 percent of children living with their parents (the control group). The table shows a similar pattern for both boys and girls.

Table 18. Percentages of children aged 7 to 20 in 2004 who enrolled late by whether or not they were orphaned before the year they first enrolled and gender

	Number	Percentage who enrolled late
Parents resident	314	22.0
Boys	138	22.5
Girls	176	21.6
Orphaned before first enrolled	173	27.7
Boys	86	30.2
Girls	87	25.3

However, as with all these outcomes, these numbers may reflect the fact that orphans are older - especially given the policy changes on the legal age of first enrolment. A logistic regression model was therefore run with delayed enrolment as the outcome variable and age, gender and the new orphan variable as the determinants. The results from the regression show children orphaned before starting primary school are more than twice as likely to be enrolled late (odds ratio =2.12, $P < 0.01$). There are no significant gender differences ($P=0.53$), suggesting that the effect is similar for both boys and girls.

Before examining the possible causal mechanisms involved in this association, it is important to further narrow down which orphans are affected. Despite the small sample of orphans, it is important to know if the association is significant for the death of a mother and/or father.

The regression was run again controlling for age and gender and differentiating by type of parental death. The results show there to be significant effects of both maternal death before starting primary school effect (odds ratio = 2.91, $P = 0.005$) and paternal death before starting primary school effect (odds ratio = 2.01, $P = 0.008$). Although the effect of maternal death appears bigger, testing the difference between the dummy variables shows it to be insignificant ($\text{Chi}^2 = 1.40$, $P = 0.24$). Again, it makes no difference whether the child is a boy or a girl.

To summarise, it appears that if a parent dies before a child enrolls in primary school, the risk that the child's enrolment is delayed more than doubles. It makes no difference what sex the child is or which parent died. These findings are in line with Ainsworth's study in Tanzania which showed that orphanhood led to delayed enrolment¹⁴².

The following section discusses what some of the causal mechanisms underlying this association might be.

Socio-demographic and economic determinants

In order to examine some of the causal mechanisms underlying the association between early parental death and delayed enrolment, it is important to first take a step back and assess which of the hypothesized socio-demographic and economic variables are related to delayed enrolment (once significant predictors have been determined, it will be possible to add them through stepwise regression modelling in order to determine causal pathways).

The main hypothesized determinants are: log household per capita expenditure in 2004 and 1998, household size, residence and maternal grade completion. Each of these variables was added in turn to a simple logistic regression. The logarithm of per capita expenditure was used as diagnostic testing suggests that it has a more linear relationship

with the outcome than the untransformed variable (see 6.2.4 for explanation of the diagnostic testing). The results from these five logistic regressions are summarised in Table 19.

Table 19. Logistic regression models of hypothesized determinants of delayed enrolment for children aged 7 to 20 in 2004 (outcome coded: 0= normal enrolment, 1= delayed enrolment).

	Odds ratio	P
2004 Per capita household expenditure (logarithm)	0.59	<0.01
1998 Per capita household expenditure (logarithm)	0.48	<0.01
Maternal grade completion (highest grade completed by mother)	0.88	<0.01
Residence		
Metropolitan	1	
Urban	1.28	0.37
Rural	1.24	0.23
Household size		
Small (under 5)	1	
Medium (5-6)	1.36	0.25
Large (7-8)	1.90	0.01
Very large (9 or more)	2.49	<0.01

The results from the regressions show that the richer a household is and the more educated the parents are, the lower the probability of delayed enrolment. Increased household size shows the opposite pattern, with larger households more likely to enrol children late.

5.2.1 Stepwise regression modelling

Given that 1998 and 2004 per capita expenditure, mother's education and household size are all significantly associated with delayed enrolment, each of these variables was added in turn to the "basic" model which contained parental death before enrolment, gender and age. As there was no significant difference between which parent died and delayed enrolment, it was decided to merge maternal and paternal death in order to keep the maximum possible sample size.

The change in odds ratio for early parental death was noted and a likelihood ratio test conducted to see if adding the new variable significantly increased the goodness of the fit of the model. The results of these tests are shown in Table 20.

Table 20. Impact of parental death (basic model) and other factors on late enrolment controlling for age and gender for all children aged 7 to 20 in 2004. Odds of late enrolment are shown as well as indicators of fit for nested regression models.

Regression models	Sample size	Early parental death		Basic	Log likelihood	Significance of the Improvement in fit Probability
		OR	P		New	
Basic (orphanhood, age, gender)	487	2.12	<0.01	-247.66		
Basic plus 2004 pce	487	1.88	0.01	-247.66	-233.55	<0.001
Basic plus 1998 pce	479	1.91	0.01	-245.81	-235.92	<0.001
Basic plus maternal education	441	1.85	0.03	-214.81	-209.14	<0.001
Basic plus household size	487	2.27	<0.001	-247.66	-245.55	0.24
Basic plus 2004 pce, 1998 pce and mother's education	435	1.71	<0.01	-213.58	-198.38	<0.001

The results show that household per capita expenditure (in both 1998 and 2004) and maternal grade completion are significantly involved in explaining the relationship between early parental death and delayed enrolment. Returning to the results in Chapter 4, it becomes clear that once household poverty is included in the model, the odds ratio is significantly reduced. A simple bivariate regression confirms that this particular group of orphans are living in poorer households (odds ratio = 0.83, P =0.08). Increased poverty among these orphans partly accounts for why they are more likely to delay enrolment. However, even once household poverty is included in the model, the effect of orphanhood on age at enrolment is still large (odds ratio= 1.88), suggesting that other mechanisms are involved which do not involve poverty.

Mother's levels of educational attainment for this group of orphans is higher than the control group (odds ratio =1.06, P =0.03). For some reason, once this higher level of maternal education is controlled for, the odds ratio associated with parental death decreases to 1.85. It may be that maternal grade completion is associated with parental death rather than actually acting as a mediating factor in the relationship between orphanhood and delayed enrolment.

Including household size in the model does not significantly change the effects of orphanhood.

As the final stage of the stepwise regression modelling, the regression model was run again including the significant factors in the model (maternal grade completion, 1998 and 2004 household per capita expenditure, age and gender) and the orphan variable. As can be seen from the bottom row of the table, the effect of being orphaned is still associated with a large odds ratio (1.71, $P < 0.01$). Adding the controls into the model attenuates the risk associated with orphanhood but there are clearly other mechanisms involved in addition to poverty and maternal grade completion.

5.2.2 Determining causality

Both household poverty and maternal grade completion are involved in the association between orphanhood and delayed enrolment.

With respect to poverty, it is unclear if these children were poor before paternal death and this poverty caused both paternal death and delayed enrolment, or if parental death caused increased poverty which then caused delayed enrolment. In order to investigate these two scenarios, the sample of orphans needed to be reduced to only those children whose parents died before starting primary school and between 1998 and 2004: 66 children fit this classification. A simple linear regression model was set up for these 66 children to see if they were poorer before parental death. Controlling for age and gender, the model shows these orphaned children might have been poorer before paternal death (coefficient -1.97, $P = 0.06$). However, as the result is not significant at the five percent level, it is inconclusive. Therefore it remains unclear if these children were disadvantaged before orphaning and it is impossible to determine causality. It should also be noted that in conditions of non-randomness, there is always the possibility that the determinants are confounding with unmeasured variables.

Because KIDS is longitudinal, it is possible to ensure that children, parents, households and schools are as comparable as possible before parental death (an exogenous event)

takes place. In order to do this, it is necessary to control for as many relevant factors as possible in 1998.

All the 1998 controls discussed in Chapter 3 were fitted in a model with delayed enrolment as the outcome variable. Thus the 1998 controls included in the regression are: 1998 household per capita expenditure (logarithm), relationship to household head, household size, dependency ratio, community participation, experience of violence, commitment to education, group participation, religious commitment, negative household shocks, positive household shocks, illness or death in household 1993-1998 and receipt of grant. The only significant determinants of delayed enrolment are religious commitment, and positive shocks.

The regression was re-run with all the listed variables and with the inclusion of the orphan variable (parental death between 1998 and 2004 before child first enrolled). With all the controls in the regression, the effect of orphanhood on age at enrolment is still significant (odds ratio = 3.37, $P = 0.01$). In fact, this effect is even larger than without the 1998 controls suggesting that some of the orphan effect was being masked. A likelihood ratio test confirms that adding the orphan variable to the model with all the 1998 controls improves the fit of the model ($\text{Chi}^2 = 6.74$; $P < 0.001$).

The log of 2004 household per capita expenditure was also included in the regression to see if there is still a significant orphan effect even after final levels of poverty are controlled for. It made no discernible difference to the orphan effect (odds ratio = 3.39, $P = 0.01$). Finally, both mother's education and 2004 per capita expenditures (logarithm) were added to the regression with all the 1998 controls. The odds ratio associated with the effect of orphanhood barely changed (odds ratio = 3.60, $P = 0.01$), providing even stronger evidence that orphanhood has a significant impact on age at enrolment that acts independently of any of the hypothesized socio-demographic and economic pathways.

5.3 Functional test results

This section provides simple summary statistics on the main learning outcomes of children who started school recently: 1) reading 2) writing 3) simple mathematics (summation and subtraction) and 4) complex mathematics (multiplication and divisions).

The dataset

The dataset for this analysis is much smaller than that in the previous analysis as it only includes those children who are a) currently enrolled in school and b) aged 7, 8 or 9. In addition, this section of the questionnaire was the most sensitive and a few children refused to sit the questions (6 out of 314). Finally, the orphan categories used earlier had to be adapted to this younger and smaller sample size as the number of orphans is smaller. Table 21 shows the numbers and percentages of the groups of orphans. The groups of maternal orphans, mother absent and dual orphans are prohibitively small to conduct analysis. An exploratory analysis was conducted to see if whether these groups can be merged into similar groups.

Table 21. Number and percentages of orphans among those currently enrolled children aged 7 – 9 in 2004.

	N	Percent
Parents resident	53	16.9
Father absent, mother resident	99	31.5
Mother absent, father resident	14	4.5
Both parents absent	56	17.8
Paternal orphan	61	19.4
Maternal orphan	19	6.1
Dual orphan	12	3.8

5.3.1 Reading

Since the end of Apartheid, the government has introduced a multilingual language policy in schools. Although such a policy was intended to improve learning achievement, it may actually disadvantage children: first, if the child is not fluent in the language of instruction and second, if the teacher is not either ⁹⁸.

In KwaZulu-Natal, the language of instruction in schools is either IsiZulu or English. Pilot testing of the questionnaire revealed that although some schools are supposed to be teaching in English, teachers whose native tongue is IsiZulu combine both IsiZulu and English in their lessons. As the aim of the learning tests was not to test school-side factors but rather how much the child has achieved in literacy and numeracy skills, it was decided to ask the child to choose in which language they were best at reading and writing.

Of the 299 children, 271 choose IsiZulu and 32 chose English. The fieldworker then started administering the test. Given the young age of the children, the child was allowed to swap the language of the test if he/she wanted to take the test in a different language. This led to an additional 22 children swapping from a Zulu test to an English test.

Reading test

The reading test was printed on a card and based on one used by the Young Lives Study¹⁵⁵. The different levels of ability on the tests were scored as follows:

- 1 – cannot read anything
- 2 - reads letters
- 3 – reads words
- 4 – reads sentences

The test started at the simplest level (reading letters). If the child could not achieve this level then the test was stopped. The assumption here is that achieving a more difficult level (e.g. reading sentences) necessitates the simpler level (reading letters).

Summary reading scores

Table 22 shows the numbers and percentages of children who achieved the four different reading scores. Two of the groups (reads letters and words) contain very few children and therefore these groups were merged in the analysis.

Table 22. Reading scores for seven to nine year olds in 2004

Reading Score	N	Percent
Cannot read anything	62	20.5
Can read letters	32	10.6
Can read words	11	3.6
Can read sentences	197	65.2

Age and gender

As age increases by a year, the probability of not being able to read the sentence decreases significantly: compared with seven year old children, both eight year olds (odds ratio = 0.45, $P < 0.01$) and nine year olds (odds ratio = 0.177, $P < 0.01$) are less likely to be unable to read the sentence.

However, rather than controlling for age, it is more important to control for the current grade that the child is in. One would expect an eight year old in grade two to have better literacy skills than an eight year old in grade one. A new variable was therefore created which estimates the current grade of all children by combining data from the question on highest grade completion and current enrolment status.

Table 23. Odds ratio and probability on not being able to read a sentence by current grade of enrolled children aged 7 to 9 in 2004.

	Odds ratio	P
Grade 1	1	
Grade 2	0.07	0.02
Grade 3	0.02	0.01
Grade 4	<0.01	<0.01

Each pair of coefficients confirms that grade two is different from grade three ($\text{Chi}^2 = 13$, $P < 0.01$) and that grade three is different from grade four ($\text{Chi}^2 = 5.3$, $P = 0.02$).

Large gender differences exist with girls more likely to be able to read the sentence (odds ratio = 0.34, $P < 0.01$). The mean reading score for girls is 3.4 compared to 2.9 for boys.

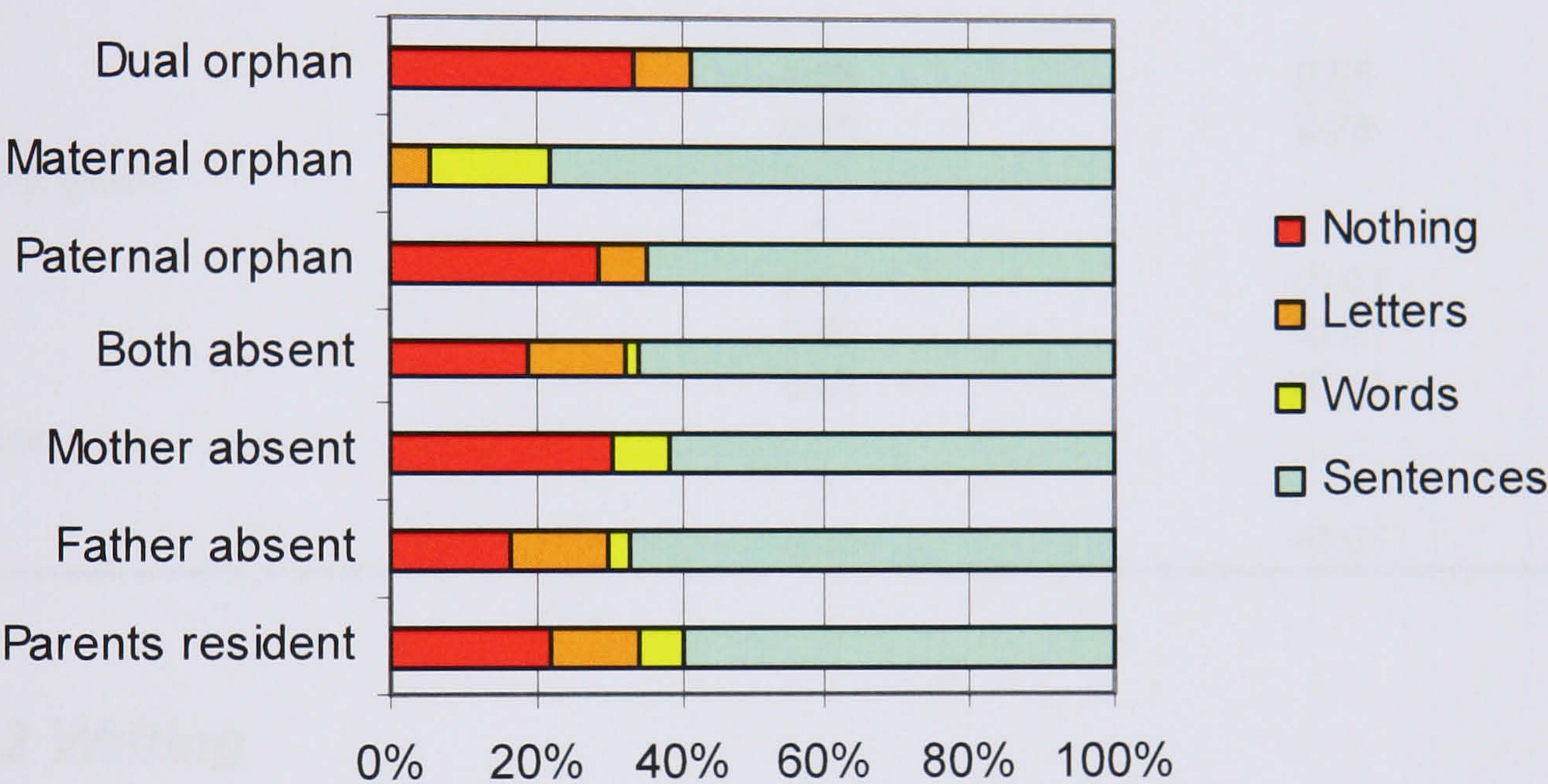
Reading scores and orphanhood

Figure 6 below shows the reading scores of the different groups of children. However, as mentioned already, the results for dual orphans, maternal orphans and children with an

absent mother should be read with caution as the sample sizes are each less than 20. It is not immediately clear what the chart is demonstrating: some groups such as maternal orphans appear to be performing better than the control group whereas the paternal and dual orphans may be doing worse.

In order to untangle some of these relationships, the next section uses logistic regression to model the ability to read sentences.

Figure 6. Reading scores (nothing/ can read letters/ words/ sentences) for the seven to nine year olds, by parental status in 2004.



Logistic regression on reading scores

First, logistic regressions were run which included ability to read a sentence as the outcome variable and the orphan groups above as the dependent variable. These regressions were run for boys and girls together and then separately. These results show that none of the groups of orphans are significantly more or less able to read a sentence.

Although it looks like there is no effect of orphanhood, given that current grade and gender have such a strong effect on ability to read a sentence, it was decided to run the logistic regression again controlling for current grade, age and gender. The results of this regression are shown in Table 24. As in the regression that does not control for other predictors, orphanhood is not significantly associated with reading a sentence at the 5

percent significance level. Age is no longer a significant factor once current grade is included.

Table 24. Odds of not being able to read a sentence for currently enrolled 7 to 9 year olds in 2004 by parental status, gender, age and grade on not being able to read a sentence.

	Odds ratio	Probability
Parents resident	1	
Father absent, mother resident	0.89	0.81
Mother absent, father resident	1.08	0.93
Both parents absent	0.94	0.91
Paternal orphan	0.94	0.90
Maternal orphan	0.27	0.10
Dual orphan	0.99	0.99
Age		
7	1	
8	1.26	0.55
9	0.88	0.78
Current grade		
1	1	
2	0.07	<0.01
3	0.02	<0.01
4	0.01	<0.01
Gender		
Boys	1	
Girls	0.35	<0.01

5.3.2 Writing

For the writing test, the fieldworkers read out a sentence to the child and asked him/ her to write the sentence. The test was scored as either

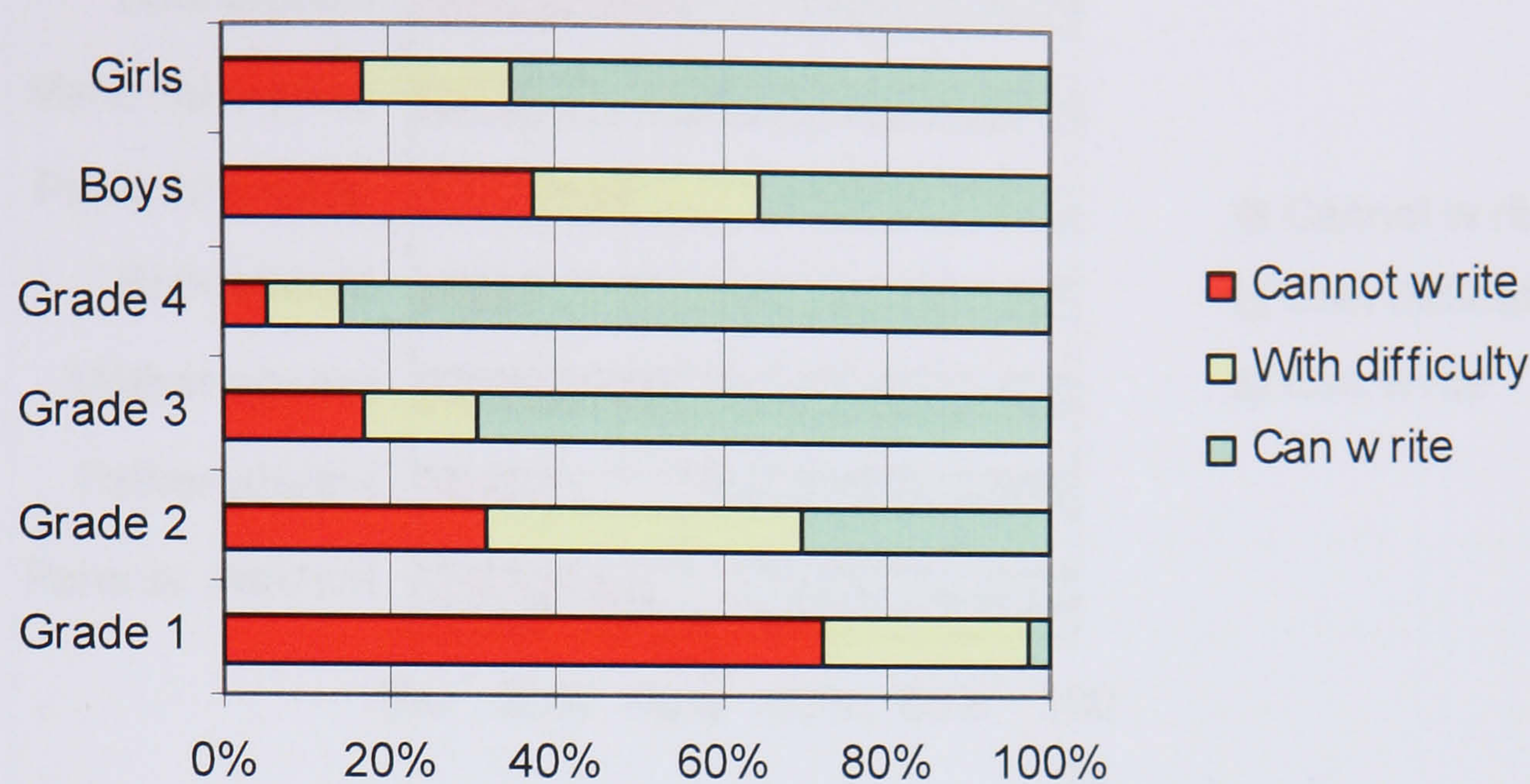
- 1 – cannot write sentence
- 2 – writes sentence with difficulty or errors
- 3 – writes sentence without difficulty or errors

The writing test (like the reading and the numeracy tests) was based on the tests used by the Young Lives project. For language of instruction, see 5.3.1.

Writing scores by gender and grade

As with the reading scores, girls performed better than boys and the ability to write increases as the child’s grade increases (see Figure 7).

Figure 7. Writing scores for 7 to 9 year olds by grade and sex in 2004

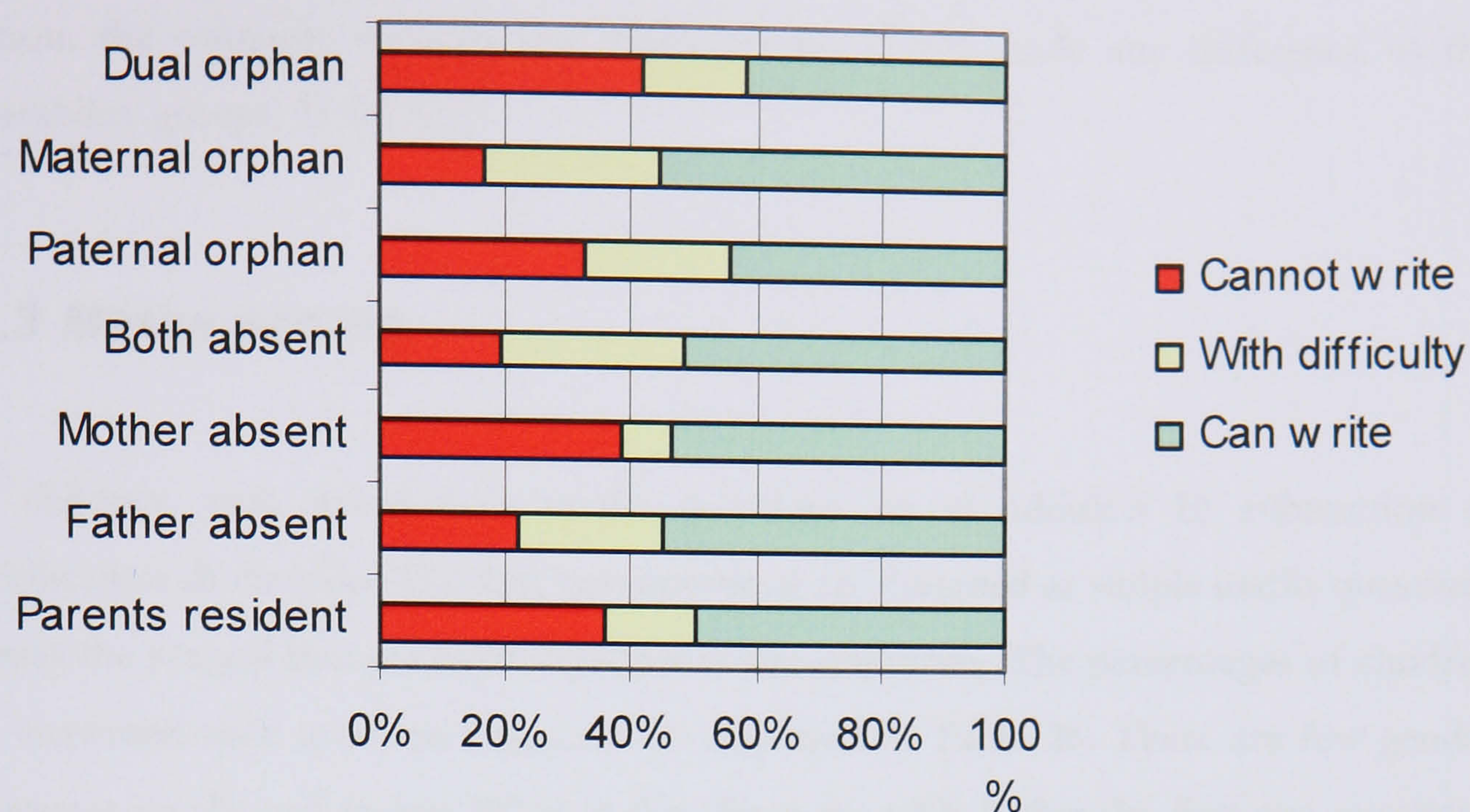


Writing scores by orphanhood

The patterns for the writing tests are similar to the reading tests with dual orphans performing worse and children whose father is absent appearing to be performing better, as demonstrated in

Figure 8. However, it is not clear if any of these differences are significant. This is examined in the next table (Table 25).

Figure 8. Writing scores by parental status for 7 to 9 year olds in 2004



In order to conduct the logistic regressions, a binary outcome was created with zero as “can write sentence without difficulty” and one as “cannot write sentence without difficulty”. This combination was chosen because a large percentage (51 percent) of the children could write the sentence without difficulty. The results of the regressions (run separately for boys and girls) shows that none of the groups of orphans are significantly more or less able to write the sentence.

Table 25. Odds ratio and probability of not being able to write the sentence for children aged 7 to 9 in 2004.

	Both boys and girls		Boys only		Girls only	
	Odds ratio	P	Odds ratio	P	Odds ratio	P
Parents resident	1		1		1	
Father absent, mother resident	0.83	0.59	0.54	0.28	1.09	0.87
Mother absent, father resident	0.86	0.81	0.38	0.30	1.58	0.60
Both parents absent	0.93	0.85	0.55	0.33	1.19	0.77
Paternal orphan	1.27	0.54	0.90	0.86	1.19	0.77
Maternal orphan	0.80	0.69	0.63	0.59	0.90	0.90
Dual orphan	1.40	0.61	1.88	0.60	1.06	0.96

Exploratory analysis was conducted to see if including any of the other predictors revealed a significant effect of orphanhood but the results continued to show no significant association. The mother’s and father’s residency and survival variables were

also included into the regressions but these yielded no significant results either. In addition, the outcome variable was varied to see if this made any difference to the vulnerability groups. It did not.

5.3.3 Maths scores

The children were asked four maths questions on a) addition b) subtraction c) multiplication d) division. The first two questions are designed as simple maths questions whereas the second two are more complex maths questions. The percentages of children who answered each question correctly are displayed in Table 26. There are few gender differences on the test scores. What is clear from the table is that the first two questions are relatively easy for the children but that only a minority of the children can answer the more complex maths questions. This finding suggests that it may be useful to analyse the maths questions in two categories (merging the addition and subtraction together and merging the multiplication and division).

Table 26. Percentages of children aged 7 to 9 in 2004 who answered correctly each of the four maths questions by gender.

	Boys only	Girls only
Maths question	Percent	Percent
Addition	86.4	87.7
Subtraction	74.5	72.1
Multiplication	46.9	47.1
Division	21.8	18.7

Orphanhood and maths scores

Each of the maths tests was modelled as a binary outcome using a logistic regression with the orphan variable as the independent variable (Table 27). The table shows that none of the absent parent or orphan groups differ significantly from children living with their parents in their performance on the maths test. There are some relatively large odds ratios which suggest that it may be useful to re-categorise the orphan groups and the outcome variables.

Table 27. Odds of answering the maths question correctly for children aged seven to nine in 2004 by parental status.

	Addition		Subtraction		Multiplication		Division	
	Odds ratio	P	Odds ratio	P	Odds ratio	P	Odds ratio	P
Parents resident	1		1		1		1	
Father absent, mother resident	0.66	0.47	0.96	0.93	0.71	0.33	1.92	0.13
Mother absent, father resident	1.33	0.75	0.75	0.69	1.50	0.54	0.79	0.73
Both parents absent	1.12	0.85	0.90	0.81	0.55	0.14	1.72	0.27
Paternal orphan	1.32	0.62	0.87	0.75	0.74	0.44	0.87	0.74
Maternal orphan	2.82	0.13	0.96	0.95	0.67	0.46	2.81	0.21
Dual orphan	1.47	0.67	0.56	0.49	0.93	0.92	3.86	0.22

Exploratory analysis compared by gender (a) those children who had answered all four maths questions correctly with those who had not; (b) total maths scores by orphan group; (c) answers on simple maths questions (addition and subtraction) ; (d) answers on complex maths questions (multiplication and division); (e) interaction of father and mother variables. None of these tests suggested that orphanhood or absence of parents has any significant effect on ability in maths.

Bringing together the literacy and maths test scores

Exploratory analysis was conducted to see if different combination of the reading, writing and maths tests might produce evidence in support of the hypothesis that orphanhood impacts negatively on learning. There were no significant orphan effects. For the sake of brevity and interest, these results are not reported.

5.4 Summary of findings

This chapter examines a set of educational outcomes which revolve around early school years: early childhood development, delayed enrolment and functional literacy and numeracy tests.

Orphanhood does not significantly effect participation in pre-primary school or ability in literacy and maths. It is not clear why there is no impact on early childhood development although it may be the case that the question on pre-primary school did not differentiate

sufficiently between the different types of early childhood development programmes (e.g. crèche versus nursery).

In terms of the literacy and numeracy tests, the impact of orphanhood on learning achievement may cumulate over time. In this scenario, a substantial impact on actual learning outcomes would not be expected at such an early age. It should be noted that no other studies on the impact of AIDS on education have found any impact on the learning outcomes of children under the age of ten. The most relevant study is Ainsworth who found an impact on delayed enrolment of young children, however, these outcomes are not learning outcomes¹⁴².

A clear and interesting set of findings were obtained concerning the relationship between early parental death and age at enrolment in school. Although the sample sizes were small, both early maternal and early paternal death are associated significantly with delayed enrolment for both boys and girls. The magnitude of the impact is no different according to which parent died. Stepwise regression modelling shows that increased poverty is a key factors explaining some – but not all – of this impact. Maternal grade completion is also a factor, although it is not clear if this may be confounded with the effect of parental death.

A longitudinal analysis was undertaken controlling for a wide set of possible socio-demographic and economic factors from before parental death, including proxies for commitment to education and social capital. Even when households are as comparable as possible prior to parental death, the effect of early parental death remains large (odds ratio =3.37). This effect also remains unchanged even once 2004 determinants are included in the regression.

These findings are consistent with Ainsworth's¹⁴² work in Tanzania but suggest that in the South African context, both paternal and maternal deaths lead to delayed enrolment.

CHAPTER SIX: PROGRESS THROUGH SCHOOL

This chapter shifts the focus from entrance into school and early learning outcomes to progress through schooling. The three outcomes measured in this chapter capture how well a child is doing at school. As discussed in the literature review, schooling in South Africa differs from many other African countries in that the vast majority of children stay in school through primary school and lower secondary school. Previous studies of the impact of orphanhood have tended to focus solely on dropout yet, in the South African context, this outcome is unlikely to pick up any disadvantage faced by younger children. It is also possible that orphans begin to become disadvantaged while still at school and identifying these effects may be crucial to preventing later dropout.

This chapter therefore mostly focuses on educational outcomes while still in school. The three educational outcomes examined are 1) attendance , 2) grade repetition (of those currently enrolled in school) and 3) primary school completion. The analysis is framed around the core research question: to what extent are orphaned children educationally disadvantaged and why?

6.1 Attendance

According to the conceptual framework (page - 50 -), daily attendance in school is a key educational input. Low attendance will reduce learning and lower overall attainment ¹⁶⁸. So, although attendance is not strictly an educational outcome, it can be taken as an indicator of educational disadvantage and can help identify which children might be at risk of dropout.

Some researchers have suggested that attendance is particularly poor in South Africa ⁹⁴. However, gaining an accurate measure of daily attendance is difficult: some researchers note that school attendance registers are likely to be inflated, especially when there are financial incentives linked to higher attendance rates ⁵³. Estimating daily school

attendance through a household questionnaire is a fairly new enterprise¹¹⁰ and comes with its own set of methodological difficulties: for instance, it should not be assumed that surveyed adults know if a child attended school on any particular day.

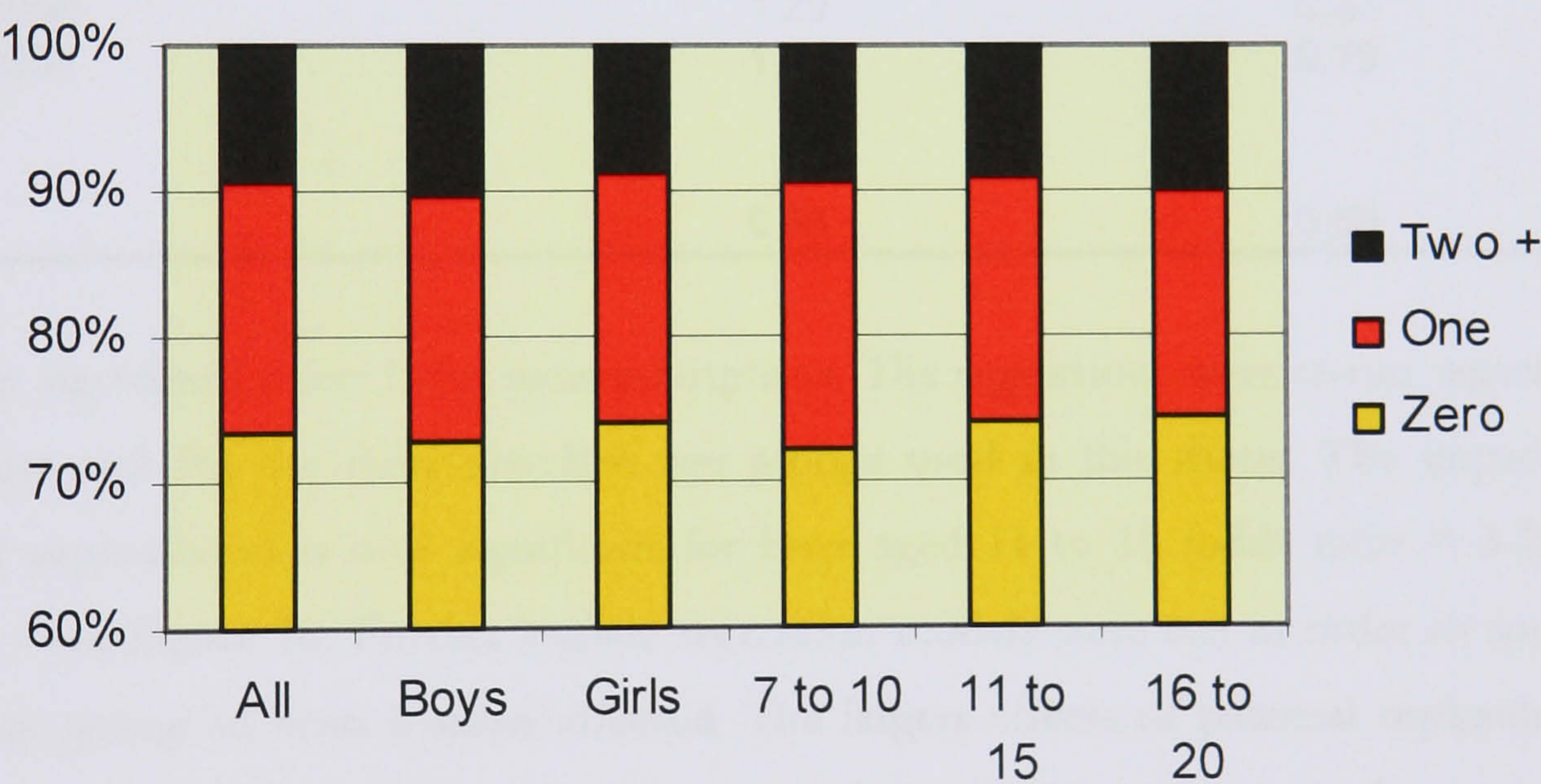
Two questions were designed in KIDS to determine the level of daily attendance:

Q – In the last month, how many days did [...] not go to school?

Q – Why did [...] not go to school in the last month?

The results show that the vast majority of children did not miss any days of school (see Figure 9). The graph also shows there to be little difference between boys and girls in attendance, as well as little difference between age groups.

Figure 9. Number of days missed in the last month by boys and girls aged 7 to 20 in 2004, and by different age groups.



6.1.1 Orphans and attendance

This section examines whether or not orphanhood is significantly associated with attendance rates. Given the finding in Chapter 4 that orphanhood is strongly related to age, the analysis controls for age. A binary outcome variable was created which distinguished excellent attendance (zero days missed) from poor attendance (one or more days missed). Although it could be argued that missing one day in a month is hardly poor

attendance, respondents claimed that 73.5 percent of enrolled children had not missed a single day of school in the last month. This seems somewhat high and there is likely to be a positive bias. It is therefore being assumed that claiming to miss at least one day is an indicator of poor attendance.

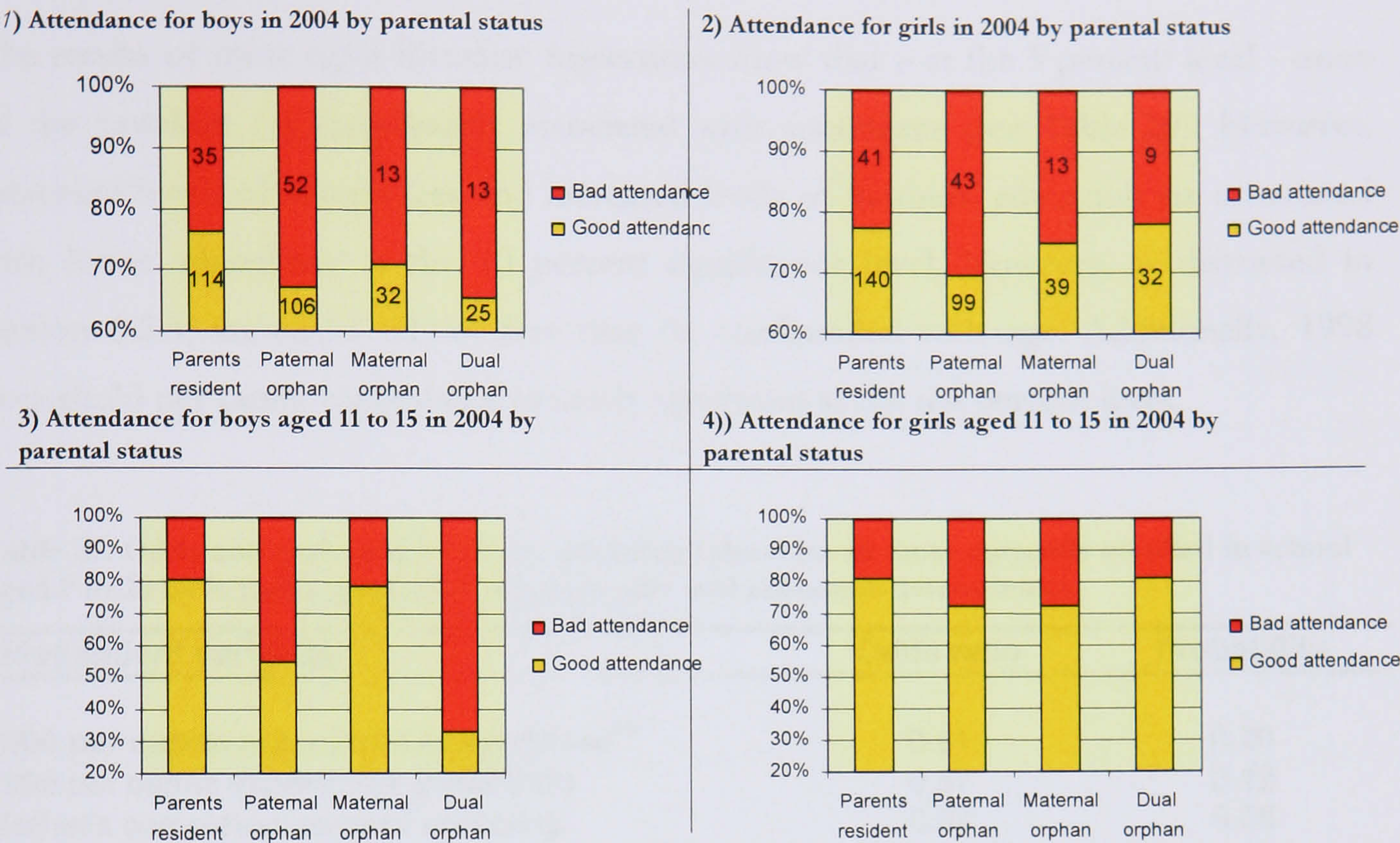
A simple logistic regression model was used to assess whether or not the various groups of orphans had significantly different attendance records, controlling for age and gender. These results are shown in Table 28.

Table 28. Relative risk of missing 1+ days of school in the previous month by orphan status, residence, age and gender.

Independent variables	Odds ratio	Probability
Parents resident	1	
Father absent, mother resident	1.18	0.35
Mother absent, father resident	1.51	0.21
Both parents absent	1.01	0.99
Paternal orphan	1.54	0.02
Maternal orphan	1.22	0.45
Dual orphan	1.29	0.37
Age in 2004	1.01	0.79
Gender		
Boys	1	
Girls	0.95	0.69

The only significant effect is for paternal orphans. The regressions were re-run separately by gender and for the three standard age groups used in this thesis. The impact of paternal orphanhood is only significant for boys aged 11 to 15 (odds ratio = 3.38, $P = 0.03$) - see Figure 10. Further logistic regression models were run in order to specify which age group of boys is most affected. The largest effects of paternal orphanhood exist for boys aged 11 to 13 (odds ratio = 8.83, $P > 0.001$) and this is the group of children which will be considered for the rest of this section. These preliminary results fit into a wider picture of teenage male truancy in South Africa³⁵. It appears to be the case that orphaned boys start truanting earlier than other boys.

Figure 10. Graphs showing percentage of children who were classified as good attenders (zero days missed in last month) or bad attenders (one plus days missed in last month), for different age groups, by gender in 2004.



A dual orphan effect for boys?

Significance testing shows that the risk associated with the two groups (paternal orphan and dual orphans) are not significantly different ($\text{Chi}^2 = 1.83$, $P = 0.18$), suggesting that there is no specific effect of being a dual orphan but rather an effect of paternal death in general. This conclusion was further confirmed by running the regression again, substituting the residency and survival status of mothers and fathers instead of paternal, maternal and dual orphan groups, this confirms death of the mother has no effect but that death of a father does (odds ratio = 3.9, $P < 0.001$).

6.1.2 Socio-economic and demographic determinants of attendance

Given that a specific group of affected orphans has been identified, it is necessary to identify which of the hypothesized socio-economic and demographic determinants are related to attendance. Each of the hypothesized determinants were added in turn to a

bivariate logistic regression with the outcome being the level of attendance. It is possible to include school-side factors (school fees and class sizes) because the only children affected are those currently enrolled in school.

The results of these eight bivariate regressions show that – at the 5 percent level - none of the variables are significantly associated with attendance (see Table 29). However, increased levels of school fees and increased levels of mothers’ education are associated with lower attendance at the 10 percent significance level. However, as discussed in section 6.2.3, increased school fees may be confounded with age. Additionally, 1998 household per capita expenditure is nearly significant at the ten percent level.

Table 29. Odds and probabilities of not attending school for all those currently enrolled in school aged 7 to 20 by hypothesized socio-demographic and economic determinants.

Independent variables	Odds ratio	Probability
2004 per capita household expenditure^{xvi}	0.91	0.20
1998 per capita expenditure (logarithm)	0.87	0.12
Mother's completed years of schooling	0.97	0.08
Community		
Metropolitan	1	
Urban	0.98	0.94
Rural	1.04	0.82
Household Size		
Small	1	
Medium	0.94	0.79
Large	0.78	0.23
Very Large	0.86	0.44
Class Size	0.99	0.18
Prop Of Expenditures On Education	2.63	0.84
School Fees	0.99	0.06

6.1.3 Stepwise modelling

Given that 1998 per capita expenditure, mother’s education and school fees are all nearly significantly associated with attendance, each of these variables was added in turn to a regression model for boys aged 11 to 13 which included as explanatory variables: mother status (resident/ absent/dead), father status (resident/ absent/dead) and age.

^{xvi} Diagnostic testing shows that the natural logarithm of per capita expenditure should be used in these logistic regressions

The change in odds ratio for paternal death was noted and a likelihood ratio test conducted to see if adding the new variable significantly increased the goodness of the fit. The results of these tests are shown in Table 30.

Table 30. Summary statistics for stepwise regression modelling on the odds of not having attended school for boys aged 11 to 13 who are currently enrolled in school in 2004 .

	Sample size	Death of father		Basic	Log likelihood New	Significance of the Improvement in fit Probability
		OR	P			
Basic (controls for age, mother status and father status)	182	8.83	<0.001	-98.43		
Basic plus 1998 per capita expenditures	180	8.57	<0.001	-97.58	-96.24	0.10
Basic plus mother's educational attainment	158	7.22	<0.001	-86.11	-86.10	0.92
Basic plus school fees	182	8.72	<0.001	-98.43	-98.39	0.77

Adding the other variables does not significantly improve the fit of the model although adding 1998 per capita expenditure does significantly improve the fit of the model at the 10 percent significance level. Including per capita expenditure in the model decreases the odds ratio slightly, suggesting that a small part of the reason why boys have poor attendance records might be because they were living in poorer households. Even with 1998 per capita expenditure included in the model, the effect of paternal death on attendance of boys in this age group remains large and highly significant (odds ratio =8.57, P <0.001). Clearly some other factors other than poverty are involved.

Given that there is still a highly significant effect of orphanhood still unaccounted for, it was decided to analyse the stated reasons for not attending school for this group of boys.

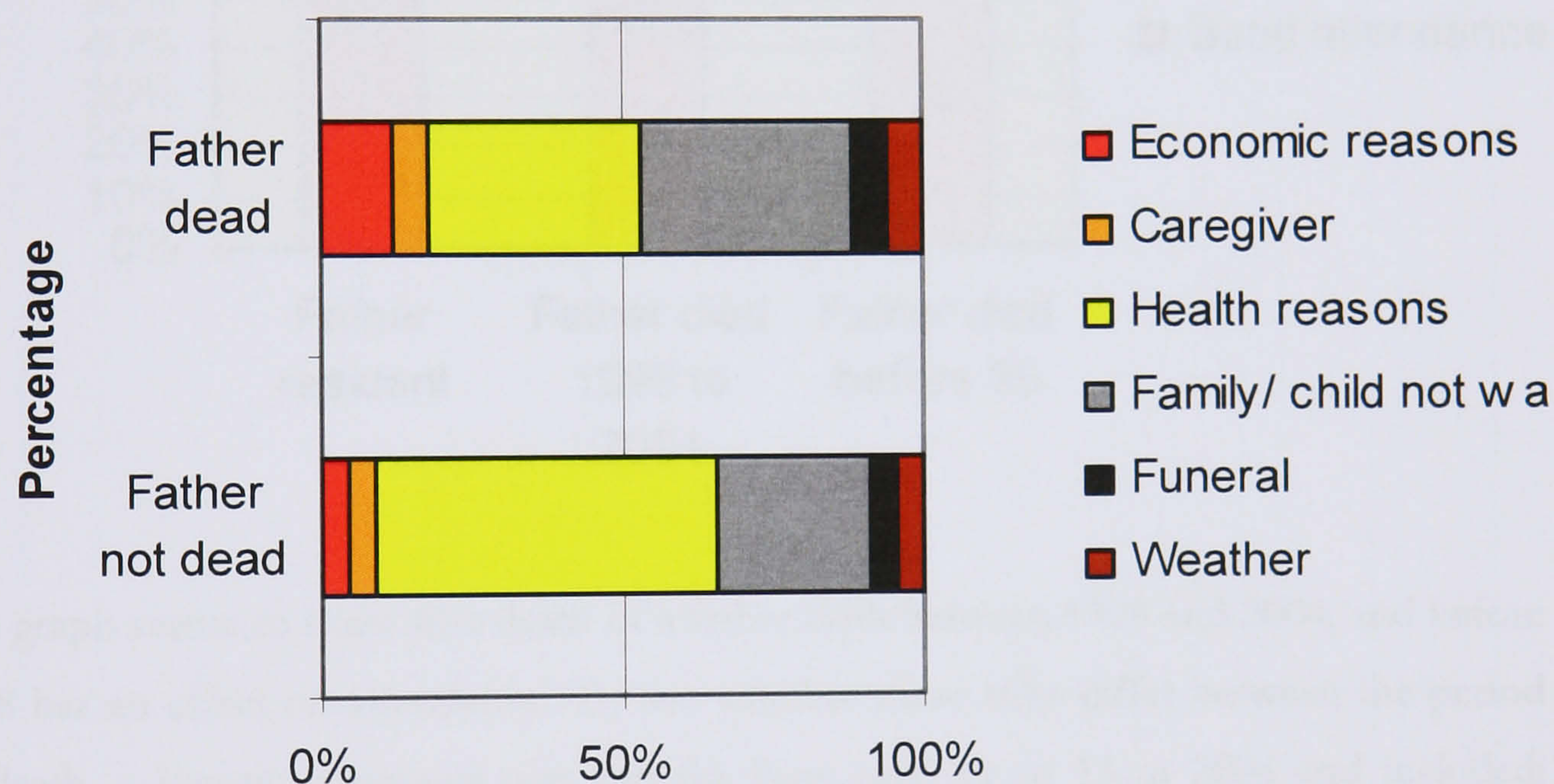
6.1.4 Stated reasons for non-attendance

All respondents whose child has missed school in the last month were asked the reason for this. However, as the total number of children classified as “poor attenders” was only 381, the number of bad attenders for the group of interest (boys aged 11 to 13) is only 51. The sample sizes become even smaller when looking specifically at boys whose

fathers have died in this age group – only 22 boys are not attending, and a reason is stated for only 17.

The horizontal bar chart in Figure 11 should be read with caution therefore as the sample size is small. Moreover, the graph fails to clarify the reasons why these boys are not attending – it is suggestive of a pattern in which the control group (boys aged 11 to 13 whose father has not died) are most likely to miss school because of ill health (56.5 percent, N = 22) but, if the father has died, the main reasons remains ill health (33.3 percent, N =17). In addition, many of the boys had not attended because they did not want to (33.3 percent, N = 17).

Figure 11. Stated reasons for non attendance for boys aged 11 to 13 by paternal status.

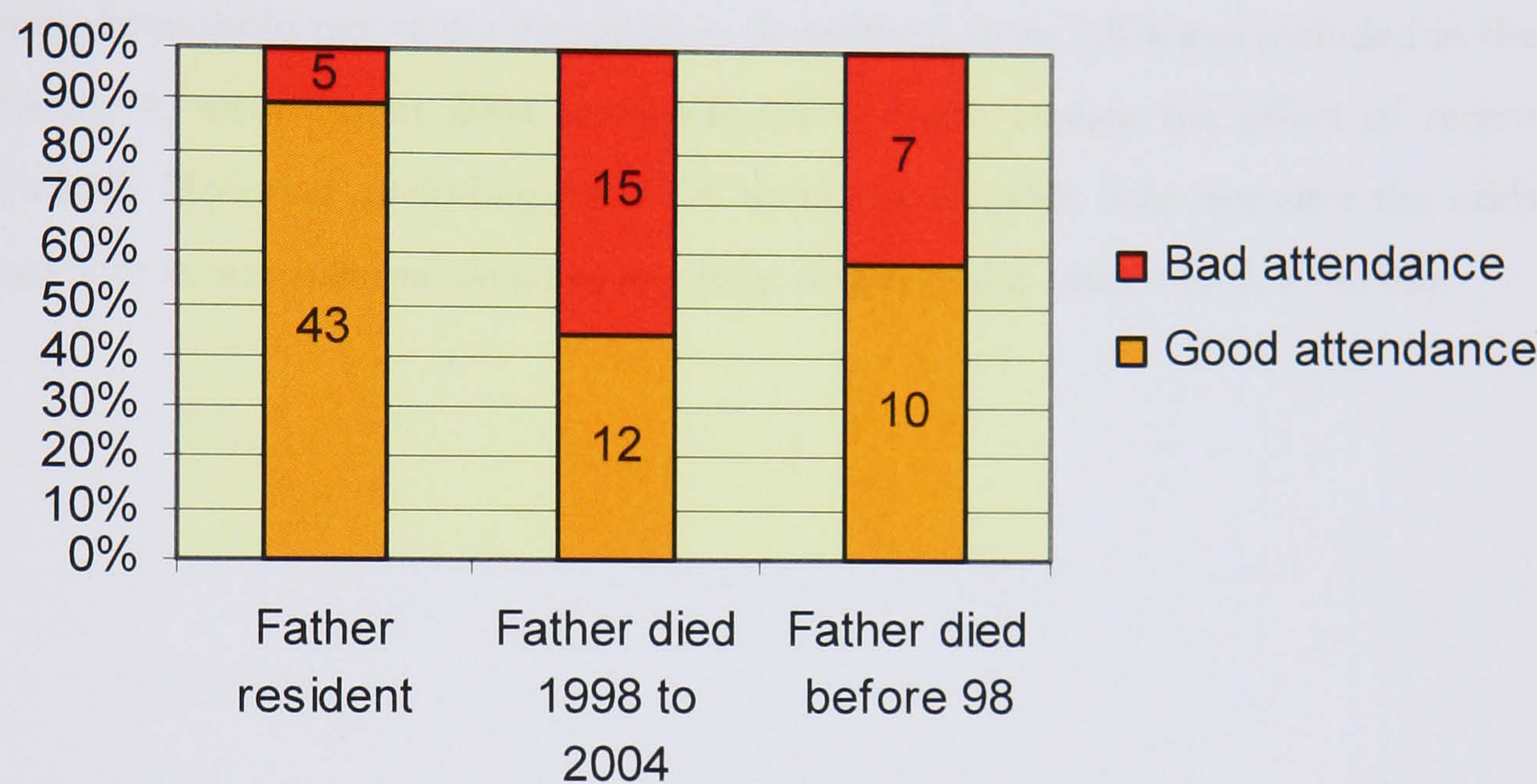


The sample sizes are prohibitively small for any firm conclusions to be drawn from the respondents' stated reasons. Furthermore, the stated reasons are limited from a methodological point of view – for example, there might be a bias to say the child was ill as this is a more socially desirable answer than saying the child did not want to go to school; in another scenario, the child might have said he was ill so as not to go to school but not go for another reason; and finally, this type of question will not reveal low levels of parental commitment to education.

6.1.5 Timing of death

The next step of the analysis is to split the group of boys according to when their father died and try to determine the sequence of events. However, given the small sample size, Figure 12 needs to be read with caution.

Figure 12. Proportion of boys aged 11 to 13 in 2004 who are not attending school according to when their father died.



The graph seems to show that death of a father both between 1998 and 2004, and before 1998 has an effect on attendance. To test whether these risks differ between the period of death, a logistic regression was run for boys aged 11 to 13 in 2004 and included: timing of paternal death, mother status and age. This regression shows that paternal death between 1998 and 2004 is associated with an odds ratio 10.92 ($P<0.01$) compared to an odds ratio of 5.96 ($P=0.01$) for a paternal death preceding 1998. However, a test of significance of the difference between the two dummy variables found no significant difference according to the timing of paternal death ($\text{Chi}^2 = 0.88$, $P=0.35$).

As with the section on delayed enrolment, the next stage is to include as many controls from 1998 as possible and see if death of a father between 1998 and 2004 still effects boy's attendance. The 1998 controls are: 1998 household per capita expenditure (logarithm), relationship to household head, household size, dependency ratio, community participation, violence, group participation, religious commitment, negative

household shocks, positive household shocks, illness or death in household 1993-1998 and receipt of grant. The only significant determinants of attendance were household size, group participation, household death and negative shocks^{xvii}.

Although the sample size is only 67 boys in total, the effect of recent paternal death with the 1998 controls is still large (odds ratio =12.36, P =0.01) A likelihood ratio test shows that adding the paternal death variable significantly improves the fit of the model (Chi² = 9.14, P <0.01). The results are shown below.

In addition, household per capita expenditure (logarithm) from 2004 was included in the model to see to what extent 2004 economic status might explain the effect of recent paternal death. However, including the 2004 economic variable does not alter the odds associated with recent paternal death to any large degree (odds ratio =10.4, P =0.02).

^{xvii} Please note that commitment to education (measured through involvement in educational groups was omitted from the model as it contained empty cells.

Table 31. Odds and probability of not attending school for boys aged 11 to 13 who are currently enrolled in school by paternal death and 1998 controls.

1998 variables	Odds ratio	Probability
Father status		
Father resident	1	
Father died 1998 - 2004	12.36	0.01
Mother's education	1.16	0.35
1998 PCE	0.34	0.34
Relationship to household head		
Child	1	
Grandchild	0.19	0.16
Other	4.09	0.46
Household size	0.56	0.31
Community participation		
None	1	
Some	2.24	0.51
Violence		
No violence	1	
some violence	0.90	0.94
Group participation (social capital)		
No member	1	
One member	3.23	0.25
Two members	0.94	0.98
Religious commitment		
No churchgoers		
One churchgoer	2.95	0.23
Two plus churchgoer	0.19	0.27
Death in the household (1993 – 1998)		
No	1	
Yes	0.47	0.44
Negative shock		
No	1	
Yes	1.38	0.75
Positive shock		
No	1	
Yes	0.38	0.36
Grant		
No	1	
Yes	0.53	0.54
Age		
11		
12	1.37	0.95
13	1.76	0.47
Mother		
Resident	1	
Absent	1.55	0.77
Dead	1.01	0.99

Despite the very small sample sizes, the findings strongly suggest that paternal death leads to lower attendance for boys aged 11 to 13. The odds of poor attendance are over ten times as high for paternal orphans as for the boys living with their fathers once all possible confounders preceding parental death are included in the regression. It can be concluded that the effect of paternal death on boys' poor attendance is mainly due to factors operating outside the hypothesized causal mechanisms. Chapter 8 returns to the issue of attendance.

6.2 Repetition

This section looks at progress through school. Grade repetition is usually taken as a proxy for school progression: if a child is made to repeat a grade, then clearly he/she is not progressing at an adequate rate. Many studies have shown that grade repetition negatively impacts on a child's education and leads to lower attainment and higher rates of dropout^{93,169-171}. The key question framing the analysis is: are orphaned children more likely to repeat a grade than children who are living with their parents? And, if so, why?

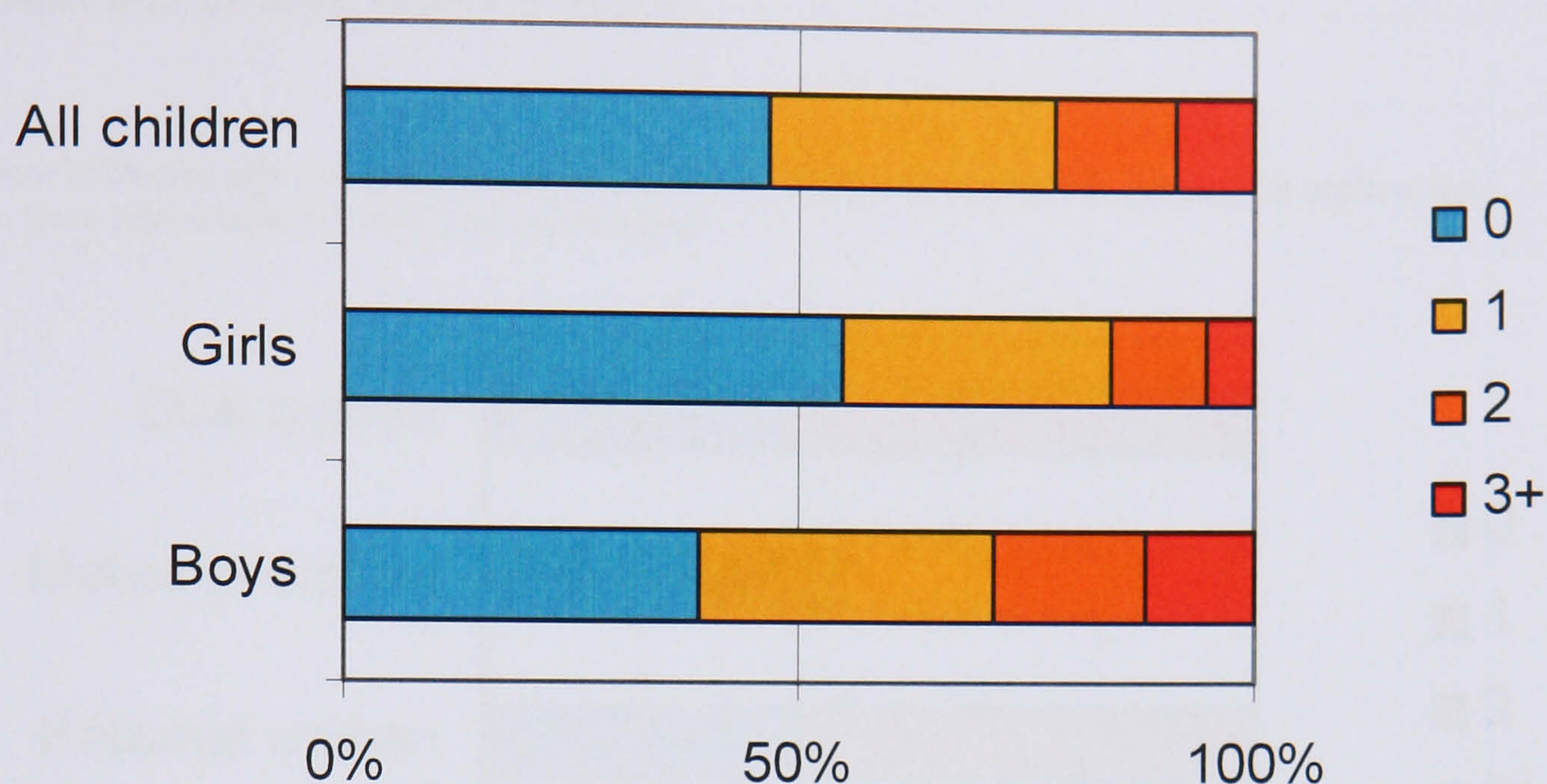
Within the KIDS dataset, it is possible to look at repetition of all children (including those who have dropped out) or of just those currently enrolled in school. This chapter focuses on the educational outcomes of children still in school so, in terms of repetition, I concentrate on this group too.

In the KIDS questionnaire, the education section asked how many years in total each child had repeated. Of 1446 children, 53 percent had repeated at least one grade. This is a very high number. It suggests that grade repetition may have more to do with supply-side factors rather than children's progress - this has been shown to be the case in various countries where repetition rates are high due to ineffective education policy¹⁰⁰.

6.2.1 General patterns of grade repetition

Figure 13 shows that more than half of all children have repeated at least one grade at school. Boys are more likely to have repeated one or more grades than girls ($P < 0.01$).

Figure 13 Percentage of currently enrolled children aged 7 to 20 who have repeated 0, 1, 2 or 3 + grades by sex



Age and gender

Regardless of gender, age is positively associated with having repeated a grade. Although the gender difference noted above is apparent at all ages, it is in the middle age group that the gender differences are largest (Table 32).

Table 32. Mean number of grades repeated for boys and girls currently enrolled in school, by age group.

Age group	Boys		Girls	
	N	Mean no. of repeated grades	N	Mean no. of repeated grades
7 to 10	201	0.55	217	0.35
11 to 15	287	1.02	305	0.58
16 to 20	235	1.53	201	1.15

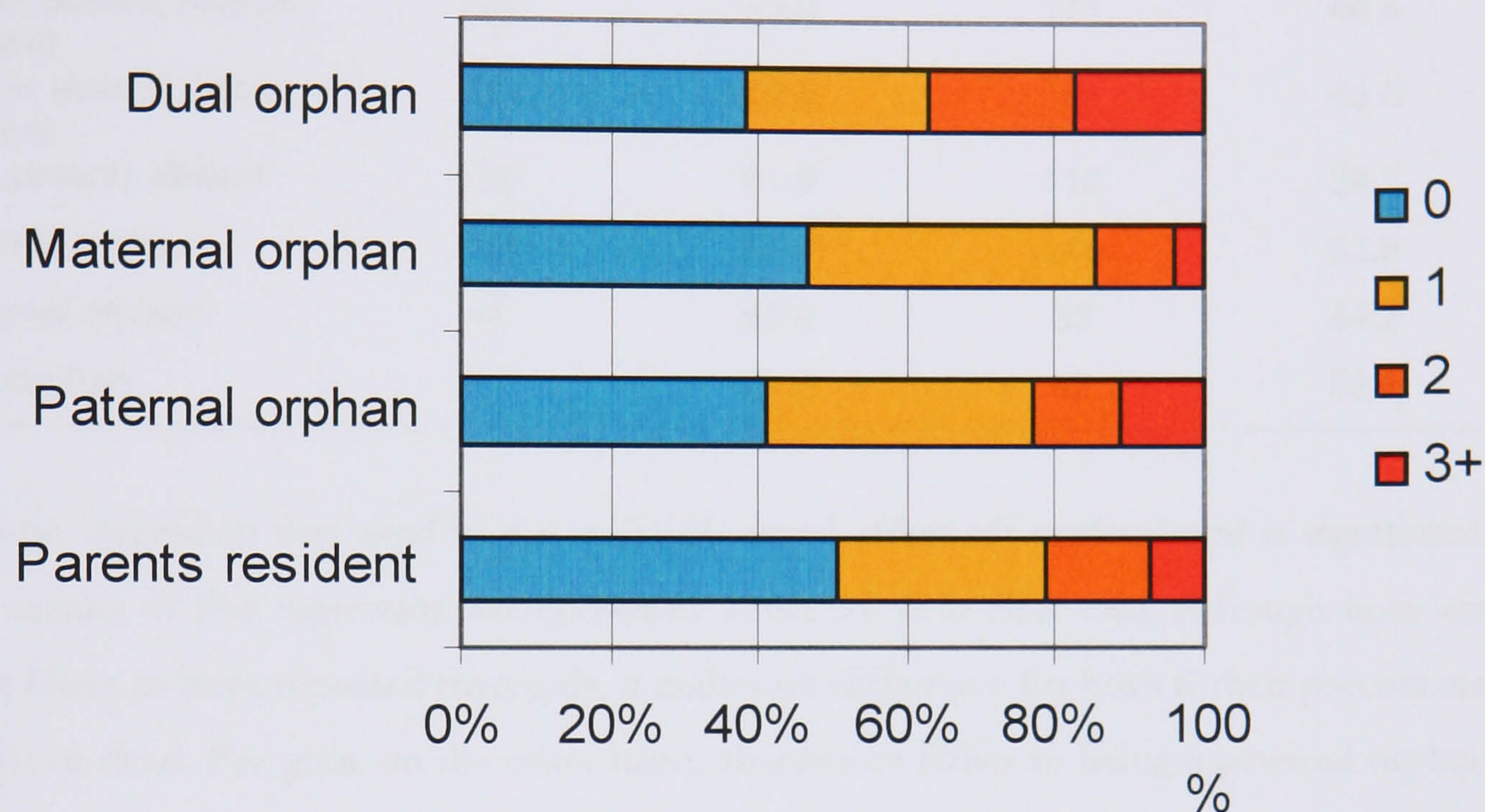
Household per capita expenditure

Children who have repeated a grade come from poorer households, with average household per capita expenditure for those children who have not repeated a grade being 396 rand compared to 352 rand for those who have repeated a grade.

6.2.2 Orphans and repetition

Figure 14 shows that dual orphans and paternal orphans have repeated more grades than children who are living with both parents.

Figure 14 Percentages of children (aged 7 to 20 and currently enrolled in school) by orphan type who have repeated 0, 1, 2 or 3 + years at school



At this early stage in the analysis, there are several possible outcome variables – for example, it is possible to compare the number of grades that each child has repeated or else to look at the proportion of children who have repeated at least one grade. Figure 14 shows there are differences between the orphan groups in the proportion of children who have repeated more than one year of schooling. However, from a policy point of view, the focus is on repeating versus not repeating, rather than whether or not somebody has repeated two versus three grades and consequently, the analysis will compare non-repetition versus repetition.

Orphanhood and gender

Table 33 shows the percentage of boys and girls who have repeated at least one grade by whether or not they are orphaned or living with their parents. Comparing boys with girls – across all categories of children – higher proportions of boys have repeated a grade than girls. However, looking at boys by themselves, there is little difference by whether the boy is an orphan or not. This is not the case for girls: more than 10 percent more

paternal and dual orphans have repeated a grade compared with girls who are living with two resident parents.

Table 33. Percentages of boys and girls who have repeated at least one grade at school, by whether or not they are orphaned

Orphan status	Boys only		Girls only	
	N	Percentage	N	Percentage
Parents resident	150	58.7	185	40.5
Father absent, mother resident	178	59.0	171	44.4
Mother absent, father resident	30	60.0	20	45.0
Both parents absent	126	61.9	110	39.1
Paternal orphan	158	62.7	143	53.8
Maternal orphan	44	63.6	52	44.2
Dual orphan	37	62.2	42	59.5

Logistic regression was used to see if the observed effect off orphanhood is significant. The results of this regression are shown in Table 34. It is clear that, although boys are more likely to have repeated than girls, it makes no difference for boys if their parents are absent or dead. For girls, on the other hand, absence of father or being a paternal orphan or dual orphan increases the odds of having repeated a grade.

Table 34. Odds of boys and girls (aged 7 -20 and currently enrolled) having repeated at least one grade in 2004 , controlling for age

Parental status	Boys		Girls	
	Odds ratio	P	Odds ratio	P
Parents resident	1		1	
Father absent, mother resident	1.17	0.51	1.60	0.04
Mother absent, father resident	0.99	0.98	1.88	0.21
Both parents absent	1.21	0.47	1.12	0.65
Paternal orphan	1.18	0.49	1.88	0.01
Maternal orphan	1.26	0.53	1.15	0.68
Dual orphan	0.99	0.97	2.12	0.04
Age	1.18	<0.01	1.23	<0.01

A dual orphan effect?

In the case of repetition, it appears to be the status of the girl’s father that matters. Although, the odds ratio of having repeated is higher for dual orphans than paternal orphans there is no significant difference between the coefficients (Chi² = 0.10, P=0.75)

suggesting that there is no specific effect of being a dual orphan and that the effect is due to paternal death.

The dummy variables which made up paternal orphans (fostered versus unfostered) were compared and found not to be significantly different ($\text{Chi}^2 = 0.97$, $P=0.32$) suggesting that the paternal orphan effect is not dependent on whether or not the girl is subsequently fostered out.

This finding suggests that the focus of the analysis should be on the father's status (presence versus absence versus death) while controlling for the mother's status. Furthermore, as there are no significant effects of orphanhood for boys, it was decided to focus solely on the girls.

6.2.3 *Absence or death of a father?*

This section pinpoints exactly which girls are affected and whether or not the effect involves the death or absence of the father. As there is no evidence of an interaction for dual orphans, the father variable was added to a simple model which included age and survival and residential status of the mother. Adding father status to the girls-only model significantly improves its fit ($\text{Chi}^2 = 7.5$, $P = 0.02$). However, while the death of a father significantly increases the odds of having repeated a grade (odds ratio = 1.83, $P < 0.01$), absence of a father is no longer a significant predictor of repetition (odds ratio = 1.28, $P = 0.22$).

Referring back to Table 33, the results of the logistic regression suggest that the father absent category might be made up of two quite separate groups of children: those who are living with their mother and whose father is absent, and those who have been fostered away from both parents. In the latter case, the chance of having repeated is lower, which support the hypothesis that fostering children out of families when both parents are alive might improve educational outcomes. However, if only the father is absent, the children appear to be disadvantaged. Whether or not these two hypothesized competing effects are offsetting each other out in the above model is tested below.

Two separate absent father groups?

Given that the father absent group is possibly made up of two separate groups, the variable was split into two: 1) father absent, mother resident and 2) both parents absent (e.g. fostered out child).

Repeating the logistic regression above, controlling for age and mother status, shows that father absent, mother resident girls are more likely to have repeated a grade (odds ratio = 1.61, $P=0.04$) whereas having both parents absent is not associated with grade repetition for girls. Significance testing shows that the two split father absent variables are significantly different from each other ($\text{Chi}^2= 4.2$, $P=0.04$), confirming that the absent father category contains two quite different groups of children.

A log likelihood ratio test between the differentiated and undifferentiated absent father models was conducted to determine which variable fits the data better. The latter model fitted the data significantly better than the undifferentiated one ($\text{Chi}^2= 4.2$, $P=0.04$).

Absence versus death of father

It is also important to compare paternal death with paternal absence to see if they have different effects. Paternal death was compared first with the father absent category as a whole, and then with the two hypothesized sub-groups of children whose father is absent.

Significance testing shows there to be no significant difference between paternal absence and paternal death. (odds ratio = 1.15, $P=0.56$). The paternal death category is not significantly different from the absent father/ resident mother category ($\text{Chi}^2= 0.1$, $P=0.93$) but is significantly different to the both parents absent category ($\text{Chi}^2= 6.0$, $P=0.01$).

It can be concluded therefore that paternal death or absence of father (if the child is living with mother) are both associated with higher chances of grade repetition.

6.2.4 Socio-economic and demographic determinants of grade repetition

It has already been determined that age, gender, and paternal death are associated with probability of having repeated a grade at school. In order to understand what some of the mediating or confounding factors are, it is important to first take a step back and analyse which of the hypothesized socio-economic determinants are related significantly to the outcome variable. Each of the variables was entered separately into a bivariate logistic regression with probability of having repeated a grade as the outcome variable.

The factors entered into the regression also include three school-side variables: class sizes, proportion of monthly expenditures spent on school fees, and total school fees. Table 35 shows the results of these eight regressions.

Table 35. Odds ratio of having repeated a grade by various socio-economic and schooling factors for children aged 7 to 20 (currently enrolled) in 2004.

Independent variables	Odds Ratio	Probability
Household Per capita expenditures (logarithm)		
2004	0.99	0.03
1998	0.99	0.01
Mother’s educational attainment	0.96	0.01
Community		
Metropolitan	1	
Urban	0.86	0.51
Rural	0.88	0.39
Household size		
Small	1	
Medium	0.93	0.69
Large	0.73	0.10
Very large	0.91	0.58
Class size	0.99	0.10
Prop of expenditures on education	0.81	0.22
School fees	0.99	<0.01

Increases in per capita expenditures (in both 1998 and 2004), mother’s education and higher school fees are associated with lower chances of grade repetition. None of the other factors are significant. The results suggest, however, that class size might be

associated with repetition ($P=0.10$): the trend is that if class sizes are bigger the chances of having repeated decrease. However, age is a confounder in this relationship because younger children are more likely to be in larger classes and less likely to have experienced grade repetition. On adding the age variable into the above regression: class size loses its significance ($P=0.26$). The effect of class size is therefore likely to be confounded and not included in the analyses that follow.

Determining the type of relationship between predictors and outcomes

Diagnostic testing was used on the significant variables identified above to test if the relationship with the outcome variable is linear. With per capita expenditure, the relationship is linear but clustered at one end. Once the logarithm of per capita expenditure is used, the relationship becomes more robust. It was therefore decided to use the logarithm of per capita expenditures. The relationship between mother's education and log odds of having repeated is linear and therefore the variable was left untransformed^{xviii}

The school fees variable has a curvilinear relationship with the outcome variable. This becomes a linear relationship once the logarithm of the schools fees is applied. However, the relationship between the logarithm of the school fees and the chance of having repeated becomes insignificant ($P=0.46$). Further exploratory analysis showed that there is a strong relationship between age and school fees ($P<0.001$). If age is also included into the logistic regressions, the logarithm of school fees again became a significant predictor of grade repetition.

The school fees variable and the per capita expenditure variables might both be measuring household economic status. The correlation between the two is, however fairly low (0.40).

This section has determined that significant determinants of repetition are age, per capita expenditures, school expenditures (measured through school fees) and level of mother's education. Stepwise modelling is now used to determine which of these factors is involved in the impact of paternal death on girls' grade repetition.

^{xviii} Please note similar diagnostic testing was conducted on all the variables for each of the outcomes

6.2.5 Stepwise regression modelling

This section aims to identify the simplest causal model that is consistent with the patterns in the data and determine which of the predictors identified above are involved in the relationship between paternal death and girls' odds of having repeated a grade.

Although paternal absence has an effect on repetition, the analysis focuses on paternal death – in particular, the impact of paternal death on girls' odds of having repeated a grade. As discussed earlier, the effect on repetition does not appear to depend on whether paternal orphans have been fostered out or not (see 6.2.2).

The following variables are included into the regression in turn: 2004 household per capita expenditure (logarithm), school fees (logarithm) and mother's education. Table 36 shows the results of these stepwise regressions. Of the predictors, mother's education does not significantly improve the fit of the model. Both school fees and 2004 household per capita expenditures are associated with grade repetition but the odds ratio of repetition for girls whose father has died decreases only slightly. As school fees and per capita expenditures are lower for this group (see 4.2) and 4.7), the findings support the hypothesis that part of the reason why these girls are repeating is because they are poorer and paying less school fees.

It is important to find out if death of the father still has a significant effect on repetition even when per capita expenditure and school fees are included. A log likelihood ratio test shows that including the father variable into this more complex model (controlling for age, mother status, fees, 2004 per capita expenditure) still significantly improves the fit of the model ($\text{Chi}^2 = 8.9$, $P=0.01$). The father's death affects repetition for girls, even after controlling for school factors and per capita expenditures

Table 36. Summary statistics for stepwise regression modelling of having repeated a grade for girls aged 7 to 20 in 2004. . The basic model controls for age, mother status and father status.

	Sample size	Death of father		Log likelihood		Significance of the Improvement in fit Probability
		OR	P	Basic	New	
Basic model (controlling for age, parental survival status)	723	1.83	0.01	-452.20		
Basic + PCE (2004)	723	1.78	0.01	-452.20	-448.35	0.01
Basic + mother's education	638	2.06	<0.01	-395.98	-395.94	0.77
Basic + school fees	718	1.81	0.01	-449.11	-443.29	<0.01

School fees or just per capita expenditure?

It remains unclear whether school fees are just another indicator of household poverty or an indicator of parental commitment to education or the quality of schooling.

Adding school fees to the model which already contains per capita expenditure, significantly improves the fit of the model to the data ($\text{Chi}^2 = 6.3$, $P=0.01$), which suggests that school fees have a separate effect on repetition distinct from the effect of per capita expenditure. This supports the hypothesis that increased school fees decrease the chance of repetition because of either a) increased parental commitment in such households and/or b) high fees buy better quality schooling.

It is not possible to determine which of these two scenarios is most likely. In fact, they are likely to be related to each other as higher parental commitment to education can lead to better choice of school ¹⁰⁰. However, research from other countries suggests that when 50 percent of young people are repeating a grade at school, the cause is more to do with failures in the delivery of education than home factors ^{169,170}.

Exploring school side factors

The search for possible causal factors needs to be widened. One possibility is that repetition has more to do with school-side factors rather than home factors.

This hypothesis was tested through exploratory analysis of the effect of orphanhood on repetition for girls by school grade in which the children are currently enrolled. Although this showed an effect of paternal death for girls currently in Grade 6 (odds ratio = 18.8, $P < 0.01$) and Grade 11 (odds ratio = 3.5, $P = 0.05$), it is impossible to determine in which grade the children actually repeated. Grade six is the penultimate year of primary school, which suggests that the orphaned girls are not progressing on to secondary school as fast as their peers. Grade 11 is the final part of secondary school and is also the grade in which most students turn 16 and are allowed to legally leave school.

In line with other South African research which shows children to be held back before major school transitions⁹⁰, these results suggest that orphaned girls in particular are being held back before transition into secondary school and before being allowed to take the matriculation examination.

6.2.6 Determining causality

The earlier analysis shows that paternal death is associated with an increased chance of repetition for girls. This section attempts to determine causality by comparing repetition rates of girls whose fathers are resident with those of girls whose fathers died between 1998 and 2004. If these differ, then the 1998 controls identified earlier will be inserted into the regression in order to ensure that the two groups are as comparable as possible before parental death.

The dataset for repetition includes all 7 to 20 year olds currently enrolled in school. However, once the data have been split by timing of parental death, the sample sizes are quite small, as shown in Table 37.

Table 37. Number of children aged 7 to 20 in 2004 (currently enrolled in school) according to when their father or mother died excluding those who never enrolled in school

	Father resident 2004	Father died 1998 to 2004	Father died 1993 to 1998	Father died pre-1993	Total
Mother resident 2004	370	160	46	28	604
Mother died 1998 to 2004	12	34	24	2	72
Mother died 1993 to 1998	4	15	10	0	29
Mother died pre 1993	0	7	2	0	9
Total	386	216	82	30	714

The effect of parental death 1998 -2004

Logistic regressions were run on the probability of having repeated at least one grade according to when the mother or father died. Similarly to the analysis which did not control for timing of death, orphanhood did not affect the repetition rates of boys. For the sake of brevity, these results are not shown in the regression table below. There is a clear effect of paternal death between 1998 and 2004 on the repetition of girls but not for the longer-term orphans. Orphaned girls aged 11 to 15 seem to be most disadvantaged. This was confirmed through significance testing between the different age groups. Consequently, the analysis in this section is restricted to girls aged 11 to 15.

Table 38. Odds of having repeated a grade for girls (currently enrolled) by age group and orphan group in 2004, controlling for age

Parental status	Age group					
	7 to 10		11 to 15		16 to 20	
	Odds ratio	P	Odds ratio	P	Odds ratio	P
Father resident	1		1		1	
Father died 1998-2004	0.50	0.32	2.71	0.02	2.97	0.06
Father died before 1998	1.15	0.86	1.12	0.85	0.53	0.40
Mother resident	1		1		1	
Mother died 1998-2004	2.75	0.24	1.66	0.46	0.63	0.51
Mother died before 1998	-	-	1.96	0.40	0.43	0.52
Age in years in 2004	1.08	0.74	1.25	0.10	2.44	0.00

It may be that there are distinct effects depending on whether or not the girl – following paternal death - is subsequently fostered out. The regressions were run again, examining the effect of paternal death between 1998 and 2004 on girls by fostering (controlling for age and mother status). The results show that, of girls aged 11 to 15, it is only these girls

whose fathers have died that are still living with their mothers who are more likely to repeat (odds ratio = 2.75, $P = 0.03$).

Adding 1998 controls

Similarly to the regression modelling earlier, all the possible socio-economic, educational and demographic controls from 1998 were added into the model (see page - 117 -) and run on girls aged 11 to 15 in 2004.

Controlling for all 1998 factors, the odds associated with paternal death (living with mother) are 8.6 ($P = 0.02$). The odds ratio for fostered out girls whose fathers' had died is similarly high (9.7) but not significant ($P = 0.14$). The difference between these two dummy variables is not significant ($\chi^2 = 0.01$, $P = 0.94$). Adding the paternal death variable to the model improves the fit of the model significantly ($\chi^2 = 6.55$, $P = 0.037$), thus showing a significant effect of recent paternal death for girls even once background factors have been accounted for.

The analysis on repetition is returned to in Chapter 7, where findings on educational outcomes are linked together.

6.3 Primary school completion

This final section of the chapter examines one of the key indicators of attainment: primary school completion.

Attainment is generally considered to be a function of both dropout and repetition – a child's overall attainment will be determined by whether or not they have dropped out of school and, if they have not dropped out, how fast they are progressing in school.

It could be argued that as attainment is a function of both dropout and repetition it is not necessary to study attainment at all. However, from a policy and employment perspective, it is grade attainment which is most important for adult life. Although attainment is a composite educational outcome, it is the simplest indicator of all education outcomes and is included for this reason.

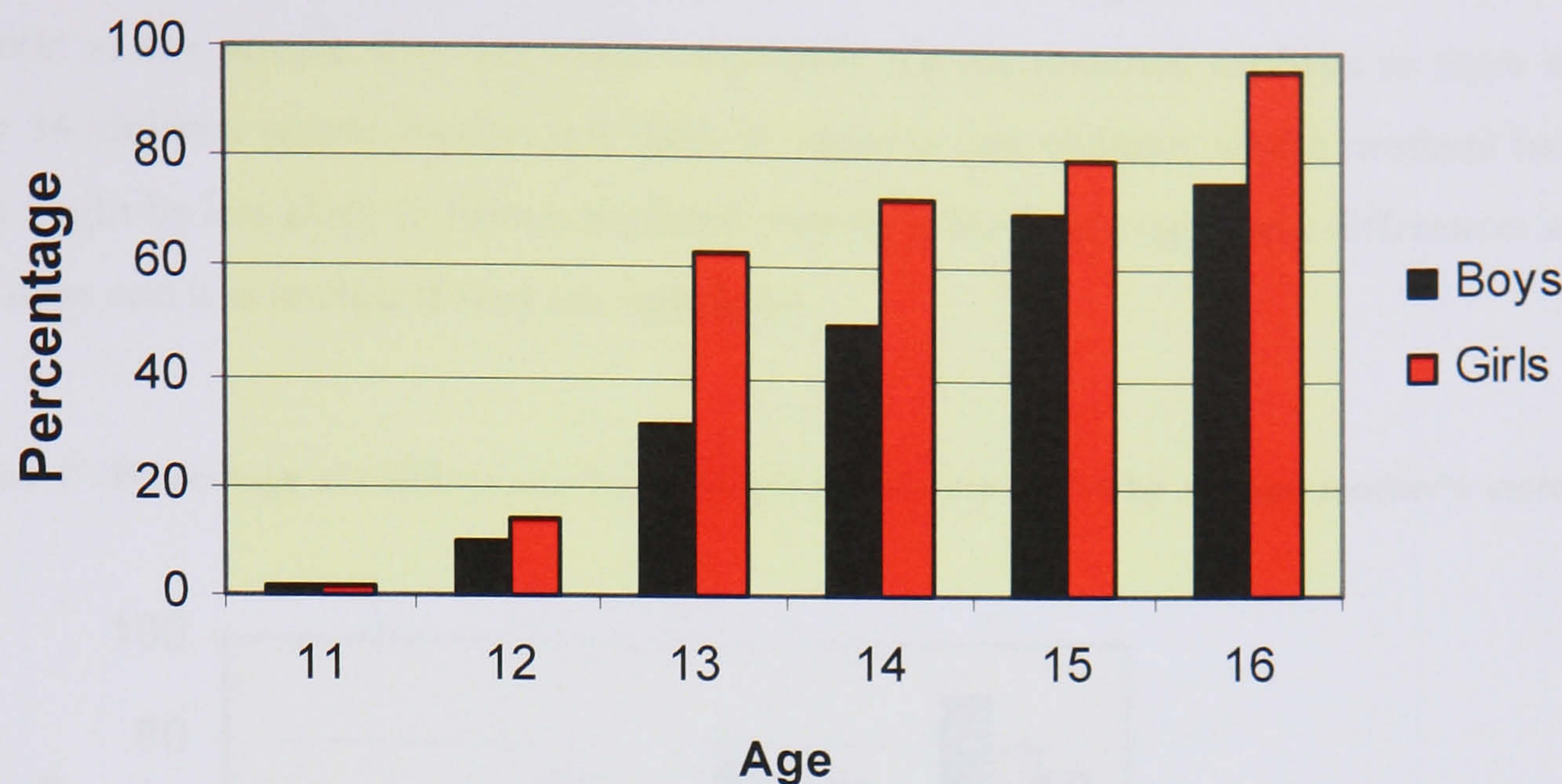
Internationally, primary school completion is viewed as one of the core indicators of educational attainment. In many contexts, primary school completion is equated with receiving a basic education, in which children learn the basic literacy, numeracy and analytical skills to equip them for their future. In this context, primary school completion is one of the main educational indicators used in this thesis.

6.3.1 Primary school completion by age and gender

Due to the variation in age when starting primary school, on average a child would be expected to have finished primary school (Grade 7) by the age of 14, assuming they started in the year they turned seven. Nyamukapa and Gregson (2005) examined the impact of parental death on primary school completion of 13 to 15 year olds, arguing this was the range of ages which children are expected to complete primary school in Zimbabwe. For the sake of comparison, there would be advantages to using the same age group as Nyamukapa and Gregson. However, education policy and practice in South Africa is markedly different from that of Zimbabwe. Moreover, out of the KIDS sample, 12 percent of 12 year olds have completed Grade 7, suggesting that some children are starting primary school at ages five.

Given the variation in ages in starting primary school, it was decided to first examine primary school completion for all 11 to 16 year olds. A binary outcome variable was created by assessing all those at each age level who had attained grade seven or above. These results are shown in Figure 15. Girls appear to be completing primary school earlier than boys, which also fits in with the finding that girls are less likely to repeat a grade than boys. The number of 11 and 12 year olds who have finished primary school is so small that it was decided to reduce the sample to children aged 13 to 16.

Figure 15. Percentage of boys and girls aged 11 to 16 who have completed primary school in 2004.



6.3.2 Primary school completion by orphan status

Figure 16 shows that for children aged over 13, paternal death is associated with a lower rates of primary school completion. This is also the case for absent fathers although the effect of paternal death is larger.

Figure 16. Percentage of children who have completed primary school by age and father's residency and survival status

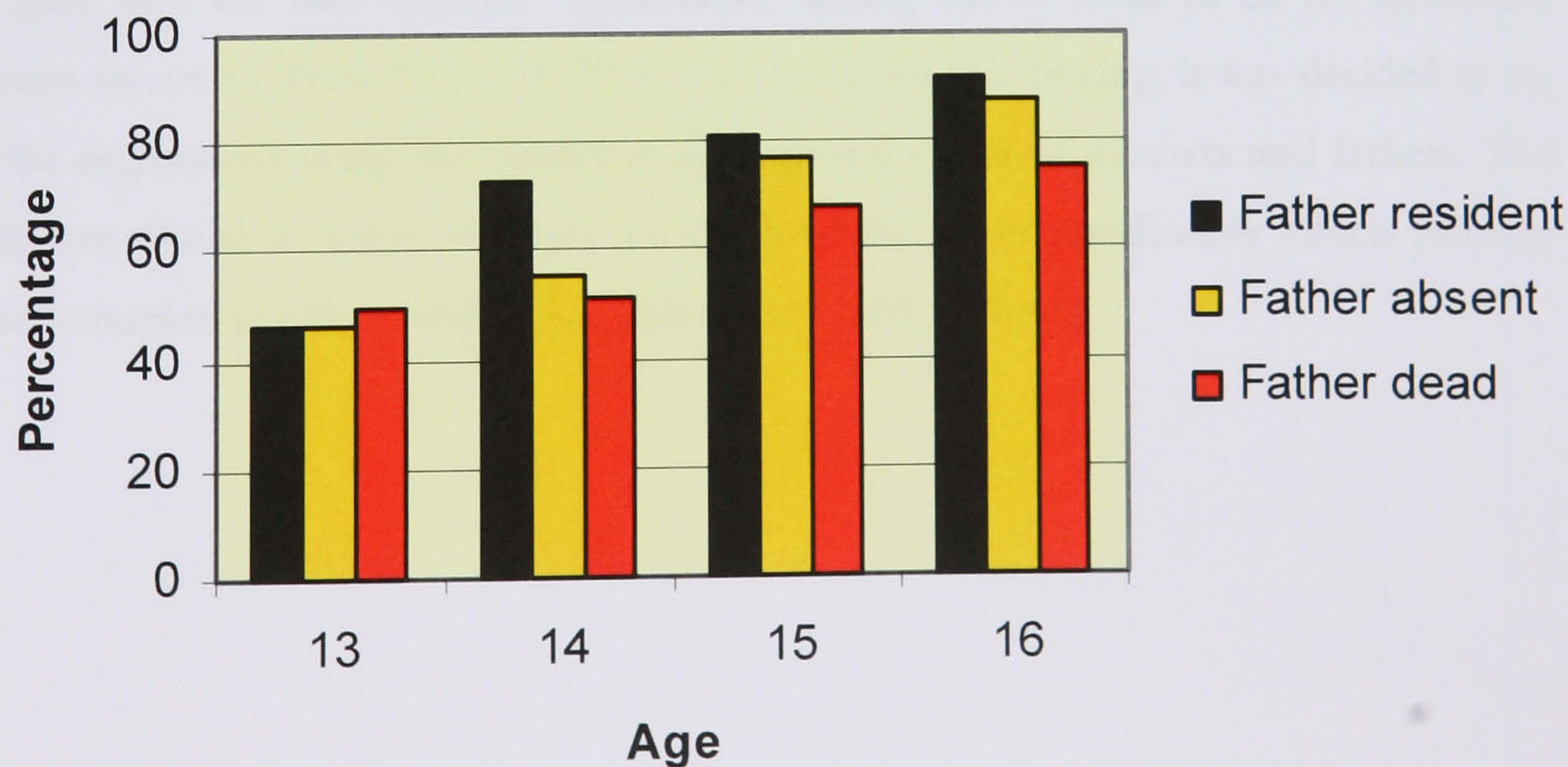
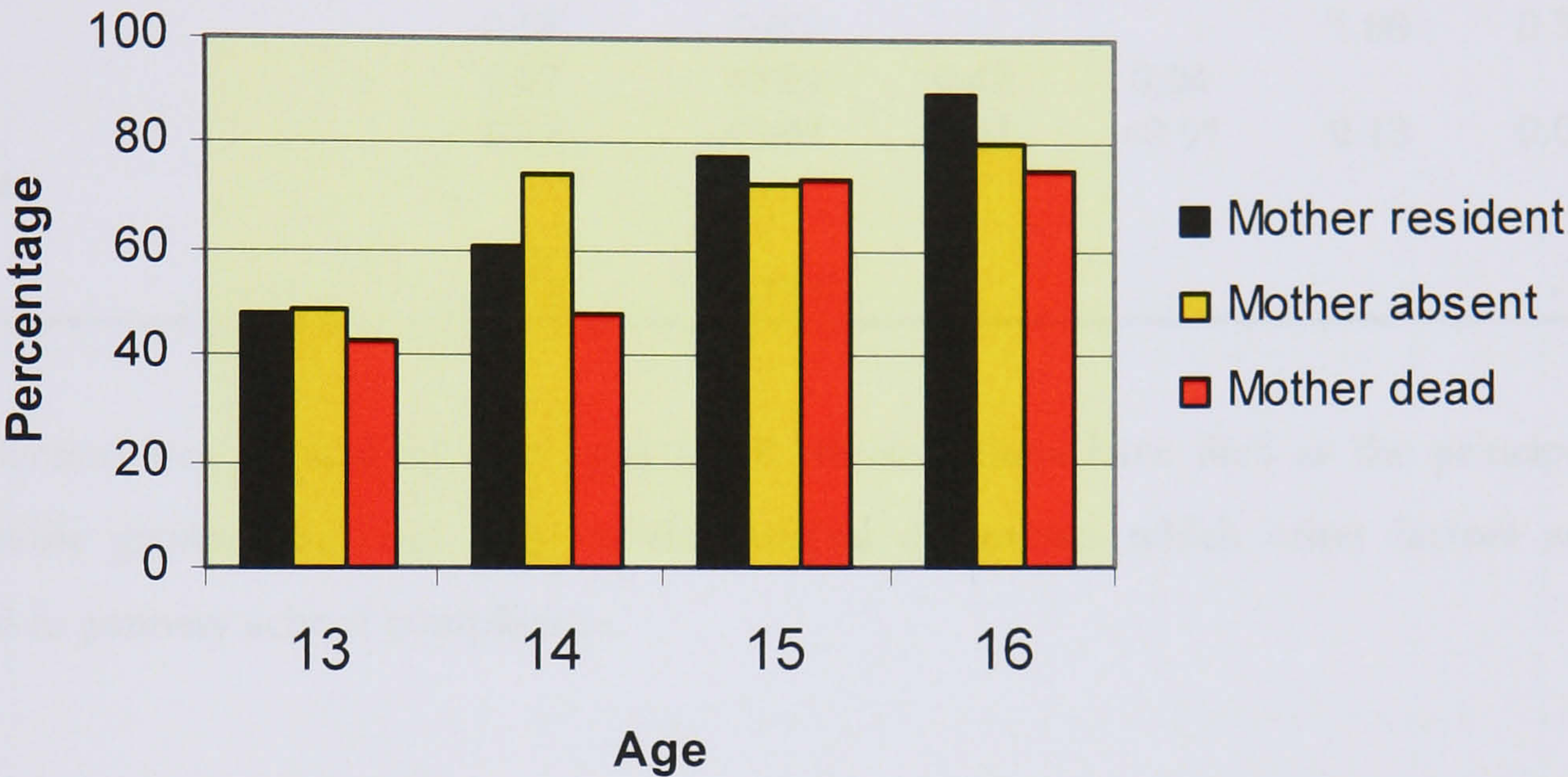


Figure 17 presents an identical graph substituting the mother’s residency and survival status for the father’s residency and survival status. This figure should be read with caution as the sample sizes are small - especially for the maternal orphans as there are only 14 children whose mother has died. It suggests that children whose mothers have died might be less likely to have completed primary school although these differences are not large and it is unclear if they are significant.

Figure 17. Percentage of children who have completed primary school by age and mother’s status



An initial model of these relationships was fitted using the paternal, maternal and dual orphan groups- however, although there is an effect for girls who are paternal orphans and girls who are dual orphans, significance testing shows there to be no difference between the two effects ($\text{Chi}^2 = 0.79$, $P = 0.37$). Given this finding, it was decided to re-run the regressions using the residency and survival status of mothers and fathers. The results are shown in Table 39. Only the death of the father significantly effects primary school completion affects only girls (odds ratio = 3.85, $p=0.01$).

Table 39. Odds of not having completed primary school in 2004 for boys and girls aged 13 to 16 in 2004, by sex, age and survival and residency status of parents.

	Both boys and girls		Boys only		Girls only	
	Odds ratio	P	Odds ratio	P	Odds ratio	P
Father resident	1		1		1	
Father absent	1.45	0.17	1.16	0.68	2.20	0.09
Father dead	1.84	0.04	1.11	0.78	3.85	0.01
Mother resident	1					
Mother absent	0.88	0.60	0.63	0.16	1.23	0.61
Mother dead	1.45	0.25	1.62	0.28	1.19	0.72
Age						
13	1		2.21	0.03	2.21	0.07
14	0.57	0.03			1.56	0.32
15	0.27	<0.01	0.42	0.04		
16	0.13	<0.01	0.33	<0.01	0.13	0.01
Gender						
Boys	1					
Girls	0.31	<0.01	-	-	-	-

This section has pinpointed girls aged 13-16 whose fathers have died as the principal vulnerable group. The next stage of the analysis determines which other factors are related to primary school completion.

6.3.3 Socio-demographic and economic determinants

As with the previous educational outcomes, each of the hypothesized socio-demographic and economic variables was examined in turn. The results are shown below and indicate that 1989 and 2004 per capita expenditure, residence and household size are all significantly associated with primary school completion.

Table 40. Logistic regressions of socio-demographic and economic variables on the probability of not having completed primary school for all children aged 7 to 20 in 2004.

Socio-demographic and economic variables	Odds ratio	P
Per capita expenditures		
2004	0.74	0
1998	0.69	<0.01
Mother's education	0.99	0.67
Residence		
Metropolitan	1	
Urban	1.62	0.03
Rural	1.79	<0.01
Household size		
Small	1	
Medium	1.37	0.08
Large	1.13	0.48
Very large	1.42	0.03

6.3.4 Stepwise regression modelling

Section 6.3.2 indicated that age, 1998 and 2004 per capita expenditures, household size and residence are all significant predictors of primary school completion. Each of these was added in turn to a model in including father and mothers' survival and residential status, and the changes in the effect of paternal death noticed (Table 41). The only variable to significantly improve the fit of the model is per capita expenditure (either 1998 or 2004). However, although per capita expenditure is associated with primary school completion in the model, adding these variables hardly changes the odds associated with paternal death at all (from 3.85 to 3.82 in the case of 1998 expenditures). It can therefore be concluded that economic status plays little role in mediating the impact of paternal death on primary school completion.

This is confirmed by the high odds associated with paternal death once both 1998 and 2004 per capita expenditure are controlled (odds ratio = 3.61, P =0.01).

Table 41. Summary statistics of stepwise regression modelling and likelihood ratio test results of different determinant on the probability of not having completed primary school in 2004 for girls aged 13 to 16.

	Sample size	Death of father		Log likelihood		Significance of the
		OR	P	Basic	New	Improvement in fit
Basic model (includes age, father and mother status)	254	3.85	0.01	-115.93		
Basic + PCE (2004)	254	3.36	0.01	-115.93	-111.51	<0.01
Basic + PCE (1998)	251	3.82	0.01	-114.67	-108.76	<0.01
Basic + residence	250	4.11	<0.01	-113.94	-111.75	0.11
Basic + household size	254	4.10	<0.01	-115.93	-113.28	0.15

6.3.5 Determining causality

As with 6.1.5 and 6.2.6, all the controls from 1998 were included in the regression model for girls aged 13 to 16 in 2004, also controlling for age, maternal education and mother’s residential and survival status. Paternal death between 1998 and 2004 was then added into this model and found to have an odds ratio of 16.31 (P =0.03). A likelihood ratio test confirmed that adding paternal death into the regression model significantly improved the fit (Chi² = 5.95, P =0.01). The results are shown in Table 42. It should be noted that there are some very high odds ratios in two categories (relationship to household head and violence). Cross tabulations confirmed that these high figures were caused by low levels of variation – i.e. most of the orphans were coded within one cell.

Table 42. Odds of having completed primary school for girls aged 13 to 16, controlling for 1998 factors and paternal death between 1998 and 2004.

1998 controls and father status	Odds ratio	probability
Father status		
Father resident	1	
Father died 1998 - 2004	16.31	0.03
Mother's education	0.67	0.02
1998 PCE	0.54	0.35
Relationship to household head		
Child	1	
Grandchild	28.95	0.02
Other	138.02	0.01
Household size	1.02	0.82
Community participation		
None	1	
Some	0.74	0.79
Violence		
No violence	1	
some violence	0.01	0.04
Group participation (social capital)		
No member	1	
One member	11.28	0.03
Two members	7.97	0.23
No churchgoers	1	
One churchgoer	0.35	0.29
Two plus churchgoer	0.68	0.77
Death before 1998		
No	1	
Yes	0.34	0.28
Negative shock		
No	1	
Yes	0.11	0.07
Positive shock		
No	1	
Yes	2.86	0.24
Grant		
No	1	
Yes	0.26	0.27
Age		
13	8.73	0.05
14	0.39	0.39
15	1	
16	0.03	0.04
Mother		
Resident	1	
Absent	0.16	0.33
Dead	0.70	0.80

Finally, 2004 household per capita expenditure was added to the model to see how the odds associated with recent paternal death and primary school completion changed. The change was minimal: the odds ratio decreased from 16.31 without 2004 expenditure data

to 16.51 with it. A likelihood ratio test showed that including 2004 household per capita expenditure in the model did not significantly improve the fit of the model ($\text{Chi}^2 = 0.24$, $P = 0.63$).

6.4 Summary of findings

This chapter set out to investigate whether orphanhood affects the educational progress of children who are currently enrolled in school. The conceptual framework provided a strong rationale for studying the educational outcomes of orphans who are still in school. It hypothesizes that orphaned children will be disadvantaged in terms of learning achievement through the economic and socio-demographic pathways.

This chapter therefore focussed on school progression and in particular on attendance, repetition and primary school completion. Orphanhood has significant effects on all three outcomes. In each case, the effects are due to paternal death, with no evidence of either a specific dual orphan or maternal death effect. Paternal death causes lower primary school completion and higher repetition for girls and lower attendance for boys. Stepwise regression modelling was used to determine some of the key causal mechanisms. For girls, increased poverty plays a significant role but it is of minor importance in explaining orphaned boys' attendance rates. For all three outcomes, the effects of orphanhood remain significant even once the background characteristics of households preceding parental death are accounted for.

The impacts on girls' repetition and primary school completion rates are likely to be picking up a similar underlying disadvantage. The focus of the next chapter is how these educational outcomes are related to each other.

CHAPTER SEVEN: FINAL SCHOOLING OUTCOMES

This chapter focuses on final schooling outcomes: attainment profiles, matriculation results and dropout. This analysis is followed by a section which attempts to link together the findings on educational outcomes and to determine how these outcomes are related to one another.

7.1 Attainment profiles

This section describes the attainment profiles of orphans and other children in order to provide descriptive context on how overall attainment is associated with orphanhood.

Attainment profiles show graphically the proportion of individuals who have completed each grade or higher. For example, this means that the level at Grade 1 shows the proportion that ever attended school and completed first grade. One minus this proportion is the proportion that have never completed a single year of schooling.

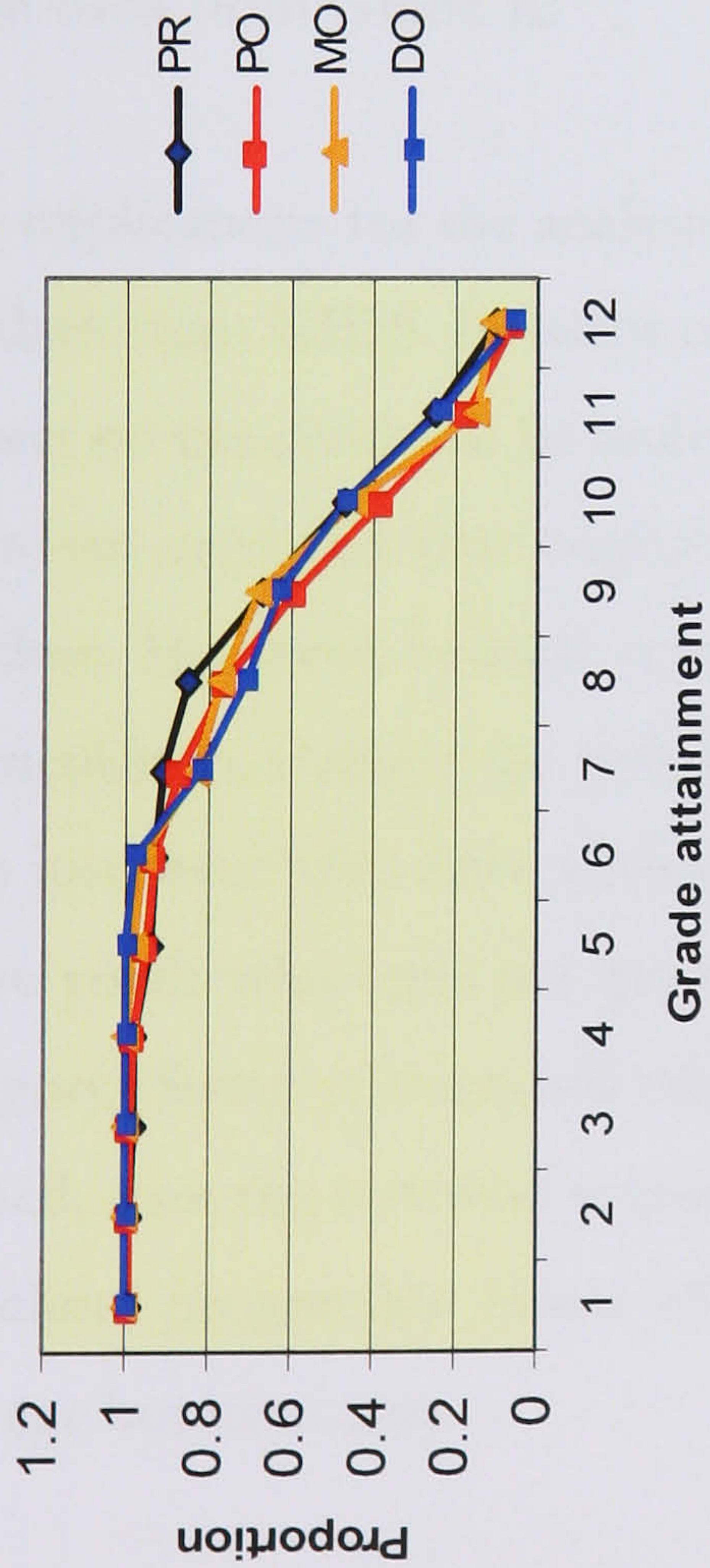
These profiles are similar to those used by Filmer and Pritchett in a study of educational attainment across 35 countries ¹²⁵. The gradient of the graph is a representation of both dropout and progression for all 15 to 19 year olds as it includes both those who have dropped out and those who are still enrolled.

Figure 17 presents four sets of profiles for different groups of children as to their attainment. What is striking about all the graphs is that levels of attainment are similar until about Grade 7 (end of primary school), after which orphans have attained lower levels of schooling than unorphaned children. Economic status clearly makes a difference, with poorer children having lower attainment than better-off children.

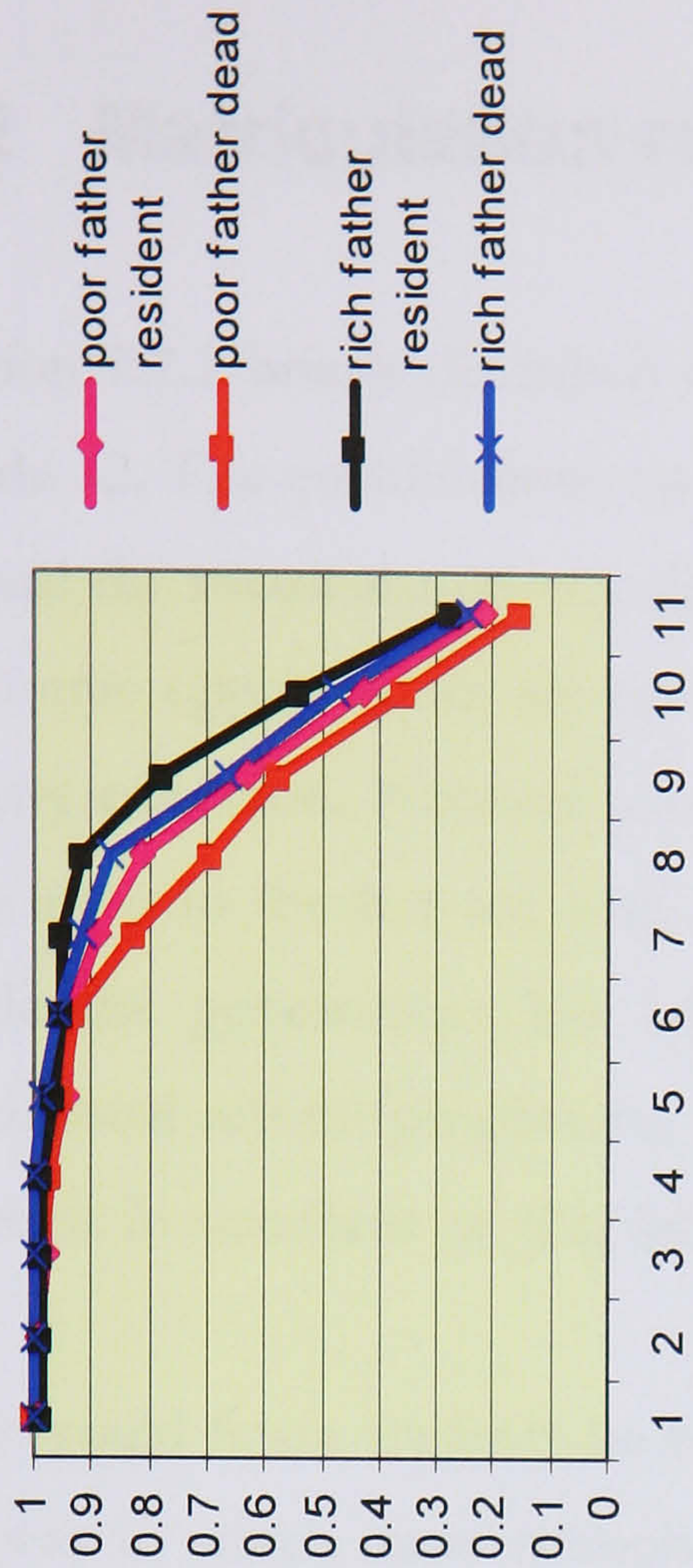
Although they are only descriptive, these profiles highlight the need to focus on the educational outcomes of older youth. The key educational outcome from secondary school in South Africa is the matriculation exams.

Figure 18. Attainment profiles for children aged 15 to 20 years in 2004, by orphan status, gender and economic group.

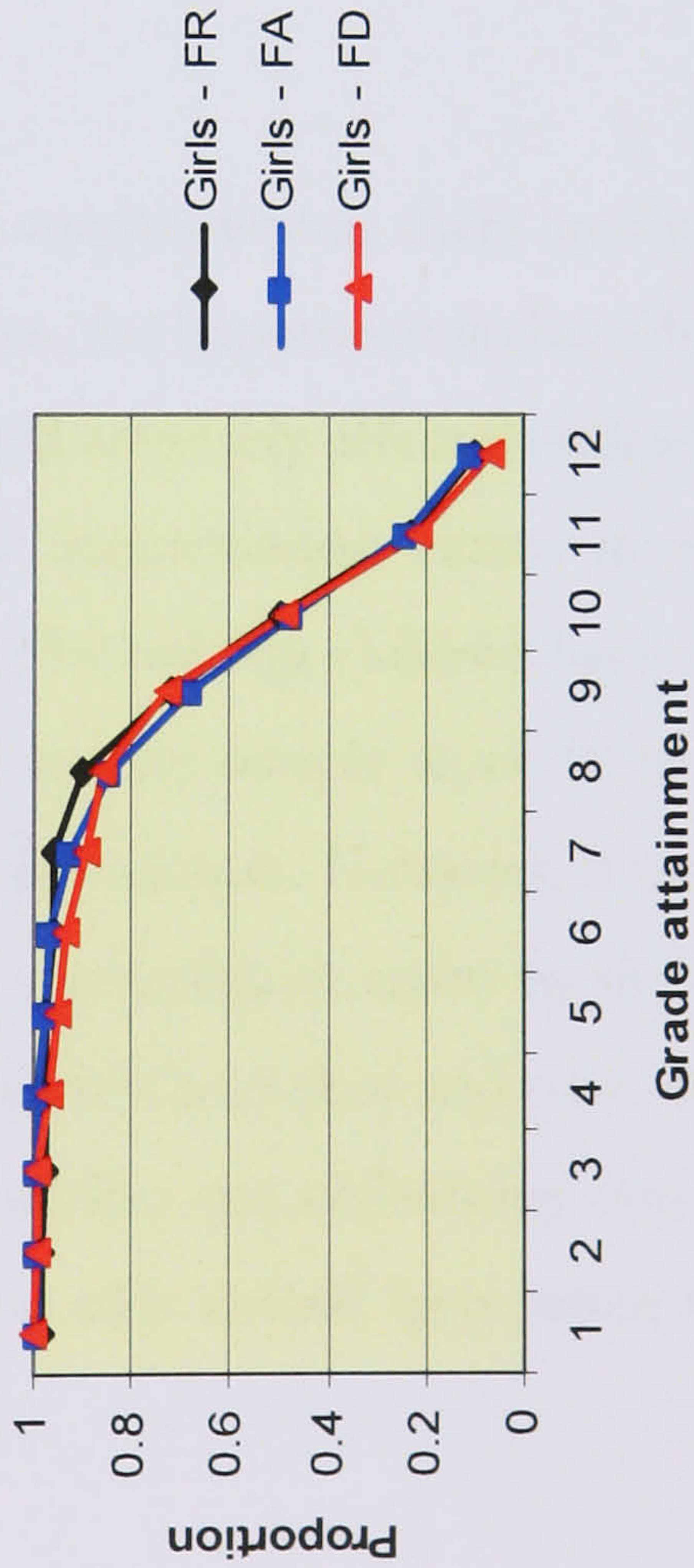
A) Orphan status.



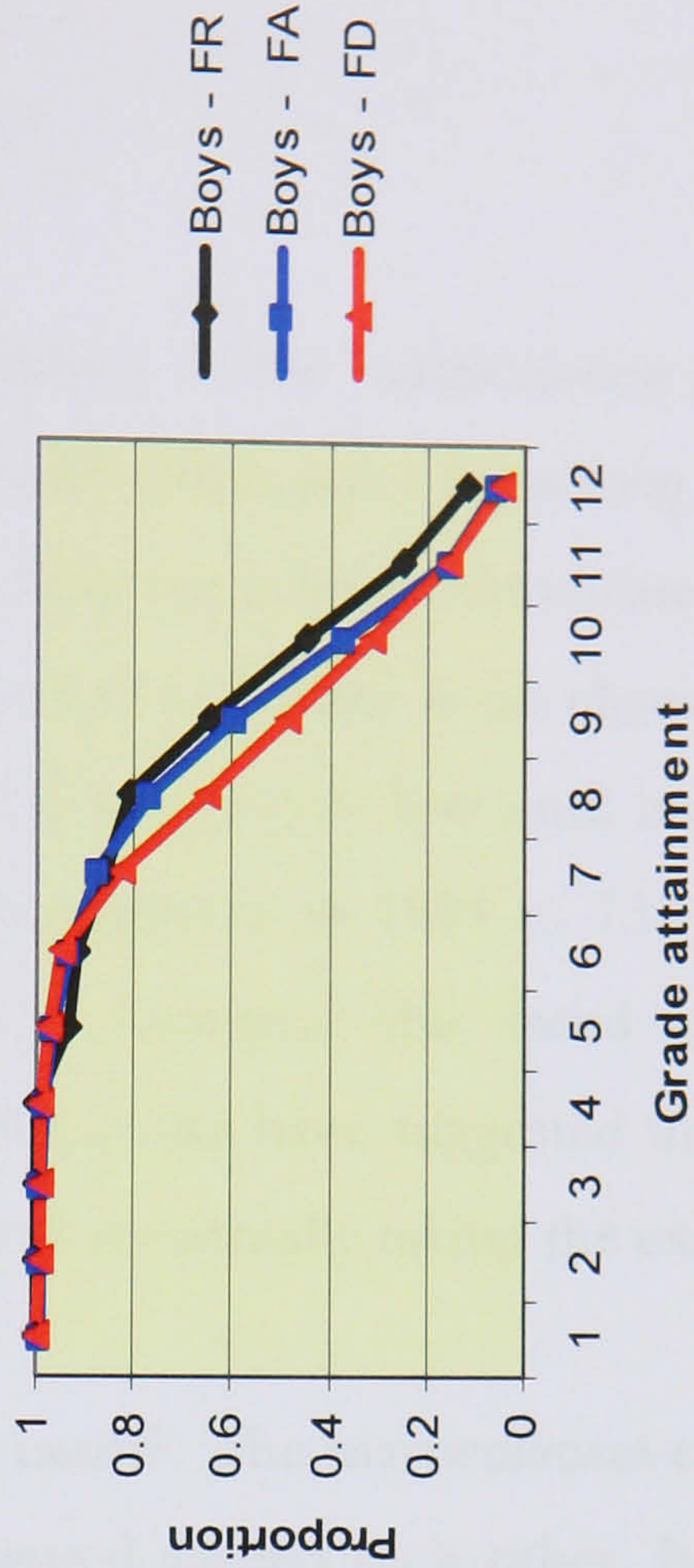
B) Survival of father and economic group



C) Survival of father for girls.



D) Survival of father for boys.



Note: PR = parents resident, PO = paternal orphan, MO= maternal orphan, DO= dual orphan, FR = father resident, FA = father absent, FD = father

7.2 Matriculation results

Section 2.2.1 briefly described the importance of the matriculation exam at the end of Grade 12. The qualifications system in South Africa has - for a long time - been skewed toward the matriculation examinations⁸⁷. Without having matriculated, a young person's economic opportunities are severely restricted and there is no chance of progressing to tertiary education. National pass rates were notoriously low until recently although they have risen in the last ten years from 58.1 percent in 1994 to 73.3 percent in 2004⁹⁴. While the government has been quick to interpret this trend as evidence that its educational reform programme is working, critics have suggested that there has been a decrease in standards or that fewer students are actually taking the exam⁹⁰.

Why would fewer students be taking the exam? The matriculation exam results are also the way in which many schools are measured against each other. It has therefore been suggested that some schools encourage low performing students to drop out or hold them back from Grade 12⁸⁸.

The implications for the analysis here are complicated as there are multiple ways to select children from KIDS. In terms of outcomes, the hypothesis is that when a parent dies, the impact on the child will be multiple and will adversely affect their learning outcomes. It is therefore expected that orphans will fail matriculation exams more than unorphaned children. However, because schools might be holding children back who are likely to fail matriculation, it might be revealing to widen the sample to all 18 to 20 year olds, rather than just those who have already taken matriculation. However, if this is done, should all those youth who have not yet taken the matriculation exam be included in the "failed" category? Some of them will take the exam at a later date and pass. If this wider category is used, then the outcome measure becomes less one of learning outcomes and more one of school progression (these 18 to 20 year olds should have taken the matriculation by this age but have not).

Given the priority placed on receiving a matriculation certificate, many young people return to school to re-sit the exam if they fail. Unfortunately, the KIDS questionnaire did not inquire about this and it is unknown if a young person passed the matriculation first

or second time round. Obviously, this makes a difference to the individual's educational progression but might lead to the same learning outcome in the end.

The matriculation exam can be passed with or without an exemption. Passing with an exemption involves scoring a higher grade in the exam and is the necessary qualification to continue on to tertiary education in South Africa. The KIDS questionnaire did distinguish between passing with and without exemption but feedback from fieldworkers suggested that some respondents were unsure of what the distinction was.

Which outcome to measure?

Given these complexities, there are a number of possible outcomes that could be measured. As with the previous outcomes, there is a problem with sample sizes: data exist only on 318 young people aged 18 to 20 in 2004 and only 54 of them have taken the matriculation exam. This is only 17 percent of those eligible to take the exam. However, of the 264 young people who have not yet taken the exam, only 198 are currently enrolled in school with the remaining 66 (25 percent) having dropped out already.

Of the 54 young people who have taken the matriculation exam, 18 failed; 31 passed the exam without exemption and only five passed the exam with exemption. Furthermore, there are two additional students aged 17 who took the matriculation exam early and passed without exemption. The dataset is limited by the small sample sizes (see Chapter 3 for problems with small sample sizes).

The following analyses are therefore possible:

1. Comparing those who passed with those who failed (limitation: low sample size)
2. Comparing those who have passed the matriculation with all other 18 to 20 year olds who have not taken the exam yet (limitation: some students might go on to take the exam at a later date).
3. Looking at older youth of 20 to 25 who might have taken the matriculation in order to increase the sample size (limitation: from a policy point of view, there is limited interest in the impact of parental death on adults).

Given the small sample sizes, it was decided to start by looking at the first two outcomes and then, if necessary, to move to the third.

7.2.1 Distribution of matriculation results by orphanhood

This section briefly explores some of the relationships between orphanhood and matriculation, first comparing passing with failing the exam and then looking at passing the exam versus not having taken the exam yet.

Passing versus failing matriculation

In this section the group of interest is those 18 students who failed the exam and the 38 who passed it (including the two 17 year olds). Table 43 shows the percentages of those who have taken the matriculation exam who passed. This table needs to be read with caution as the sample sizes are very small. However, the death of a parent is obviously not associated with lower pass rates. If anything, it is associated with higher pass rates.

Table 43. Percentages of young people aged 18 to 20 who have passed the matriculation exam out of all those who have taken the exam by parental status who taken the matriculation in 2004

Parental status	N	Percentage passed
Father resident	20	55.0
Father absent	23	82.6
Father dead	13	61.5
Mother resident	35	62.9
Mother absent	12	75.0
Mother dead	9	77.8

Logistic regression analysis was used to compare different orphan groups and different combinations of parental status to see if any of them are significantly associated with passing the matriculation exam as opposed to failing. The fitted models control for age. None of the exploratory regressions yielded any significant effects or orphanhood although all the ratios are all positive suggesting a possible increased likelihood of passing the matriculation exam for orphans. This finding fits in with Bennell et al.⁵³ hypothesis that educational interventions for orphans might only favour the higher ability students.

Given the lack of any evidence supporting the hypothesis that parental death adversely affects learning outcomes, it was decided to leave the analysis at this point and move onto comparing those young people who have passed the matriculation exam with those who have not yet even taken the exam.

Expanding the sample to include those who have not yet reached matriculation

This section follows from the second scenario laid out above: comparing those who have passed the matriculation with all other 18 to 20 year olds. By the age of 18, most young people should have taken the matriculation examination and, even if they are still in school, this can be interpreted as not having achieved this important learning outcome.

Of the 318 18 to 20 year old panel members, 36 (11.3 percent) have matriculated (the two seventeen year olds are excluded from the dataset). Table 44 shows the percentages of different orphans who have passed the matriculation exam.

Table 44. Percentage and number of 18 to 20 year olds who have passed the matriculation exam out of all 18 to 20 year olds.

Parental status	N	Percentage passed matriculation	Number passed matriculation
Parents resident	73	11.0	8
Father absent, mother resident	57	15.8	9
Mother absent, father resident	13	15.4	2
Both parents absent	45	11.1	5
Paternal orphan	84	7.1	6
Maternal orphan	21	19.0	4
Dual orphan	25	8.0	2

Given the small sample sizes, exploratory analysis was undertaken again to see if merging and splitting the orphan groups by gender, age and which parent died revealed any significant associations with matriculation results.

No significant results were found, although the death of the father (controlling for age) reduced the chance of passing matriculation by 0.55. Although this association is not significant ($P=0.22$), it is suggestive of an effect.

Expanding the dataset to include older youth

Given the small sample of young people aged 18 to 20, it was decided to increase the size of the dataset by including older youth. One justification for this is that many young people over the age of 20 are still in secondary school. For example, 18 percent of 21 to 24 year olds are currently enrolled in formal education according to the household roster.

From a policy perspective, there is less interest on the impact of parental death on adults. However, increasing interest in young people (under the age of 25 years), twinned with the emphasis on matriculation results in South Africa, makes this older population relevant. If expanding the dataset to include all young people does reveal orphan effects, it will become important to differentiate between those young people who were orphaned as children (under 18) and those who were orphaned as adults.

The disadvantage of including 21 to 24 year olds is that they were not administered the educational module and the only educational data on them comes from the roster.

Matriculation results for all young people

Of the 161 18 to 24 year olds who took the matriculation, 39 (24.2 percent) failed. Table 45 shows the percentages of young people who have passed the matriculation exam.

Table 45. Percentage and number of 18 to 24 year olds who have passed the matriculation exam among all those who took the exam prior to 2004

	N	Percentage passed matriculation	Number passed matriculation
Parents resident	44	68.2	30
Father absent, mother resident	28	85.7	24
Mother absent, father resident	5	60.0	3
Both parents absent	13	84.6	11
Paternal orphan	43	72.1	31
Maternal orphan	14	71.4	10
Dual orphan	11	90.9	10

Although the sample size has increased by including older youth, the number of these young people who have failed the matriculation exam is small. Exploratory analysis shows that there are no significant associations between any of the orphan variables and passing matriculation even when age and gender are added into the regressions (these results are not shown). Of all the parent residency and survival variables, the only factor

associated with matriculation results is absence of fathers, which increases the likelihood of passing the matriculation.

This lack of association may be due to the sample being restricted to those who have taken the matriculation exam. It is an achievement in itself to take the matriculation exam and those who are educationally disadvantaged may have dropped out before Grade 12. It has been suggested ⁵³ that low achieving orphans are likely to drop out, with schools and families more likely to support the education of high achieving orphans. If this selection process operates, it may explain why no educational disadvantage among orphans is apparent at this high level of education attainment.

It was decided to undertake further exploratory analysis including those who have not taken the matriculation exam as part of the “failed” category. Expanding the outcome variable increased the sample size by an additional 444 young people who had not yet taken their matriculation exam. The percentages of orphans who have passed the matriculation are displayed in Table 46. None of the differences from the control group of young people living with two parents is statistically significant.

Table 46. Percentage and number of 18 to 24 year olds who have passed the matriculation exam out of all 18 to 24 year olds.

Parental status	N	Percentage passed matriculation	Number passed matriculation
Parents resident	147	20.4	30
Father absent, mother resident	100	24.0	24
Mother absent, father resident	19	15.8	3
Both parents absent	65	16.9	11
Paternal orphan	177	17.5	31
Maternal orphan	39	25.6	10
Dual orphan	47	21.3	10

As living with one’s parent may not be important for adults aged over 18, it was decided to conduct some exploratory analysis using the father and mother survival and residency variables as well as gender and age. None of these logistic regressions revealed any significant associations between parental death and matriculation results and the results are not presented.

7.3 Dropout

The final educational outcome examined is dropout. As dropout is to do with participation in schooling, it can be viewed as more of a schooling input rather than outcome. However, as it is legal requirement to stay in school until the age of 16, dropout becomes an important outcome to study for older children.

In terms of policy relevance, dropout from the formal education sector is one of the grossest manifestations of educational disadvantage and the most commonly used one in the research literature.

Measuring dropout

The KIDS questionnaire provides two ways of measuring dropout. The first question is in the roster and asks for the household member's main activity. There are two codes for education: 1) school/ university, and 2) crèche. However, as this question was not designed primarily with the study of education in mind, the answers can be somewhat ambiguous. For example, a young person who is both working and in secondary school could choose either as their response.

The second question which was specifically designed to measure dropout comes from the schooling module is:

Q. Is [...] currently enrolled in school?

Followed by a question asking “If not enrolled, why not?”

Of the total 1635 people aged between 7 and 20, 10 percent have dropped out according to the first question on the roster (not including those in a crèche). The second question estimates this percentage to be 6.9 percent (excluding those who answered not-applicable and with missing data).

Discrepancies between the answers from the two questions were examined in detail. Although some of these discrepancies can be explained by the scenario laid out above (i.e. that a young person may be working and also be at school), it is clear that the roster

question also picks up enrolment of those who have finished their secondary education: there are 15 young people who have passed their matriculation and are continuing with higher education. In addition, there are 52 young people (under age of 21) who have finished secondary school and are now either employed or unemployed. Both of these groups were classified as not applicable in the second question from the schooling module.

This shows the importance of studying dropout in the context of attainment: if a young person has finished secondary school and passed their matriculation examination, should they be classified as having dropped out? In South Africa, the emphasis is very much on finishing secondary school and passing the matriculation exam. Therefore the analysis of dropout in this study is restricted to those who have left school without completing Grade 12.

It was decided to primarily use the variable in the education section which specifically asked about enrolment. Individuals with missing data were recoded using the response from the “main activity” question in the roster.

7.3.1 Levels of dropout

The analysis includes all 7 to 20 year olds in 2004 who have started primary school but not finished Grade 12. Of 1574 children, only 7.1 percent have dropped out of school. Overall, more girls (7.6 percent) than boys (6.5 percent) have dropped out. However, significance testing showed this difference not to be significant ($n=1574$, $p=0.38$).

Age, gender and dropout

The likelihood of having dropped out increases dramatically with age. Of all children under the age of ten, only one has dropped out. This compares with 17.3 percent of 16 to 20 year olds. It is clear that most young people stay in school until at least the age of 16 (94 percent of 16 year olds are still enrolled). However, after this age the percentage who drop out increases with a minority passing the matriculation⁸⁷.

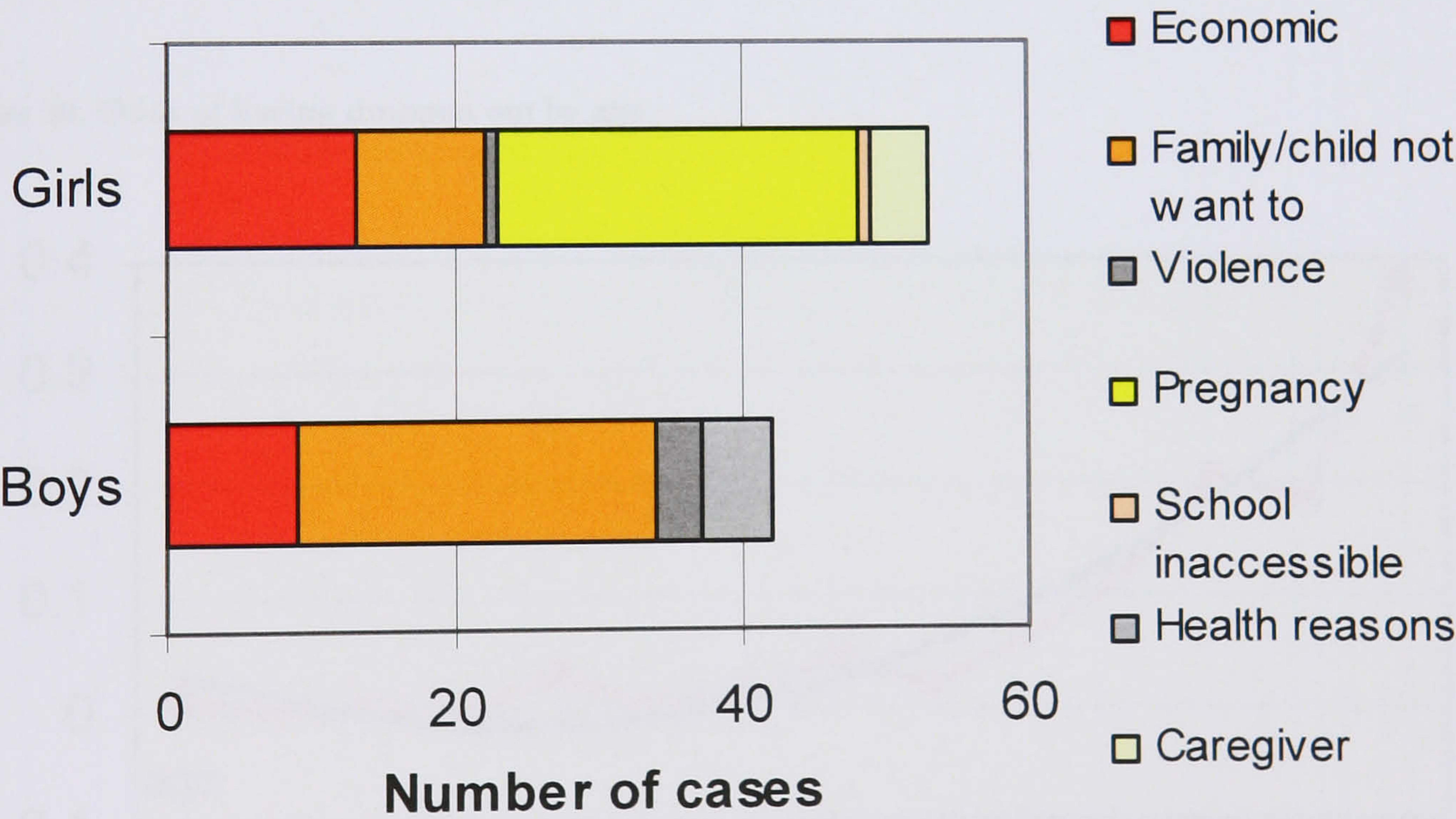
In particular, older girls drop out much more often than boys (Table 47). For young children aged under 16, there are almost no gender differences, with boys actually slightly more likely to have dropped out than girls.

Table 47. Percentage of children aged 7 to 20 in 2004 who have dropped out by age group and gender

Age group	Percentage dropout			
	Boys		Girls	
	N	%	N	%
7 to 10	204	0.5	220	0.0
11 to 15	303	3.6	313	2.2
16 to 20	279	14.0	255	20.8

Why might older girls might be dropping out more than boys? The KIDS questionnaire attempted to answer this question by asking about reasons for dropout. The most common reasons reported are shown in Figure 19.

Figure 19. Reasons for dropout for children aged 7 to 20 in 2004, by gender



Focussing on the older age group, it is clear that the main reason why girls drop out is because they are pregnant, whereas for boys, the main reason is because either the boy or the family do not want him to be in school (Figure 19). Economic reasons account for over one in five dropouts (for both girls and boys). Girls also seem to be dropping out

because they have to care for either sick household members or younger siblings, whereas no boys were reported to have dropped out for this reason.

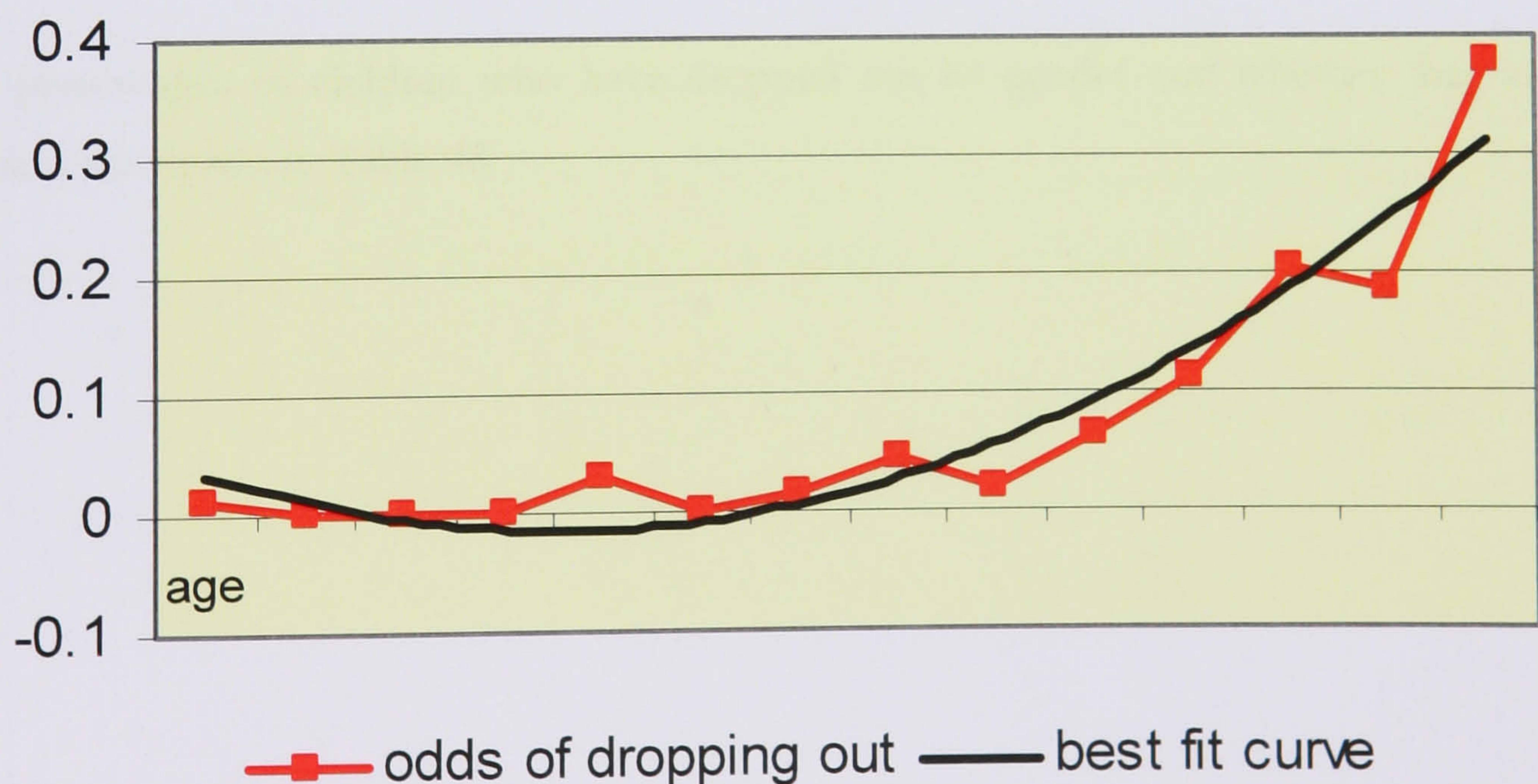
These results show strong gender differences with girls having responsibilities within the household which affect their educational opportunities. Although economic reasons for dropout are mentioned for both girls and boys, they are reported more often for girls.

It is also possible to determine what these young people were doing in 2004 using the main activity question in the roster. This showed that the majority of both boys ($n=51$, 55 percent) and girls ($n=60$, 63 percent) who have dropped out are currently unemployed. The second most common response for boys is that they are in casual employment (10 percent) while for girls it is that they are either housewives or child rearing (10 percent).

Revisiting the age variable

As was shown in Table 47, the relationship between age and dropout is non-linear. This is demonstrated in Figure 20.

Figure 20. Odds of having dropped out by age



Under the age of 13, dropout is negligible: basically young children do not drop out in South Africa. It was therefore decided to restrict the regression analysis to children aged

13 or more. By removing the 669 children aged less than 13 years, only 5 cases of dropout were removed. Exploratory analysis of the determinants of dropout in different age groups showed them to be similar across age groups over the age of 12. Therefore it was also decided to look at all children aged 13 to 20 rather than split these children further into age groups.

For children aged 13 years or more, the relationship between age and the odds of having dropped out appears linear in the graph. If the log odds of having dropped out are calculated, then the relationship is definitely linear, suggesting that the untransformed age variable is appropriate for use in the following regression analysis.

7.3.2 Orphanhood and dropout

As only 106 of children aged 13 to 20 have dropped out, it is impossible in some cases to differentiate the sample into the categories used earlier and therefore a broader differentiation is used. This is particularly the case for maternal orphans who are living with their fathers – there are only a total of nine children in this group so it was decided to merge the maternal orphans into one group.

The percentages of children who have dropped out by gender and whether they are orphans are shown in Table 48.

Table 48. Percentages of children aged 13 to 20 who have dropped out in 2004 by vulnerability type and gender

Parental status	All children		Boys	Girls
	N	%	%	%
Parents Resident	219	8.7	10.9	6.8
Orphaned Child	343	15.5	13.3	17.6
Of Which:				
Paternal Orphan	213	16.9	12.6	21.6
Paternal orphans, living with mother	147	18.4	15.3	21.3
Fostered out paternal orphan	66	13.6	7.7	22.2
Maternal Orphan	66	10.6	16.1	5.7
Dual Orphan	64	15.6	12.9	18.2

It is clear that higher percentages of orphans than unorphaned children are out of school. Although this is the case for boys and girls, the prevalence of dropout is higher for orphaned girls than for orphaned boys with the likelihood of dropping out more than twice as high for girl orphans compared with the control group. There are strong gender differences in the pattern of effects: for boys, the most disadvantaged appear to be maternal orphans (although the numbers are quite small). For girls, the most disadvantaged group is paternal orphans followed by dual orphans. However, as dual orphans are more likely to be older than other children (and older children are more likely to drop out) it may be that the dual orphans are more likely to have dropped out because of this age effect. It is therefore crucial to include age into the analyses

Logistic regression was used to compare the odds of having dropped out for the different groups of children with that in the control group (children living with two resident parents). Table 49 shows the results from these regressions by gender.

Table 49. Odds ratio of dropout for children aged 13 to 20 in 2004 by gender and orphan status.

	All Children		Boys		Girls	
	Odds ratio	P	Odds ratio	P	Odds ratio	P
Parents Resident	1		1		1	
Father absent, mother resident	1.18	0.64	0.58	0.64	2.17	0.11
Mother absent, father resident	1.26	0.72	0.71	0.72	5.89	0.02
Both parents absent	1.11	0.78	1.48	0.78	1.78	0.29
Orphaned Child	1.92	0.02	1.25	0.56	2.95	0.01
Of whom:						
Paternal Orphan	2.14	0.01	1.18	0.70	3.78	<0.01
Paternal orphans, living with mother	2.37	<0.01	1.48	0.40	3.73	<0.01
Fostered out paternal orphan	1.66	0.24	0.68	0.57	3.93	0.02
Maternal Orphan	1.25	0.63	1.57	0.44	0.83	0.82
Dual Orphan	1.95	0.11	1.21	0.76	3.06	0.06

Of the three groups of unorphaned children, none significantly differed in terms of dropout from the control group. However, once the children were split by gender, girls whose mothers are absent are significantly more likely to have dropped out of school ($P=0.02$). Furthermore, the only effect of orphanhood on dropout is that girls are more likely to have dropped out if they are paternal orphans ($P<0.01$) or dual orphans ($P=0.06$). There is no significant impact of orphanhood for boys and therefore the following analyses will be restricted to girls only.

Table 49 shows a significant effect of being a paternal orphan for girls who are living with their mothers and girls who are fostered out. A likelihood ratio test was used to compare models with paternal orphans as a single category with models in which paternal orphans are split by whether they live with their mother. The Chi^2 was 0.75 and insignificant ($P=0.69$). This suggests that there is no difference in risk of dropout for girl paternal orphans according to whether or not they are fostered out.

Paternal death versus paternal absence

The regression model was re-run substituting survival and residency status of mothers and fathers instead of the orphan categories used above. This allows for comparison between the effects of paternal absence versus paternal death. The results show that paternal death is related to increased dropout for girls (odds ratio = 2.44, $P = 0.03$) whereas paternal absence is not (odds ratio = 1.19, $P = 0.68$).

In addition, exploratory analysis took place to see if the father absent category might actually be composed of two separate sub-categories with differential effects on dropout (as in Chapter 6). The results showed that the absence of the father has no significant effect, even when splitting the girls into those with an absent father but a resident mother, and those with both parents absent.

7.3.3 Stated reasons for orphans' dropout

Stated reasons for dropout were compared for the different groups of girls. It should be noted that the number of cases is very small and the graph needs to be read with caution. Among the 8 girls with parents resident, no one reason for dropout predominates. This contrasts with paternal orphans for whom the main reason for dropout is pregnancy. However, this distribution resembles that for girls with living parents and suggests that pregnancy is the main reason for girls to drop out regardless of whether or not they are orphaned.

Figure 21. Reasons for dropout for girls who are living with both parents resident (PR), parents alive (PA) or paternal orphans (PO) aged 13 to 20 in 2004.



Pregnancy and orphanhood

Pregnancy seems to be the key factor in explaining girls’ dropout. Even though pregnancy was not originally a focus of this research, it was measured by KIDS. In the health section of the 2004 questionnaire, questions aimed at assessing women’s fertility were asked of all resident women aged 15 to 49. Of the 311 women aged 15 to 20 who fulfilled these criteria, data were collected on 280. The missing data are due to the shorted questionnaire, which does not contain the fertility module, being administered in foster households. Missing data were supplemented from another two questions which asked about pregnancy and it was therefore decided to construct a pregnancy variable which, in addition to the main pregnancy question, also uses:

- 1) The pregnancy response from the roster which was supplied as a follow up to why girls/women might not be in school
- 2) The pregnancy response from the question in the education section asking why each person has dropped out

The newly constructed pregnancy variable therefore includes all girls who have either given birth (possibly more than once) or are currently pregnant.

A logistic regression was run with pregnancy as the dependent variable and orphanhood as the independent variable (Table 50). As having been pregnant is also related to age, a second model was run (column two) which controls for age. Without controlling for age, girls in single parent households; paternal orphans and dual orphans are all more likely to have been pregnant than girls living with two resident parents. However, once age (which is a significant predictor of pregnancy) is controlled for, the only group still significantly different at the 10 percent level is paternal orphans.

Table 50. Odds of having been pregnant for girls aged 16 to 20 in 2004 by orphan status and age.

	<i>Model 1 - all girls</i>		<i>Model 2- controlling for age</i>	
	Odds ratio	P	Odds ratio	P
Parents Resident	1			
One Parent Absent	1.57	0.30	1.13	0.79
Both Parents Absent	2.34	0.08	2.50	0.10
Paternal Orphan	2.93	0.01	2.23	0.07
Maternal Orphan	0.70	0.61	0.56	0.45
Dual Orphan	3.87	0.03	2.56	0.17
Age			2.24	<0.01

As pregnancy is significantly related to orphanhood, it is included as a possible determinant of dropout in the following analyses.

7.3.4 Socio-demographic and economic determinants of dropout

In a similar strategy to the previous analyses, each of the hypothesized socio-demographic and economic variables (plus pregnancy) was separately entered into a bivariate logistic regression with dropout as the outcome variable. The results are displayed in Table 51. The following variables significantly affect the chance of dropout: age, 1998 and 2004 per capita expenditure, mother's education and pregnancy.

Table 51. Odds of having dropped out of school for children aged 13 to 20 in 2004 by various socio-demographic and economic variables.

Independent variables	Odds ratio	P
Gender		
Boys	1	
Girls	1.39	0.12
Age in years in 2004	1.60	<0.01
Household Per Capita Expenditure (logarithm)		
1998	1	0.02
2004	1	<0.01
Mother's Educational attainment	0.87	<0.01
Community		
Metropolitan	1	
Urban	1.36	0.53
Rural	1.59	0.13
Household Size		
Small (less than 5)	1	
Medium (5-6)	1.33	0.43
Large (7-8)	0.64	0.26
Very Large (9 +)	1.27	0.47
Pregnancy		
Never Pregnant	1	
Pregnant/ Had Child	13.76	<0.01

7.3.5 Stepwise regression modelling

It is clear from the analysis so far that death of a father has an effect on dropout for girls aged 13 to 20. Therefore in building the best fitting model, the simplest version controls for age and mother's residency and survival status. Adding father's residency and survival status significantly improves the fit of the simple model ($\text{Chi}^2 = 6.4$, $P=0.04$). The odds of dropping out for girls with dead fathers are 2.44 times greater than for those for girls with living fathers ($P = 0.03$). Significant predictors from 7.3.4 were added in turn to the model and likelihood ratio tests used to test the improvement in the fit of the model.

Table 52. Summary statistics for stepwise regression modelling of dropout for girls aged 13 to 20

	Sample Size	Death of father		Basic Model	New Model	Significance of the Improvement in fit
		OR	P	Log Likelihood	Log Likelihood	Probability
Basic Model (age, mother status)	447	2.44	0.03	-142.26	-	-
2004 Per capita expenditure	447	2.26	0.05	-142.26	-139.20	0.01
Mother's Education	396	2.72	0.03	-116.75	-115.27	0.09
Pregnancy	280	1.68	0.26	-115.97	-101.85	<0.001

So what is happening? First, 2004 per capita expenditure improves the fit of the model. A simple linear regression shows that paternal orphans (coefficient = -139, P=0.001) are living in poorer households. Being in a poorer household is associated with higher dropout. Therefore, once this poverty is controlled for, the odds ratio of dropping out for girls with dead fathers decreases. Poverty is clearly part of the reason why this sub-category of girls is dropping out. However, even with per capita expenditure controlled for, this group are still more likely to dropout.

Maternal education levels are having the opposite effect: death of the father is associated with higher levels of maternal education. Higher levels of maternal education protect children's education and therefore, once these are controlled for, the risk associated with dropping out increases.

However, even once per capita expenditure and maternal education are included in the model, the impact of paternal death remains significant.

The most important mechanism involved in the impact of paternal death on dropout is pregnancy. As soon as pregnancy is included in the model, the odds ratio associated with paternal death drops significantly.

The question now arises: are orphans getting pregnant and then dropping out of school or do orphans drop out and then get pregnant? From the KIDS questionnaire it is possible to determine when girls were pregnant. It is less easy to determine when girls dropped out of school. However, all children who had dropped out were asked why they

had dropped out. Of the 37 girls who had been pregnant and had dropped out, 23 (62 percent) stated that they had dropped out because they were pregnant. It is also possible that some of the remaining 38 percent of girls dropped out because they were pregnant despite not stating this as the main reason.

It seems reasonable to conclude from this that the main reason these girls dropped out is because they were pregnant, i.e. they did not drop out and then become pregnant.

7.3.6 Determining causality

As with the previous chapter, the effect of paternal death was re-categorised according to when the death occurred. In this way, it become possible to specifically examine the impact of paternal death between 1998 and 2004 while controlling for as many background factors from 1998. Table 53 shows the effect of paternal death according to timing of death.

Table 53. Odds of having dropped out for girls aged 13 to 20 in 2004 by timing of parental death controlling for age.

Parental status	Odds ratio	P
Father resident	1	
Father died 98-04	1.35	0.60
Father died 93-98	7.37	<0.01
Father died pre-93	5.07	0.02
Mother died 98-04	0.32	0.19
Mother died 93-98	7.29	0.01
Mother died pre-93	1.80	0.67
Age	1.55	0.00

The odds associated with paternal death of girls are large if the father died before 1998. In addition, a previously hidden effect of maternal death between 1993 and 1998 is now apparent. However, this effect of maternal death may need to be disregarded as there are only four girls who fall under this category. However, the result highlights the need for further investigation into these long-term effects of maternal death: it cannot be ruled out that there is no maternal death effect on girls’ education.

The three variables for paternal death according to timing of death were compared with one another to see if they consisted of qualitatively different categories. The only significant difference is between father's death in 1998 -2004 and father's death in 1993 - 1998 ($\chi^2 = 6.77$, $P = 0.03$). Paternal deaths between 1993 and 1998 were also merged with paternal deaths preceding 1993 as this does not make a significant difference to the goodness of the fit ($\chi^2 = 0.25$, $P = 0.62$).

It is possible that the effect of recent orphanhood is being masked by another effect – primarily fostering (which is a coping strategy). It was therefore decided to split the father categories by timing of death and fostering. A logistic regression was run for girls aged 13 to 20 , controlling for age, mother status and father status. No evidence exists that being orphaned between 1998 and 2004 puts either fostered or unfostered girls at risk of dropping out of school.

It is clear that the impact of orphanhood on dropout only becomes apparent after several years. As there are no visible impacts between 1998 and 2004, it is impossible to control for background factors preceding paternal death.

Although it is possible to step back further in time and create a similar set of control variables for 1993 this would cut down the sample size to an unworkable size – for example there is only data on 735 out of 935 girls (81 percent). Furthermore, unobservable changes over an eleven year period are likely to be very large and make drawing conclusions on causality even more difficult.

At this stage, the analysis on dropout is discontinued in favour of another approach: linking together the different educational outcomes. For example, the immediate determinants of dropout might be delayed enrolment and repetition. It may also be the case that some of these educational outcomes are measuring the same underlying educational disadvantage. The next section (7.4) will therefore attempt to create a synthetic measure of educational disadvantage and then section 7.5 will link together the existing educational outcomes.

7.4 Severe education disadvantage

This section attempts to bring together some of the different educational outcomes. It is clear that death of their fathers affects girls' schooling in multiple ways. Are these outcomes measuring the same phenomenon? The hypothesis that increased dropout, repetition and lower learning attainment are different manifestations of “educational disadvantage” is based on the extensive body of literature which shows that higher repetition leads to higher dropout and lower levels of educational attainment¹⁷².

Therefore, through the analysis of individual education outcomes, an attempt is made to create a composite variable of education disadvantage which is grounded in the realities of education in South Africa.

Creation of educational disadvantage variable

Three key education outcomes were combined: repetition, grade attainment for age and dropout. As very high percentages of children had repeated at least one grade (52.9 percent) or were at least one grade behind for age (39.5 percent), it was decided that the education disadvantage variable had to reflect severe education disadvantage which was only experienced by a minority of children. Furthermore, any definitions of education disadvantage should change with age – in South Africa all children up to the age of 15 are legally supposed to stay in school. Therefore, dropout of children aged less than 16 can be considered severe education disadvantage but for those aged more than 15, this will depend on what grade they achieved before dropping out.

Keeping in mind these complexities, the following definition of severely educationally disadvantaged was created:

- 1) Children aged 7 to 15 in 2004: any child who has currently dropped out of school, or has repeated two or more grade or is at least two grades behind at school
- 2) Young people aged 16 to 20 in 2004: any person who dropped out of school before attaining Grade 9 (compulsory schooling) or any person who is at least three grades behind at school.

According to this definition, 18.3 percent of all children are severely educationally disadvantaged. The variable is still limited as it does not capture those aged 7 and 8 who might be disadvantaged as the numbers who have dropped out in this age group or are behind at school are negligible. Attempts were made to measure some sort of educational disadvantage for this age group but there were no significant effects of orphanhood (see Chapter 5).

Severe education disadvantage by age, gender and orphanhood

Table 54 shows the percentages of boys and girls in 2004 that are severely educationally disadvantaged. For both girls and boys, orphans are more likely to be severely educationally disadvantaged than unorphaned children although this might be due to age. The effect of orphanhood appears larger for girls with more than twice the proportion of paternal and dual orphans being severely educationally disadvantaged compared with girls living with two resident parents. However, it should be noted that boys overall are more severely educationally disadvantaged than even orphaned girls, suggesting that although orphanhood may affect girls more than boys, efforts must also be made to address boys' low attainment.

Table 54. Percentages of boys and girls aged 7 to 20 in 2004 who are severely educationally disadvantaged

Parental status	Boys only		Girls only	
	N	%	N	%
Parents Resident	174	24.7	201	8.5
Father absent, mother resident	190	15.3	190	10.0
Both parents absent	137	22.6	123	13.0
Paternal Orphan	181	29.8	171	19.3
Maternal Orphan	50	30.0	59	10.2
Dual Orphan	44	34.1	50	22.0

As would be expected from previous analyses, it is the death of a father which is associated with severe educational disadvantage. As there are only five children under the age of ten who are severely educationally disadvantaged, it was decided to remove this age group from the analysis and concentrate only on those aged ten to 20 in 2004.

Simple regressions for those aged 10 to 20 in 2004 were run to examine the effects of parental residency and survival status and age on the education disadvantage variable. The results from these two regressions are shown in Table 55.

Table 55. Odds of being severely educationally disadvantaged for boys or girls aged 10 to 20 in 2004, controlling for age.

	Boys only		Girls only	
	Odds ratio	P	Odds ratio	P
Parents resident	1		1	
Mother absent	1.03	0.88	2.39	<0.01
Mother dead	1.40	0.21	1.28	0.45
Father absent	0.94	0.79	1.03	0.93
Father dead	1.47	0.11	1.94	0.03
Age	1.12	<0.01	1.22	<0.01

In terms of mothers, maternal death has no effect but a strong effect of maternal absence exists. However, this group of children is composed of three potentially different sub-groups – children who are fostered out from both parents, children whose fathers are resident, and children whose fathers are also dead. If an interaction term is included between the mother and father variables, the no interaction effects are insignificant suggesting that there is a maternal absence effect of some sort. Again, the odds that girls who are paternal orphans are severely educationally disadvantaged are nearly double those of similarly aged girls who are living with their fathers.

Using the newly constructed educational disadvantage variable does not appear to provide any further insight into the impact of orphanhood on educational outcomes.

This section combines some of the separate educational outcomes in order to construct a variable which demonstrated underlying severe education disadvantage. The variable was constructed based on theoretical arguments on what would constitute severe educational disadvantage for two different age groups. However, the variable is more limited than analyzing individual education outcomes because a) children under the age of ten are excluded and b) some of the orphan effects noticed in earlier chapters are now masked.

The problem may be that either the variable was badly constructed or that there is no one “super” variable which encapsulates underlying education disadvantage because education disadvantage is multifaceted with each facet affected by different causal mechanisms.

Some exploratory analysis was conducted to see if the fault is in the design of the variable by creating different variables which measured different education outcomes at different ages or that coded children according to their relative disadvantage among same age children. None of these attempts led to a single education disadvantage variable which showed any form of consistent or plausible effects of orphanhood.

The lack of consistency suggests that there is not be a single cohesive story to emerge from this research. In fact, orphanhood creates more than one type of educational disadvantage, depending on the gender and age of the child. This in itself is an interesting finding as it emphasizes the limitations of previous research and points to the need for more subtle ways to measure the educational needs of children. Pinpointing specific effects of orphanhood on specific educational outcomes is actually more valuable from a policy perspective than using less precise measures of educational disadvantage.

With the failure to derive a single measure of educational disadvantage, the analysis shifts to how the different educational outcomes are linked to each other and what further lessons can be derived with respect to the educational disadvantage faced by orphans.

7.5 Linking together the educational outcomes

As mentioned earlier, the approach taken over the last three chapters has been to analyse each educational outcome in isolation because children in school may also be educationally disadvantaged through orphanhood and, therefore, educational outcomes of those in school should be analysed as well as those of children who are out of school. This approach has been useful in identifying the specific impact of orphanhood on repetition, primary school completion, delayed enrolment, attendance and dropout. However, the story which is emerging differs from one educational outcome to another and is still far from straightforward.

By undertaking the analysis through this approach, it has slowly become apparent that educational outcomes are not related to one another in straightforward ways and that they may not all be manifestations of the same pattern of educational disadvantage.

7.5.1 Associations between the different measures of educational outcomes

Logistic regressions were run between the different educational outcomes, controlling for age. These results are shown in Table 56

Table 56. Associated odds ratio between the different educational outcomes, controlling for age. (significance is indicated by * (10 percent) ** (five percent) *** (one percent). Columns contain dependent variables and rows contain independent variables.

Independent variable	Delayed enrolment	Bad attendance	Repetition	Primary school completion	Dropout
Delayed enrolment		1.20	0.87	5.58***	0.77
Bad attendance			1.31**	1.88***	
Repetition				3.03***	0.42***
Primary school completion					11.94***

The outcomes do affect one another and (in most cases) in the directions expected. Primary school completion is related to delayed enrolment, dropout, repetition and attendance. In many ways, primary school completion can be viewed as the composite outcome of these other outcomes.

The only surprise is that children who have repeated a grade are less likely to have dropped out. It is generally assumed that repetition leads to increased levels of dropout yet in this analysis the opposite is the case. Indeed, by taking a step back from the data, a plausible story emerges in which repetition may actually be a protection against dropout. For example, consider two children of the same age who are not performing at an adequate standard due to increased household chores at home. At the end of the year, the teacher fails both children. The first child does not want to stay on and his family does

not want him to stay on either as it seems to them to be a waste of money. The second child and her family are more committed to her education and decide to invest in repeating a grade. In this imaginary scenario, repetition is a form of educational disadvantage but it also might leave children under a certain age less likely to drop out.

In terms of the impact of orphanhood, it seems that the effect of paternal death does not operate through increased repetition which then goes on to cause early dropout. Instead, different effects appear to be operating depending on the age of the girls.

7.6 Summary of findings

This chapter has two aims: to examine some of the schooling outcomes most relevant to older youth (matriculation and dropout) and to integrate some of the findings on individual educational outcomes.

In terms of the matriculation exam, no significant effects of orphanhood were found. If anything, of those who take the exam, it appears that orphans might be more likely to pass. As only a minority of children progress to Grade 12 in KwaZulu-Natal, it may be that orphans that take the matriculation exam are the highest achieving orphans, with the lower achieving orphans dropping out earlier in the schooling system.

In terms of dropout, paternal death has a strong effect on girls aged 16-20. Although poverty plays a role, it seems that pregnancy is the main cause of dropout for girls. High levels of maternal education are currently offsetting the chance of dropping out.

Analysing the data by timing of death shows that the effect of paternal death only operates in the medium term (five to ten years) and long term (more than ten years). This means it is impossible to conduct a longitudinal analysis controlling for background characteristics before parental death as this would involve controlling for factors as far back as 1993, which is highly problematic.

As paternal death appears to affect repetition, attainment and dropout of girls, an attempt was made to construct a single variable which could measure a single disadvantage which

was manifest in all these different impacts. However, the attempt was abandoned due to a number of limitations. In particular, the relationship between repetition and dropout is inverse to what had been expected, further suggesting that the impacts of paternal death differ according to the age of the girls. Girl orphans who have dropped out are not more likely than other girls to have repeated a grade.

The implications of these findings are discussed in more detail in the Chapter 9.

CHAPTER EIGHT: THE ROLE OF GRANTS IN MITIGATING THE IMPACT OF ORPHANHOOD ON EDUCATION

In this chapter, the focus shifts from identification of the problem to analysis of possible policy solutions. Although there is some awareness of the need to deal with the psychosocial needs of orphans^{xix}, the most common response has been to address the perceived economic vulnerability of these children. Educationalists have advocated additional public transfers to schools in order to abolish school fees^{xx}. In South Africa, this has been adopted only in the form of individual school fee exemptions (see below). The other key intervention being proposed does not specifically target educational outcomes although it is assumed that by increasing a child's well-being it will also improve their educational outcomes. This second set of interventions is private transfers, that is to say cash grants which are made to households either unconditionally or conditionally. The two most significant cash grants in South Africa are the social pension and Child Support Grant, detailed below.

Measuring the impact of either of these grants on educational or other welfare outcomes is fraught with methodological difficulties. In particular, economists point out problem in dealing with unobservable confounders – especially underlying motivation which may affect both grant receipt and outcome variables^{173,174}. In addition, there are difficulties with using KIDS to measure school fee exemptions.

Although it is possible to overcome some of these limitations through detailed analysis, it is beyond the scope of this thesis to measure definitively the impact of these interventions. For example, in order to measure the impact of a grant one would need to factor in the rollout of the grant; how long the household has been receiving the grant; complex eligibility criteria as well as motivational factors which may have influenced receipt of the grant. Indeed, the study of cash grants using KIDS data is a major substantive area of study and could easily be the entire focus of a doctoral research project.

^{xix} e.g. UNICEF, Save the Children

^{xx} e.g. Global AIDS Alliance, UNICEF school fee abolition coalition,

Instead, some preliminary research is undertaken with a specific research question in mind:

- What is the role of grants and school fee exemptions in mitigating against the impact of parental death on educational outcomes?

The chapter therefore consists of six main sections:

- 8.1 History of cash grants in South Africa
- 8.2 Coverage: descriptive statistics of the take up of the grants by households containing orphans and the rest of the KIDS sample
- 8.3 Grants and education: modelling of the relationship between receipt of grants and educational outcomes
- 8.4 Grants and impact of orphanhood: modelling of the relationships between interventions, orphanhood and educational outcomes
- 8.5 Summary of main findings
- 8.6 Policy implications

8.1 History of cash grants in South Africa

Unlike most other middle-income countries, South Africa has an extensive system of cash transfers that reaches a large proportion of the population ^{173,175,176}. In South Africa, the two main unconditional cash grants are the social pension and Child Support Grant. A specific grant for orphans exists called the Foster Care Grant which combines both a large unconditional cash transfer and the entitlement to a full school fee exemption. Out of the KIDS sample only 17 children (each in a separate household) are receiving the Foster Care Grant, which is a prohibitively small group for detailed analysis.

Background to the pension

The largest cash grant in South Africa is the social pension. Founded in 1928, the pension was introduced to assist the elderly White population. The Black South African population was excluded from the grant as it was argued that they could rely on their “native custom which makes provision for maintaining dependent persons.” ¹⁷⁷

In 1943, it was decided to extend the pension to the Indian and Black South African populations but at a lower rate, with the justification that these groups paid lower taxes. Reform of the pension system in 1965 led to further racial differences in which pensions were paid in the ratio of 4:2:1 for White, Coloured and Indian, and Black South Africans. The argument at this point was that Black South Africans lived off less money than White South Africans¹⁷⁷. Over the next three decades, politicians argued over the pension levels for Black South Africans. Some thought it unfair for Black South Africans to receive less money than White South Africans while others thought an increased pension would lead to increased dependency on the State.

After the end of Apartheid, the pension was equalised across racial groups and more importantly, was made contingent on levels of income. This form of means-testing excluded many of the White population who had previously been receiving the grant. Enforcement of means-testing has led to the current situation in which virtually no White South Africans receive the pension while in contrast, more than 80 percent of Black South Africans receive the grant¹²⁷.

Today, the grant is the largest social security transfer in the country and at 125 percent of Black median per capita income, is a substantial source of income¹⁷⁴. The grant is means tested but as most Black South Africans are eligible, the main determinant of receipt is age rather than income¹⁷⁴.

Households with elderly members are some of the most disadvantaged¹⁷⁶ and it is estimated that over one quarter of Black South African children under the age of five live with a pension recipient¹⁷⁸.

Studies on the impact of the pension on Black South African households suggest that the pension benefits the entire household rather than simply the pensioner¹⁷⁶. Moller and Ferreira find that many rural Black South African households are nearly entirely dependent on the pension and that the money is used to meet the survival needs of the family¹⁷⁶. Various studies have shown that receipt of the pension is associated with more favourable outcomes for children such as anthropometric scores¹⁷⁸ and nutritional status and improved living conditions¹⁷⁹.

The vast majority of Black South African pensioners share their pensions with their households rather than spend it on themselves^{176,180}. Anthropological studies suggest that this fits within a system of traditional African kinship rules and acts to increase the level of respect shown to the elderly in communities¹⁸⁰.

Background to Child Support Grant

Reform of state maintenance grants for children occurred much later than reform of the pension. At the end of Apartheid, grants to improve child welfare existed through the State Maintenance Grant and were only available to mothers who did not have any financial support for the child from the father. In order to prove that the father was not supporting the child, the mother had to first apply through court for the father to cover maintenance with the child becoming eligible for the public maintenance award only if this failed¹⁸¹.

The costly bureaucratic process of accessing the grant resulted in very low awareness and take-up: Kruger reports that, in 1990, less than one percent of Black South African children were accessing the grant¹⁸². However, the grant application process was also institutionally racist - evidenced by the far higher take-up rates amongst White, Indian and Coloured populations.

After the end of Apartheid, the newly-elected government commissioned the Lund Committee (headed by Frances Lund – a co-collaborator on KIDS) to review the State Maintenance Grant and come up with suggestions for reform¹⁸³. One problem with the old grant was that allowances were provided for a maximum of two children up to the age of 17 years per family which meant that few children were reached by the grant but that those who were, were well supported financially. Lund wanted to shift the focus to a larger number of younger and poorer children, and in addition, she argued that the State Maintenance Grant assumed that children lived within a nuclear family structure which simply is not the case for many Black South African families¹⁸³.

With these concerns in mind, the Lund Commission created a blueprint for a new grant: the Child Support Grant. The key features of this grant include:

- 1) Focus on young children – this was based on evidence that the earliest years of a child’s life are the most formative and predictive of future well-being.
- 2) Focus on the child – the grant follows the child rather than the parent and thus, the grant can be administered to adults who are not parents (taking into reality South African family structures).
- 3) Cash transfer on a quarterly basis – this could build upon the existing cash transfer systems in place for providing the pension.

The grant was passed by parliament and was brought into effect in 1998 and provided 70 Rand a month for the caregiver of each eligible children aged under seven years. Following lobbying from NGOs, this amount was increased to 100 Rand and then to 160 Rand in 2003. In addition, the grant is currently being rolled out to children up to the age of 14¹⁸¹.

Despite the significant number of documents needed to access the grant (proof of income, birth certificate and identity document), the uptake has been higher than expected¹⁷³. Nationally, the government set a target of three million children by 2003. Take-up was very slow in the first year with only 30,000 children receiving the grant nationally¹⁸⁴. However, Hosegood and Case report that take-up was much higher in subsequent years with the government undertaking publicity campaigns in order to increase uptake¹⁷³. In KwaZulu-Natal, a target was set that 600,000 children should be receiving the grant by 2003: this figure was exceeded in 2002 and by July 2003, the national target of three million was also reached¹⁸⁵.

8.2 Coverage of grants

This section describes the coverage of each of the three main grants (Child Support Grant, pensions and fee exemptions) according to the KIDS data.

8.2.1 *Unconditional cash grants*

Methodological issues

There are several methodological and policy issues which make analyzing grants through KIDS complicated. In April 2004 (during the early phase of the fieldwork), the Child Support Grant was extended from all those under the age of ten to include those aged 10 and 11³⁹. The KIDS questionnaire asked about the Child Support Grant for all children under the age of 13. However, very few children over the age of nine in KIDS were receiving the grant (four out of 108 ten-year olds and one out of 126 eleven-year olds). It is therefore only possible to look at the impact of the Child Support Grant on children aged under ten. The issue with respect to educational outcomes is that the education section was only collected from children aged 7 and over. To compound these limitations further, the impact of orphanhood is mostly evident at older ages.

The eligibility criteria for obtaining a Child Support Grant is that the monthly income of the primary caregiver and his/her spouse should not exceed 800 rand in a rural area and 1100 rand in an urban area. It is impossible to determine exactly which households should be eligible for a Child Support Grant as it is unknown if a spouse's income was included in the means test. Furthermore, it is impossible to determine how much each household should be receiving from the cash grants. For example, out of a maximum of 740 Rand per month, the amount received for a social pension is calculated as follows:

Amount granted = maximum grant - (income/2) + (8/100 * value of assets) - (30/100 * maximum grant)

Given these measurement issues, the analysis in this section is restricted to some brief descriptive statistics on coverage of Child Support Grant for 7-9 year olds and prevalence of the two grants in households.

8.2.2 Coverage of Child Support Grant for seven to nine year olds

A large minority of children aged 7 to 9 are receiving the Child Support Grant (39 percent)^{xxi}. Table 57 shows there to be no gender differences in receipt of the grant. This table does not control for household poverty and some children will not be eligible for receiving the Child Support Grant.

Table 57. Percentage of boys and girls aged 7 to 9 who are receiving the Child Support Grant in 2004.

Children aged 7 to 9	N	Percentage
Boys	152	41.1
Girls	161	37.9

Are Child Support Grants reaching the poorest households?

Table 58 shows the prevalence of Child Support Grant by relative wealth of households. While many very poor households are accessing the grant, the poorest have lower uptake rates than the those living in richer households. This is in line with findings from Case et al.¹⁷³ which suggest that the poorest households find it difficult to meet the administrative prerequisites for receiving the grant. The overall distribution of grant uptake is somewhat flat across the five poverty groups and it may also be the case that the relative poverty of households hides the underlying issue that most of the KIDS households are eligible for the grant ¹⁸⁶.

^{xxi} The primary caregiver actually receives the grant rather than the child but as the Child Support Grant is designed to follow individual children, the discussion will centre on the child receiving the grant even though this is not technically accurate.

Table 58. Percentage of children aged 7 to 9 receiving the Child Support Grant in 2004 by relative poverty

Relative poverty group (Household per capita expenditure)	Percentage	Number
Poorest (less than 168 Rand)	35.2	91
Poor (168-268 Rand)	44.6	74
Poverty Line (269-412 Rand)	40.5	74
Not-Poor (413-722 Rand)	36.1	36
Richest (>722 Rand)	36.8	38

However, there is a methodological flaw with using 2004 household per capita expenditure as an index of need and /or eligibility as this amount will include the contribution from the grant. Instead it is crucial to calculate the household expenditures minus the contributions of Child Support Grants. However, this then raises issues around a) using an income measure with an expenditure measure and b) which of the other grants should also be used in the calculation.

Given the low prevalence of the Foster Care Grant and dependency grants (see 8.2.1); an estimate of pre-transfer poverty was derived by subtracting the total amount received by the household in Child Support Grants and pensions from the total monthly expenditure and then dividing by the household size to calculate the new “net household per capita expenditure”.

Using the net household per capita expenditure measure shifts the distribution of households toward increased poverty (see Table 59). Despite their need, it is clear that over half of the poorest households were still not receiving the grant in 2004.

Table 59 Percentages of children aged 7 to 9 receiving the Child Support Grant according to relative net poverty in 2004.

Relative Net Per Capita Expenditure	Percentage	N
Poorest	42.7	82
Poor	36.6	71
Average	47.5	61
Not Poor	30.0	50
Richest	34.7	49

Are orphaned children less likely to receive Child Support Grant?

Table 60 shows what proportions of orphans and unorphaned children receive the Child Support Grant. Far fewer orphaned children receive the grant and this appears to apply to all the groups of orphans.

Table 60. Percentages of children aged 7 to 9 who are receiving Child Support Grant by orphan group in 2004

	Percentage	N
Parents resident	50.9	53
Father absent	53.0	100
Mother absent	14.3	14
Both absent	27.3	55
Paternal orphan	28.3	60
Maternal orphan	26.3	19
Dual orphan	25.0	12

Although orphans are less likely to receive the Child Support Grant, it may be the case that they are living in richer – and therefore non-eligible – households. A logistic regression was therefore run controlling for net per capita expenditure,^{xxii} age and gender. The results in Table 61 show that absence or death of the mother is associated with a reduced odds of receiving the Child Support Grant. Absence or death of the father is not significantly associated with receipt of the Child Support Grant. Introduction of an interaction term did not suggest that there is a dual orphan effect (P =0.81). These results indicate that receipt of a Child Support Grant is conditional on the presence of a mother rather than a father. This is consistent with earlier research in KwaZulu-Natal¹⁷³.

^{xxii} Net per capita expenditure refers to household per capita expenditure minus total amounts received through Child Support Grants and pensions

Table 61. Odds of a household receiving the Child Support Grant for children aged 7 to 9 in 2004, controlling for age, gender and net per capita expenditure.

	Odds ratio	Probability
Father status		
Father resident	1	-
Father absent	1.32	0.38
Father dead	0.69	0.34
Mother status		
Mother resident	1	-
Mother absent	0.33	<0.01
Mother dead	0.37	0.03
Gender		
Boys	1	-
Girls	0.79	0.40
Age		
7	1	-
8	0.68	0.19
9	0.22	<0.01
Net per capita expenditure (2004 logarithm)	0.99	0.07

8.2.3 Prevalence of grants in KIDS households

Only children under the age of 11 receive the Child Support Grant and the only discernible effects of orphanhood on educational outcomes for children aged less than 11 is on delayed enrolment.

It was therefore decided to study the impact of a household receiving a Child Support Grant on educational outcomes of older children. This follows from research suggesting that receipt of cash grants indirectly benefits children even if the grant is not child-focused¹⁷⁴. As the analysis has shifted to a household level indicator of grant receipt, it is now possible to include the pension in the analysis.

Of the KIDS sample of 7 to 20 year old children in 2004, 34.5 percent are living in households receiving at least one pension and 57.5 percent in households receiving at least one Child Support Grant – see Table 62. A cross tabulation shows that only 428 children (26.5 percent) are living in a household which does not receive either a Child Support Grant or a pension.

Table 62. Percentages of children aged 7 to 20 that are living in households which are receiving 0, 1, 2, or 3 and more grants in 2004

Numbers of grants received	Child Support Grant		Pension	
	N	Percentage	N	Percentage
0	685	42.4	1056	65.4
1	433	26.8	441	27.3
2	262	16.2	116	7.2
3 or above	234	14.5	1	0.1

Orphans and the prevalence of grants

The results displayed in Table 63 suggest that the child is more likely to be living in a household receiving a pension if a parent is absent or dead than if the parent is resident. With respect to the Child Support Grant, children whose mothers are absent or dead are less likely to be living in a household receiving a Child Support Grant.

Table 63. Percentages of children aged 7 to 20 by parental status and the number of grants households are receiving in 2004.

	Father resident	Father absent	Father dead	Mother resident	Mother absent	Mother dead
Number	442	730	442	984	429	201
Receipt of Child Support Grant						
None	44.6	40.0	44.3	38.6	49.0	47.3
One	21.5	28.4	29.6	25.8	27.5	30.3
Two or more	33.9	31.6	26.0	35.6	23.5	22.4
Receipt of pension						
None	76.5	60.1	63.1	71.7	56.6	53.2
One	19.9	30.4	29.6	22.8	34.3	34.8
Two or more	3.6	9.5	7.2	5.5	9.1	11.9

The patterns observed above were tested for significance by fitting a logistic regression model. Control variables include residence, net per capita expenditure, age and gender. The results show opposite associations with pensions and Child Support Grants: death of a parent is associated with an increased probability that the child lives in a house in receipt of a pension and a decreased probability that the child lives in a house with a Child Support Grant (see Table 64).

With respect to the Child Support Grant, both the absence and death of the mother matters. These findings fit into a plausible scenario in which the death of a parent leads to more children living with their grandparents (who are receiving pensions). It is not clear

yet why they would be less likely to live in households with Child Support Grants but it is likely to be because the younger siblings are also orphans (see Table 60) and it is difficult for carers other than the mother to establish their eligibility for the grant.

It is not clear from the data is the recipient of the pension is a) the child’s grandparent or b) the child’s primary caregiver. Receipt of the pension can therefore be confounding with living with grandparents. The data are therefore limited in this respect as it is not possible to determine who the child’s grandparent is unless the grandparent is the household head.

Table 64. Odds of living in a household in receipt of at least one Child Support Grant or at least one pension for all children aged 7 to 20 in 2004 by various socio-demographic and economic factors.

Independent variables.	Child Support Grant		Pension	
	Odds ratio	Probability	Odds ratio	Probability
Father’s status	1			
Father resident				
Father absent	1.18	0.24	1.47	0.01
Father dead	1.04	0.82	1.26	0.16
Mother’s status				
Mother resident	1			
Mother absent	0.63	<0.01	2.01	<0.01
Mother dead	0.63	0.01	2.09	<0.01
Gender				
Boys	1			
Girls	1.15	0.19	1	0.99
Community				
Metropolitan				
Urban	1.45	0.13	0.49	0.01
Rural	1.16	0.34	0.73	0.06
Age in years in 2004	0.95	0.00	1.01	0.67
Net household per capita expenditures (logarithm)	0.99	<0.01	0.99	<0.01

8.2.4 School fee exemption

The section examines school fee exemptions. These public grants are often advocated as a way to reduce the costs of schooling and therefore improve educational outcomes.

Although school fees for poor children may be low in absolute terms (approximately 50 rand per year), they are high as a proportion of income, with an estimated 2 percent of

income spent on fees in low-income households compared with only 1 percent in middle or high-income households ¹⁸⁷.

Poverty and the inability to pay school fees are intrinsically linked and both have been found to be a key factor in early dropout ²⁵. Even the Department of Education has admitted that the current fee charging system is unfair and erratic ¹⁸⁷. The problem lies between two contradictory pieces of legislation – under Tirisano, all children have the right to demand a free education yet, under The South African Schools Act of 1996, schools have the freedom to set their own levels of school fees. However, many families are not aware of their right to free education and schools are hesitant to publicise the policy as it could result in a reduced income flow to the school ^{90,94}. The result is an informal and unfair system of school fee exemption which risks the marginalisation of children who can not afford the fees it is often left to the individual schools to decide whether or not to provide school fee exemptions ¹⁸⁷. Furthermore, the government does not currently increase the level of public transfers to schools in order to meet any financial shortfall created by school fee exemptions. Instead, schools are expected to reduce their expenditures accordingly ⁹⁴. School fee exemption in the current context is therefore not exactly a public transfer but can be treated as such in terms of recommendations.

Methodological issues

The most important and relevant research question is to compare the role of school versus private grants in mitigating the impact of parental death on education. However, the school fee exemption system in South Africa is so ad hoc that it is unclear where the boundary lies between a school fee exemption applied by the school and the family simply not having paid the school fees.

Compounding these problems further, the KIDS questionnaire had no questions specifically on school fee exemptions and therefore estimation of school fee exemption is at best imperfect and at worst, misguided. Below is a description of how such an estimate was derived and its limitations.

An exploratory analysis was conducted to see if it is possible to derive a proxy for school fee exemption by dividing the actual amount of school fees paid in the year by the amount that was due. The level of school fee waiver was estimated to be one minus this total. According to this estimation, of 1450 children who are in school, 66.2 percent of children have paid all their school fees, 25.4 percent have not paid any school fees and the rest of the households have paid varying proportions.

If school fees have not been paid for a child, can it be assumed that the fee was waived? There are two problems with this assumption: schools might not have waived the school fee and could even be about to expel the child for non-payment and, second, the family may be about to pay the school fee. In either case, the school fee exemption variable would not actually be measuring the extent to which school fees are exempted but rather the extent to which households cannot pay the school fees – i.e. measuring an underlying vulnerability rather than an intervention.

Despite these limitations, if a child was enrolled in school on the date of the KIDS survey and not paying all the school fees, it was assumed that this was a school fee exemption if less than 25 percent of total school fees had been paid. According to this definition, 26.4 percent of children are receiving a fee exemption.

Throughout the discussions of fee exemption the dataset is restricted to those who are currently enrolled in school because the issue is irrelevant to children out of school. Table 65 shows that paternal and dual orphans are more likely to receive a school fee exemption than children living with both resident parents. Maternal orphans appear to be less likely to receive a school fee exemption.

Table 65. Percentage of children currently enrolled in school aged 7 to 20 by vulnerability group who are receiving a school fee exemption in 2004.

Parental status	N	Percentage of children with school fee exemption
Both parents resident	333	25.8
Father absent, mother resident	349	25.8
Mother absent, father resident	51	21.6
Both parents absent	240	24.6
Paternal orphan	300	32.0
Maternal orphan	100	16.0
Dual orphan	77	32.5

Are school fee exemptions targeted at orphaned children?

This section examines whether or not orphaned children are more likely to be receiving school fee exemptions than other children. In all the regressions, age and current grade are controlled for to take account of the fact that school fees increase from primary to secondary school. In addition, 2004 per capita expenditures are included in order to assess whether unorphaned children are simply less likely to receive fee exemptions because they are richer.

First a regression was run for all children currently enrolled in school by the parent's survival and residency status but there were no significant effects of orphanhood at the ten percent level. As Table 65 suggests there to be some effect of orphanhood, the regression was re-run using father and mother residency and survival status rather than the orphan variables. Table 66 shows that children whose father has died are 1.55 times more likely to receive a school fee exemption. As would be expected, increased per capita expenditure is associated with fewer school fee exemptions. As grade increases, there are also more school fee exemptions.

Table 66. Odds of receiving a school fee exemption for currently enrolled children aged 7 to 20 by parental status and various hypothesized determinants.

Independent variables	<i>School fee exemption</i>	
	Odds ratio	Probability
Father's status		
Father resident	1	
Father absent	1.03	0.85
Father dead	1.55	0.02
Mother's status		
Mother resident		
Mother absent	0.80	0.17
Mother dead	0.72	0.14
Gender		
Boys	1	
Girls	1.16	0.28
2004 per capita expenditures (log)	0.99	<0.01
Level of schooling		
Primary school		
Middle school	1.03	0.92
Upper school	1.10	0.82
Age	1.10	0.82
Grade	1.17	<0.01

Exploratory analysis shows that the timing of the parental death and fostering does not make any difference to the probability of having a fee exemption.

The regression was re-run by gender and showed a striking gender difference:

- 1) For boys there are no effects of orphanhood but unorphaned boys who are not living with their mothers are less likely to have school fee exemptions (odds ratio = 0.60, $P = 0.03$) (which explains the apparent effect in Table 65).
- 2) For girls, paternal death is associated with an odds ratio of 1.92 ($P = 0.02$) of a school fee exemption.

These results show that girls whose father has died are more likely to be receiving a school fee exemption.

8.2.5 Summary of findings

This section has briefly outlined the way in which the receipt of the three grants differs by gender, poverty group and orphan group. There are striking differences between the three grants:

- 1) Death of a father is associated with increased probability of receiving a school fee exemption for girls
- 2) Death or absence of a mother is associated with lower probability of either receiving - or living in a household in receipt of - a Child Support Grant.
- 3) Children with dead fathers are more likely to live in households in receipt of a pension.

Receipt of all three grants is conditional upon the level of household poverty. Due to the numerous limitations with the school fee exemptions variable, it may be that this variable reveals underlying vulnerability rather than a measurable intervention. Obviously, school fee exemption is an intervention but the loose way in which the intervention is implemented in South Africa might make it impossible to measure it as such.

8.3 Relationship between grants and educational outcomes

This section examines the relationship between the three considered grants and educational outcomes. In all the sections that follow, the educational outcomes are restricted to ones found to be important in previous chapters.

This section therefore focuses on:

1. primary school completion (13 – 16 year old children)
2. dropout (13 - 20 year old children)
3. repetition (11 – 15 year old children)
4. attendance (11 – 13 year old children)

For each of the above outcomes, logistic regressions were run controlling for age, gender, residence (urban versus rural), net per capita expenditure, family size and gender; regressions were also run separately by gender. For the sake of brevity, in cases where there are no significant associations, the results are not displayed.

8.3.1 *Primary school completion*

The outcome variable is the one used in Chapter 6. To recap: primary school completion is measured for all 13 to 16 year olds including those who are not currently enrolled in school. Given that fee exemption data are only available for those in school, it was decided to repeat the regressions for those just enrolled in school. However, it should be noted that this is not a measure of primary school completion and should rather be viewed as attainment of those in the education system.

Pension and Child Support Grant

Results from the logistic regressions for primary school completion of all 13 to 16 year olds (controlling for variables shown above) found no significant association with receipt of pension or Child Support Grant in households.

School fee exemptions

The logistic regressions show that presence of a school fee exemption is associated with 1.78 times greater odds ($P=0.04$) of not having completed primary school. Why would children who are behind at school be more likely to receive a school fee exemption? It may be that both are caused by lower economic status: children are poor; they do badly at school and because of the former, receive a school fee exemption. The reverse relationship seems somewhat implausible: children do badly and are therefore more likely to receive a school fee exemption or vice versa. It may be the case in South Africa that presence of a school fee exemption is more of a proxy for underlying risk, especially given the methodological limitations of the variable.

Returning to the two cash grants: repeating the regression for those enrolled in school still shows no significant associations at the 5 percent level between the Child Support Grant or pension and primary school completion. The results are suggestive of a negative association between living in a household with a pension and primary school completion (odds ratio = 1.64, $P = 0.08$). Linking this finding to Table 63 suggests that, as with fee exemption, receipt of pension could be correlated with underlying vulnerability: e.g. more disadvantaged children – orphans – are sent to live with grandparents. This possible confounding with the orphan variables will be examined in 8.4.

8.3.2 Dropout

This section examines the relationship between receipt of a Child Support Grant, and pensions and dropout. The third grant – school fee exemption – is excluded from the analysis because it is only applicable to children in school.

Dropout and the Child Support Grant

Using the same controls as before, the regressions were run with the number of Child Support Grants (at the household level) as the determinant and dropout as the outcome. The results are shown in Table 63.

Table 67. Odds of having dropped out for boys and girls (run separately and together) aged 13 to 20 in 2004 controlling for number of Child Support Grants the household is receiving and other socio-economic and demographic factors.

Independent variables	Boys and girls		Boys only		Girls only	
	Odds ratio	Probability	Odds ratio	Probability	Odds ratio	Probability
No Child Support Grant	1		1		1	
1 Child Support Grant	0.94	0.85	0.71	0.47	1.25	0.64
2 or more csgs	0.43	0.02	0.14	0.01	0.73	0.51
Mother's education	0.94	0.13	0.87	0.05	0.98	0.76
Community						
Metropolitan	1		1		1	
Urban	0.71	0.63	0.62	0.62	0.78	0.84
Rural	0.97	0.95	0.70	0.57	1.36	0.62
Net pce	0.99	0.02	0.99	0.31	0.99	0.04
Age	1.79	<0.01	1.71	<0.01	1.86	<0.01
Gender						
Boys	1					
Girls	1.79	<0.01				
Household size	1.07	0.05	1.11	0.08	1.06	0.21

The table reveals an interesting finding about the impact of two Child Support Grants on dropout: it appears that, if a household has two or more Child Support Grants, then boys are less likely to drop out compared with households that have no Child Support Grants. The Child Support Grant does not appear to protect girls from dropout although the gender differences are only significant at the ten percent level. Receipt of one Child Support Grant is significantly different from receipt of two or more Child Support Grants (Chi² = 4.13, P =0.04).

However, the effect noticed may not actually be the impact of the Child Support Grant: an alternative hypothesis is that children living in households with more children under the age of ten are less likely to dropout – after all, presence of a Child Support Grant is indicative of the presence of a child under the age of ten. In other words, age of siblings might be confounding the relationship.

The regressions were therefore run again, controlling for the number of children under the age of ten in the household. Once the number of children aged under ten is included in the model, the effect of the Child Support Grant on dropout becomes even more evident – receipt of one Child Support Grant is not significant (odds ratio = 0.70, P =0.34) but receipt of two or more Child Support Grants reduces the relative odds of dropout to 0.22 (P =0.001). The difference between one and two or more grants is highly significant (Chi² = 19.1, P =0.004).

Gender differences are significant at the ten percent level (odds ratio =1.66, P =0.08) and therefore the regressions were re-run for boys and girls separately. These results show that there is an impact on boys and girls but that the beneficial impact of grants is probably bigger for boys (odds ratio = 0.07, P =0.004) compared with girls (odds ratio = 0.33, P =0.05).

Pensions

In terms of pensions, the findings are somewhat more complex (see Table 68).

Table 68. Odds of having dropped out for children aged 13 to 20 in 2004 by number of pensions that the household is receiving and other socio-demographic and economic factors.

	Odds ratio	Probability
Pension		
None		
One	0.65	0.20
Two	2.63	0.03
Mother's education	0.96	0.30
Community		
Metropolitan	1	
Urban	0.67	0.59
Rural	1.08	0.86
Net pce	1.00	0.04
Age	1.80	0.00
Household size	1.03	0.40
Gender		
Boys	1	
Girls	1.49	0.15

As might have been expected, receipt of one pension is associated with reduced probability of dropout, although this result is not significant. However, if the household is in receipt of two or more pensions, there is higher probability of dropout for both boys

and girls. This is surprising and at first, suggests that pensions might even reduce educational outcomes. However, what is more likely is that children living with two or more pensioners are children living in unusual circumstances and the cause of high dropout is due to these unusual circumstances. For example, out of the control group (children living with two resident parents) only eight are living in households in receipt of two or more pensions (2.2 percent) compared with 8.7 percent of orphans. In fact, 39.7 percent of orphans are living in a household in receipt of at least one pension compared to 20.8 percent of the control group. Thus any impact of a pension might be masked through confounding with the effect of orphanhood. This relationship will be examined further in 8.4 .

8.3.3 Repetition

I also examined the impact of the three grants on the probability of having repeated a grade for all children aged 11 to 15 who are currently enrolled in school. Regressions were run using the same control variables discussed before and each of the three grants was added to the model one at a time. As there were no significant associations between any of the three grants and repetition, for the sake of brevity, the results are not shown.

8.3.4 Attendance

The attendance of those aged 11 to 13 who are currently enrolled in school is not significantly associated with receipt of a Child Support Grant, pension or school fee exemption. Again, these results are not shown.

8.3.5 Summary of findings

The relationships with schooling outcomes appear to operate in opposite directions for pensions and school fee exemptions on the one hand, and Child Support Grants, on the other.

It is surprising that pensions and school fee exemptions are associated with lower educational outcomes. The most plausible explanation is that receipt of these two grants reveals underlying disadvantage. In the case of pensions, these children are more likely to be fostered out or orphaned and therefore the orphan variables need to be considered in the analysis (see next section). With respect to school fee exemptions, it may be the case that the only children who receive school fee exemptions are children who a) cannot afford the fees or b) whose parents are not committed to education. In either of these scenarios, the school fee exemption is targeted towards disadvantaged children and therefore may reveal this disadvantage. Any positive effect which the fee exemption might cause for a child's education might be outweighed by the disadvantage already faced by the child in the household.

The Child Support Grant, on the other hand, is associated with more positive educational outcomes, particularly for boys. It may be the case that, with extra cash in the household, adults are more likely to favour the education of boys over girls.

There is little association between any of the grants and repetition or attendance. However, both of these outcomes need to be re-examined in the next section when the orphan variables are introduced into the regressions due to likely confounding: orphans are more likely to receive school fee exemptions and live in households with pensions but less likely to live in households with Child Support Grants.

8.4 Grants, orphans and educational outcomes

This final section pulls together the analysis on grants and educational outcomes with the analysis in previous chapters on the impact of parental death on educational outcomes.

The three key areas to be examined are primary school completion, dropout, repetition and attendance. In each case, significant predictors identified in earlier chapters were included in the basic model. Stepwise regression modelling was conducted by adding net per capita expenditures and the grant.

8.4.1 Primary school completion

The basic model for primary school completion includes parental residency and survival status, net per capita expenditure (2004); age, residence, family size and mother’s education. The regressions were run for girls aged 13 to 16 in 2004. Each of the grants was added in turn to the basic model, see below. The summary statistics only include the impact of paternal death on girls’ probability of not having completed primary school as this is the only significant effect of orphanhood.

Table 69. Summary statistics for stepwise regression modelling on the probability of not having completed primary school for girls aged 13 to 16 in 2004).

	Sample size	Death of father		Log likelihood		Significance of the Improvement in fit
				Basic	New	Probability
		OR	P			
Basic	226	3.43	0.04	-90.82	-	-
Basic + Child Support Grant	226	5.11	0.04	-90.82	-90.62	0.27
Basic + pension	226	3.49	0.04	-90.82	-89.78	0.35
Basic (enrolled only)	216	3.13	0.07	-85.74	-	-
Basic (enrolled only) + fee exemption	216	3.03	0.08	-85.74	-85.61	0.62

Notes: Child Support Grant includes the number of children under the age of ten in the household. Basic (enrolled only) is the comparison group for fee exemption as fee exemption is only applicable to those enrolled in school. The basic model controls for net per capita expenditure (2004); age, residence, mother status, family size, mother’s education. The outcome variable is coded as zero = completed primary school; one = not completed primary school. The grants are coded zero = no grant; 1= one grant; 2 = 2 or more grants. The model with Child Support Grant also controls for the number of children under the age of ten.

With respect to grants, the odds ratio associated with paternal death and not completing primary school increases from 3.43 to 5.11 once the receipt of Child Support Grants are controlled for, however, this difference is not significant as adding the grant to the model does not significantly improve the fit of the model. The evidence suggests that receipt of the Child Support Grant is not offsetting the impact of orphanhood.

There are no significant findings with respect to boys, maternal death, father’s absence or pensions and fee exemptions. This finding is not surprising given the patterns described in Chapter 6.

None of the three grants are significantly related to primary school completion once the orphan and other variables are included in the model. The odds ratios associated with receipt of each grant in this model are as follows:

- Receipt of at least one Child Support Grant (odds ratio = 0.75, P =0.75)
- Receipt of one pension (odds ratio = 1.96, P =0.15), two or more pensions (odds ratio =1.48, P =0.53)
- School fee exemption (odds ratio = 1.23, P =0.62)

This new finding on school fee exemption suggests that the negative association seen earlier between fee exemption and primary school completion was because school fee exemptions are more common among orphans and thus it is orphanhood which is negatively associated with primary school completion rather than school fees exemptions.

8.4.2 Dropout

A similar process was conducted substituting dropout for primary school completion.

Table 70. Summary statistics for stepwise regression modelling on the probability of dropout for all girls aged 13 and above.

Model	Sample size	Death of the father		Log Likelihood	Significance of the improvement of the fit	
		odds ratio	probability		Compared to basic	Compared to basic +net pce
Basic	381	2.70	0.055	-99.418	0.044	
Basic + child support grant	381	2.78	0.07	-91.971	0.026	0.061
Basic + pension	381	3.04	0.04	-96.150	0.014	0.038

Note: the basic model controls for net per capita expenditure (2004); age, residence, mother status, family size, mother’s education. The outcome variable is coded as zero = enrolled, 1= dropped out. The grants are coded zero = no grant; 1= one grant; 2 = 2 or more grants. The model with Child Support Grant also controls for the number of children under the age of ten.

The table shows that controlling for receipt of grants does not materially change the odds ratio associated with paternal death.

Temporarily shifting the focus from parental death to the grants: once orphan variables are included the regression, receipt of two or more Child Support Grants is still associated with dropout (odds ratio = 0.34, P =0.063) as is receipt of one pension (odds ratio =0.42, P =0.077). The negative effects associated with receipt of two pensions and dropout are no longer significant (P =0.21) suggesting that the apparent effect was actually more to do with being orphaned.

8.4.3 Repetition

The same analysis was conducted for the probability of having repeated a grade at school (Table 71) and shows that receipt of a Child Support Grant protects girls whose fathers have died from repetition – controlling for Child Support Grants, increases the odds ratio from 2.33 to 2.74. However, as with primary school completion, this difference in odds ratio is not significant. School fee exemption and receipt of a pension does not alter the odds associated with the effect of paternal death.

Table 71. Summary statistics for stepwise regression modelling on the probability of having repeated a grade for girls aged 11 to 15 in 2004.

Model	Sample size	Death of the father		Log likelihood		Significance of the improvement of the fit
		odds ratio	probability	Basic	New	
Basic	261	2.33	0.03	-166.24		
Basic + child support grant	261	2.74	0.01	-166.24	-161.75	0.25
Basic + pension	261	2.38	0.02	-166.24	-165.62	0.54
Basic2	257	2.57	0.02	-162.08		
Basic 2 + fee exemption	257	2.53	0.02	-162.08	-161.98	0.65

The outcome variable is coded zero= not repeated; one= repeated at least one grade. The basic model consists of residence, mother’s education, net per capita expenditure, parental status, maternal status and household size. The Basic2 model is restricted to those currently enrolled in school whereas the basic model is for all children.

Once again shifting the focus from the impact of parental death to the impact of the grants, even once orphan variables are included into the model, receipt of one Child

Support Grant decreases the probability of repetition (odds ratio = 0.42, P =0.03) whereas two or more grants do not (odds ratio =0.82, P =0.64). Significance testing of the differences between the two dummy variables suggests they might be statistically different (chi =3.91, P =0.05). However, as this result is ambiguous it seems more likely that they are similar to one another – it is not clear why receipt of one Child Support Grant would benefit educational outcomes and not two Child Support Grants.

Receipt of either a school fee exemption or a pension is not significantly associated with grade repetition – showing that the finding in 8.3.3 was due to confounding with the orphan variable rather than the impact of the benefit.

8.4.4 Attendance and orphanhood

A similar analysis swapping attendance with repetition shows that none of the grants plays any significant role in mediating the impact of orphanhood on attendance for boys aged 11 to 13. The results from the stepwise regression modelling are summarised in Table 72 and show a strong paternal death effect, regardless of grant receipt. The odds ratios associated with each of the grants are not shown in the table but none of them are significant.

Table 72. Summary statistics of stepwise regression modelling and likelihood ratio tests on the probability of being a bad “attender” for boys aged 11 to 13 in 2004.

	Sample size			Log likelihood		Significance of the Improvement in fit
		Death of father		Basic	New	
		OR	P			Probability
Basic	156	7.84	0.001	-82.50		
Basic + child support grant	156	7.63	0.001	-82.50	-82.21	0.75
Basic + pension	156	8.25	0.001	-82.50	-81.66	0.43
Basic + fee exemption	154	9.06	<0.001	-81.93	-81.46	0.33

The outcome variable is coded zero= good attendance; one= bad attendance. The basic model consists of residence, mother’s education, net per capita expenditure, parental status, maternal status and household size.

8.5 Summary of main findings

This chapter has looked at the role of two cash grants and one school grant in mitigating the effect of paternal death on girls and boys' educational outcomes. None of the grants specifically offsets the educational disadvantage faced by orphans. The Child Support Grant may reduce the negative impact of paternal death on both primary school completion and dropout but this reduction is not statistically significant. This finding is consistent with the earlier findings that although poverty is a factor in explaining the impact of orphanhood on education, it is not the only factor. As such, it is not surprising that economic interventions such as the grant do not offset the impact of orphanhood on education.

Interpretation of these findings is complicated by the possibility of endogeneity. Although the Child Support Grant is associated with more positive educational outcomes for orphans, it may be the case that households that receive the grants differ in unmeasured ways to households which do not. For example, households that are highly motivated to obtain the grant might also be more highly motivated to educate children.

On the face of it, school fee exemption and the pension have no significant role in mitigating the effect of paternal death on educational outcomes. However, it is possible that due to the limitations of the data and the informality of the school fee exemption system, that the indicator of school fee exemption used in this analysis is simply inadequate. It may, alternatively, be measuring household's inability to pay school fees. Another possibility is that children who cannot afford to pay school fees are already severely disadvantaged and therefore school fee exemption is a proxy for this disadvantage rather than an intervention. This hypothesis is supported by the finding that controlling for the effects of orphanhood eliminates the apparently negative association between school fee exemption and primary school completion.

Similarly, receipt of a pension is highly related to the presence of orphans in the household and thus, might be reflecting this underlying disadvantage.

Despite the inconclusive findings concerning the central research question on the role of grants in mitigating the effect of orphanhood, this chapter has highlighted the role of

cash grants in improving the education outcomes of all children: receipt of two or more Child Support Grants is associated with a decreased probability of dropout – especially for boys.

Finally, the first section of the chapter on coverage of grants shows that despite the role of cash grants in improving the educational outcomes of children in general, maternal orphans are less likely to receive - or live in households receiving - the Child Support Grant. It is also worrying that the majority of the poorest eligible households in the province are still not receiving the Child Support Grant.

8.6 Policy implications

There are a number of policy implications for arising from the research with respect to a) assisting poor children in general and b) specifically assisting orphans. The focus is on policy implications in South Africa, with more general discussion restricted to Chapter 9.

Assisting poor children

The Child Support Grant is associated with improved educational outcomes for children – as evidenced by decreased dropout rates and repetition^{xxiii}. The grant does therefore partially fulfil its objectives and the recommendation is that this form of cash grant should be encouraged as it really does make a significant difference to the lives of children. The problem with the grant is that it is only reaching some of those most in need. Over sixty percent of the poorest children are not receiving the grant. The main challenge is, therefore, how to increase the coverage of the grant, specifically to the poorest families. The government has set very high targets for coverage of the grant and all of them have been surpassed. However, the nearly flat distribution of grants across poverty groups (see Table 59) shows that there is a blockage to access which affects all children. Research by Case et al. suggests the problem is administrative with many households lacking the necessary paperwork¹⁷³. If the government is serious about helping those children most in need then the issue of paperwork needs to be addressed and simplified.

^{xxiii} controlling for orphanhood and other socio-economic factors

Another reason why the poorest children are not being reached is that the poorest households are often the most marginalised from mainstream society and therefore the least likely to receive information about the grant. Many of the outreach campaigns have worked through television campaigns or through school campaigns but the poorest households might not have access to the television or might not be sending their children to school. The implication is that the government should consider a more targeted outreach campaign rather than the more generalised approach taken thus far. Efforts could be made to reach the more remote communities which are probably most in need. The government could also consider a more two-tiered approach in which the level of required documentation is less stringent for the poorest households.

Similarly, these marginalised households are possibly further away from the services needed to obtain the necessary documentation and grants. The government needs to monitor the distribution of grant-making offices and provincial Departments of State in order to identify which areas have low levels of access to services and then take action on how to improve services in these hard-to-reach areas.

In terms of the pension, like other studies^{176,179}, this study found that receipt of the pension has beneficial affects on children. However, this is only apparent once the presence of orphans and other vulnerability factors have been accounted for. In general, children living in a household with a pensioner are more likely to be orphaned or fostered out. It seems these children are already highly vulnerable and the pension fails to offset this disadvantage (see below for more detailed discussion). Wider literature on the pension^{175,180,188} suggests that children live with pensioners in order to share in this large social grant. It is not clear that these household dynamics are beneficial to children especially as children living in these households have lower educational outcomes. This study suggests that as one might expect, given their objectives, the Child Support Grant is more successful in improving the welfare of children than the pension.

In terms of school fee exemptions, the analysis raises a number of key issues which need to be addressed. First and foremost, being in receipt of a school fee exemption is associated with less favourable educational outcomes. At the same time, the most disadvantaged children are the ones receiving the fee exemption so it may be that the exemption is improving their educational outcomes but just not enough to offset the

disadvantage. Either way, the fee exemption is clearly not a response which is adequate in reducing educational disadvantage.

Although it seems that the most disadvantaged children are most likely to have school fee exemptions – which on the surface seems like a positive finding - these children are some of the poorest children and are likely to be attending the least resourced schools. As pointed out by Chisholm⁹⁰, this creates a serious quality issue, it implies that the schools with the least ability to subsidise students are being forced to reduce their revenue more than better-resourced schools. From a school's point of view, there is little incentive to allow school fee exemptions as this will simply lower revenues for the year. The only option the school has in maintaining necessary levels of revenue is to increase the level of school fees, which, in turn, will lead to more children not being able to pay. Essentially, schools serving poorer communities are doubly disadvantaged when it comes to school fee exemptions.

The recommendation that emerges from this study chimes with that of many other South African educationalists⁹⁴ that the current school fee exemption system needs to be reviewed. One possible solution is for the State to reimburse schools for any school fee exemptions incurred. A more radical alternative would be to abolish school fees altogether to allow for greater parity in resource allocation between schools.

Assisting orphans specifically

This research has found no evidence that any of the three grants studies reduces the educational disadvantages specifically faced by orphaned children. Given the discussion above, the Child Support Grant seems to have the potential to help orphaned children but the problem is one of access. In recognition of the high levels of fostering and orphanhood, the Child Support Grant pivots around the concept of the “primary caregiver” rather than biological parent. This broader definition was used in order to allow adults who are not parents to access the grant. The findings show that this is not happening at levels necessary to reach orphaned children: the absence or death of a parent (particularly a mother) greatly reduces the chance of receiving the grant. Caregivers who are not the parents face two additional bureaucratic hurdles in that they have to prove that a) the parent is not looking after the child and b) he/ she is the child's primary caregiver.

Caregivers who wish to access the grant specifically designed for orphans (Foster Care Grant), face an even more complicated process in which he/she has to appear in court to prove that the parent is dead and he/she is the foster parent. Making these decisions in court is not only expensive for the government but takes a long time. Most public courts are over-stretched and the preliminary qualitative analysis (see Chapter 3) suggested that it can take over two years to get a court hearing. The result is that very few children access the Foster Care Grant (in KIDS, only 17 children are accessing the grant). Also, as mentioned in Chapter 2, the size of the Foster Care Grant is so large in comparison to the Child Support Grant that it appears (anecdotally) that adults are fighting for custody of orphans in order to access the grant.

One possible solution is to combine the two child grants so that caregivers of orphaned children can reach the grant easily and quickly. In terms of accessibility, the Child Support Grant is clearly superior to the Foster Care Grant. This suggests that the same procedures which are used to identify non-biological caregivers for the Child Support Grant could also be used to identify caregivers of orphans. Given the large number of orphans in South Africa today, the system of going to court for accessing a grant for orphans seems antiquated and inefficient. Instead, the government should consider a single child grant which has a two tiered approach in which orphans are specifically targeted and receive higher levels of grant than unorphaned children. This single grant could be an extension of the current Child Support Grant although extra measures (as outlined above) need to be undertaken to ensure that orphan and other vulnerable children access the grant.

Receipt of a pension or a school fee exemption in South Africa is an indicator of a household in which the children are likely to be vulnerable and could be used by governments and schools to identify which children are in need of support. However, this study does not show any evidence that either a school fee exemption or a pension supports the specific educational disadvantages faced by orphans.

Although it is somewhat disheartening to find that none of the grants significantly reduces the educational disadvantage faced specifically by orphans, this finding is not a surprise given that the analysis in the previous chapters showed that poverty is not the

main causal mechanism involved in the impact of orphanhood on education. The policy implication is that the South African government needs to think outside the traditional parameters of responding to the economic needs of orphans. Economic support to orphans in school or at home is not enough to ensure they will stay in school and have the same educational opportunities as other children. Interventions are therefore needed in schools to provide additional learning support and to identify what are the factors which are causing educational disadvantage. Many of these factors stem from problems faced at home and therefore efforts must be made to also target households. Unlike other African countries, it appears that in South Africa, orphans are not dropping out of school in order to take up employment. It remains unclear why they are dropping out, although the findings on pregnancy suggest it may be for psychological reasons (e.g. lower motivation, lower self-esteem). These are all areas which need to be explored in order to respond to the needs of these vulnerable children.

CHAPTER NINE: DISCUSSION

This final chapter of the thesis briefly restates the research objectives and reviews the methods used in the study. The main sections of the chapter summarise the results and discuss their implications for South Africa and Sub-Saharan African more broadly. Limitations of the study are covered in Chapter 3.

9.1 Research objectives and methodology

The area of research interest is the impact of AIDS on education. Within the conceptual framework outlined in Chapter 3, it is specifically the impact of orphanhood on a child's educational outcomes which is examined. Thus, the research does not specifically examine the impact of AIDS-related deaths or of AIDS-related illness. In addition, it does examine the general coping responses by households to parental death. A subsidiary aim of the thesis is to investigate the role of three grants in mitigating the impact of orphanhood on educational outcomes.

The three research questions which guided the research are:

- 1 In what ways do the educational outcomes of orphans differ from those of unorphaned children?
- 2 What are the causal mechanisms underlying the relationship between orphanhood and educational outcomes?
- 3 To what extent do the existing policy interventions mitigate the impact of orphanhood on educational outcomes?

As explained in detail in Chapter 3, the analysis focuses on a quantitative study of the impact of orphanhood on education in KwaZulu-Natal, South Africa. Special modules on education outcomes, mortality and cash grants were added to an on-going household panel study, the KwaZulu-Natal Income Dynamics Study (KIDS). The third wave of data collection took place from January to October 2004. A cohort was set up which included

1635 children aged 7 to 20 in 2004 who had been followed since 1998. The KIDS dataset was linked with the 2001 national Annual School Survey in order to control for school effects.

9.2 Summary of results

This section summarises the key findings from Chapters 4 to 8 and is organised according to the research questions.

Counting orphans

Out of the KIDS sample, over a third of all children aged 7 to 20 are orphans. The most common type of orphan is a paternal orphan and the prevalence of orphanhood increases with age. Identifying which children are orphans is not a straightforward process and involved cross-checking parental status between the waves of data collection. Through this longitudinal approach it was possible to identify a significant number of orphans who would not have been categorised correctly if only the data from 2004 had been used. The main reason for appears to be that respondents tend to say a step-parent of an orphan is – erroneously - their real parent.

It is possible that this bias is particular to Zulu culture but, given the awkwardness involved in talking about death in most countries, it is likely that under-counting of orphans is fairly commonplace. Indeed, this under-counting of orphans has been pointed out by a number of demographers who term it “the adoption effect” – referring to the phenomenon of step-parents adopting orphaned children^{67,189,190}. Although this bias is fairly well recognised in demographic research, it has largely been ignored by AIDS researchers.

The findings in this thesis point to the need to collect data longitudinally or, if this is not possible, to at least design some more specific questions which can adjust for this bias. Under-reporting of orphanhood will have inevitably led to inaccurate case and control groups in the research literature and is likely to have under-estimated the relationships between orphanhood and indicators of well-being.

Which comparison group?

This study has also been instrumental in pointing out the fluid fostering arrangements which are common place in KwaZulu-Natal. There are strong gender dimensions to this. Paternal death does not frequently lead to fostering out but maternal death does. However, these fostering patterns need to be interpreted within a context where only a minority of children are living in a nuclear family with both their parents. Absence of the father is very common as is sending children to live with relatives. In the former case children are living in more impoverished households, whereas in the latter case, children appear to be relatively advantaged. The common assumption that fostering has a negative impact on children need to be revisited and more qualitative studies are needed to understand the circumstances and reasons why a child might be fostered out.

In order to determine the impact of orphanhood on children, it is important to compare orphaned children with children growing up in “normal circumstances”. However, the detailed analysis on household arrangements shows there is no single common “normal” family type in KwaZulu-Natal. As Gould points out, to simply compare orphaned children with unorphaned children would be erroneous and there are a number of different control groups¹³⁹. If vulnerability is viewed as a spectrum of experiences then it becomes important to compare a child whose father has died with a child whose father is absent to see the extent to which death has a different impact to absence. While this may seem obvious, few studies in this field have placed their analysis within a sophisticated demographic understanding of African households. The likely reason for this omission is the dominance of economists in research on the impact of AIDS even though demographers have a significant contribution to make to the field! The findings from this thesis therefore strongly support a more demographic approach to household composition such as that taken by Gould¹³⁸ and Case¹⁸.

As described in Chapter 2, the South African household is very different from the typical African household and it may be the case that the death of father has a different impact in a society in which most children live with both parents (as opposed to South Africa where a large proportion of children never live with their fathers.) Research in other African countries will need to determine what the norm is and what the appropriate comparison groups should be; these may well be different from the comparison groups used in South Africa.

Living conditions of orphans in KwaZulu-Natal

Growing up for an orphan in KwaZulu-Natal is an experience that differs markedly from that of unorphaned children. Orphans are different on nearly all socio-demographic and economic indicators. Orphans live in poorer households, are more likely to come from urban areas and their parents have higher levels of education attainment. This final finding fits into an AIDS scenario in which more educated people are initially more vulnerable to HIV infection ⁸². Initial findings by the wider KIDS research group also suggest that many of the adult deaths between 1998 and 2004 are AIDS-related ¹⁵⁷. So although this study was not able to specify the cause of parental death, it is likely that most of these deaths were caused by AIDS. In order to specifically study the impact of AIDS-related deaths on children, more specialised questions would need to be designed around the cause of death. However, due to the stigma surrounding AIDS, the most valid way to study the impact of AIDS-related death would be to follow a sub-population of HIV positive people over time. This is possible in demographic surveillance sites where HIV serostatus data are collected (such as the Africa Centre in Hlabisa District, KwaZulu-Natal).

In terms of poverty, it should be noted that it is paternal and dual orphans who are living disproportionately in poorer households. Indeed, the presence of a father (regardless of orphanhood) is associated with wealthier households. This finding contradicts the multi-country findings by Ainsworth and Filmer⁵⁶ in which orphans were not living in poorer households. However, as Richter³² argues, the living context of orphans will differ from country to country and over time. Therefore the findings in this thesis do not contradict Ainsworth's findings but may be particular to KwaZulu-Natal in 2004. If, as Hargreaves¹⁹¹ argues, the socio-economic determinants of HIV infection are shifting then the living conditions of orphans in KIDS are likely to evolve over time.

As mentioned above, the role of fathers in KwaZulu-Natal may differ from country to country and the economic role of fathers needs to be examined in the context of prevailing levels of poverty. For example, in KwaZulu-Natal, it appears that the loss of the father has an impact on children which goes beyond poverty. However, South Africa is a middle income country and it is likely that poverty is less of a reason for dropout than in poorer African countries ¹²⁵.

9.2.1 Summary of the ways in which orphans are educationally disadvantaged

Findings from detailed analysis of eight educational outcomes show that orphans are educationally disadvantaged when compared with children from similar backgrounds and of similar ages. The following eight educational outcomes were analysed in depth:

1. attendance at pre-primary school
2. delayed enrolment
3. functional literacy and numeracy tests
4. attendance
5. grade repetition
6. primary school completion
7. matriculation results
8. dropout

Among these, the following adverse impacts of parental death were pinpointed:

1. maternal and paternal death affect age of enrolment for both boys and girls
2. paternal deaths affect girls' rates of grade repetition (11 – 15 year olds), primary school completion (13 – 16 year olds) and dropout (16 – 20 year olds).
3. paternal deaths also affect boys' attendance rates (11 – 13 year olds)

These findings have been instrumental in highlighting the multifaceted nature of educational disadvantage in South Africa. It demonstrates the importance of studying a number of educational outcomes, rather than just focussing on dropout – especially in South Africa where dropout is rare among younger children. By studying outcomes such as attendance, specific impacts of orphanhood on boys in South Africa are revealed. However, it should be noted that the gender differences for orphans which were found in South Africa are unlikely to apply to the rest of Sub-Saharan Africa because of the relatively high level of gender parity in educational outcomes in the country.

Studying particular educational outcomes in isolation is also limited as many are inter-related. It is clear that the effects of orphanhood on girls' repetition, primary school completion and dropout are all linked. Further studies of how they are linked would help to elucidate the process of educational disadvantage and highlight possible areas of intervention. It was not possible to conduct such an analysis in depth using KIDS as the 1998 data did not have a comparable set of educational outcomes. If such an educational history is collected in any subsequent waves of data collection then it will be possible to see how these educational outcomes relate to one another over time among a cohort of children.

Chapter 7 shows that many of these educational outcomes are significantly associated with each other. In most cases deterioration in one is associated with deterioration in another. The notable exception is the relationship between repetition and dropout: increased repetition is associated with lower rates of dropout. Thus, the commonly held view that repetition leads to higher dropout may be inaccurate^{172 169,171}. Indeed, this contradictory finding suggests that children who repeat a grade are more committed to staying in education. If this is correct, then educational disadvantage is not simply a linear process in which repetition leads to drop out but rather a scenario in which a child fails a year and either drops out or repeat the grade.

The idea that orphans become educationally disadvantaged in different ways is also supported by the failure to identify a single underlying measure of educational disadvantage. It was impossible to link together the different impacts in a meaningful way and the results suggest that different educational outcomes are affected by parental death according to gender, time since parental death and most importantly, age. This is in line with Schierhout's study which also found differential impacts according to age¹³⁴.

The age dimension

The importance of differentiating between orphans by age cannot be over-stated and yet has frequently been ignored by previous studies^{53,136,192}. The obvious consequence of ignoring the age dimension is that the educational outcomes of orphans may appear worse than they actually are because orphans are on average older than other children and the probability of dropout etc. increase with age.

At the very minimum, age needs to be factored into any regression model. With respect to educational outcomes, analysing the orphans by age group highlights how age specific is each form of educational disadvantage: in KwaZulu-Natal, the effects of orphanhood on dropout are apparent only for older youth whereas its impact on attendance is specific to 11 to 13 year old children. The implication is that studies which only focus on one or two educational outcomes are, again, likely to under-estimate the impact of orphanhood on education. Studies need to include an array of age-specific educational outcomes in order to capture impacts on boys and younger children – especially in countries, like South Africa, where dropout is rare among primary school-age children.

This study found more associations between parental death and educational outcomes among older children. This may partly be because there are relatively fewer younger orphans and the study lacked the statistical power to detect adverse effects. Alternatively, the lack of findings among younger children might reflect inaccuracies in measuring the educational outcomes of younger children. The functional tests were designed specifically for younger children but did not succeed in detecting any effects of orphanhood. These tests were borrowed from international literacy and numeracy tests and it may be the case that future surveys need to expend more resources into adapting the tests to the local context and piloting them until discernible differences are apparent. Although the functional tests failed to provide any new insight into the impact of orphanhood on learning outcomes, it remains important to study these learning outcomes, especially as they help detect any disadvantage of children while still in school.

The lack of any evident impact of orphanhood on young children may also be explained by Barnett and Whiteside's ³⁶ theory of a cumulative impact of AIDS. In this scenario, it is only after several years that orphanhood has an impact on a child's education. However, the findings in this thesis on the late enrolment in primary school suggest that impact is also felt at younger ages. Comparing the impact of parental death according to the time elapsed since death also contributes important new knowledge to this question of cumulative impact. The findings in this thesis show that the impact on education will vary over time and may well be cumulative.

Because KIDS data were collected over a ten-year period, it has been possible to compare short-term effects (less than five years since the parent died) with medium-term

effects (five to ten years since parental death) and long-term effects (more than ten years). The way in which orphans become educationally disadvantaged changes over time as the following summary table demonstrates:

Table 73. Impact of parental death on educational outcomes according to timing of death.

Educational Outcome	Timing of orphan effect
Delayed enrolment	Short-term only
Attendance	Short-term and long-term
Repetition	Short-term only
Primary school completion	Short-term only
Dropout	Medium-term and long-term only

Again, this table demonstrates that different educational outcomes are strongly inter-related although it cannot be used to show a linear progression from one outcome to another. In order to do so, the current cohorts would need to be followed for at least another five years and, as mentioned earlier, educational data would need to be collected at more than one point in time.

The findings on delayed enrolment reveal that orphanhood does have an effect on younger children. This finding relates to Ainsworth's seminal work in Tanzania¹⁴² and provides a deeper understanding of some of the causal mechanisms. However, as the number of orphans under the age of ten was so small, it was necessary to retrospectively analyse older children too. Assessment of these possible impacts of orphanhood on younger children would benefit from larger scale studies of young children.

Gender dimension

Turning to the issue of gender: there are striking gender differences both in terms of which parent dies and how children are affected. The study found that the paternal death has a larger impact on educational outcomes than maternal death. This goes against the widespread understanding that the death of a mother has the worst impact on children. However, the results of two other major South African studies of this issue were consistent with the argument advocated here— Schierhout et al¹³⁴ found significant impacts on education of paternal and maternal deaths while Case¹⁸ found paternal death

to have some impact but chose not to study this in any great detail because of problems with the identification of fathers.

The findings from KIDS do show that maternal death leads to delayed enrolment. Moreover, it should be noted that the sample sizes of maternal orphans is rather small. Indeed, small numbers of maternal deaths limited much of the analysis and it may be the case that a larger study would reveal more impacts for maternal orphans. However, any large effects should have been picked up through the KIDS survey and it can therefore be inferred that any effect of maternal death is rather small in comparison with the effect of paternal death.

This study has been instrumental in highlighting the importance of fathers in determining the well-being of children. This importance goes beyond an economic role and is likely to include psycho-social factors. However, it should be noted that the family structure in South Africa differs from many other African countries (see Chapter 2 for detailed discussion). It may therefore be the case that the importance attributed to fathers in this analysis is not generalisable across the region. In poorer countries, the economic role of fathers may be more important as a determinant of educational outcomes. Similarly, in countries where most children live with their father, the impact of the father dying may be even larger than in South Africa.

The other interesting gendered finding to this study is that the educational outcomes of boys as well as girls are affected by orphanhood. Again, this is not contradictory to either Case or Schierhouts' findings but goes against the commonly held perception that girls suffer more. However, orphanhood affects boys and girls in different ways: for boys, being orphaned leads to poorer daily attendance and delayed enrolment, whereas for girls the impact is on primary school completion, repetition, dropout and delayed enrolment.

Nevertheless, the results presented here suggest that orphanhood has worse implications for girls than boys: after all, dropping out of school is a worse outcome than poor attendance. However, it is impossible to determine whether the 11 to 13 year old male orphans who are currently showing bad attendance will be more likely to drop out in the future than their peers. This is an important research question and demonstrates the importance of longitudinal data on educational outcomes. In the same vein, it would be

valuable to know if the girls aged 11 to 15 in 2004 who have repeated a grade will be more likely to drop out in the future (even if their older counterparts did not).

Although the impact of orphanhood on education is more severe for girls, the overarching gender inequality in educational outcomes must also be considered. In South Africa, boys generally perform worse than girls and on outcomes such as repetition or primary school completion, girl orphans perform no worse than unorphaned boys. Any South African response should therefore address boy's low educational outcomes and not just target girls. This gender pattern is the opposite to other African countries where girls generally perform worse than boys and therefore, the noticed gender patterns from this analysis are unlikely to be replicated across the continent.

School effects

This study is the first of its kind to include school effects in the analysis of the impact of orphanhood on educational outcomes. Such an analysis is only possible in a very small number of African countries where good quality educational data is collected through a functioning Educational Management Information System (EMIS)¹⁹³. Unfortunately, the school-based dataset was limited due to information only being available from 2001. In addition, it was not possible to obtain data on children's previous schooling. For example, for a child who transitioned from primary to secondary school in 2000, although data is available on the child's current school (the secondary school), one could argue that the largest school effects will be from the years spent in primary school (data not available). The two main variables used from the Annual School Survey were class sizes and school fees, this is in line with Case and Deaton's earlier work in South Africa¹²⁷.

By combining data from a school-based survey with data from a household survey, we have shown that educational outcomes are clearly related to school-side factors. Girls whose fathers have died showing clustering of repetition around Grade 6 (end of primary school) and Grade 11 (just before matriculation). Increased repetition at these levels is common in education systems in which transition between levels is restricted or if schools are holding back less able students.

It is possible that the orphans are not at the same academic standard as unorphaned children and are being kept back for this reason. Another possible reason is that orphans are attending lower quality schools (evidenced by the lower school fees) which decreases the likelihood of transition between school levels. In order to further analyze this, research would need to compare orphans and unorphaned children within schools using a multi-level modelling approach. It was not possible to use multi-level modelling due to the lack of variation within schools and lack of robust school-level indicators (see Chapter 3 for detailed explanation). School-based surveys are more appropriate for this type of analysis as the number of comparable children within one school in KIDS is small.

Why this clustering is particularly occurring among the orphaned girls is uncertain and there clearly is a need for more school-based research in this area. KIDS has demonstrated the necessity of including school-side factors into any analysis on the impact of orphanhood on educational outcomes. These findings point to the need to combine school-based surveys with household surveys as well as to make school effects the focus of investigation.

In general, the main school variable from the Annual School Survey (class sizes) played no significant role in any of the regression modelling. It is not clear if this might be because school quality (with class size as a proxy) does not mediate the impact of orphanhood on education or if because, there are data quality issues with the school-based dataset. Personal communication with educationalists in South Africa suggests that the provincial database is problematic. Therefore it may be advisable in the future to also conduct some fieldwork in schools rather than rely on official databases. Obviously the cost implications of conducting fieldwork in both schools and households is high and there might be some methodological compromise in which more questions about the school are asked through the household survey.

Research in this area has been led by economists and researchers who are interested in education as a way of measuring the long-term economic impact of AIDS. Given the monumental education policy changes over the last ten years in South Africa, it becomes vitally important to place any analysis within the changing South African policy context.

Unexpected findings

A number of key hypothesized determinants and outcomes were unexpectedly found not to be related. These include matriculation results and fostering.

As the matriculation exam is the key learning outcome in South Africa, it came as a surprise that orphans do no worse than other children in this exam. Part of the reason might be that it is already an achievement in itself to reach Grade 12 and take the matriculation exam with those who are educationally disadvantaged more likely to drop out at earlier stages. This finding is consistent with Bennell et al. finding that families and NGOs are more likely to support the education of higher achieving orphans⁵³.

In terms of fostering, it was hypothesized that fostering arrangements would mediate the impact of orphanhood on educational outcomes and yet, no evidence was found that this is the case. These findings therefore contradict Mishra's position that fostering has adverse effects on orphans' educational outcomes¹¹⁰. This difference may be due to different determinants of fostering between Kenya and South Africa. As discussed in Chapter 2, fostering in South Africa is likely to differ from other African countries because of the unique context of Apartheid and forced labour migration. It may be the case that because fostering is already so common in South Africa among unorphaned children that once orphaned, it makes little difference to child if they are fostered or not.

Furthermore, for some educational outcomes, the sample sizes were too small to differentiate by fostering (e.g. attendance). Nevertheless in cases where the sample was bigger, no difference exists between single parent orphans who are and are not fostered out. The only suggestion of an effect of fostering is in the case of paternal orphans whereby girls who live with their mothers are more likely to repeat a grade, whereas those who are fostered out are more likely to drop out.

The problem with small sample sizes was compounded by the finding that the majority of paternal orphans live with their mothers and the majority of maternal orphans do not live with their fathers. The fostering definition also becomes a little ambiguous because, in the latter case, it is unclear whether the maternal orphan ever lived with their father. Despite the lack of evidence on the role of fostering, this still remains an important line of enquiry. This study highlights the complexities surrounding fostering arrangements in

South Africa. More qualitative work is needed to understand decisions made regarding fostering while quantitative analysis needs to factor in fostering as an endogenous rather than exogenous variable.

9.2.2 Causal mechanisms

In cases in which orphanhood was found to be significantly associated with an educational outcome, stepwise regression modelling took place in order to determine which socio-demographic and economic factors were involved in mediating the relationship.

The findings across the outcomes suggest that three factors are important:

- 1) Economic pathway
- 2) Sexual vulnerability pathway (evidenced through pregnancy)
- 3) Parental education

- 1) Economic pathway

This thesis has hypothesized from the outset that poverty before parental death and poverty as a consequence of the death are both involved in mediating the impact of orphanhood on educational outcomes (primary school completion, dropout, repetition and delayed enrolment). It has found that poverty explains some but not all of the relationship between orphanhood and educational outcomes, which is an important contribution to the debate between Case and Ainsworth. This thesis therefore supports Case's position that orphanhood impacts on education through mechanisms independent of poverty. However, the findings do not completely contradict Ainsworth's position that poverty is a key mechanism through which orphanhood impacts on education because poverty was found to be a pivotal factor both before and after orphanhood. In order to further tease out the role of poverty, more longitudinal studies need to be conducted which can control for background levels of poverty. However, it remains a challenge to control for whether or not households differ in unmeasured ways which influence both levels of poverty and risk of HIV infection.

The important question is whether the findings on poverty in this study are applicable to other Sub-Saharan countries. It is very likely that they are not applicable because South Africa is much richer than the average African country. Thus in poorer countries, which are highly affected by HIV and AIDS (e.g. Malawi), poverty is likely to play a larger role in determining the educational outcomes of children. For example, children might not be able to go to school because they are forced to work in order not to starve. In South Africa, the economic necessity to survive is less and the analysis in this study shows that children – and orphans in particular – are dropping out of school for reasons which go beyond poverty. These findings are in line with Filmer and Pritchetts' multi-country study in which they showed the wealth gap between rich and poor students to be relatively small in Southern Africa¹²⁵. The implications on poverty and orphanhood from these findings should therefore be restricted to South Africa and not generalised to poorer countries with different determinants of educational outcomes.

These findings on poverty emphasize the importance of not simply relying on economic interventions in responding to the orphan crisis. The disadvantage faced by orphans in KwaZulu-Natal is not purely economic in nature. In nearly all cases, there was a specific effect of orphanhood which was unaccounted for by any of the causal mechanisms measured. Clearly, more qualitative work is needed to identify some of these more psycho-social factors which are difficult to identify in a household survey.

Orphans tend to attend schools with lower school fees and this is a key factor accounting for higher repetition rates – in line with Case's study in Hlabisa district¹⁸. Lower school fees demonstrate not only economic disadvantage but lower school quality as well as possibly lower commitment to education.

2) Sexual vulnerability

The findings on sexual vulnerability and pregnancy provide the most significant new contribution made by this thesis to our understanding on the impact of orphanhood on education.

The analysis showed that pregnancy is the main reason why older girls who have experienced paternal death are dropping out of school. This finding has important ramifications. First, it challenges the dominant idea that staying in school reduces sexual

vulnerability and sexual activity. It suggests instead that the relationship might be operating in the opposite direction – that those who are sexually active are more likely to drop out of school. If this finding is generalisable, then the argument that schooling protects children from HIV infection begins to unravel.

If paternal death causes higher rates of pregnancy, this has important implications for our understanding of the inter-generational impact of AIDS. After all, pregnancy is the clearest indicator of unprotected sex among girls and therefore the impact of AIDS extends right through from parental death to higher risk of HIV infection and school dropout (which in turn might further increase risk to HIV).

The strong evidence provided here as to the importance of this “sexual vulnerability pathway” warrants further focused investigation. In particular, it is not clear if – as Jewkes argues³⁵ – the determinants of teenage pregnancy are unique to South Africa’s specific cultural and historical context or if they are more generalisable. Exploratory discussions with researchers in the field suggest the following possible explanations for why paternal death might increase the probability of pregnancy:

Exploratory discussions with researchers in the field suggest the following possible explanations for why paternal death might increase the probability of pregnancy:

1. Paternal death might reduce the social capital available to girls which increases their sexual vulnerability
2. Fathers may play an important role in protecting their daughters from sexual relationships and if they are not present, boys and men might be more likely to try to have sex with the girls
3. A psychological reaction to parental death by the girls might be an urge to create new life
4. Children are psychologically scarred through parental death and likely to behave in socially deviant ways (perhaps boys through truancy and girls through having sexual relationships)
5. Girls might be seeking substitute father figures through boyfriends.

In order to examine some of these hypotheses, in-depth qualitative studies are needed as well as more studies which explicitly focus on the determinants of teenage pregnancy. This finding on pregnancy also shows the importance of linking together data on health and education outcomes with strong economic data. Many household surveys focus on one of these areas (according to the research interests of the group) but may inadvertently foster a one-dimensional view of the impact of AIDS.

In effect, a vicious cycle has been set up in which AIDS impacts on the daughters of dead men to make them more sexually vulnerable (increasing their risk to HIV), which in turn impacts negatively on their education. The resulting reduction in educational attainment in turn may further increase the risk of HIV infection. A similar cycle is set up with the economic pathway in which, when a father dies, the household becomes more economically vulnerable which causes girls to drop out. The resulting lower levels of education increase the economic vulnerability of the girl, which in turn will increase her risk of HIV infection.

3) Parental education

Consistent with the theory that more educated populations are more vulnerable to HIV infection early in an epidemic, this study finds that the parents of orphans are more educated than those of other children. These higher levels of parental education offset some of the negative consequence of parental death on education. This also fits into the wider theory that more educated parents are more protective of their children's education.

As the AIDS epidemic has matured, it seems that fewer educated individuals have become more vulnerable to HIV¹⁹¹. If this has happened in KwaZulu-Natal then the protective benefits of parental education for orphans which are found in KIDS are likely to lessen and thus it is predicted that the impact of orphanhood on education will worsen.

9.2.3 Role of grants in mitigating the impact of orphanhood on education

The previous chapter explores the role of three grants in mitigating the impact of orphanhood on education. The three grants studied are 1) the Child Support Grant, 2) pension and 3) school fee exemption.

An analysis of the Child Support Grant shows that there is gender equity in accessing the grant although many of the poorest children are still not accessing the grant. Consistent with Case's findings¹⁷³, orphans in KwaZulu-Natal are less likely to be receiving the grant – especially if the mother has died. The opposite is the case with the pension and the school fee exemption: orphans are more likely to be either receiving or living in a household receiving these grants.

Although the child support grant does improve the educational outcomes of children in general, it does not specifically offset the educational disadvantage faced by orphans. This finding is consistent with the earlier findings that the impact of orphanhood operates through pathways independent of poverty. As such, economic interventions such as grants are unlikely to significantly mitigate the impact of orphanhood. Interpretation of these findings is complicated by the possibility of endogeneity. Although the Child Support Grant is associated with more positive educational outcomes for orphans, it may be the case that households that receive the grants differ in unmeasured ways from households which do not. For example, households that are highly motivated to obtain the grant might also be more highly motivated to educate children.

School fee exemptions play no role in mitigating the effect of orphanhood on educational outcomes. One should be cautious, however, about concluding that school fee exemptions play no role. It is possible that due to the limitations of the data and the informality of the school fee exemption system, that the current proxy for school fee exemption is simply inadequate. It may, alternatively, be measuring household's inability to pay school fees. Another possibility is that children who cannot afford to pay school fees are already severely disadvantaged and therefore school fee exemption is a proxy for this disadvantage rather than an intervention. This hypothesis is supported by the finding that controlling for whether a child is orphaned eliminates the apparently negative

association between school fee exemption and primary school completion. The same holds for the pension as orphans are more likely to be living in households with pensioners.

The positive impact of receipt of a Child Support Grant on the educational outcomes of older children in general (rather than specifically orphans) feeds directly into an on-going debate on the age of children receiving the grant. The grant has recently been extended to include all children under the age of 14. These findings support an extension up to sixteen year olds (the legal age at which children can leave school) as it is clear that the grant benefits the educational outcomes of older children in South Africa.

Finally, it should be noted that many countries in Sub-Saharan Africa lack the infrastructure and the resources to provide social grants to the general population. In countries where this is unrealistic, governments need to focus on interventions for orphans which take advantage of the existing infrastructure (such as support through schools or social services).

The final part of Chapter 8 covers a range of different policy implications on the grants. Without wishing to reiterate all these discussions, the key issues raised include:

1. The current school fee exemptions system places an unfair burden on low-resource schools and undermines the provision of quality education. The government should consider how to reimburse schools for the loss of revenues incurred through the school fee exemption system so that already disadvantaged children are not further disadvantaged through lower quality educational institutions.
2. The Child Support Grant is associated with improved educational outcomes for children. However, more efforts need to be made to reach poor and orphaned children. Over sixty percent of the poorest children are not receiving the grant. Targeted campaigns need to be launched which reach remote communities and the coverage of services needs to be revisited to ensure that the poorest communities have accessible and affordable services.
3. In comparing the Child Support Grant and the Pension, the Child Support Grant is more likely to improve the educational outcomes of children and therefore is

recommended as the preferred policy choice for responding to the needs of vulnerable children.

4. Consideration should be given to combining the Foster Care Grant and Child Support Grant into one extended Child Support Grant, which pays more money to orphaned children
5. None of the three economic interventions is enough to offset the educational disadvantages faced by orphans. This finding fits in with the earlier analyses which show that orphanhood impacts on education through pathways that are not wholly economic. Interventions for orphans need to address their psychosocial aspects and provide targeted in-school support.

In conclusion, by using longitudinal data that combines a school survey with a household survey and looks at a wide range of educational outcomes, our understanding of the impact of AIDS has improved considerably. In particular, the role of fathers, poverty and pregnancy has been identified as key issues pertaining to the impact of orphanhood on education and provide clear pointers for interventions and future research.

9.3 Key recommendations of the study

This section pulls together some of the key recommendations mentioned already for policy intervention and future research.

Recommendations for future research

The doctoral research has shown an inter-generational link between being orphaned, pregnancy and educational outcomes. This finding opens up some important research questions such as why might the death of a father lead to girls becoming pregnant? Several hypotheses are illustrated in the discussion but these need to be the focus of in-depth investigations probably using qualitative methods.

Fostering in KwaZulu-Natal occurs in a number of different circumstances differentiated by whether the parent is living in the fostering out household. Fostering of orphans depends on the gender of the dead parent, with maternal orphans very likely to be fostered out. Given the importance of fathers highlighted in this research, further analysis

is needed of the role of fathers in raising their children in KwaZulu-Natal and how these affect fostering decisions.

The findings suggest that the Child Support Grant does improve the welfare of older children in recipient households. One remaining question is the extent to which the grant helps the younger children for whom it is intended. This area of enquiry could not be pursued in this research as information on educational outcomes of children under the age of seven was not collected. Future research should focus on indicators of well-being of relevance to these younger children (such as nutritional status).

This study has found significant impacts of orphanhood on older children (up to the age of 20). Given the high level of secondary school enrolment of children, in South Africa, it is also important to study educational outcomes of older youth and it is recommended that future studies focus on all young people (up to the age of 24 years).

The impact of orphanhood on education in KwaZulu-Natal becomes masked when orphaned children are simply compared to unorphaned children because unorphaned children include an often similarly disadvantaged group (children living without their fathers). This analysis highlights the importance of basing studies into the impact of orphanhood on children on a more sophisticated understanding of the demographic characteristics of households. Comparison groups will be fluid and it should not be assumed that the two-parent family is the norm.

Recommendations for policy response

This research has illuminated the crucial role that fathers play in securing the well-being of their children. Policy responses for children need to take cognisance of the role of fathers and look at means for encouraging fathers' participation in their children's lives.

In terms of educational outcomes, boys, on the whole, fare worse than girls. Interventions aimed at improving educational outcomes need to tackle these gender differences and more research is needed on why boys are performing worse than girls.

The analysis on the Child Support Grant shows that the grant has beneficial impacts on older children. Consideration should therefore be given to extending the Child Support Grant to older children in order to improve their educational outcomes further. The Child Support Grant is failing to reach many of the most vulnerable groups: the poorest children and orphans. More effort needs to go into targeting these groups with information campaigns and through increased accessibility of services. Consideration needs to be given to how to reduce the administrative hurdles faced by caregivers, especially in cases where the parent has died.

Analysis of the Annual School Survey highlights the lack of HIV sensitive data in those collected by schools. Education systems need to collect HIV-sensitive data in order to monitor the impact of the epidemic better. In particular, living arrangements of children should be monitored as a way to identify children at risk of exclusion.

One of the most important findings from the studies is that the impact of orphanhood negatively impacts on children's education for reasons which are not wholly economic. The policy implication is that responses for orphans need to do more than address their economic needs. More attention needs to be paid to how orphans are becoming educationally disadvantaged in school and measures need to be taken to deal with low attendance and grade repetition.

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APPENDIX

The following pages provide the schooling and learning tests modules of the KIDS questionnaires.

Section 12.2: Schooling

- 1) LIST BELOW EVERYBODY AGED BETWEEN 7 AND 20 YEARS WHO IS CIRCLED ON THE HOUSEHOLD CARD
- 2) ASK EACH PRIMARY CAREGIVER (FROM THE HOUSEHOLD CARD) ABOUT THOSE THEY LOOK AFTER AGE 1 AND 20 YEARS

Grade Code		Not Enrolled Code	
21	Grade 0/Grade R	1	Could not afford school fees or other expenses
1	Sub A/Grade 1	2	Working for money / working on farm looking for paid work
2	Sub B/Grade 2	3	Looking after a sick family member
3	Grade 3/Standard 1	4	Looking after younger children / other domestic work
4	Grade 4/Standard 2	5	Death family member
5	Grade 5/Standard 3	6	Social unrest / violence in community
6	Grade 6/Standard 4	7	Was too sick / too disabled
7	Grade 7/Standard 5	8	Fear of bullying / other children / teacher
8	Grade 8/Standard 6	9	Making poor progress / unable to cope with work
9	Grade 9/Standard 7	10	Did not want to attend school
10	Grade 10/Standard 8	11	Quality of teaching poor / classes disrupted
11	Grade 11/Standard 9	12	Got married
12	Grade 12/Standard 10 took matric and failed	13	Became pregnant
13	Grade 12/Standard 10 Matric without exemption	14	Was expelled from school / denied place
14	Grade 12/Standard 10 Matric with exemption	15	Failed an exam / not allowed to retake exam
15	NTC I	16	Schools are inaccessible
16	NTC II	17	Other (specify)
17	NTC III		
18	Degree		
19	Postgraduate degree or Diploma		
22	Don't know		

Section 12.2: Schooling (continued)

Q1. Person Code	Child's Name	Q2. Has [.] ever attended school? IF Yes → Q4 Yes No	Q3. When will [.] enroll in school? 1 = This year 2 = Next year 3 = Sometime 4 = Never → NEXT PERSON	Q4. For how many years did [.] attend a pre-primary school (crèche)? (IF DID NOT ATTEND, WRITE 0; IF 6 MONTHS, WRITE 0.5)	Q5. In which calendar year did [.] first start primary school? YEAR	Q6. How many grades at school has [.] repeated in total? IF NONE, WRITE 0	Q7. What is the highest grade that [.] has completed in school? GRADE CODE IF MATRIC OR ABOVE (CODES 12-19) → NEXT PERSON	Q8. Is [.] currently enrolled in school? IF Yes → GO TO Q11 (ON NEXT PAGE) Yes No	Q9. What is the most recent calendar year that [.] enrolled in school? YEAR	Q10. What is the main reason why [.] is not currently enrolled in school? NOT ENROLLED CODE	Q11. When will [.] return to school? 1 = Never 2 = Next term 3 = Next year 4 = Offer or don't know → NEXT PERSON
A		1 2						1 2			
B		1 2						1 2			
C		1 2						1 2			
D		1 2						1 2			
E		1 2						1 2			
F		1 2						1 2			
G		1 2						1 2			
H		1 2						1 2			
I		1 2						1 2			
J		1 2						1 2			
K		1 2						1 2			
L		1 2						1 2			

Section 12.2: Schooling (continued)

Person Code	Child's Name	Q12. What is the name of the school that [-] is currently enrolled in?	Q13. What is the nearest town to that school?	Q14. EMIS Number (CHECK SCHOOL LIST)	Q15. How much are [-]'s school fees for this year? Rand	Q16. How much have you paid in school fees and for a uniform for [-] this school year?	Q17. In addition to school fees and uniforms, how much has your household spent on [-]'s education in the last one month?				Q18. In the last two years, did [-] miss more than a month of school at one time? IF NO → GO TO Q20	Q19. Why did [-] miss school during that period? ABSENT CODE	Q20. In the last month, how many days did [-] not go to school? IF NONE, WRITE 0 → NEXT PERSON	Q21. Why did [-] not go to school in the last month? ABSENT CODE
						IF NOTHING IN ANY CATEGORY, WRITE 0								
						Fees	Uniform	Transport	Stationery and books	Food	Other	Yes	No	
						Rand	Rand	Rand	Rand	Rand	Rand			
A												1	2	
B												1	2	
C												1	2	
D												1	2	
E												1	2	
F												1	2	
G												1	2	
H												1	2	
I												1	2	

ABSENT CODE Questions: Q19 and Q21			
1	Could not afford school fees or other expenses	5	Was too sick / too disabled
2	Working for money / working on farm / looking for paid work	7	Was expelled from school
3	Looking after a sick family member	8	Fear of bullying / other children / teacher
4	Looking after younger children / other domestic work	9	Making poor progress / unable to cope with work
5	Death family member attending funeral or other family event	10	Did not want to attend school
		11	Quality of teaching poor / classes disrupted
		12	Denied place in class
		13	Became pregnant
		14	Social unrest / violence in community
		15	Other (specify)

Section 13: Learning tests and Anthropometry

Section 13.1 Tests of learning

COPY NAMES AND CODES OF ALL CHILDREN AGED 7, 8 AND 9 CIRCLED ON THE HOUSEHOLD CARD

Person Code	Name of the child	Q1. What language are you best at reading and writing?	Q2. Can you read me the letters, word and sentence on this card?	Q3. Please write the following sentence GIVE THE CHILD A PENCIL AND READ THE ANSWER SHEET FOLLOWING ALOUD IN THE APPROPRIATE LANGUAGE "I LIKE DOGS" (ZULU: "UMAMA UPHEKA UKUDLA")	WRITE THE LANGUAGE THAT THE TEST WAS ADMINISTERED IN	MATH QUESTIONS (IN ENGLISH)			
		1. English 2. Zulu 3. Afrikaans 4. Other IF 3 OR 4 → GO TO NEXT CHILD	HAND THE CHILD THE APPROPRIATE LANGUAGE CARD 1. Cannot read anything 2. Reads letters 3. Reads words 4. Reads sentences			Q4. Can you tell me the answer to this calculation? 3 + 5	Q5. Can you tell me the answer to this calculation? 7 - 3	Q6. Can you tell me the answer to this calculation? 2 × 6	Q7. Can you tell me the answer to this calculation? 12 ÷ 4
A		1 2 3 4			1 2	WRITE CHILD'S ANSWER 99=No answer	WRITE CHILD'S ANSWER 99=No answer	WRITE CHILD'S ANSWER 99=No answer	WRITE CHILD'S ANSWER 99=No answer
B		1 2 3 4			1 2				
C		1 2 3 4			1 2				
D		1 2 3 4			1 2				
E		1 2 3 4			1 2				